



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

A critical examination of theorising in the study of the behavioural and social aspects of HIV and AIDS in South Africa

By

Marinda Kotzé

A thesis submitted in fulfilment of the requirements for the degree

PhD (Psychology)

in the Department of Psychology at the
Faculty of Humanities,
University of Pretoria

SUPERVISOR: Prof. D.J.F. Maree

CO-SUPERVISOR: Prof. M.J. Visser

August 2022

Acknowledgements

I would not have been able to start nor complete this study if it was not for the following individuals:

My supervisor, Prof David Maree. I am deeply grateful for your constant encouragement and support throughout this journey. Thank you for generously sharing your wisdom with me. I sincerely appreciate your indispensable help with administrative challenges. Thank you for allowing me to explore this research topic in such depth and for having confidence in me every step of the way.

My co-supervisor, Prof Maretha Visser. From being my first boss and MA supervisor to co-author, colleague and mentor. I am incredibly grateful for your enduring encouragement, reassurance and support over the years. Thank you for introducing me to the HIV field and always believing in me.

Prof Alex Antonites, Prof Benda Hofmeyer, and Prof Fraser McNeill were very kind to read drafts of the proposal. Thank you very much for your valuable insights, which challenged me to think and read further and consider the implications of my research beyond the scope of Psychology.

My parents, Karel Gideon and Amanda Kotzé, who instilled in me a passion for reading and a curiosity about the world. Thank you for providing me with an excellent education and always being a source of never-ending support.

Andries Malan. I am deeply grateful for your unwavering support, encouragement and patience throughout this long journey. Thank you for reminding me of the value of healthy scepticism and critical thinking!

Hilda Hecker. From the personal assistants' office in 2008 to lifelong friends. Thank you for cheering me on and believing in me through thick and thin. I am honoured to have you as my friend.

Declarations

Full Name: **Marinda Kotzé**
Student Number: **04310861**
Degree/Qualification: **PhD (Psychology)**
Title of Thesis: **A critical examination of theorising in the study of the behavioural and social aspects of HIV in South Africa**

I declare that the thesis, which I hereby submit for the degree at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

Where secondary material is used, this has been carefully acknowledged and referenced in accordance with university requirements.

I understand what plagiarism is and am aware of university policy and its implications in this regard.

I have not allowed anyone to copy any part of my thesis.



31 August 2022

SIGNATURE

DATE

Ethics Statement

I, **Marinda Kotzé**, have obtained, for the research described in this work, the applicable research ethics approval. Reference number: GW20180619HS

I declare that I observed the ethical standards required in terms of the University of Pretoria's code of ethics for researchers and the policy guidelines for responsible research.



31 August 2022

SIGNATURE

DATE

Abstract

A critical examination of theorising in the study of the behavioural and social aspects of HIV and AIDS in South Africa

By

Marinda Kotzé

Supervisor: Prof. D.J.F. Maree

Co-Supervisor: Prof. M.J. Visser

Department of Psychology

PhD (Psychology)

Key Words: Critical Realism, theory use, paradigm trends, theory testing, theory building, meta-theoretical analysis, meta-theoretical framework, Socio-Behaviourism, Socio-Cognitive, Critical Theory, Socio-Ecological and Systems, ontological assumptions, epistemological assumptions, South Africa

Despite its widespread influence on the social and health sciences, Psychology is marked by debates surrounding its relevance, usefulness and status as a scientific discipline. While various corrective measures have been proposed, most notably the application of more rigorous methodological and empirical practices, the value of paying closer attention to theorising and the meta-theoretical structure of psychological science are often overlooked.

When theory, research and practice exist in a synergistic relationship, theory can serve various generative functions. However, theorising that occurs in isolation from research and practice, and theory use which is unreflective and uncritical, produces adverse consequences which may ultimately lead to the stagnation of a scientific discipline. The lack of explicit and consistent theory use has been found to be a common problem in the social sciences, including in Social and Health Psychology.

Since the outbreak of HIV in 1981, psychological theories have played an important role in the social and behavioural study of the disease. While great strides have been made in developing

a robust and practically useful social and behavioural study of HIV and AIDS, the disease still poses unique and challenging questions to social scientists. Moreover, there is frustration with the limited success of HIV prevention programmes.

Given the insufficient attention to theorising, this study explores the conceptual development of the socio-behavioural study of HIV and the paradigms that have played a role in how social scientists understand HIV and AIDS in South Africa.

It was guided by three aims: a.) To describe the historical development of research focus areas in the socio-behavioural study of HIV and AIDS; b.) To identify and describe the use and visibility of theory in the academic literature; c.) To conduct a meta-theoretical analysis of the most prominent paradigms in the literature. Critical Realism was used as the study's theoretical point of departure.

The study comprised four phases. The first phase entailed the systematic search for peer-reviewed articles that pertained to the social and behavioural study of HIV in South Africa from 1982 to 2020. Phase two involved the thematic analysis of research themes. Phase three entailed the analysis of theory visibility, the extent to which theory testing and building occurred, and the identification of theories and paradigms in the literature. Phase four involved the meta-theoretical analysis of the three most prominent paradigms in the literature: Socio-Behaviourism, Critical Theory and the Socio-Ecological and Systems paradigm.

A total of 3848 relevant papers were identified and thematically analysed to gain a contextual and historical understanding of the trends in research themes over time. Research on HIV prevention was the most common; however, research on living with HIV and testing and treatment started to increase in visibility from the late 2000s.

A total of 1899 papers (49.9%) demonstrated the explicit or implicit use of theory. Theory visibility remained relatively stable over time. Articles about HIV testing and treatment demonstrated particularly low theory visibility. Theory building, and in particular theory testing, were found to be low. Articles which demonstrated the explicit use and direct naming of theories tended to make greater theoretical contributions. The misapplication of theory was evident, including the vague naming, oversimplified use of theories, and the meta-theoretically unreflective use of theoretical concepts.

The study demonstrates the competition of opposing ideas and perspectives in the socio-behavioural study of HIV. The field developed from being primarily a psychological

(specifically, Socio-Behavioural) research programme to increasingly becoming more socio-ecological and critical. Critical Theory and the Socio-Ecological and Systems paradigm became more prominent in the literature from the early 2000s, eventually overtaking Socio-Behaviourism by the late 2010s.

The meta-theoretical analysis of Socio-Behaviourism, Critical Theory and the Socio-Ecological and Systems paradigm yielded important insights for the study of HIV and social and health psychology in general. Most notably, the analysis revealed important shortcomings in each paradigm and the degenerative consequences of meta-theoretically unreflective theory use.

Several recommendations for research and practice are made, most notably that theories should be referred to explicitly and should be used in a way that corresponds with what they truly propose and in line with the proposed research topic, question and methodology. Researchers and practitioners are encouraged to engage with theories sceptically and expand their knowledge of the theories that might be appropriate to their disciplines.

List of Abbreviations

ADAPT	The Alternative Dosing to Augment PrEP pill Taking study
ADAPT-ITT	Assessment, Decision, Adaptation, Production, Topical experts – Integration, Training, Testing
AGYW	Adolescent Girls and Young Women
AIDS	Acquired Immune Deficiency Syndrome
ANRS	French National Agency for Research on AIDS and Viral Hepatitis
APA	American Psychological Association
ARV	AIDS-associated retrovirus
ARV	Antiretroviral
ART	Antiretroviral treatment/therapy
AZT	Azidothymidine (also referred to as Zidovudine)
CD4	Cluster of Differentiation 4
CDC	Centres for Disease Control
CAPRISA	Centre for the Study of the AIDS Programme of Research in South Africa
cART	Combination ART
CCR5	C-C Chemokine Receptor Type 5
CHAMPSA	Collaborative HIV Adolescent Mental Health Program South Africa
DNHPD	Department of National Health and Population Development
DREAMS	Determined, Resilient, Empowered, AIDS-free, Mentored and Safe
FDA	Food and Drug Administration
GRID	Gay-related Immune Deficiency Syndrome
GTI	Genital Tract Infection
HAART	Highly Active Antiretroviral Therapy
HAND	HIV-associated neurocognitive disorder
HARP	Highly Active Prevention Model
HIV	Human Immunodeficiency Virus
HPTN	HIV Prevention Trials Network
HPV	Human Papillomavirus
HSRC	Human Sciences Research Council

HSV-2	Herpes Simplex Virus Type 2
HTLV III	Human T Cell Lymphotropic Virus Type III
IAVI	International AIDS Vaccine Initiative
IeDEA	International Epidemiology Databases to Evaluate AIDS
IMAGE	Intervention with Microfinance for AIDS and Gender Equity
iPrEx	Preexposure Prophylaxis Initiative
JHHESA	Johns Hopkins Health and Education in South Africa
KAP	Knowledge-Attitudes-Practices
LAV	Lymphadenopathy-Associated Virus
LGBTQI	Lesbian, Gay, Bi-Sexual, Transgender, Queer and Intersex
MCC	Medicines Control Council
MMWR	Morbidity and Mortality Weekly Report
MSM	Men who have sex with men
NACOSA	Networking HIV and AIDS Community of South Africa
NDoH	South African National Department of Health
NIH	National Institutes of Health
NIMH	National Institute of Mental Health
NNRTI	Non-Nucleoside Reverse Transcriptase Inhibitor
NRTI	Nucleoside Reverse Transcriptase Inhibitor
PARTNER	Partners of People on ART – A New Evaluation of the Risks
PEP	Post-Exposure Prophylaxis
PEPFAR	President's Emergency Plan For AIDS Relief
PI	Protease Inhibitors
PLWHA	People Living With HIV and/or AIDS
PMA	South African Pharmaceutical Manufacturers Association
PMTCT	Prevention of Mother-To-Child Transmission
PrEP	Pre-Exposure Prophylaxis
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
RNA	Ribonucleic Acid
SAMRC	South African Medical Research Council
SANAC	South African National AIDS Council

SARS-CoV2	Severe Acute Respiratory Syndrome Coronavirus 2
SATZ	South Africa and Tanzania
SEARCH	Sustainable East Africa Research in Community Health
SIV	Simian Immunodeficiency Virus
Stats SA	Statistics South Africa
STI	Sexually Transmitted Infection
TAC	Treatment Action Campaign
TasP	Treatment as Prevention
TB	Tuberculosis
TDF–FTC	Tenofovir Disoproxil Fumarate and Emtricitabine
TMSA	Transformational Model of Social Activity
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund
USA	United States of America
USAID	United States Agency for International Development
UTT	Universal Testing and Treatment
VCT	Voluntary Counselling and Testing
VMMC	Voluntary Medical Male Circumcision
VOICE	Vaginal and Oral Interventions to Control the Epidemic
WHO	World Health Organization

Table of Contents

Acknowledgements.....	i
Declarations	ii
Ethics Statement.....	iii
Abstract.....	iv
List of Abbreviations	vii
List of Tables	xix
List of Figures.....	xx
Chapter 1: Introduction	1
1.1. Introduction.....	1
1.2. Background	2
1.3. Research Problem	3
1.4. Justification.....	8
1.5. Research Question, Aims and Objectives.....	10
1.6. Research Design.....	11
1.7. Chapter Overview	13
Chapter 2: An Overview of the Global HIV Pandemic.....	17
2.1. Introduction.....	17
2.2. The Early Years of AIDS.....	17
2.2.1. Finding the Cause of the Disease.....	18
2.2.2. First Case Definition of AIDS	19
2.2.3. Isolating the Virus that Causes AIDS	20
2.2.4. The Discovery of Different HIV Strains.....	20
2.2.5. The Origins of HIV	20
2.3. Global HIV Morbidity and Mortality	21
2.4. Key Populations	22
2.5. Treatment	25
2.5.1. Infection and Disease Progression	25
2.5.2. Transmission Modes and Dynamics	27
2.5.3. Clinical Manifestations of HIV Infection	27
2.5.4. The Reciprocal Relationship Between STIs and HIV	30
2.5.5. Highly Active Antiretroviral Therapy	31
2.5.6. Prevention of Mother-To-Child Transmission.....	32
2.5.7. Treatment-as-Prevention.....	32
2.5.7.1. Concerns about the feasibility and efficacy of TasP.....	34
2.5.7.2. Current evidence and continued concerns	35
2.5.8. Voluntary Counselling and Testing	36

2.5.8.1. Fear and avoidance	36
2.5.8.2. Religious and cultural beliefs.....	37
2.5.8.3. Healthcare access	37
2.5.8.4. Marital status and socio-economic status	37
2.5.8.5. Risk perception and risk behaviour.....	38
2.5.9. Uptake of ART.....	38
2.5.9.1. Factors that hinder ART uptake	38
2.5.9.2. Factors that promote ART uptake.....	39
2.5.10. Retention in ART programmes	39
2.5.10.1. Factors associated with ART programme retention failure	40
2.5.10.2. Silent transfers and clinic shopping	40
2.5.11. ART Adherence	41
2.5.11.1. Monitoring ART adherence	42
2.5.11.2. Factors that influence ART adherence.....	44
2.6. Prevention	48
2.6.1. Biomedical Prevention Strategies	49
2.6.1.1. Barrier methods.....	49
2.6.1.2. ARV-based prevention methods	51
2.6.1.3. Voluntary medical male circumcision	60
2.6.2. Biomedical Prevention Methods and Compensatory Risk Behaviour.....	63
2.6.2.1. Studying risk compensation behaviour in the HIV field	64
2.6.2.2. Compensatory risk behaviour and its implications	65
2.6.3. Limitations of Biomedical Prevention Methods	69
2.6.4. Behavioural Prevention Strategies	70
2.6.4.1. Awareness raising and education.....	71
2.6.4.2. Harm reduction	71
2.6.4.3. Encouraging abstinence and sexual debut delay.....	72
2.6.4.4. Multiple sexual partner reduction	73
2.6.4.5. Condom use promotion.....	74
2.6.4.6. The ABCs of HIV prevention	74
2.6.4.7. The role of behavioural prevention alongside biomedical HIV prevention	75
2.6.5. Structural Prevention Strategies.....	76
2.6.6. Combination Prevention	78
2.7. Conclusion	79
Chapter 3: HIV and AIDS in the South African Context	80
3.1. Introduction.....	80
3.2. The HIV Epidemic in South Africa (1982 – 2020).....	80

3.2.1. HIV Surveillance in South Africa.....	83
3.2.2. HIV Morbidity and Mortality in South Africa.....	87
3.2.3. TB Co-Morbidity and the Increasing Healthcare Burden.....	91
3.2.4. Impact on the Economy	92
3.2.5. Impact on Communities and Family Life	92
3.2.5.1. AIDS orphans and vulnerable children.....	92
3.2.5.2. Stigma and discrimination	94
3.3. Causal Pathways and Contributing Factors of HIV Risk in South Africa.....	96
3.3.1. STIs	96
3.3.2. Poverty	97
3.3.3. Migration and Migrant Labour	99
3.3.7. Alcohol and Substance abuse.....	101
3.3.2. The Cyclical Relationship Between Food Insecurity and HIV.....	102
3.3.5. Intergenerational, Transactional and Multiple Concurrent Sexual Relationships	106
3.4. Conclusion	107
Chapter 4: Critical Realism: A Theoretical Point of Departure	108
4.1. Introduction.....	108
4.2. Critical Realism: Key Figures and Origins.....	108
4.3. Ontological and Epistemological Positioning.....	109
4.4. An Open System, Stratified Ontology	113
4.5. Structure and Agency.....	118
4.6. Critical Realism’s View of Causation.....	123
4.7. Conducting Research from a Stratified, Open-System Ontological Perspective and Critical Theorising	126
4.8. Conclusion	132
Chapter 5: Scientific Knowledge and Theorising	133
5.1. Introduction.....	133
5.2. Scientific Knowledge.....	134
5.2.1. The Functions of Scientific Knowledge	134
5.2.1.1. Describing, classifying and organising events and phenomena.....	134
5.2.1.2. Explaining past and predicting future events and phenomena.....	135
5.2.1.3. Providing deeper insight into the causes of phenomena and events.....	135
5.2.1.4. Controlling phenomena and events.....	142
5.2.1.5. Summary	143
5.2.2. The Development of Scientific Knowledge.....	143
5.2.2.1. Paradigms and the maturation of scientific disciplines.....	144
5.2.2.2. Research fronts as signposts for scientific knowledge development.....	152

5.2.3. The Development of Scientific Knowledge in the Study of HIV	153
5.2.4. The Development of Scientific Knowledge in Psychology	155
5.2.5. Research Fronts in Psychology	162
5.2.5.1. International research fronts in Psychology	162
5.2.5.2. Research fronts in Psychology in South Africa	163
5.2.6. Implications for Psychology	165
5.3. Defining Theory	169
5.4. Theory Classifications	174
5.4.1. Structure and Purpose	175
5.4.2. Theoretical Approach.....	176
5.4.3. Precision and Generality	177
5.4.4. Level of Abstraction and Scope	177
5.5. Linking Theory, Research and Practical Application	180
5.5.1. Monological versus Dialogical Theory-Research Relationships	182
5.6. Evaluating Theories and their Application in Research and Practice.....	186
5.6.1. Criteria for Evaluating Theory	186
5.6.2. Comparing and Choosing Between Theories	188
5.6.3. Evaluation of the Use of Theory in Research and Practice	189
5.7. Theory Use in the Current Research Literature: Challenges and Critiques.....	192
5.7.1. The Limited, Implicit and Inadequate Implementation of Theory	192
5.7.2. Possible Reasons for Poor Theory Utilisation	194
5.7.2.1. Theory-user factors	195
5.7.2.2. Structural factors.....	196
5.7.2.3. Theory factors	197
5.7.3. Enduring Conceptual, Methodological and Theoretical Challenges	200
5.7.3.1. The complex nature of social and psychological phenomena and behavioural interventions	200
5.7.3.2. Construct confusion and the lack of intersubjective measurement strategies for abstract concepts	201
5.7.3.3. Vulnerability to participant manipulation.....	203
5.7.3.4. Lack of regard for the value-laden nature of theorising and research	204
5.7.3.5. Ethical considerations	204
5.8. Meta-Theoretical Analysis.....	205
5.8.1. Approaches to Meta-Theoretical Analysis.....	206
5.8.1.1. Systemology.....	210
5.8.1.2. Ladder of theoretical abstraction	217
5.8.1.3. Studying theory interconnectedness	218

5.8.2. Meta-Analysis: Critiques, Challenges and Opportunities.....	218
5.8.3. Conclusion	220
5.9. Theorising in the Socio-Behavioural Study of HIV and AIDS	220
5.9.1. Initial Theorising Response	223
5.9.2. Novel Theory Development.....	224
5.9.3. Reviews of Theory Use in the HIV Literature.....	225
5.9.3.1. Theory use in the international HIV-prevention literature	226
5.9.3.2. Theory use in the international adherence literature.....	232
5.9.3.3. The use of theory in the international literature on the mental well-being of people living with HIV	234
5.9.3.4. Theory use in the international stigma literature	236
5.9.4. Reviews of Theory Use in the South African HIV Literature	236
5.9.5. Limitations in Previous Theoretical Reviews of the Literature	237
5.10. Conclusion	238
Chapter 6: Methodology.....	239
6.1. Introduction.....	239
6.2. Research Question	240
6.3. Research Aims and Objectives	240
6.4. Research Design.....	241
6.5. Phase 1: Data Collection.....	242
6.5.1. Step 1: Database Search.....	244
6.5.2. Step 2: Screening for Relevance	245
6.5.2.1. Screening for geographical relevance	245
6.5.2.2. Screening for topic relevance.....	246
6.5.3. Step 3: Eligibility assessment	249
6.6. Phase 2: Thematic Analysis	250
6.7. Phase 3: Theory Analysis.....	252
6.7.1. Theory Visibility.....	252
6.7.2. Theoretical Contribution.....	254
6.7.3. The Identification of Theories and Paradigms.....	257
6.8. Phase 4: Meta-Theoretical Analysis	258
6.9. Conclusion	260
Chapter 7: The Historical Development of Research Focus Areas in the Social and Behavioural Study of HIV and AIDS in South Africa	261
7.1. Introduction.....	261
7.2. Literature Search Results	261
7.3. Publication Trends and Research Methods.....	264

7.4. Research Themes	266
7.4.1. General Overview	266
7.4.2. Prevention	270
7.4.2.1. Sexual risk behaviour.....	272
7.4.2.2. HIV prevention focused on the youth.....	274
7.4.2.3. Socio-behavioural aspects of biomedical HIV prevention	275
7.4.2.4. Knowledge, attitudes, beliefs about HIV, sex, relationships and health.....	278
7.4.2.5. The gendered aspects of HIV and the role of sexual violence in HIV risk	282
7.4.2.6. Vulnerable communities and structural drivers of HIV	284
7.4.2.7. HIV prevention focused on other vulnerable groups.....	285
7.4.3. Testing and Treatment	286
7.4.4. Care and Support.....	289
7.4.5. Living with HIV.....	294
7.4.6. The Impact of HIV and AIDS.....	299
7.5. Intervention Techniques and Approaches.....	302
7.5.1. HIV Prevention Programmes.....	304
7.5.2. HIV testing promotion and treatment uptake and adherence programmes.....	306
7.5.3. Care and support programmes for orphans, people who are living with HIV and care workers	306
7.6. Conclusion	307
Chapter 8: The Use of Theories Within the Social and Behavioural Study of HIV and AIDS in South Africa.....	308
8.1. Introduction.....	308
8.2. Theory Visibility	308
8.2.1. Theory Visibility Over Time	309
8.2.2. Reasons for Using Theory	310
8.2.3. Theory Visibility by Research Method.....	311
8.2.4. Theory Visibility by Research Themes.....	312
8.3. Theoretical Contribution.....	316
8.3.1. Theoretical Contribution and Theory Visibility	320
8.3.2. Theoretical Contribution and Research Method and Theme	321
8.4. Prominent Paradigms and Trends Over Time.....	324
8.4.1. 1982 to 1999	339
8.4.2. 2000 to 2020	344
8.4.3. Prominent Conceptual Frameworks and Trends within Research Themes	347
8.4.3.1. Prevention	347
8.4.3.2. Testing and treatment.....	361

8.4.3.3. Care and support	361
8.4.3.4. Living with HIV.....	362
8.4.3.5. Impact of HIV	362
8.5. Discussion	363
8.5.1. Theoretical Contribution and Visibility	363
8.5.2. Conceptual Gaps in the Literature	364
8.5.2.1. Risk perception and risk compensation	364
8.5.2.2. Incentivisation.....	366
8.5.2.3. Peer strategies	367
8.5.3. Unreflective Theory Use.....	368
8.5.3.1. Naming theories in vague, generic terms.....	368
8.5.3.2. Using an older version of a theory	370
8.5.3.3. Imprecise citation.....	371
8.5.3.4. Using theoretical concepts in a meta-theoretically unreflective manner	372
8.5.4. Researcher Productivity and its Influence on the Shaping Thematic and Conceptual Trends in the Literature.....	374
8.5.5. Theory Trends.....	376
8.6. Conclusion	377
Chapter 9: Dominant Paradigms in the Behavioural and Social Study of HIV and AIDS in South Africa: A Meta-Theoretical Analysis.....	378
9.1. Introduction.....	378
9.2. The Socio-Behaviourism: A Meta-Theoretical Analysis.....	378
9.2.1. The Philosophical Level	379
9.2.1.1. Ontological assumptions	380
9.2.1.2. Epistemological assumptions.....	381
9.2.1.3. Assumptions about HIV and AIDS and the social and behavioural study thereof...382	
9.2.2. The Theory Level.....	383
9.2.2.1. Social Cognitive Theory	383
9.2.2.2. The Reasoned Action Approach	388
9.2.2.3. Information-Motivation-Behaviour model	393
9.2.3. The Data Level.....	398
9.2.3.1. Research topics and methods	398
9.2.3.2. Practical applications	399
9.2.3.3. Evidence.....	400
9.2.4. Implications and Critique of Socio-Behaviourism	411
9.2.4.1. Direct implications of utilising Socio-Behaviourism	411
9.2.4.2. Strengths of Socio-Behaviourism	412

9.2.4.3. Weaknesses and limitations of Socio-Behaviourism	412
9.3. Critical Theory: A Meta-Theoretical Analysis	421
9.3.1. The Philosophical Level	424
9.3.1.1. Ontological assumptions	424
9.3.1.2. Epistemological assumptions	425
9.3.1.3. Assumptions about HIV and AIDS and the social and behavioural study thereof ...	427
9.3.2. The Theory Level.....	428
9.3.2.1. Feminist and gender theories	428
9.3.2.2. Critical theories of empowerment and participation.....	430
9.3.2.3. Critical theories of stigma.....	432
9.3.3. The Data Level.....	434
9.3.3.1. Research topics and methods	434
9.3.3.2. Practical applications	434
9.3.3.3. Evidence.....	435
9.3.4. Implications and Critique of the Critical Theory	449
9.3.4.1. Direct implications of utilising Critical Theory	449
9.3.4.2. Strengths of Critical Theory.....	449
9.3.4.3. Weaknesses and limitations of Critical Theory	451
9.4. Socio-Ecological and Systems Paradigm: A Meta-Theoretical Analysis.....	459
9.4.1. The Philosophical Level	462
9.4.1.1. Ontological assumptions.....	462
9.4.1.2. Epistemological assumptions.....	463
9.4.1.3. Assumptions about HIV and AIDS and the social and behavioural study thereof ...	465
9.4.2. The Theory Level.....	465
9.4.2.1. Bronfenbrenner’s Socio-Ecological Framework	466
9.4.2.2. Model of the dynamics of HIV/AIDS stigma in five African Countries	470
9.4.2.3. The PEN-3 Model	471
9.4.3. The Data Level.....	474
9.4.3.1. Research topics and methods	474
9.4.3.2. Practical applications	474
9.4.3.3. Evidence.....	474
9.4.4. Implications and Critique of the Socio-Ecological and Systems-Based Paradigm	483
9.4.4.1. Direct implications of utilising the Socio-Ecological and Systems-based paradigm.....	483
9.4.4.2. Strengths of the Socio-Ecological and Systems-based paradigm	483
9.4.4.3. Weaknesses and limitations of the Socio-Ecological and Systems-based paradigm	484
9.5. Conclusion	489
Chapter 10: Conclusion.....	490

10.1. Introduction.....	490
10.2. Summary of Findings.....	491
10.2.1. Research Themes and Publication Trends	491
10.2.2. Theory Visibility	491
10.2.3. Theoretical Contribution.....	492
10.2.4. Theoretical Trends	492
10.2.5. Meta-Theoretical Analysis.....	493
10.2.5.1. The philosophical level	493
10.2.5.2. The theory level	496
10.2.5.3. The data level.....	497
10.2.6. Unreflective and Poor Use of Theory	499
10.3. Concluding Reflections and Implications of the Findings.....	500
10.4. Recommendations for Research and Practice	502
10.5. Limitations of the Study.....	504
10.6. Significance of the Study	506
10.7. Conclusion	508
References.....	510
Appendices.....	639
Appendix A: Timeline of some of the most noteworthy events in the global HIV epidemic (1981-2020).....	640
Appendix B: Timeline of some of the noteworthy events in the South African HIV epidemic (1982-2020).....	648
Appendix C: Ethics Approval Letter	661
Appendix D: PRISMA Checklist.....	662
Appendix E: Behavioural and Social Aspects of HIV Keyword List.....	663
Appendix F: Structured Review Guide.....	668
Appendix G: Structured Theory Usage Review Guide.....	669

List of Tables

Table 2. 1 HIV Morbidity and Mortality Data in Sub-Saharan Africa and Globally in 2021 (UNAIDS, 2022b)	22
Table 2. 2 Distribution of New HIV Infection by Key Population Group in Sub-Saharan Africa (UNAIDS, 2022a, p. 12)	23
Table 2. 3 Distribution of New HIV Infection by Key Population Group Outside of the Sub-Saharan African Region (UNAIDS, 2022a, p. 12)	23
Table 6. 1 Research Design Summary	242
Table 6. 2 The Classification of Theories Based on Theoretical Contribution (Colquitt & Zapata-Phelan, 2007, p. 1283).....	255
Table 7. 1 Research Methodology – Proportion of All Articles Published Between 1985 and 2020	265
Table 7. 2 Research Methods Disaggregated by Overarching Research Theme	266
Table 7. 3 Research Themes in the South African Literature About the Socio-Behavioural Aspects of HIV and AIDS, 1985-2020.....	267
Table 7. 4 Ordered List of the Frequency of Subthemes Identified from the Literature, 1985-2015	270
Table 7. 5 Prevention Subthemes, 1985-2015	271
Table 7. 6 Testing and Treatment Themes, 1985-2015	287
Table 7. 7 Care and Support Subthemes, 1985-2015.....	290
Table 7. 8 Living with HIV, 1985-2015	294
Table 7. 9 The Impact of HIV and AIDS Theme, 1985-2015	299
Table 7. 10 Intervention Techniques and Strategies, 1985-2015.....	302
Table 8. 1 Theory Visibility, 1985-2020	309
Table 8. 2 Theory Visibility Disaggregated by Research Method, 1985-2020	312
Table 8. 3 Theory Visibility Disaggregated Across Research Themes, 1985-2020.....	313
Table 8. 4 Theory Visibility Disaggregated Across Research Sub-Themes, 1985-2016	314
Table 8. 5 High, Moderate and Low Theoretical Contribution	318
Table 8. 6 Theoretical Contribution Classes.....	319
Table 8. 7 Theoretical Contribution and Theory Visibility	321
Table 8. 8 Theoretical Contribution Disaggregated by Research Method.....	322
Table 8. 9 Theoretical Contribution Disaggregated by Research Theme	323
Table 8. 10 The Most Prominent Paradigms in the Socio-Behavioural Study of HIV and AIDS in South Africa, 1988-2020	324
Table 8. 11 Most Frequently Used Theories in Each Paradigm	328
Table 8. 12 Most Prominent Paradigms and Theories in Each Research Theme	349
Table 8. 13 Paradigm Trend Summary	377
Table 9. 1 Evaluation Results of Critical Theory-Based Interventions	437
Table 9. 2 Evaluation Results of Socio-Ecological and Systems-Based Interventions	476

List of Figures

Figure 1. 1 This Study’s Research Process	11
Figure 1. 2 Visual Summary of Thesis Structure	16
Figure 2. 1 The Life Cycle of HIV (AIDSinfo, 2018, p. 101)	26
Figure 2. 2 Reciprocal Relationship Between HIV and STIs (attenuated) (Mayaud & McCormick, 2001, p. 131).....	30
Figure 2. 3 The Highly Active HIV Prevention Model (Coates et al., 2008, p. 670).....	78
Figure 3. 1 National HIV incidence (1985/1986 - 2011/2012) and HIV prevalence (1990 - 2012) trends in 15-49-year-olds, per province (Johnson et al., 2017, p. 5).....	87
Figure 3. 2 Percentage of deaths in South Africa that was AIDS-related (2002-2022) (Stats SA, 2022a, p. 16)	88
Figure 3. 3 National HIV incidence (2002-2022) in 15-49-year-olds (Stats SA, 2022a, p. 41)	90
Figure 3. 4 National HIV prevalence (2002-2020) in women aged 15 to 49, adults aged 15 to 49, youth aged 15 to 24 and in the total population (Stats SA, 2022a, p. 41)	90
Figure 3. 5 Theoretical framework on the causes and consequences of psychosocial distress among children orphaned and made vulnerable by HIV/AIDS (Nyamukapa et al., 2008, p. 134).....	94
Figure 3. 6 The Jaipur Paradigm (Barnett et al., 2000, p. 1100).....	98
Figure 3. 7 A multi-level framework for understanding the association between labour migration and HIV risk (Weine & Kashuba, 2012).....	100
Figure 3. 8 Model of alcohol use and sexual risk behaviour (Morojele, 2006, p. 225).....	101
Figure 3. 9 Weiser’s Conceptual framework for food insecurity and HIV/AIDS (Weiser et al., 2011, p. s1730-s1731)	104
Figure 4. 1 The Three Levels of Reality (Bhaskar, 1975/2008)	114
Figure 4. 2 The morphogenetic analytical scheme (Archer, 1982, p. 468).....	121
Figure 4. 3 The Transformational Model of Social Activity by Bhaskar (1979/2014, p. 40).....	122
Figure 4. 4 The Four-Planar Social Being Model (Bhaskar, 1993/2008, p. 150).....	123
Figure 4. 5 The Critical Realist View of Causation – attenuated from Sayer (2000, p. 15)..	125
Figure 4. 6 Bhaskar’s Logic of Scientific Discovery (1975/2008, p. 4).....	126
Figure 4. 7 Archer’s (1995, p. 3) Tripartite Link Between Ontology, Methodology and Practical Social Theory	129
Figure 5. 1 The Successionist View of Causation (Sayer, 2000, p. 14).....	138
Figure 5. 2 The Socio-Ecological Model	141
Figure 5. 3 Madsen’s (1988, p. 9) Classification Schema for the Scientific Development of Psychology.....	151

Figure 5. 4 The Development of Psychology as a Scientific Discipline Based on an attenuated model by Madsen (1988, p. 63).....	156
Figure 5. 5 The nested concepts of a scientific paradigm (Overton, 2013, p. 26).....	173
Figure 5. 6 Types of Theory Organised Along a Chain of Abstraction.....	178
Figure 5. 7 Taxonomy of theoretical contributions for empirical articles (Colquitt & Zapata-Phelan, 2007, p. 1283).....	191
Figure 5. 8 A Socio-Ecological Meta-Theory of Health, based on Goldman and Schmalz (2001, p. 277).....	207
Figure 5. 9 Whittington’s framework (1988, p. 524).....	208
Figure 5. 10 Watanabe (2010, p. 257) Historical Trends in Psychology.....	209
Figure 5. 11 The Hierarchical Structure of Theory (Madsen, 1988, p. 29).....	211
Figure 5. 12 Classification Criteria (Madsen, 1988, p. 28).....	212
Figure 5. 13 Ladder of Theoretical Abstraction, attenuated from Smith and Liehr (2014, p. 16).....	217
Figure 5. 14 Factors influencing HIV-related behaviour and/or behaviour change at each socio-ecological level (Kaufman et al., 2014, p. s251).....	222
Figure 6. 1 The Meta-Theoretical Analysis Framework of the Current Study.....	259
Figure 7. 1 Search Strategy Results.....	263
Figure 7. 2 Total Number of Articles Regarding the Social and Behavioural Aspects of HIV and AIDS in South Africa (n = 3 848), 1985-2020.....	264
Figure 7. 3 The Proportion of Methodological Approaches in the Literature, from 1985 to 2020.....	265
Figure 7. 4 Research Theme Trends Over Time, 1985-2020.....	267
Figure 7. 5 The Annual Number of Articles in the Sexual Risk Behaviour Subtheme, 1985-2015.....	273
Figure 7. 6 The Number of Articles, per year, in HIV Prevention Focused on the youth Subtheme, 1985-2015.....	274
Figure 7. 7 The Number of Articles, per year, in the Socio-Behavioural Aspects of Biomedical HIV Prevention Subtheme, 1985-2015.....	275
Figure 7. 8 The Annual Number of Articles in Knowledge, Attitudes, Beliefs About HIV, Sex, Relationships and Health Subtheme, 1985-2015.....	279
Figure 7. 9 The Annual Number of Articles in the Gendered Aspects of HIV and the Role of Sexual Violence in HIV Risk Subtheme, 1985-2015.....	283
Figure 7. 10 The Annual Number of Articles in the Structural Drivers and Community Focus Subtheme, 1985-2015.....	284
Figure 7. 11 The Annual Number of Articles in HIV Prevention Focused on other Vulnerable Groups, 1985-2015.....	285
Figure 7. 12 Number of Articles in the Testing Subtheme, 1985-2015.....	287
Figure 7. 13 Number of Articles in the Treatment Subtheme, 1985-2015.....	288
Figure 7. 14 Number of Articles in the Healthcare Worker Subtheme, 1985-2015.....	291
Figure 7. 15 Number of Articles in the Orphans and Vulnerable Children Subtheme, 1985-2015.....	292

Figure 7. 16 Number of Articles in the Counsellors, Volunteers, Peer Mentors and Informal Caregivers Subtheme, 1985-2015.....	293
Figure 7. 17 Number of Articles in the Living with HIV Subtheme, 1985-2015.....	295
Figure 7. 18 Number of Articles in the Psychological Health and Well-Being Subtheme, 1985-2015.....	297
Figure 7. 19 Number of Articles in the Risk Behaviour Subtheme, 1985-2015.....	298
Figure 7. 20 Number of Articles in the Impact of HIV Subtheme, 1985-2015.....	300
Figure 7. 21 Number of Articles in the Cultural and Societal Beliefs in Relation to HIV and AIDS Subtheme, 1985-2015.....	301
Figure 7. 22 Trends of Intervention Techniques and Strategies Over Time, 1985 – 2015....	303
Figure 8. 1 Theory Visibility – Stacked Column Chart, 1985 – 2020.....	310
Figure 8. 2 Theory Visibility – Line Chart, 2000 - 2020.....	310
Figure 8. 3 Summarised Reasons for Using Theory, 1985-2020.....	311
Figure 8. 4 A Comparison of Research Methods Usage Between Articles That Used Theory and Those That Did Not, 1985-2020.....	312
Figure 8. 5 The Extent to Which Theory Building Took Place in the Literature, 1985-2015.....	317
Figure 8. 6 The Extent to Which Theory Testing Took Place in the Literature, 1985-2015.....	317
Figure 8. 7 Mean Ratings for Theory Testing and Theory Building 1989-2015.....	319
Figure 8. 8 Trends in Theoretical Contribution Classes, 1985-2015.....	320
Figure 9. 1 Triadic reciprocal causation (Bandura, 1994, p. 32).....	384
Figure 9. 2 The conditional relations between efficacy beliefs and outcome expectancies (Bandura, 1998, p. 627).....	385
Figure 9. 3 The pathways through which self-efficacy influence behaviour (Bandura, 2004, p. 146).....	387
Figure 9. 4 Theory of Reasoned Action (Fishbein & Ajzen, 1975, p.16).....	389
Figure 9. 5 The Theory of Planned Behaviour (Ajzen, 1991, p. 182).....	390
Figure 9. 6 The Integrative Model of Behavioural Prediction (Dai & Harrington, 2021, p. 3).....	391
Figure 9. 7 The Reasoned Action Model (Fishbein & Ajzen, 2010, p. 17).....	392
Figure 9. 8 The Information-Motivation-Behavioural Skills Model (Fisher & Fisher, 1992, p. 465).....	394
Figure 9. 9 The Information-Motivation-Behavioural Skills Model of HAART Adherence (Fisher et al., 2008, p. 194).....	395
Figure 9. 10 The Information-Motivation-Behavioural Skills Model of Microbicide Adherence (Ferrer et al., 2010, p. 999).....	396
Figure 9. 11 The situated-Information-Motivation-Behavioral Skills Model of Care Initiation and Maintenance (Amico, 2011, p. 1073).....	397
Figure 9. 12 The Ecology of Human Development (Bronfenbrenner, 1977).....	467
Figure 9. 13 The Bio-Ecological Model (Bronfenbrenner, 2005).....	468
Figure 9. 14 The Process-Person-Context-Time Model (Bronfenbrenner & Morris, 1998).....	468
Figure 9. 15 Model of the dynamics of HIV/AIDS stigma (Holzemer et al., 2007, p. 546).....	470
Figure 9. 16 The PEN-3 cultural model (Iwelunmor et al., 2014, p. 21).....	472

Chapter 1: Introduction

“Many psychologists working today in an applied field are keenly aware of the need for close cooperation between theoretical and applied psychology.

This can be accomplished in psychology, as it has been accomplished in physics, if the theorist does not look toward applied problems with highbrow aversion or with fear of social problems, and if the applied psychologist realises that there is nothing so practical as a good theory” – Kurt Lewin (1951, p. 169).

“Most so-called theories in the soft areas of psychology (clinical, counselling, social, personality, community, and school psychology) are scientifically unimpressive and technologically worthless” – Paul Meehl (1978, p. 806).

“For if we are uncritical we shall always find what we want: we shall look for, and find, confirmations, and we shall look away from, and not see, whatever might be dangerous to our pet theories.” Karl Popper (1957/2002, p. 108)

1.1. Introduction

This study explored how theories were used in the South African socio-behavioural study of HIV from 1981 to 2020. This chapter serves as an introduction to the thesis. I first provide a short background overview of what initially brought me to the study of theorising in Psychology. Thereafter, I provide a more detailed explanation of the research problem which I attempted to address and a further justification for conducting this study. The research question, aims and objectives are stated, followed by a summary of the research design. The chapter concludes with brief outlines of each chapter.

1.2. Background

As a research and evaluation consultant who has worked in various sectors, including the academic, non-profit and private sectors, I have become acutely aware of the disconnect between theory, research and practice. I found the ways in which researchers and practitioners engaged with theory to be particularly interesting. While many of my colleagues and clients were generally aware of the existence of various theories in their field, there was often the expressed concern that they were uncertain about how to put these theories into practice, whether in a research or intervention setting. In addition, some considered theory to be unpractical, irrelevant and out of touch with the problems they had to solve in their everyday work. The intensity of these perceptions varied from those who were interested in theory, but unable to close the gap between the conceptual (i.e., the abstract) and the practical (i.e., the concrete), to those who were more hostile to the use of theory and viewed it as unable to effect real change, especially in non-Western and resource-limited contexts. Ultimately this contributed to the absence, or at least less pronounced use, of theory in research projects and practical interventions. It also created the opportunity for studies and interventions to be based upon vague ideological positions and unsubstantiated research findings.

As I could see how the lack of appreciation for and negative perceptions of theory was hampering the effective development, implementation and evaluation of health behaviour programmes, I began to read more about the relationship between research, theory and practice (e.g., Lavee & Dollahite, 1991). From this point, I noticed that studying the *way in which theory is used* and studying theories in a way that allows for a deeper examination of the *philosophical assumptions* that underpin them could potentially be important entry points into studying this issue. This led me to a closer study of theory visibility and utilisation in the behavioural and social sciences (e.g., Michie et al., 2014; Michie & Prestwich, 2010; Rothman, 2004), theory building and the evaluation of social and behavioural theory (e.g., Reynolds, 1971/2007; Walker & Avant, 2011), critical and dialogical theorising (e.g., Cruickshank, 2012; Knapp, 2009; Mackay & Petocz, 2011), the intellectual history of Psychology and the meta-theoretical study of theories in Psychology (e.g., Madsen, 1988; Murphy, 2007; Ritzer, 1990a; Ritzer, 1990b). This reading piqued my interest further, especially concerning theory's influence on knowledge generation, the maturation of a research field, and what that might mean for a field such as the study of HIV and AIDS, which has received considerable research attention in South Africa in the last two decades. While great strides have been made in developing a robust and practically useful social and behavioural study of HIV and AIDS, researchers and

practitioners are still unsatisfied and even disappointed that the social sciences have not been able to produce a more definitive and lasting solution for the prevention, treatment and care of HIV and AIDS. I wondered whether a study of theory use could provide some insight into the conceptual development of the field and the paradigms that have played a role in how social scientists understand HIV and AIDS in South Africa.

1.3. Research Problem

Over the last century, psychological theories and the evidence generated through using them have become immensely influential in shaping how we understand individual and social phenomena. They are applied in psychological research and therapeutic practice and have also found their way into schools, hospitals, courtrooms, sports fields, businesses, public transport, technology, telecommunications, mass media and marketing, and government policy. Psychology has proliferated into a wide spectrum of sub-disciplines that span from experimental psychology to biological, neuro, forensic, counselling and community psychology, to name only a few (Mackay & Petocz, 2011). The American Psychological Association's (APA) PsycInfo database currently includes 2296 peer-reviewed Psychology journals, cumulatively publishing hundreds of thousands of articles each year (APA, 2022). However, behind the apparent success of the discipline lies persistent conflicts and challenges.

The most prominent critique of Psychology is that it is, in Kuhnian terms, in the pre-paradigm stage of scientific maturation, as it lacks a dominant paradigm and is instead comprised of multiple, often competing and contradictory, paradigms (Klochko, 2008). Additionally, Psychology is known for being uncritical of its own theories, as psychological theories are rarely falsified, nor officially discarded once their validity has been found wanting (Kaplan, 1964/2017; Mackay & Petocz, 2011; Meehl, 1978). In recent years, the replication and theory crises in Psychology have served as a stark reminder of how fragile the theoretical foundations of the discipline might actually be (Wiggins & Christopherson, 2019). Moreover, psychological intervention practices that are based on weak evidence and ill-founded concepts continue to plague the discipline (Kagee, 2006; Lilienfeld et al., 2015). The fact that the discipline can sustain such a myriad of contesting conceptual approaches and produce research based on established theories that fail to replicate suggests that Psychology might be practised in a way that does not allow for sufficient self-correction. This problem seems to be especially evident in the so-called "soft areas of psychology", such as social, health, clinical, counselling, personality, community, and educational psychology (Meehl, 1978, p. 806).

Another related set of critiques is more specifically directed at the theories themselves. In this regard, theoretical writings are often criticised for being unclear. As Reynolds (1971/2007) states: "...much of social science theory is so ambiguous that it cannot provide logical predictions or explanations, cannot be tested empirically, and can never be proven wrong" (p. 168). Moreover, theoretical constructs have received criticism for being poorly defined, insufficiently operationalised and virtually indistinguishable from related concepts with which they ultimately have become conflated (Zagaria & Zennaro, 2020). This makes the productive use of psychological constructs in basic and applied research particularly challenging and heightens the likelihood of inconsistent and weak research outcomes (McHugh Power et al., 2018).

Additionally, mainstream psychological theories have been criticised for highlighting individual-level factors (such as personality and cognitions), while neglecting structural factors (such as economic and political factors) and socio-cultural contexts. To this end, critics of mainstream psychological theories argue that these theories overemphasise individual volition as a determinant of behaviour and disregard the extent to which contextual factors can influence and impede an individual's behaviour. As a result, the critics argue that mainstream psychological theories may lead to research that offers an incomplete understanding of social and behavioural phenomena (Cassels et al., 2014; Coetzee et al., 2022; Hlabangane, 2014). In South Africa, this criticism is often coupled with the related point that mainstream psychological theories were developed in Western countries, represent Western worldviews and values and may therefore not be valid or appropriate for use in non-Western contexts (Mkhize, 2004; Uwah, 2014; 2015). Moreover, Psychology (including its methods, theories and knowledge base) has received vehement criticism in recent years for serving to sustain the dominance of certain groups in society (historically and presently) and therefore does not represent the interests and experiences of marginalised groups (Kessi & Boonzaier, 2018).

These criticisms have encouraged Psychology, especially Social and Health Psychology, to gradually expand its focus to include individual-in-context perspectives and other contextual and critical approaches which embrace the socially constructed, cultural and contextual nature of human behaviour. Consequently, psychologists have been encouraged to expand their theoretical frame of reference from mainstream psychological paradigms to other paradigms such as Interpretivism, Social Constructionism, Post-Structuralism, Feminism, Social Constructivism, Post-Colonialism and Socio-Ecological frameworks (Macleod, 2004; Ratele, 2017; Yen, 2016; Yen & Vaccarino, 2018). One can view this as part of a greater struggle for

dominance between competing paradigms in the social sciences that have been ongoing for several decades, not only in South Africa, but internationally as well (Denzin & Lincoln, 2018).

While this expansion of theoretical approaches opens up new possibilities for studying and interpreting social and behavioural phenomena, it continues to broaden the range of theories that exist within the scope of Psychology, thus widening the discipline's scope and adding to an already overwhelmingly large collection of theories from which Psychologists are expected to choose. Moreover, these theories that psychologists are encouraged to adopt are meta-theories which might lack the specificity and clarity for use in basic and applied psychological research. Furthermore, they represent markedly different ontological and epistemological positions from mainstream Psychology, which have important implications for how they should be used.

Ultimately, the question remains whether psychological theories have reached their full potential to advance the study of human behaviour and support mental well-being and flourishing (Berkman & Wilson, 2021; Crosby et al., 2009). In order to improve the utility, reliability, exactness and impact of psychological research, many have argued for the systematic replication of studies, the use of more rigorous research designs, the use of more advanced data analysis techniques, stricter peer-review processes, the pre-registration of studies, the use of methodological quality assessment tools and structured frameworks to guide the development and implementation of interventions (Edlund et al., 2022; Michie et al., 2011; Simmons et al., 2021).

While paying more attention to methodological rigour and strengthening the processes that guide the evaluation and subsequent publication of studies are undoubtedly important, they demonstrate what Eliot Smith was quoted as saying in Kruglanski (2001, p. 871): "...as a field we [psychologists] are more phenomenon and data driven and less theory driven". While many research psychologists see the answer to the strengthening of the field as lying in the improvement of its methodological robustness and study replication, fewer have argued for a closer consideration of the role that theory, and particularly meta-theoretical and philosophical inquiry could play in strengthening Psychology (Hastings et al., 2020; Irvine, 2021; Flis, 2019; Morawski, 2019; Proulx & Morey, 2021; Wiggins & Christopherson, 2019). In his article on the status of Theoretical Psychology, Sullivan (2008) makes a similar observation and attributes it to "...the historical separation between philosophy and psychology [which] is based on the view that empirical methods can resolve enduring philosophical questions" (p.

61). From a Critical Realist perspective, Danermark et al. (2019, p. 2) note that “...social science practice has often been characterised by either a theoretical or an empirical attitude. Such division jeopardises the sometimes difficult but necessary work on linking empirical research with theorising”. Moreover, Danermark et al. (2019) remark that the philosophy of science and social science practice appear to develop independently and thus fail to influence each other in mutually beneficial ways.

Although rigorous research designs and statistical analysis methods can strengthen a scientific discipline, they can also provide research psychologists with “synthetic certainty” in the validity and worth of their research (Proulx & Morey, 2021, p. 672). An over-emphasis on the importance of methods and data can be at the expense of thorough engagement with the complexity and uncertainty of the real world (Proulx & Morey, 2021).

For theories to be productive and useful to a scientific field, they must be in a synergistic relationship with research and practice. When this is the case, theories have various generative potentialities, which include being able to describe phenomena; increase our understanding and extend our knowledge; integrate our knowledge; explain empirical data; guide action; as well as capture and reflect values and ideological beliefs about the social world (Knapp, 2009; Whitley et al., 2013).

However, it is important to remember that theories are fallible and subject to change over time (Sayer, 2000). Different types of theories have different functions and might be useful for certain research purposes, but not necessarily for others (Glanz et al., 2015). Therefore, scepticism and the recognition of a theory’s limitations are crucial (Knapp, 2009).

When theorising and research are practised in isolation, and when the above-mentioned limitations of theories are disregarded, theory’s degenerative potential can emerge. This includes the production of one-dimensional research findings that are disconnected from the real phenomena which they are attempting to describe (Billig, 2019; Hagger, 2015; Knapp, 2009). Moreover, theories can be misused to the extent that they become hegemonic structures that restrict research, overemphasise certain phenomena while obscuring others, promote confirmation bias and ultimately lead to the stagnation of a discipline (Hagger, 2015). As Kezar (2006) describes:

Many of these critiques [of theory] are most concerned with the practice of theory – the way it has become a totalising tool that excludes other

explanations or tramples the imagination and constrains thought by the sheer legitimacy given to the notion of theory as “verified” knowledge. (p. 320).

The way theories are used, i.e., the way researchers (and practitioners) engage with theories, plays a powerful role in how theory either promotes the growth of or constrains a discipline. Engaging with theory in a productive and meaningful way requires that theory is used accurately, consistently and explicitly.

Numerous reviews of the academic literature in Psychology, the socio-behavioural study of HIV and other social science fields have demonstrated limited explicit and consistent theory use (Bradbury-Jones et al., 2014; Chi & Li, 2013; Coleman & Ford, 1996; Garofalo et al., 2016; Norman, 2007; Painter et al., 2008; Remy & Enriquez, 2019; Steyn & Klopper, 2015). In addition, the lack of specificity with which research papers outline how exactly a theory was used or how precisely study variables were linked to theoretical constructs are further examples of poor theory use (Davies et al., 2010; Michie & Johnston, 2012; Prestwich et al., 2014). Other common observations are that studies sometimes make use of theoretical concepts without explicitly linking them to a theory (Delissaint, 2008) and operationalise concepts incorrectly (McHugh Power et al., 2018). The partial use of theory and the use of theory in a way that oversimplifies it or outright misrepresents it has also been highlighted (Tudge et al., 2016). Lastly, it is not uncommon for researchers to use research methods and theories that are not compatible with each other – in other words, they use methods and theories that are based on fundamentally different philosophical assumptions (Poucher et al., 2020). Papers that use theory poorly further perpetuate misconceptions about it, prevent its thorough testing, and contribute to the consistent misuse of theory (Tudge et al., 2016).

Poor theory use suggests a more significant problem in Psychology: the lack of critical and meta-theoretically reflective theorising (Knapp, 2009; Mackay & Petocz, 2011). Theories are used without scrutiny, scepticism or critical evaluation and theories are used without reflecting on the meta-theoretical assumptions that underpin them. The unreflective use of theory is particularly concerning when one considers the fact that theory, and the implicit assumptions we hold, shape our choice of research topics, research methods, intervention strategies, how we interpret our data and how we ultimately evaluate the significance of our research (Slife et al., 2017).

I am concerned, along with others (e.g., Klein, 2014; Proulx & Morey, 2021), that the importance of theorising, particularly critical and meta-theoretically reflective theorising, is

being overlooked in the social and behavioural sciences. In present times, where contrasting paradigms are competing for dominance in South African Psychology, it seems especially appropriate to use this paradigm conflict as an opportunity to reflect upon the way theories have been used and what the ontological and epistemological assumptions behind these theories can tell us about the implicit presuppositions we hold, and how it might influence the socio-behavioural research programme of HIV and AIDS in South Africa.

1.4. Justification

HIV is not only medically complex to prevent, treat and cure, but it also involves various social and behavioural complexities. While great strides have been made to prevent and treat HIV and AIDS medically, virtually taking the disease from being a death sentence to becoming a chronic disease, numerous social and behavioural issues still impede nations' efforts to reach their HIV prevention and treatment goals. From a social scientist's point of view, HIV poses unique and challenging questions about the dynamics that underly sexual behaviour, disease infection avoidance, medical treatment adherence, risk perception, stigma and behaviour change (Baeten et al., 2016; Celum & Baeten, 2020).

The decision to examine theory use within the socio-behavioural study of HIV in South Africa stems from the fact that it is a relatively new disease that has garnered considerable attention from the scientific community in the last four decades. The social and behavioural study of HIV has been formalised into its own sub-field. It has received much attention from theorists who have purposefully applied or adapted their theories to aid in the study of HIV (e.g., the Social Cognitive Theory) or developed new theories specifically for the study of HIV (e.g., the Information-Motivation-Behavioural Skills Model). Notably, the socio-behavioural study of HIV and AIDS in South Africa exists within an open system, a context that has changed, and continues to change, in response to:

1. medical advances in the prevention and treatment of HIV,
2. fluctuating epidemiological patterns,
3. socio-political changes in the country,
4. influences from the international scientific research community, funding agencies, and activist movements, as well as
5. recurring debates about the relevance and utility of psychological and socio-behavioural conceptual approaches.

The South African HIV pandemic had grown to such an extent that it became one of the countries with the highest HIV prevalence rates (along with other Southern African nations such as Botswana, Eswatini and Lesotho) and the country with the largest number of people living with HIV globally (UNAIDS, 2022a). Given that it is considered the epicentre of the global HIV pandemic, South Africa has received considerable HIV research attention.

In a scientometrics review of the global HIV literature from 1996 to 2006, Pouris and Pouris (2011) found that the proportion of social science research was higher in the South African literature base compared to other nations, such as the United States of America (USA). They reasoned that HIV caused social problems in the country, which had to be further explored and addressed through research, hence the stronger emphasis on the social science study of HIV in South Africa. I would add that HIV also worsened existing social problems, abruptly bringing them to the fore and making them more evident in need of urgent intervention and further research.

This study examined the development of scientific ideas (specifically as they are captured in theories) in the South African HIV field against the backdrop of a descriptive thematic analysis of the field's research focus areas. More specifically, this study:

1. assessed theory use, in particular, the visibility of theory in the literature and the extent to which theory was tested or developed,
2. explored the trends in theory use over time, as well as
3. examined the meta-theoretical structures of the most common paradigms in the literature.

This study, therefore, falls squarely within the domain of Theoretical Psychology (Slife & Williams, 1997). Although Theoretical Psychology is an established sub-discipline of Psychology, few studies purposefully examine theory use and perform meta-theoretical analyses of research literature.

Researching theory use and the meta-theoretical assumptions of paradigms in the South African HIV field might *encourage dialogue* about the various theories and paradigms in the field, which could serve as an opportunity in and of itself to *clarify philosophical positions, correct misunderstandings, encourage healthy scepticism* about the theories that the field draws upon and *promote greater awareness of the importance of theory* (Lukka, 2010; Slife & Williams, 1997). By clarifying and shedding light on the fundamental but often implicit, lesser-known and rarely discussed assumptions and values of a research field, a meta-theoretical examination

can serve to illuminate the existing state of a research field and help scientists to identify conceptual gaps and weaknesses that require further attention (Erkal & Vandekerckhove, 2021; Love, 2000; Lukka, 2010). Given the current intellectual climate where Psychology's relevance and status as a scientific discipline in South Africa are being questioned, such a dialogue is particularly necessary. As Lukka (2010) aptly states:

Being ignorant or unreflective of our own philosophical, methodological, and theoretical underpinnings may make us efficient 'inside the box', but carries the risk of seeing just the trees, not the entire forest. ...Paradigm debates offer academia the means to 'stop the world', at least for a while, in order to take a look at the traces behind us and to see what we are actually doing in a more fundamental sense. (p. 112)

1.5. Research Question, Aims and Objectives

This study was led by the following research question: **How have theories been used in the study of the behavioural and social aspects of HIV and AIDS in South Africa from 1981 until 2020?**

The overall aim of this study was to critically examine the use of theory in the study of the behavioural and social aspects of HIV and AIDS in South Africa. More specifically, this study had three aims which represented what the research project intended to accomplish and an objective for each aim which represented the practical outcome of each aim (i.e., what was done to achieve each aim).

Aim 1: Describe the historical development of research focus areas in the socio-behavioural study of HIV and AIDS

Objective 1: Identify and explore the thematic focus areas in the empirical study of the socio-behavioural study of HIV and AIDS in South Africa.

Aim 2: Identify and describe the use of theory in the academic literature related to the socio-behavioural study of HIV and AIDS

Objective 2: Identify the theories that are mentioned in journal articles regarding the socio-behavioural study of HIV and AIDS in South Africa and describe how these theories were utilised.

Aim 3: Conduct a meta-theoretical analysis of the most prominent paradigms that have been applied to the socio-behavioural study of HIV and AIDS

Objective 3: Explore and describe the most prominent paradigms used in the socio-behavioural study of HIV and AIDS by examining them on the philosophical, theoretical, and empirical levels.

1.6. Research Design

The study comprised four phases. A simplified visual summary of the research process is presented in Figure 1.1.

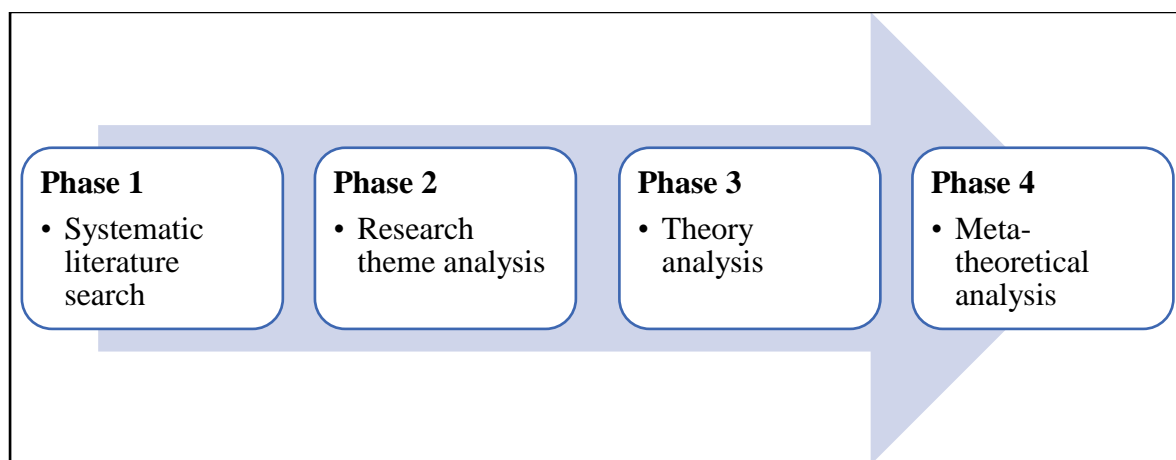


Figure 1. 1 This Study’s Research Process

Phase 1 involved a systematic literature search approach to search for and collect data (i.e., article records) in the Thomson Reuter Web of Science. This phase involved three sequential steps: Firstly, a thorough keyword search was conducted, and all article records produced from that search were extracted. Secondly, all record titles and abstracts were screened for relevance. Thirdly, each relevant record was assessed for eligibility. The remaining articles were included in the study. The main criteria for inclusion entailed that the articles had to be peer-reviewed journal articles, they had to describe research that was conducted in South Africa, they had to be published between 1981 and 2020, and the articles had to be about the behavioural and/or social aspects of HIV and AIDS. The latter was specified as being articles which described HIV prevention, testing and treatment from a behavioural and/or social perspective; articles which described the social and psychological impact HIV and AIDS had on people who are living with HIV, their caregivers, family, peers and community; articles which described the psychological and social factors that influence caregiving and the support of people who are

living with HIV; as well as articles which detailed the experiences of people living with HIV and those impacted by HIV and AIDS.

Phase 2 entailed a thematic analysis that was conducted on the included articles to ascertain the thematic research focus area trends in the South African HIV literature over time. This was done by reviewing the abstracts of all included articles and, in doing so, classifying each one into an *a priori* thematic category, namely *Prevention, Testing and Treatment, Care and Support, Living with HIV* and the *Impact of HIV and AIDS*. Further sub-themes within each thematic category were created based on a thematic analysis of codes generated by reviewing each abstract. The results of this phase fulfilled the first aim of this study and are described in Chapter 7.

Phase 3 entailed an analysis of the use of theory. A theory visibility typology, based on similar work by Bradbury-Jones et al. (2014), was used to categorise papers based on the extent to which theory was mentioned in each paper. This typology distinguished between seemingly absent, explicit and implicit theory use as well as whether the theory was consistently, retrospectively or partially applied. A taxonomy of theoretical contribution (Colquitt & Zapata-Phelan, 2007) was used to assess the extent to which each paper demonstrated the testing and/or building of theory. A structured review guide was used to capture the names of the theories mentioned in each article and the overarching paradigm to which those theories belonged. Descriptive statistical analysis was conducted on this data to assess aggregate frequencies, trends over time and theory use trends within each research theme. The results of this phase fulfilled the second aim of this study and are described in Chapter 8.

Phase 4 involved the meta-theoretical analysis of the three most prominent paradigms, as identified in the third phase of the study. These paradigms are Socio-Behaviourism, Critical Theory and the Socio-Ecological and Systems paradigm. A meta-theoretical analysis framework was developed based upon Madsen's (1988) Systemology approach, Smith and Liehr's (2014) ladder of theoretical abstraction and Bhaskar's (2010) omissive and explanatory critique. The meta-theoretical framework entailed a detailed analysis of each paradigm on three levels, namely:

1. Philosophical level: A brief historical overview is provided to serve as background. This is followed by detailed outlines of each paradigm's ontological and epistemological assumptions. Each paradigm's position regarding HIV and AIDS and

its social science study is delineated based on their ontological and epistemological assumptions.

2. Theoretical level: A summary of the most commonly used theories in the literature is provided. This is followed by a detailed analysis of three of those theories. The analysis involved a descriptive summary of each theory followed by some reflections and critiques.
3. Data (empirical) level: An examination of the research topics and methods most often associated with each paradigm is outlined. This is followed by a descriptive summary of how each paradigm was practically applied in the literature. The data-level discussion focused on the evidence base for each paradigm. This involved exploring the results of studies that directly tested theories from each paradigm or applied them in behaviour change interventions.

The meta-theoretical analysis concluded with a discussion of the direct implications of using each paradigm and the strengths, weaknesses and limitations of each paradigm. The analysis is presented in Chapter 9 and fulfils the third aim of the study.

1.7. Chapter Overview

This thesis consists of ten chapters. Figure 1.2 (at the end of this chapter) is a visual summary of the structural layout of the thesis.

- **CHAPTER 2: An Overview of the Global HIV Pandemic**

The second chapter provides an overview of the history of the global HIV and AIDS pandemic. It includes a short biomedical overview of the virus and its transmission; an overview of the key populations who are considered most at-risk for HIV infection and the factors that contribute to their vulnerability; as well as an overview of the most important events that shaped how HIV is prevented and treated, and the social and behavioural aspects of HIV treatment and prevention. Appendix A provides a detailed timeline of the most important events in the global fight against HIV and AIDS (1981-2020) and can be read alongside chapter two.

- **CHAPTER 3: HIV and AIDS in the South African Context**

The third chapter provides an overview of the history of the HIV epidemic in South Africa. It highlights the socio-political responses to HIV; the tragic failure to act quickly and decisively

on it during the pandemic's early years; the challenges in estimating the magnitude of the disease; the national morbidity and mortality rates over time; the impact the disease has had on the country; as well as the main drivers that promote the spread of HIV in South Africa. Appendix B can be read alongside chapter three as it provides a detailed timeline of the noteworthy events and incidents that shaped South Africa's response to HIV and AIDS (1982-2020).

- **CHAPTER 4: Critical Realism: A Theoretical Point of Departure**

Critical Realism serves as the study's theoretical underpinning. In the fourth chapter, I provide an overview of Bhaskar's Critical Realism, focusing on its ontological and epistemological orientation and its position regarding theory, structure and agency, causation and the research process.

- **CHAPTER 5: Scientific Knowledge and Theorising**

The fifth chapter is a literature overview and critical discussion of theories and their role in the scientific process of the social sciences, in particular Psychology. The chapter includes a discussion of the characteristics and purpose of scientific knowledge; the development of scientific knowledge over time; definitions, components and classifications of theory; the synergistic relationship between research, theory and practice; the evaluation of theories; theory use in the current psychological research literature; meta-theoretical analysis frameworks; and an overview of theorising in the socio-behavioural study of HIV and AIDS.

- **CHAPTER 6: Methodology**

The sixth chapter provides a detailed description of the study's research design and an in-depth discussion of each of the four research phases. Appendix C to G should be consulted alongside chapter six. Appendix C is a copy of the study's ethics approval letter; Appendix D is the study's completed PRISMA checklist; Appendix E is the behavioural and social aspects of HIV keyword list that was used for the topic relevance screening process; and Appendices F and G are structured review guides that were used to guide the review of the research articles.

- **CHAPTER 7: The Historical Development of Research Focus Areas in the Social and Behavioural Study of HIV and AIDS in South Africa**

Chapter seven is the first of three chapters discussing this study's findings. This chapter provides the findings of the thematic analysis of the research focus areas in the South African

HIV literature. It includes a summary of the literature search results, publication trends and the most commonly used research methods; a summary of the research topic trends over time; summaries of the topic trends within the prevention, testing and treatment, care and support, living with HIV and impact of HIV and AIDS literature; and a summary of intervention techniques and approaches that were reported on in the literature.

- **CHAPTER 8: The Use of Theories Within the Social and Behavioural Study of HIV and AIDS in South Africa**

Chapter eight presents the findings of the theory analysis. It reports on theory visibility and theoretical contribution in the literature; an overview of the trends in theory usage over time and across different research themes; as well as an in-depth discussion of conceptual gaps and examples of unreflective theory use in the literature.

- **CHAPTER 9: Dominant Paradigms in the Behavioural and Social Study of HIV and AIDS in South Africa: A Meta-Theoretical Analysis**

The ninth chapter presents the meta-theoretical analysis of the three most prominent paradigms in the literature, namely Socio-Behaviourism, Critical Theory and the Socio-Ecological and Systems paradigm. Each paradigm is analysed on three levels, namely the philosophical, theory and data levels. The implications of each paradigm's meta-theoretical position are discussed within the context of the study of HIV and AIDS.

- **CHAPTER 10: Conclusion**

The tenth chapter serves as a conclusion for the thesis. It provides a summary of the study's findings; concluding reflections on the findings' implications; recommendations for future research and practice based on the study's findings; the study's limitations; and a synopsis of the study's significance.

Chapter 1	Introduction:	Research Question: How have theories been used in the study of the behavioural and social aspects of HIV and AIDS in South Africa from 1981 until 2020?			
Chapters 2-5	Background literature and theoretical underpinning:	Chapter 2: Overview of the Global HIV pandemic	Chapter 3: HIV and AIDS in the South African Context	Chapter 4: Critical Realism: A Theoretical Point of Departure	Chapter 5: Scientific Knowledge and Theorising
Chapter 6	Methodology:	Phase 1: Systematic literature search Phase 2: Thematic analysis of research themes Phase 3: Theory analysis: Theory visibility, theoretical contribution, identification of theories and trends over time Phase 4: Meta-theoretical analysis of the three most prominent paradigms			
Chapter 7	Findings:	Research themes as the contextual background for theory analysis			Aim 1: Describe the historical development of research focus areas in the socio-behavioural study of HIV and AIDS in South Africa
Chapter 8		Theory visibility	Theoretical contribution: Theory testing and development	Theoretical trends	Aim 2: Identify and describe the use of theory in the academic literature
Chapter 9		Meta-theoretical analysis of the most prominent paradigms: Socio-Behaviourism, Critical Theory and the Socio-Ecological and Systems paradigm			Aim 3: Conduct a meta-theoretical analysis of the most prominent paradigms in the literature
Chapter 10	Conclusion:	a.) Summary and implications of findings b.) Recommendations for research and practice c.) Limitations d.) Significance of study			

Figure 1. 2 Visual Summary of Thesis Structure

Chapter 2: An Overview of the Global HIV Pandemic

“In 25 years, AIDS has changed the world. It has killed 25 million people. ...It has inflicted the single greatest reversal in the history of human development. In other words, it has become the greatest challenge of our generation.” – Kofi Annan, the then Secretary General of the United Nations (UNAIDS, 2006, p. 1)

2.1. Introduction

In the early 1980s, HIV quickly rose to prominence, spreading rapidly across the globe and causing one of the most devastating pandemics in human memory. Over the last four decades, HIV has received ample research attention, resulting in the creation of an impressive body of knowledge that offers detailed descriptions of the virus’s biology, transmission and pathogenesis (Barré-Sinoussi et al., 2013). The social and behavioural sciences have played an essential role in improving our understanding of how psychological and social factors influence HIV infection risk, the use of prevention methods and engagement with treatment.

This chapter provides a review of the literature with regard to the scientific community’s initial reaction to HIV; the global HIV morbidity and mortality; the sub-population groups who are considered to be most at risk for HIV; the most important events that have shaped the prevention and treatment of HIV over the last four decades; as well as the social and behavioural aspects of HIV treatment and prevention. This chapter aims to provide the reader with an overview of the historical context of the global HIV pandemic to appreciate how knowledge about HIV evolved over time in response to epidemiological and other historical trends. Appendix A provides a detailed timeline summary of key events in the global HIV epidemic from 1981 until 2020.

2.2. The Early Years of AIDS

The first clinical discovery of AIDS was published on 5 June 1981 by the Centres for Disease Control (CDC) in the Morbidity and Mortality Weekly Report (MMWR) (CDC, 1981). The report included medical case studies of five young homosexual men from Los Angeles, USA,

who presented with Pneumocystic jirovecii pneumonia¹, a particularly rare form of pneumonia. It was considered highly unusual for young men who were previously healthy to fall ill from such a disease without any clear diagnosable immunodeficiency (CDC, 1981).

Since as early as 1944, public health clinicians in the USA have noted that homosexual men are at an increased risk for STIs (Henderson, 1977). In the early 1970s, the Bureau of Communicable Disease Control of the San Francisco Department of Public Health started to note a marked increase in STIs in the gay community in the city (Cochrane, 2004). However, since the late 1970s, doctors have detected an increase in the incidence of rare, immunodeficiency-related diseases such as pneumocystic jirovecii pneumonia, candida esophagitis², mycobacterium avium-intracellular infection³ and angioimmunoblastic T-cell lymphoma⁴ as well as a rare form of skin cancer named Kaposi's Sarcoma, especially amongst homosexual patients in San Francisco and other large cities such as Los Angeles and New York. Patients presented with multiple infections at once, which left them debilitated and disfigured and with little chance of survival. Doctors, not knowing what the cause was or how the disease could be transmitted, were left feeling overwhelmed, frustrated and fearful of this new disease (Masur et al., 1981; UNAIDS, 2008).

2.2.1. Finding the Cause of the Disease

Although a clinically apparent cause could not be ascertained, scientists suspected that there might be a “cellular-immune dysfunction related to a common exposure that predisposes individuals to opportunistic infections” (CDC, 1981, p. 3). Based on the initial observation that all clinical cases were homosexual men, the CDC concluded that the disease is possibly related to “some aspect of a homosexual lifestyle or [the] disease [is] acquired through sexual contact” (CDC, 1981, p. 2). Soon after the CDC's first MMWR report, several similar case reports emerged across large metropolitan areas in the USA (Gottlieb et al., 1981; Siegal et al., 1981; Vanley et al., 1982).

¹ Pneumocystic jirovecii pneumonia (formerly known as Pneumocystis carinii pneumonia) is a type of pneumonia that is caused by the Pneumocystis jirovecii fungus. It is one of the most common opportunistic infections in people living with HIV (Aliouat-Denis et al., 2008).

² Candida esophagitis is a type of yeast infection that is found in the esophagus (Traeder et al., 2008).

³ Mycobacterium avium-intracellulare infection is an atypical mycobacterium infection which causes respiratory illness in humans as well as pigs and birds. It is associated with pneumonia in patients with chronic lung disease and those with compromised immune systems (Desforges, & Horsburgh, 1991).

⁴ Angioimmunoblastic T-cell lymphoma (formerly known as angioimmunoblastic lymphadenopathy) is a rare form of lymphoma (a type of blood cancer which stems from malignant CD4 T lymphocytes). (Dogan et al., 2003).

On 8 June 1981, the CDC created an investigative team, the *Task Force on Kaposi's Sarcoma and Opportunistic Infections*, with the aim of identifying the risk factors and a case definition of this still-unknown disease (CDC, 2001). In the meantime, a growing number of cases of immunodeficiency and an increase in opportunistic infections amongst primarily homosexual male patients emerged, leading to the disease initially being named the Gay-Related Immunodeficiency Syndrome (GRID) (Vanley et al., 1982).

By early 1982, a growing number of GRID patients were identified who were not homosexual males but instead injecting drug users, women and at least one child (UNAIDS, 2008). This prompted the CDC to release another MMWR report on 11 June 1982 which cautioned against comparing homosexual and heterosexual patients who present with Kaposi's Sarcoma and opportunistic infections, as it appears that all of these cases are from the same epidemic (CDC, 1982a).

2.2.2. First Case Definition of AIDS

On 24 September 1982, 18 months after its inception, the CDC's task force officially named the disease Acquired Immune Deficiency Syndrome (AIDS) and released the first case definition of AIDS: "a disease at least moderately predictive of a defect in cell-mediated immunity, occurring in a person with no known cause for diminished resistance to that disease" (CDC, 1982b, p. 514).

Meanwhile, medical professionals in Belgium and France took notice of the MMWR reports and realised that they had been treating patients with similar symptoms since as early as the mid-1970s. They noted that their AIDS patients were mostly of African descent who came from Equatorial Africa or Europeans who had recently visited Equatorial Africa (Iliffe, 2005).

During this same period, health professionals from Uganda and the Democratic Republic of the Congo (then known as Zaire) started to report a new disease which they had informally named "Slim", as it was primarily known for causing rapid weight loss and diarrhoea and left those afflicted with it to waste away (Piot et al., 1984; Serwadda et al., 1985; Van de Perre et al., 1984). It quickly became clear that this new disease fulfilled all the diagnostic requirements of AIDS (Marquart et al., 1985). At this point, it also emerged that, in Africa, AIDS seemed to predominate amongst young heterosexual women and men (Piot et al., 1984).

By 1983, AIDS cases were reported in several other Equatorial African countries, including Rwanda, Tanzania and Zambia (Piot et al., 1984). Soon, HIV started to spread exponentially

across the globe. It was not long before countries across North and South America, Western Europe and Australasia also started to report AIDS cases (UNAIDS, 2008).

2.2.3. Isolating the Virus that Causes AIDS

Three research groups, one led by Françoise Barré-Sinoussi and Luc Montagnier in France at the Pasteur Institute and the other led by Robert Gallo in the USA at the National Institutes of Health (NIH) and Jay Levy at the University of California in the USA, conducted seminal research on the virus. In 1983, Barré-Sinoussi and Montagnier's team was the first to isolate the virus that caused AIDS and named it Lymphadenopathy-Associated Virus (LAV) (Barré-Sinoussi et al., 1983). That same year, Levy independently isolated the virus and named it AIDS-Associated Retrovirus (ARV) (Levy et al., 1984). One year later, in 1984, after studying French samples of LAV, Gallo and his team announced that the virus that causes AIDS has a strong resemblance to other Human T-Lymphotropic Viruses (HTLVs) and subsequently named the virus Human T Cell Lymphotropic Virus Type III (HTLV-III) (Gallo et al., 1984). As more studies were conducted on LAV, ARV and HTLV-III, it became evident that they were the same virus. By 1986, the International Committee on Taxonomy of Viruses declared that these names should be discontinued and that the new name, human immunodeficiency virus (HIV), should instead be used (Coffin et al., 1986).

2.2.4. The Discovery of Different HIV Strains

By 1986, phylogenetic analyses determined that there were, in fact, two strains of HIV, namely HIV-1 and HIV-2 (Clavel et al., 1987). HIV-1 is the most prevalent strain of HIV and is responsible for the vast majority of HIV infections worldwide. HIV-2 is limited to West Africa, some parts of Angola and Mozambique, as well as certain communities in India, the Americas and Europe (Tebit & Arts, 2011). In 1990, scientists discovered a divergent form of HIV-1 (De Leys et al., 1990). Based on further research, scientists found at least four HIV-1 sub-groups (Group M, N, O, P) (Gürtler et al., 1994; Haesevelde et al., 1994; Jonassen et al., 1997; Simon et al., 1998). Group M is considered the most common sub-group and responsible for the most HIV infections globally (Tebit & Arts, 2011).

2.2.5. The Origins of HIV

Research on the global molecular evolution of HIV indicated that HIV originated from the Simian Immunodeficiency Virus (SIV) in chimpanzees (SIVcpz) (Bailes et al., 2003). SIVs were likely transmitted to humans over several decades (likely during the early to mid-1900s),

which resulted in the creation of HIV (Tebit & Arts, 2011). Through the use of molecular clocks, scientists have been able to determine that HIV-1⁵ originated around 1908 in Central Africa (specifically in the Congo River Basin region) and that HIV-2⁶ originated around 1932 in Guinea Bissau⁷ (Wertheim & Worobey, 2009). It is believed that HIV-1 was introduced to the USA in 1972 via Haiti, which in turn was introduced to the virus through the Democratic Republic of the Congo between 1962 and 1970 (Gilbert et al., 2007).

2.3. Global HIV Morbidity and Mortality

Since the start of the pandemic until the end of 2021, 84.2 million (estimated between 64.0 million and 113.0 million) people have contracted HIV, and 40.1 million (estimated between 33.6 million and 48.6 million) people have died of AIDS worldwide (UNAIDS, 2022b). The global HIV incidence rate⁸ was at its highest in 1999, with approximately 3.16 million new infections that year (Frank et al., 2019). Global HIV mortality⁹ reached its highest rate in 2006, with an estimated 1.95 million deaths during that year (Frank et al., 2019). The most recent data available at the time of writing indicates that, in 2021, 1.5 million people (estimated between 1.1 million and 2.0 million) contracted HIV and 650 000 people (estimated between 510 000 and 860 000) died of AIDS (UNAIDS, 2022c).

Although all world regions were affected by HIV, the virus had (and continues to have) a particularly devastating impact on sub-Saharan Africa. Countries in the Central, Western and Eastern regions of sub-Saharan Africa were the first regions to bear the brunt of HIV in the 1980s. However, by the mid- to late-1990s, the epidemic had gradually shifted to Southern Africa, where its pervasive transmission remains a concern until the present day. In 2021, 20.6 million (estimated between 18.9 million and 23.0 million) people living with HIV lived in Eastern or Southern Africa – just over half of the total number of people living with HIV

⁵ In particular the Group M strain (Tebit & Arts, 2011).

⁶ In particular the Group A and Group B strains (Tebit & Arts, 2011).

⁷ However, Santiago and colleagues found some evidence to suggest that HIV-2 may also have originated from the Tai Forest in Côte d'Ivoire (Santiago et al., 2005).

⁸ The rate at which a disease spreads through a population and the extent to which members of a population is already infected can be summarised with two key terms that are widely used in the public health field, namely *incidence* and *prevalence* rates. A population's incidence rate refers to the rate of new cases of an infectious disease. Incidence rates are especially useful when an infectious disease has a short duration (Coetzee, 2014). The prevalence rate is the product of the incidence and the duration of the disease. The prevalence rate becomes more useful the longer the disease remains active (e.g., chronic diseases or diseases that remain without a cure or effective treatment for a long period of time) (Coetzee, 2014). Both incidence and prevalence are considered morbidity rates, indicators of how extensively a disease has spread through a population.

⁹ The mortality rate (also known as the death rate) refers to the number of deaths that the disease has caused within a population (Coetzee, 2014).

globally (UNAIDS, 2022b). Table 2.1 below presents the 2021 HIV morbidity and mortality data from sub-Saharan Africa and globally.

Table 2.1 HIV Morbidity and Mortality Data in Sub-Saharan Africa and Globally in 2021 (UNAIDS, 2022b)¹⁰

Region	Number of people living with HIV	Number of New HIV Infections in	Number of AIDS-Related Deaths
Eastern and Southern Africa	20.6 million	670 000	280 000
Western and Central Africa	5.0 million	190 000	140 000
Sub-Saharan Total	25.6 million (67% of global total)	860 000 (57% of global total)	420 000 (64% of global total)
Rest of the World	12.8 million	621 000	237 000
Global Total	38.4 million	1.5 million	650 000

2.4. Key Populations

Based on this understanding of transmission dynamics, HIV prevention programmes have historically targeted high-risk groups – those individuals who are seen as most at-risk for contracting and transmitting the virus to the rest of the population. More recently, the UNAIDS and many in the HIV field have adopted the term *key populations* to refer to groups who are considered to be at particularly high risk for HIV infection (UNAIDS, 2015a). Since the early days of the HIV epidemic, the most at-risk groups, from a global perspective, were considered to be sex workers and their clients, homosexual men and men who have sex with men (MSM), people who inject drugs, and the sex partners of all these key populations. During the early 1980s, persons with haemophilia were at great risk for HIV infection. It is estimated that between 1981 and 1984, almost half of the USA’s haemophiliac population contracted HIV through haemophilia treatment with HIV-infected blood (Evatt, 2006). Recommendations to heat treat blood clotting factors and to screen for HIV and other bloodborne diseases such as Hepatitis C were released by the CDC in 1984 (CDC, 1984). The lifesaving recommendations were quickly adopted, and by 1986 the number of HIV infections via blood transfusions and blood treatments dropped substantially, essentially ending the spread of HIV through blood

¹⁰ The figures are rounded down to the nearest 100 000.

transfusions and haemophilia treatment (Evatt, 2006; WHO, 2010a). More recently, the vulnerability of transgender women started to receive more attention. It is estimated that transgender women are almost 34 times more at risk for contracting HIV than the rest of the adult population (UNAIDS, 2022a). Key population groups account for 65% of all new global infections annually (UNAIDS, 2022a).

Table 2.2. presents the distribution of new HIV infections by each key population group in sub-Saharan Africa. In this region, the heterosexual population, women, and in particular, adolescent girls and young women (AGYW) are considered to be the primary key population groups (Potts et al., 2008; UNAIDS, 2022a). In 2020, 25% of all new infections in sub-Saharan Africa were attributed to AGYW aged between 15 and 24 years (UNAIDS, 2022a).

Table 2. 2 Distribution of New HIV Infection by Key Population Group in Sub-Saharan Africa (UNAIDS, 2022a, p. 12)

Key Population	Proportion of Global Number of New HIV Infections
Clients of sex workers and sex partners of all key populations	19%
Homosexual men and MSM	6%
Sex workers	12%
People who inject drugs	1%
Remaining population	61%

Table 2. 3 Distribution of New HIV Infection by Key Population Group Outside of the Sub-Saharan African Region (UNAIDS, 2022a, p. 12)

Key Population	Proportion of Global Number of New HIV Infections
Homosexual men and MSM	45%
Clients of sex workers and sex partners of all key populations	15%
People who inject drugs	20%
Sex workers	10%
Transgender women	3%
Remaining population	7%

Table 2.3. presents the distribution of new HIV infections by each key population group for the rest of the world. There are various biological, social and behavioural factors which make AGYW in sub-Saharan Africa especially vulnerable to HIV infection (Harrison et al., 2015; Higgins et al., 2010). Biologically, young women are especially vulnerable to HIV infection as their vaginal tracts are not yet mature, and sexual activity can cause tissue tears more easily, thereby making HIV (and other STI) transmission more likely to occur (George et al., 2020). Untreated STIs place young women at additional risk for contracting HIV, as the presence of an STI heightens their risk for HIV acquisition (Abdool Karim et al., 2019; George et al., 2020). Moreover, invasive vaginal cleaning practices that are typically performed for cultural or sexual gratification reasons may increase genital inflammation, which increases AGYW's risk of contracting HIV (McClelland et al., 2006).

Additionally, AGYW (particularly those under the age of 19), who engage in sexual partnerships with men who are five or more years older than them, are at high risk for HIV infection from these male partners (Evans et al., 2017; Topazian et al., 2020). Socio-economic deprivation is one of the main reasons why sub-Saharan AGYW engage in age-disparate sexual relationships with older men (Kaufman & Stavrou, 2004). These age-disparate relationships often have a transactional nature, whereby older men support young women financially or provide them with gifts in exchange for their company. Condom use tends to be inconsistent in such age-disparate relationships, and both partners may have other sexual partners, leading to multiple concurrent partnering (George et al., 2020; Kilburn et al., 2018a; Maughan-Brown et al., 2014). Lack of sexual agency to negotiate condom use, as well as having a low education level and experiencing food insecurity, places AGYW at a heightened risk for engaging in these age-disparate and/or transactional relationships (Dellar et al., 2015).

Other high-risk populations in sub-Saharan Africa and globally include highly mobile persons and those who work or live in unstable or isolated environments, such as truck drivers, mine workers, soldiers, police officers and prisoners (Kohli et al., 2017). While away from home, they are removed from their social support structures and have to live in male-only, high-density lodgings where their regular sex partners are unavailable, and access to healthcare services and HIV prevention services are not readily available. This increases their risk of having multiple concurrent sexual partners, engaging in transactional sex, using condoms inconsistently or not at all, and abusing substances prior to having sex (Martins-Fonteyn et al., 2017).

2.5. Treatment

Since early on in the pandemic, scientists debated where to place their focus – should it be on prevention or should it be on treatment? In the absence of effective medical treatment, it seemed reasonable to focus on prevention, yet there were not many truly effective prevention methods.

Before the advent of ARVs, the treatment of HIV was mostly focused on treating and managing opportunistic infections and other STIs that the patient presented with. Zidovudine (also known as AZT) was the first ARV to be approved for HIV treatment and became available in 1987 (AIDSinfo, 2019a). However, due to concerns over drug toxicities, possible drug resistance, and fears that the efficacy of the treatment regime may wear off over time, clinicians adopted a conservative stance towards ARVs (Garnett & Baggaley, 2009). Given these concerns, as well as the high costs of ART at the time, the WHO recommended a treatment staging model whereby ART would be initiated only when a person's CD4 count was below 200 (WHO, 1990).

ARVs are categorised into seven distinct classes based on the mechanism it uses to hamper different stages of the HIV life cycle. The first class is Nucleoside Reverse Transcriptase Inhibitors (NRTIs) (e.g., Zidovudine), which aim to block Reverse Transcription. The second class, Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs) (e.g., Nevirapine), bind to HIV reverse transcriptase and blocks Reverse Transcription. The third class, Protease Inhibitors (PIs) (e.g., Tipranavir), blocks the HIV enzyme protease. The fourth, fifth and sixth classes, Fusion Inhibitors (FIs) (e.g., Enfuvirtide), CCR5 Antagonists (e.g., Maraviroc) and Post-Attachment Inhibitors (PAIs) (e.g., Ibalizumab) prevent HIV from entering the CD4 cell membrane. The seventh class, Integrase Strand Transfer Inhibitors (INSTIs) (e.g., Elvitegravir), interferes with the integration part of the HIV life cycle (AIDSinfo, 2018).

2.5.1. Infection and Disease Progression

HIV is a lentivirus¹¹ which attacks and systematically weakens the immune system. A lentivirus is a specific retrovirus sub-type which is characterised by a long incubation period¹². Like most other types of viruses, a retrovirus is a microbe which can infect cells and then use the cell's components to replicate itself. However, retroviruses are unique because they use RNA as their genetic material (AIDSinfo, 2018). The process whereby HIV infects a cell and

¹¹ The name "lentivirus" is derived from the Latin word *Lente*, which means *slowly* (The Latin Dictionary, 2010).

¹² An incubation period refers to the length of time between infection and the first signs of symptoms. HIV has a particularly long incubation period. Once infected with HIV, several months, and even years, could pass before any HIV-related symptoms appear (AIDSinfo, 2018). In contrast, an STI such as genital herpes has a relatively short incubation period which could vary from two to twelve days after infection (CDC, 2017).

spreads throughout the body is referred to as HIV's *life cycle* or *replication cycle* – depicted in Figure 2.1.

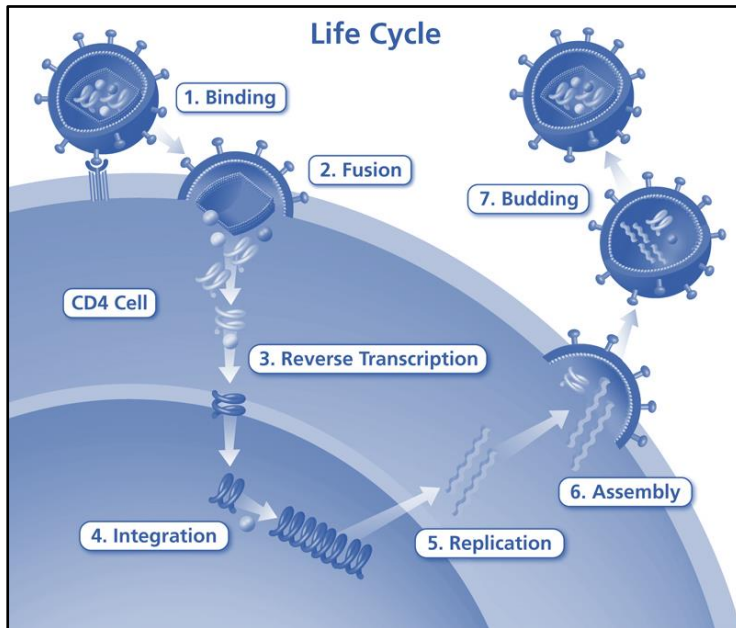


Figure 2. 1 The Life Cycle of HIV (AIDSinfo, 2018, p. 101)

The life cycle of HIV can be described in simple terms as follows. Once HIV has entered the body, it targets CD4 T lymphocytes cells¹³ and binds itself to molecules on the surface of the CD4 cell (Binding). The outer layer of the virus (also known as the viral envelope) merges with the CD4 cell's membrane allowing the contents of the virus to be released into the CD4 cell (Fusion). The virus then uses a special enzyme called reverse transcriptase to convert its own RNA into DNA. In doing so, it is able to enter the CD4 cell's nucleus (Reverse Transcription). While in the CD4 cell's nucleus, the virus releases an enzyme called integrase to integrate its own DNA into the cell's DNA (Integration). The virus then uses the CD4 cell to create several long protein chains (Replication). These long protein chains and the new virus RNA move to the surface of the CD4 cell and merge to form an immature and still non-infectious HIV (Assembly). The immature virus then ejects itself from the CD4 cell. The immature virus releases an enzyme called protease, which splits the virus's long protein chains, thereby creating a mature form of the virus, which is infectious and thus able to bind to another CD4 T lymphocyte cell and continue the life cycle (Budding) (AIDSinfo, 2018).

¹³ CD4 cells are also known as CD4 T lymphocytes or T helper cells. Lymphocytes are white blood cells that are present in blood, lymph, and lymphoid tissue. CD4 cells trigger other immune cells (such as macrophages, B lymphocytes, and CD8 T lymphocytes) to respond to an infection and thus play a pivotal role in organising the immune system's response to infections (AIDSinfo, 2018).

2.5.2. Transmission Modes and Dynamics

HIV is transmitted through direct contact with HIV-infected bodily fluids, including blood, semen, pre-seminal fluids, vaginal fluids, rectal fluids, and breast milk (AIDSinfo, 2018). HIV is transmitted when damaged tissue or mucous membranes are exposed to these HIV-infected fluids. HIV can also be transmitted through needles or syringes that are contaminated with HIV-infected blood (CDC, 2019a; Fox & Fidler, 2010). The higher a person's HIV viral load¹⁴ is, the greater the likelihood will be that they will transmit the virus to someone else (Fox & Fidler, 2010). HIV transmission is at its highest during the first three weeks of infection as HIV viral replication is particularly high during that time (Galvin & Cohen, 2004).

The transmission of HIV can follow horizontal and vertical routes. Horizontal transmission occurs when HIV is transmitted from one person to another. Horizontal transmission includes sexual exposure, exposure to HIV-infected bodily fluids during health care or other occupational activities¹⁵, exposure to contaminated blood during a blood transfusion or sharing contaminated needles during drug use. Vertical transmission refers to the transmission of HIV from a mother to her infant, either through childbirth or breastfeeding. Horizontal HIV transmission, especially HIV transmission through sexual contact, is the most common mode of HIV transmission globally (AIDSinfo, 2018; CDC, 2019a). Different transmission modes carry different estimated levels of risk (Patel et al., 2014): Blood transfusions carry the highest risk (9 250 risk per 10 000 exposures to an infected source), followed by mother-to-child transmission (2 260 risk per 10 000 exposures), receptive anal sexual intercourse (138 risk per 10 000 exposures), needle-sharing during drug use (63 risk per 10 000 exposures), a percutaneous needle stick (23 risk per 10 000 exposures), insertive anal intercourse (11 risk per 10 000 exposures), receptive penile–vaginal intercourse (8 risk per 10 000 exposures) and insertive penile–vaginal intercourse (4 risk per 10 000 exposures). Oral sex carries a very low, but not non-existent risk for HIV infection.

2.5.3. Clinical Manifestations of HIV Infection

There are three main stages of HIV progression, namely acute HIV infection, chronic HIV infection and AIDS (AIDSinfo, 2019b). During the acute HIV infection stage (2 to 4 weeks after infection), the virus rapidly spreads throughout the body, resulting in a very high viral

¹⁴ The amount of HIV ribonucleic acid (RNA) in the blood (typically reported as the number of HIV RNA copies per millilitre of blood) (AIDSinfo, 2018).

¹⁵ When HIV is transmitted through a medical procedure (e.g., through contaminated needles, intravenous sets or a blood transfusion) it is referred to as iatrogenic transmission. Other forms of transmission are considered natural or non-medical forms of transmission (Vance, 2019).

load. While some people may experience no apparent symptoms, others report flu-like symptoms, including fever, sore throat, chills, excessive fatigue, headaches, muscle pain and swollen glands (AIDSinfo, 2019b).

During the chronic HIV infection stage (1 month to 10 years after infection), the virus continues to spread throughout the body, albeit at a slower pace than the acute stage. While in the chronic HIV infection stage, a person may exhibit no symptoms or only some symptoms, which may include weight loss, diarrhoea, fatigue and breathing difficulties. If left untreated, a chronic HIV infection will typically advance to the next stage, AIDS, within ten years; however, with ART, a person can remain in the chronic stage for decades (AIDSinfo, 2019b).

Because HIV has a long incubation period, most individuals in the acute or chronic stages may only start to display HIV-related symptoms several months, or even years, after they were first infected. An HIV infection can therefore remain undetected for a substantial amount of time. While undetected and untreated, an acute or chronic HIV infection can heighten one's risk of infecting others with HIV as well as contracting STIs and other opportunistic infections.

As HIV spreads through the body, it systematically targets and infects CD4 cells, thereby disrupting their ability to function properly and ultimately destroying them. In doing so, HIV gradually damages the immune system. As the number of CD4 cells (i.e., the CD4 count¹⁶) decreases, the body becomes progressively vulnerable to opportunistic infections (AIDSinfo, 2018). An infection is considered *opportunistic* if it exploits an infection opportunity which is not normally available. Opportunistic infections are pathogens (such as viruses, parasites, fungi and bacteria) which typically infect individuals who have an already compromised immune system. While a normal functioning immune system would have been able to prevent the infection or at least fight it off relatively easily, a compromised immune system is unable to do so. An individual with a weakened immune system is, therefore, more likely to become infected with infections which are considered to be uncommon in the general population. Moreover, these infections can become especially difficult to treat and potentially lethal in people whose immune systems are compromised (AIDSinfo, 2018).

¹⁶ CD4 count refers to the amount of CD4 T lymphocytes that is present in a sample of blood. It is an important indicator of immune system functioning and is typically used to monitor a patient's response to ART. A normal CD4 count can vary widely, even in HIV-negative populations. Typically, a CD4 count between 500 and 1500 cells per microlitre (μl) is considered healthy. A CD4 count is considered low if it falls below 500 cells/ μl . HIV-infection will cause a gradual decline in CD4 count of between 75 to 100 cells/ μl per year in the absence of ART (AIDSinfo, 2018; Panther & Libman, 2005).

Some of the most common opportunistic infections amongst people who live with HIV include oesophageal candidiasis, pneumocystis pneumonia, and toxoplasmosis (Low et al., 2016). Other diseases, such as Hepatitis B and C, as well as Tuberculosis (TB), are common HIV co-infections. TB (caused by the bacteria *Mycobacterium tuberculosis*) and HIV have a synergistic relationship. Not only does HIV infection increase one's risk of contracting TB by weakening the immune system, but having both TB and HIV can dramatically depress the immune system and lead to poor health outcomes (Pawlowski et al., 2012). HIV is also known to increase the risk of the reactivation of latent TB¹⁷, thus serving as a catalyst to promote the faster progression of TB (Getahun et al., 2010). Moreover, TB has also been found to aggravate HIV infection and produce weaker health outcomes (Modjarrad & Vermund, 2010).

The final stage of HIV progression is AIDS. It is brought upon when the immune system has been so severely damaged (i.e., the patient has a CD4 count of fewer than 200 cells/ μ l) that it is no longer able to protect the body against opportunistic infections. The presence of opportunistic infections may also be used to diagnose someone as having AIDS. In the absence of any treatment, people in this final stage of the disease rarely survive for more than three years (AIDSinfo, 2019b; Panther & Libman, 2005).

Although ART is prolonging the lives of people living with HIV, long-term HIV infection has been found to lead to several chronic conditions and vulnerabilities. People living with HIV tend to develop non-HIV health-related conditions, such as cardiovascular, chronic renal, liver, cerebrovascular, metabolic, lung and bone disease, as well as cancer, earlier than their HIV-negative counterparts (Aung et al., 2020; Önen & Overton, 2011). People living with HIV are also at risk for premature frailty as well as accentuated and accelerated ageing (Aung et al., 2020). The premature neurocognitive decline in people living with HIV, formally known as HIV-associated neurocognitive disorder (HAND), is considered to be relatively common amongst adults living with HIV and is estimated to be present in between 30 to 50% of adults who are HIV-positive (Saloner & Cysique, 2017). T cell abnormalities, such as reduced T cell regeneration, as well as ongoing HIV replication and the increase in co-infections by other pathogens (such as Cytomegalovirus), which causes chronic inflammation, are believed to be the main drivers behind HIV-related immunosenescence (i.e., the gradual deterioration of the immune system) (Deeks, 2011).

¹⁷ The bacterium which causes TB, *Mycobacterium tuberculosis*, is in the body, but inactive. Someone with latent TB will not display any TB-related symptoms and will not be infectious (AIDSinfo, 2018).

2.5.4. The Reciprocal Relationship Between STIs and HIV

The presence of a sexually transmitted infection (STI) is one of the most prominent risk factors for HIV transmission (Ward & Rönn, 2010). Biological plausibility, HIV seroconversion and randomised intervention studies have shown that engaging in unprotected sex while having an untreated STI markedly increases the risk of contracting and transmitting HIV (Mayaud & McCormick, 2001). A substantial body of evidence suggests that common STIs such as syphilis (Buchacz et al., 2004; Chesson & Pinkerton, 2000), herpes simplex virus type 2 (HSV-2) (genital herpes) (Freeman et al., 2006), gonorrhoea (Peterman et al., 2015), human papillomavirus (HPV) (Houlihan et al., 2012), chlamydia (Bernstein et al., 2010), as well as trichomoniasis (Kissinger & Adamski, 2013) significantly increase the risk of HIV acquisition and transmission. Related conditions such as bacterial vaginosis and vaginal candidiasis in women have also been associated with increased HIV infection risk (De Jong et al., 2008; Fox & Fidler, 2010; Thurman & Doncel, 2011). Conversely, people living with HIV are at an elevated risk for STI infection, and co-infection with an STI can lead to poor clinical outcomes for a person living with HIV (Kalichman et al., 2011). The reciprocal relationship between STIs and HIV is summarised in Figure 2.2.

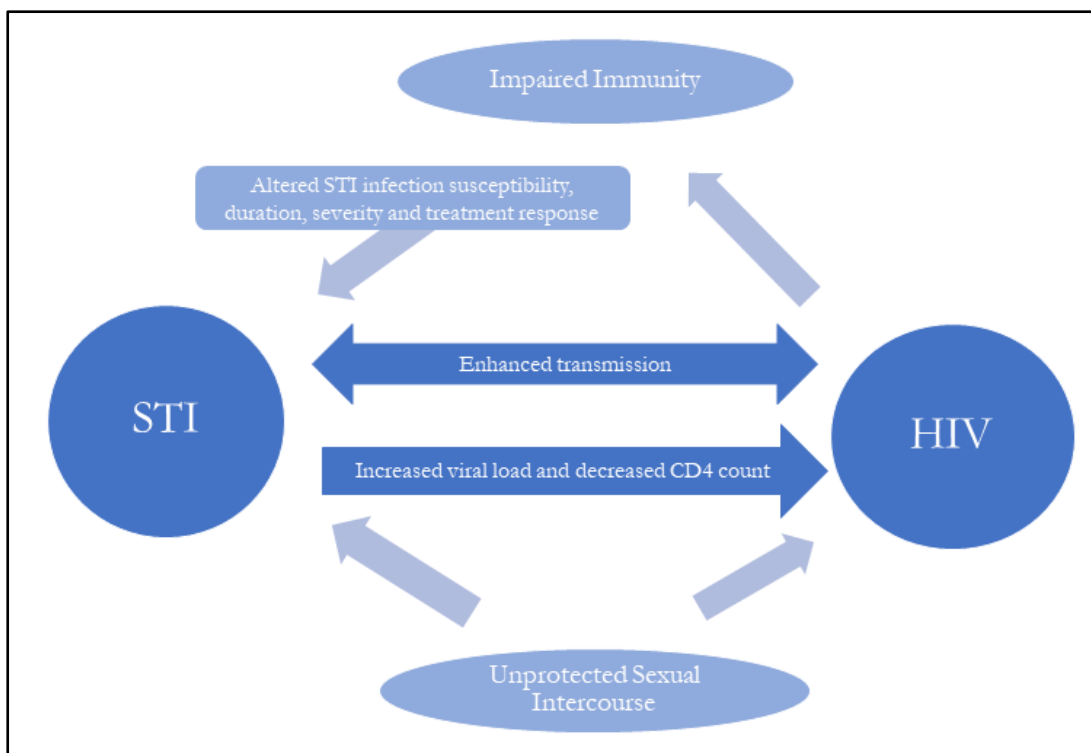


Figure 2. 2 Reciprocal Relationship Between HIV and STIs (attenuated) (Mayaud & McCormick, 2001, p. 131)

Certain STIs (such as HPV, herpes and syphilis) cause tissue damage, such as sores, rashes, ulcers and genital bleeding, which creates a point of entry for HIV transmission to occur. Other STIs (such as chlamydia, gonorrhoea, trichomoniasis and bacterial vaginosis) cause elevated inflammation in the genital tract and mucosal barriers, which activates CD4 cells and disrupts the normal functioning of the mucosal immune system. As a result, becoming infected with an STI can make a person more susceptible to HIV infection (Mwatelah et al., 2019; Ward & Rönn, 2010). HSV-2, in particular, have been associated with a marked increase in HIV infection risk in HIV-negative individuals, especially when viral reactivation of the HSV-2 occurs (Looker et al., 2017).

HIV-positive individuals are especially vulnerable to STI infection, because HIV weakens the immune system (Kalichman et al., 2011). HIV can also alter the duration and severity of an STI and even disrupt STI treatment response (Mayaud & McCormick, 2001). Untreated STIs may increase a person's HIV viral load, especially the HIV viral load in a person's genital secretions, thereby increasing the risk of transmitting HIV to their HIV-negative sex partners (Buchacz et al., 2004; Kalichman et al., 2008a). Untreated STIs have also been found to increase the shedding of HIV in the genital tracts of people who are living with HIV, thereby increasing their infectiousness even further (Cohen, 2012). While ART can help to reduce viral shedding, it may still occur in ART patients with untreated STIs (Kharsany et al., 2020). Untreated STIs may also cause poorer clinical outcomes for people who are living with HIV by lowering their CD4 count, which may hasten their HIV disease progression (Kalichman et al., 2011). Moreover, it has been suggested that, in HIV-negative women, untreated STIs may reduce vaginal concentrations of certain ARVs, especially those that are administered intravaginally, which may reduce the efficacy of microbicides and similar pre-exposure prophylaxis strategies (Abdool Karim et al., 2019).

2.5.5. Highly Active Antiretroviral Therapy

It became apparent that targeting HIV treatment at only one stage of the virus's life cycle (e.g., using NRTIs alone) was not sustainably effective and that HIV treatment had to include a combination of drugs which targeted several stages of the virus's life cycle in order to be effective (Hammer et al., 1996; Volberding et al., 1994). The AIDS Clinical Trials Group 320 Study (Hammer et al., 1997) (a randomised, double-blind, placebo-controlled trial) was the first study to demonstrate that a treatment regime that includes a combination of at least three ARVs which are each aimed at two or more stages of the HIV life cycle, significantly delays the progression of HIV to AIDS compared to an ART regime which only contained one or two

ARVs. The three ARVs in the study's regime included two NRTIs (zidovudine and lamivudine) and one PI (indinavir) (Hammer et al., 1997). This treatment regime became known as Highly Active Antiretroviral Therapy (HAART) and is also referred to as combination ART (cART) (Kaufmann & Pantaleo, 1998)¹⁸.

HAART transformed HIV from a fatal disease into a manageable, chronic one. It has allowed children who were born with HIV to grow up and live healthy and normal lives. It has allowed people who were close to dying from the disease to be “brought back from the dead”, so to speak, and live productive lives for decades thereon¹⁹.

2.5.6. Prevention of Mother-To-Child Transmission

The transmission of HIV from HIV-positive mothers to their infants was a pressing concern from the beginning, yet doctors were left with limited effective treatment options in the 1980s. HIV has become one of the leading causes of death in infants and young children, particularly in the developing world (Lallemant et al., 2010). In response to this, the Pediatric AIDS Clinical Trials Group conducted a multi-centre, double-blind, placebo-controlled, randomised clinical trial in 1994 in France and the USA to test the potential effectiveness of zidovudine (an NRTI) in reducing the risk of maternal-infant transmission of HIV (Connor et al., 1994). This study turned out to be one of the most impactful clinical trials in the history of the epidemic. It demonstrated that by administering zidovudine to a pregnant HIV-positive woman during her pregnancy and the delivery as well as to the newborn for the first six weeks of its life, the risk of HIV transmission from mother to infant is reduced by approximately two-thirds (Connor et al., 1994). Subsequent clinical trials in other countries (including Uganda and Thailand) were able to substantiate these findings, leading to nevirapine (an NNRTI) being added to the ARVs suitable for the Prevention of Mother-To-Child Transmission (PMTCT) in this manner (Guay et al., 1999; Shaffer et al., 1999). Due to the introduction of PMTCT treatment, the global number of new infections amongst infants and children under the age of 14 has reduced remarkably since the treatment's introduction in 1999, from 480 000 in 2000 to 160 000 in 2021 (UNAIDS, 2020b; 2022c).

2.5.7. Treatment-as-Prevention

Based on research which started in the late-1980s (Henderson & Gerberding, 1989), the late 1990s saw scientists conduct further research on ARVs as a possible method to prevent

¹⁸ Given that HAART has since then become the norm for ART, referring to ART implies HAART.

¹⁹ Popularly known as the “Lazarus effect” ARVs have on people living with HIV who were very ill before taking medication.

population-wide HIV infection. Given that consistent ARV intake lowers a person's HIV viral load, it was hypothesised that early initiated HAART could help to decrease HIV transmission rates (Blower et al., 2000). A pivotal study by Velasco-Hernandez et al. (2002) was the first to mathematically model the effectiveness of ART on the HIV epidemic in the gay community of San Francisco. They found that the HIV pandemic could be eliminated as a public health threat through the introduction of high ARV uptake, which suggests that early HAART roll-out to a large proportion of the HIV-positive population can decrease HIV incidence rates, even in high-prevalence communities (Velasco-Hernandez et al., 2002). The study was followed by several other studies – including the landmark HIV Prevention Trials Network (HPTN) 052 trial (Cohen et al., 2011) – which also found that widespread and consistent ART holds considerable promise as a way to prevent new infections and possibly eradicate HIV over the longer-term (Granich et al., 2009; Phillips et al., 2013; Powers et al., 2011).

Based on these studies, the practice of initiating ART based on CD4 count fell out of favour, and scientists and public health officials started to advocate for ART to be used as a vehicle for HIV prevention (Ying et al., 2016). So-called “test-and-treat” approaches emerged, including treatment as prevention (TasP) (WHO, 2012a), treatment-centred prevention (TcP) (Delva et al., 2011), as well as universal testing and treatment (UTT) (WHO, 2015). “Test-and-treat” approaches are based on the idea that if large scale HIV-testing could take place (ideally reaching a high percentage of the population who are tested at least once per year), and that if everyone who tests HIV-positive is provided with immediate life-long HAART (regardless of their CD4 count), then the HIV infection rate would markedly decline in a relatively short time period and possibly eventually lead to the total eradication of the disease (Dodd et al., 2010; Hayes et al., 2014; Velasco-Hernandez et al., 2002).

By increasing the number of people that know their HIV-positive status and ensuring that those who test HIV-positive are immediately initiated on sustained ART, the hope was that most people living with HIV would become virally suppressed²⁰ and consequently will be far less likely to infect others with the virus. Over time, this will help to reduce the number of new infections systematically and could, in conjunction with other prevention strategies, eventually serve to completely stop the large-scale spread of the disease (WHO, 2018).

²⁰ If someone is virally suppressed it means that the person's plasma viral load is below 1,000 copies HIV RNA/mL. The likelihood of transmitting the virus is vastly reduced if the person is virally suppressed. If the person's plasma viral load is less than 50 copies HIV RNA/mL the viral load is considered “undetected” and transmission of the virus is highly unlikely (Attia et al., 2009; Bradley et al., 2016; Cohen et al., 2007; Mendoza et al., 2018).

The *Partners of People on ART – A New Evaluation of the Risks* study (PARTNER) (Rodger et al., 2016) and the PARTNER 2 study (Rodger et al., 2019) (observational multi-country studies) both found that condomless sex posed zero risk for HIV infection in serodiscordant²¹ heterosexual and MSM couples, as long as the HIV-positive partner remained virally suppressed. Similarly, findings from the HPTN 052 trial (a phase three, two-arm, randomised, controlled trial) that was conducted in Malawi, Zimbabwe, South Africa, Botswana, Kenya, Thailand, India, Brazil, and the USA showed that early initiation of ART could prevent 96% of HIV infections in serodiscordant heterosexual couples (Cohen et al., 2016).

In 2016, Prevention Access Campaign initiated the slogan *Undetectable=Untransmissible* to attract attention to the growing body of research, which suggests that ART can lead to undetectable viral loads in HIV-positive people and thereby prevent the transmission of HIV (The Lancet HIV, 2017). The slogan is also considered an anti-stigma and HIV prevention slogan, as it aims to educate the public about the progress that has been made in ART and that the transmission of HIV can be prevented. The slogan was also intended to help reduce self-stigma and stigma toward people living with HIV, promote the demand for voluntary counselling and testing (VCT), the early initiation of ART, and encourage ART adherence (CDC, 2019b).

2.5.7.1. Concerns about the feasibility and efficacy of TasP

Although it was evident since the mid-2000s that widespread VCT and immediate initiation of ART could decrease the spread of the disease, fears existed that implementing such a strategy would be very costly and difficult to execute. As Garnett and Baggaley (2009) stated: “When early treatment is considered as a prevention tool, success will require substantial resources and depend on a remarkable degree of acceptance and cooperation across populations” (p. 10). Moreover, TasP may lead to unnecessary over-testing and over-treatment, the development of treatment resistance (due to poor adherence and treatment interruptions), greater incidence of treatment side effects (including toxicity), and less autonomy and treatment options for people living with HIV (Garnett & Baggaley, 2009; Shelton, 2011). Others feared that it might cause a greater focus on treatment at the expense of behavioural and social change programming; lead to an increase in compensatory risky sexual behaviour; be cost-inefficient and be difficult to implement on a large enough scale to make a real impact; lack feasibility and sustainability to implement in resource-limited settings; and may not be ethically sound, considering that it

²¹ The term serodiscordant (or mixed-status) couple refers to a couple where one partner is HIV-positive and the other partner is HIV-negative (AIDSinfo, 2018).

may cause funding to be shifted away from behavioural and other protective services (Hoare et al., 2010; Holtgrave, 2010; Kulkarni et al., 2013; Nguyen et al., 2011; Zachariah et al., 2010).

2.5.7.2. Current evidence and continued concerns

Data from the latter half of the 2010s show that the increase in VCT availability is helping to shorten the time period that people live without knowing their HIV status and that increased ART coverage is helping to contribute to lower AIDS-related mortality (Mendez-Lopez et al., 2019). It is estimated that close to 12.1 million AIDS-related deaths have been avoided since 2010 due to the increased availability of ART (UNAIDS, 2020b).

The success of PrEP clinical trials and observational studies have shown that, although biomedical prevention methods can effectively prevent HIV infection, their success is heavily dependent on consistent adherence and uninterrupted access to PrEP and sustainable resources for its distribution (Rawlings, 2016). The same can also be said for ART and TasP – strict adherence to treatment regimens and uninterrupted, sustained provision of ARVs are crucial to ensure comprehensive treatment coverage and viral suppression amongst people living with HIV.

Despite the decrease in the number of new HIV infections over the last 20 years (from 2.7 million in 2000 to 1.5 million in 2021 globally), the HIV incidence rate has not reduced by as much as one would have expected; especially given all the funding and focussed interventions that have been implemented to curb the spread of the disease. The infection rate remains high amongst key populations globally, especially AGYW in sub-Saharan Africa – despite the greater roll-out of VCT and ART services in that region.

This suggests that other barriers to HIV prevention and TasP remain and that these barriers may relate more to the behavioural, social, societal and structural aspects of HIV and AIDS. As Wilson and Whiteside (2016) state:

We need to move beyond advocacy to a remorseless focus on complex reality. 90-90-90 has been an effective rallying cry, but its implied progression towards herd coverage and immunity does not capture the complexity of HIV transmission dynamics, which require us to first reach — and then retain — those with early, acute infection, high viral load and high rates of partner change or needle sharing — many of whom face multiple overlapping health and social vulnerabilities. We need a more targeted,

nuanced, differentiated and comprehensive approach to epidemiological, implementation and social complexity. (pp. v-vi).

Despite the great progress that has been made, the UNAIDS 90-90-90 Fast Track Targets have not been reached globally, and countries vary in terms of their success in achieving these testing, treatment and viral suppression goals. Lack of funding to sustain a continuously increasing need for ARVs, corruption, political instability and conflict, as well as poor and inconsistent monitoring systems to track targets, have been identified as some of the key obstacles to achieving the global HIV prevention and treatment targets (Bain et al., 2017; Levi et al., 2018). However, the factors which influence the attainment of these targets and the uptake of ART and TasP services are complex, extending beyond political and economic factors. They include the social conditions, belief systems, social dynamics and behavioural factors that play a role in gaining access to those most at risk, retaining them in treatment programmes and ensuring that they adhere to ART regimens.

2.5.8. Voluntary Counselling and Testing

HIV testing represents the first step to TasP – the quicker a person becomes aware of their HIV-positive status, the faster they can receive ART counselling and start ARV treatment. Thanks to the upscaling of UTT programmes globally, the number of people living with HIV who know their status has risen from 71% in 2015 to 85% at the end of 2021 (UNAIDS, 2022b). Gaining access to key populations and specific subgroups (such as men, young people and sexual minorities) who are known to rarely test for HIV remains an important aim of Voluntary Counselling and Testing (VCT) promotion initiatives (UNAIDS, 2022a).

Research has demonstrated that VCT service utilisation may be low in a community, even when community members are familiar with VCT services and know where to find these services (Erena et al., 2019). Instead, a complex interplay of social, psychological and structural factors plays a role in shaping people's intention to take an HIV test.

2.5.8.1. Fear and avoidance

Fear of getting an HIV-positive status, concerns over privacy at testing facilities and the anticipation of stigmatising reactions from other community members, peers and family have been associated with opting not to take an HIV test (Adebayo & Gonzalez-Guarda, 2017; Erena et al., 2019; Kirakoya-Samadoulougou et al., 2013; Schatz et al., 2019). Anticipated concerns over stigmatisation may also include apprehension about internalised stigma (i.e., self-stigma)

and how an HIV-positive diagnosis may alter their perceptions of themselves, their identity and their self-esteem (Adebayo & Gonzalez-Guarda, 2017; Price et al., 2019)²².

2.5.8.2. Religious and cultural beliefs

VCT utilisation is negatively associated with strong religious beliefs, particularly beliefs that portray sexuality as a taboo topic for discussion and HIV as a disease that is brought upon people as a punishment from God for being promiscuous, homosexual or adulterous (Erena et al., 2019). Religious youth, in particular, tend to be less likely to use VCT services because they tend to delay sexual debut until marriage or engage in much less risky sexual behaviour than their non-religious peers (Swenson et al., 2009). Strict religious and cultural views about gender may also restrict women's ability to make independent decisions about their health, thereby limiting their access to VCT services (Erena et al., 2019).

2.5.8.3. Healthcare access

Being offered an HIV test by a healthcare provider and being provided with pre-test counselling plays a vital role in promoting VCT utilisation (Adebayo & Gonzalez-Guarda, 2017). Access to rapid HIV tests and testing facilities that are convenient and deemed friendly to use also promote HIV testing rates (Adebayo & Gonzalez-Guarda, 2017).

2.5.8.4. Marital status and socio-economic status

Being married has been linked with high VCT usage. This could be attributed to mandatory premarital HIV testing campaigns in certain countries (such as Burundi) and the high provider-initiated testing rates amongst pregnant women at perinatal healthcare facilities (Erena et al., 2019).

Having a high socio-economic status has also been linked to greater use of VCT services. This may be ascribed to the fact that higher-income persons tend to have more healthcare service options available to them (Erena et al., 2019). Having a supportive social network (including friends and family) with whom one could talk about HIV and VCT also promoted higher rates of VCT usage, especially amongst the youth (Adebayo & Gonzalez-Guarda, 2017).

²² Underlying this is the concept of psychological threat avoidance, specifically the avoidance of potentially threatening information. If the psychological threat of receiving an HIV-positive test result is deemed too great, people may avoid testing altogether (Price et al., 2019; Sweeny et al., 2010).

2.5.8.5. Risk perception and risk behaviour

Perceiving that one is at high risk for contracting HIV is a significant predictor of VCT usage (Fenton et al., 2002; Kabiru et al., 2011; Kirakoya-Samadoulougou et al., 2013). Individuals who report a history of risky sexual behaviour (such as having multiple concurrent partners or frequently engaging in sex without a condom) tend to be more likely to use VCT services (Adebayo & Gonzalez-Guarda, 2017; Erena et al., 2019). The reasoning is that persons who participate in high-risk sexual behaviour realise that their behaviour places them at risk for HIV infection, and the possibility that they may have contracted HIV concerns them and hence encourages them to take an HIV test (Adebayo & Gonzalez-Guarda, 2017).

Engaging in HIV risk reduction strategies, such as negotiating condom use with one's partner and not using drugs or alcohol during sex, has also been linked with higher VCT usage rates (Adebayo & Gonzalez-Guarda, 2017). Other factors which promote HIV testing include being in a serodiscordant relationship, having a partner that has a history of risky sexual behaviour, suspecting that one's partner may be HIV-positive, and having a family member or partner who is ill and suspected of possibly being HIV-positive (Adebayo & Gonzalez-Guarda, 2017; Nannozi et al., 2017).

2.5.9. Uptake of ART

Given the importance of early ART uptake, numerous studies have attempted to gain deeper insight into the social, behavioural and structural factors that hinder and promote the initiation and re-initiation of ART.

2.5.9.1. Factors that hinder ART uptake

Research has indicated that anticipated challenges with accessing ART can influence a person's decision to initiate ART. Knowledge of poor local healthcare services, frequent ARV shortages at local clinics, long travel distances to pharmacies and clinics, limited privacy at healthcare facilities and staff shortages at local healthcare facilities discourage people living with HIV from initiating ART (Bajunirwe et al., 2018; Nhassengo et al., 2018). Living far away from the nearest healthcare facility and thus anticipating long trips to collect medication and attend doctor's appointments play a significant role in deterring people living with HIV from initiating ART (Bajunirwe et al., 2018; Cooke et al., 2010). Concerns about the costs of treatment and/or the associated costs with travelling to the clinic or pharmacy also contributed to apprehensiveness amongst treatment-naïve people living with HIV (Ahmed et al., 2018).

The fear of HIV status disclosure, knowing that they may face stigma and discrimination as well as limited social and economic support, discourage HIV-positive individuals from taking up ART (Ahmed et al., 2018; Bajunirwe et al., 2018; Glendinning et al., 2019; Nhassengo et al., 2018). Mental health difficulties, including depression, internalised stigma, engaging in avoidant coping strategies (such as denial and distraction) and the abuse of substances have also been identified as factors that delay ART initiation (Earnshaw et al., 2018a; Glick et al., 2020). Concerns about experiencing ARV side-effects and long-term negative effects of the treatment, as well as feeling overwhelmed by the prospect of taking ARVs for the rest of their lives and how it might change their lifestyle, also contributed to treatment uptake delays (Ahmed et al., 2018; Glendinning et al., 2019; Nhassengo et al., 2018). Concerns about the reaction of an unsupportive partner have also been noted as an influencing factor in postponing ART initiation (Kim et al., 2016).

Feeling healthy when receiving an HIV-positive diagnosis may prompt newly diagnosed persons to view immediate ART uptake as unnecessary (Glendinning et al., 2019; Kim et al., 2016; Nhassengo et al., 2018). Needing more time to consider their options and to process the diagnosis has also been cited as reasons for delaying ART uptake (Kim et al., 2016). Doubts about the efficacy of ARVs and the erroneous belief that, because ARVs cannot cure HIV, it is pointless to undergo the treatment, have also been cited as reasons for non-uptake (Glendinning et al., 2019).

2.5.9.2. Factors that promote ART uptake

Fear of dying of AIDS, having a supportive social network, having positive experiences at healthcare facilities and believing in the efficacy of ARVs promoted the uptake of ART (Ogunbajo et al., 2018). Previous involvement in an ART programme positively predicts the re-uptake of ART (Glick et al., 2020). Other reasons for restarting ART include deteriorating health, fear of worsening health and illness, receiving social support and encouragement to reinstate ART, experiencing a decline in the severity and number of ARV side effects and terminating a relationship with an unsupportive partner (Kim et al., 2016).

2.5.10. Retention in ART programmes

An ART patient is considered *lost to follow-up* when they have failed to collect an ART refill 180 days after their previous clinic visit (Chi et al., 2011). Patients who drop out of ART programmes are at risk of becoming non-adherent to their treatment, which places them at an elevated risk of developing drug resistance, experiencing treatment failure, undergoing

deteriorating health, developing HIV-related health complications, and dying (Bikoro et al., 2020).

2.5.10.1. Factors associated with ART programme retention failure

Many of the factors that deter the initiation of ART also contribute to ART patients' decision to discontinue treatment. Factors that are associated with losing ART patients to follow-up include clinical and general health characteristics, socio-demographic factors, healthcare facility and healthcare provider attributes as well as social and psychological factors.

Clinical and general health characteristics included having a low CD4 cell count, experiencing ARV side effects, and having a co-infection (especially untreated TB) (Assefa et al., 2015; Assemie et al., 2018; Dessalegn et al., 2015; Tadesse & Fisiha, 2014). Being non-adherent to one's ART predicts treatment loss to follow-up (Bikoro et al., 2020). Not having access to regular meals also predicts loss to follow-up (Hardon et al., 2007). Long waiting times at healthcare facilities, expensive travel costs to healthcare facilities and poor patient-healthcare provider relationships are also associated with a higher risk of loss to follow-up (Geng et al., 2016). Adolescents, young adults, and unmarried patients tend to be at greater risk of becoming lost to follow-up (Assefa et al., 2015; Assemie et al., 2018). Men have also been found to be more likely to drop out of ART programmes than women (Assefa et al., 2015; Tadesse & Fisiha, 2014). Fear of experiencing stigma from family, one's community or healthcare providers and experiencing mental illness and grief also predict the discontinuation of treatment (Bikoro et al., 2020; Dessalegn et al., 2015). High to moderate health literacy²³ has also been found to be associated with more frequent clinic attendance in people living with HIV and retention in ART programmes (Jones et al., 2013).

2.5.10.2. Silent transfers and clinic shopping

While some ART patients who fail to stay in their ART programmes do so because they are no longer motivated to take ARVs or honour their clinic appointments, others opt to discontinue their ART, only to resume ART at another healthcare facility. This phenomenon is referred to as *silent transfers* and can be especially difficult to monitor as these informal transfers are typically not documented in official hospital records, and many countries do not have sophisticated patient monitoring software to be able to track informal transfers (Clouse et al.,

²³ Health literacy refers to the capacity a person has to acquire, communicate, process, and understand health information and to make informed health decisions. A person's health literacy level can be influenced by their numeracy and reading skills, their ability to understand health recommendations, their familiarity with the healthcare sector and their ability to find, evaluate and implement health information (Perazzo et al., 2017).

2017; Etoori et al., 2020). Silent transfers mostly occur when ART patients relocate and are no longer living (or working) close to the healthcare facility, travel frequently, or when they have had negative experiences at the healthcare facility where they initially started ART. Negative experiences that may prompt silent transfers include unfriendly, stigmatising and discriminatory behaviour from healthcare providers as well as long waiting times at healthcare facilities (Geng et al., 2016). Related to the concept of silent transfers is *clinic shopping*, a phenomenon which occurs when ART patients approach various healthcare facilities and enrol in the treatment programmes of several facilities in order to identify a facility which provides the best services to them (Clouse et al., 2017).

Losing patients to follow-up threatens to undermine the success of TaSP programmes as it reduces ARV coverage in communities and thus indirectly may contribute to growing HIV incidence rates (Granich et al., 2009). Low clinic attendance and retention in ART programmes typically precede and contribute to low ART adherence.

2.5.11. ART Adherence

Adherence refers to “the extent to which the patient’s behaviour matches agreed recommendations from the prescriber” (Horne et al., 2015, p. 12)²⁴. This includes the use of medication as it was prescribed, at the times and frequencies that it was prescribed and adhering to other guidelines such as restrictions on the use of other medication, dietary restrictions and honouring follow-up appointments (WHO, 2010b). Adherence to ART is essential to ensure continuous viral suppression, decreased risk of HIV transmission, improvement in health and quality of life, as well as the prevention of drug resistance (AIDSinfo, 2018).

²⁴ While the term “adherence” is now commonly used, the term “compliance” was the more commonly used word from the 1970s (when the study of medication compliance started to receive growing attention) until around the early to mid-2000s. Compliance is defined as “the extent to which the patient’s behaviour matches the prescriber’s recommendations” (Horne et al., 2015, p.12). The use of the term “compliance” fell out of favour as it was based on what is considered to be an outdated social contract between the patient and the healthcare provider, in which a.) the healthcare provider (the “prescriber”) decides what therapy should be taken and specifies to the patient how it should be used; b.) the healthcare provider urges the patient to follow the prescription precisely as stipulated; and c.) the pharmacist reinforces the prescription and the importance of taking the medication precisely as specified (Tilson, 2004). This social contract implied that the patient was passive throughout the process (i.e., did not have a say in treatment or medication decisions) and that the patient had to yield to and obey the demands of the healthcare provider (Horne et al., 2015). Over the years, the social contract between healthcare provider and patient started to change, and the belief that patients should have more decision-making power when it comes to their health, and that the relationship between healthcare provider and patient should be more like a partnership started to gain popularity (Tilson, 2004). Consequently, the social contract evolved into a partnership in which the healthcare provider is the advisor who provides that patient with information and an environment in which the patient can make their own decisions (Horne et al., 2015). This shift in perspective promoted the use of the term “adherence” which implies that the patient shows support for and remains loyal to the agreed upon treatment plan (Tilson, 2004).

Simply put, non-adherence can be defined as a patient's inability to follow the treatment regimen that was prescribed to them. In practice, non-adherence includes the chronic under-use of medication (i.e., using smaller dosages than described); the inconsistent changing of medication use – from being fully adherent at times to under-using or not using the medication at all at other times; and not using all the medications or under-using some of the medications in their treatment plan (WHO, 2010b). Non-adherence can be limited to short-term disruptions in treatment (e.g., forgetting to take their pills one day or being away from home and forgetting one's medication), but also more severe long-term non-adherence where a person fails to take their medication for an extended period of time.

Non-adherence can lead to less effective viral suppression, which not only makes it possible for the ART patient to transmit the virus to someone else, but also negatively affects them by causing poor health outcomes, treatment failure²⁵ and an increased risk of developing treatment resistance against certain classes of ARVs (AIDSinfo, 2018).

If an ART patient develops treatment resistance and then infects someone else with the virus, the newly infected person will acquire a strain of HIV that is also resistant to the same treatment. This is referred to as transmitted resistance (AIDSinfo, 2018). Treatment resistance ultimately leads to the ineffectiveness of existing ARVs and limits a patient's future options for treatment. The development and increased spreading of treatment-resistant HIV strains constitute a significant risk in communities where HIV is not adequately treated, and ART is not adhered to consistently (Kalichman et al., 2008a).

2.5.11.1. Monitoring ART adherence

ART adherence can be assessed through subjective and objective methods. Subjective adherence measures include participant interviews, surveys or participant diaries and consequently rely on the self-report of behaviour. Although this form of adherence monitoring is the most inexpensive and easiest to collect, self-report measures of adherence tend to consistently overstate levels of adherence (Remy & Enriquez, 2019). This could be due to participants' failure to remember missed dosages, as well as social desirability bias and the demand characteristics of the study that influence the participants to report high adherence (Baeten et al., 2013). However, interviewing participants about their use of the drug can yield

²⁵ When a specific ART regime is no longer able to control the HIV infection (i.e., viral load increases despite ARV treatment) it is referred to as *treatment failure* (AIDSinfo, 2018).

insightful results about their reasons for adhering and non-adhering, which researchers may not have been able to obtain otherwise.

Objective adherence measures that are often used in clinical trials include counting the number of times participants collect a refill of their medication or monitoring the number of medication containers that participants return at the end of the study period (Remy & Enriquez, 2019). By counting the number of returned (and hence unused) medications, researchers can calculate the proportion of dispensed medications that each participant actually used. Both methods are not labour-intensive but require a reliable monitoring system to keep track of refills and returned medication. Furthermore, both are, to a varying degree, vulnerable to participant manipulation (Baeten et al., 2013; Gable & Lagakos, 2008).

Other objective adherence measures include monitoring checks conducted when participants visit the clinic or by conducting home visits where a physical inspection of medication containers is done by a researcher. Although monitoring checks are considered to be more objective measures of adherence, home visits are particularly resource-intensive and may violate the participant's confidential participation in the study, placing them at risk of being stigmatised by their family or community (Baeten et al., 2013).

The use of electronic monitoring devices such as pill bottles with electronic caps, which count the number of times that the bottle has been opened, has also been used to monitor (and promote) adherence (Haberer et al., 2011). Monitoring devices allow researchers to measure not only adherence, but also patterns of medication use. Although it is considered to be one of the most accurate adherence measures, using electronic monitoring devices can be expensive, and misclassification may occur (e.g., when a participant removes several tablets from the bottle at once or opens the bottle but does not remove any tablets) (Baeten et al., 2013; Gable & Lagakos, 2008).

The most objective and accurate adherence measure that clinical trials employ is to test participant blood or hair samples to identify whether the medication's active ingredient is present. Testing drug plasma levels is considered to be the best way to reliably check adherence as it directly reflects the use of the medication. However, it may not always be appropriate or feasible. For example, testing drug plasma levels are expensive and not always feasible in low-resource settings. It is also possible, especially when participants know that they will have to provide a test sample, for participants to deliberately take the medication before the sample is

taken in order to make it seem as if they were adherent to the medication during the course of the study (Baeten et al., 2013).

2.5.11.2. Factors that influence ART adherence

ART adherence is influenced by the nature of the treatment regimen, healthcare provision and service delivery factors, structural factors, social and psychological factors and general health factors (Heyer & Ogunbanjo, 2006). Most of the influencing factors discussed below apply to long-term non-adherence.

a.) Treatment-related factors

Pill burden (i.e., the number of pills that an ART patient takes daily) and regimen complexity (i.e., the number of medications, variations in dose forms and frequency of dosing) have been associated with low adherence (Heyer & Ogunbanjo, 2006; Kardas et al., 2013). The higher the pill burden and the more complex an ART patient's regimen becomes, the more at risk they are of becoming non-adherent. Moreover, being prescribed additional dietary and medication restrictions, having to drink large tablets that have an unpleasant taste and experiencing side effects from ARVs increase the likelihood of non-adherence (Adeniyi et al., 2018; Heyer & Ogunbanjo, 2006; Kardas et al., 2013). Treatment (or regimen) simplification refers to the adjustment of a person's ART regimen in order for it to be easier to adhere to. This may entail reducing the number of ARVs in the regimen; changing the combination of ARVs; changing the ARVs that are likely to produce fewer side effects; or changing the regimen to a combination of ARVs that do not need to be taken with food (AIDSinfo, 2018).

A good understanding of ART and how it relates to viral suppression have been found to predict higher rates of adherence (Heyer & Ogunbanjo, 2006; Wawrzyniak et al., 2013). ART patients who received insufficient information about ART and who have low health literacy (especially when it comes to an understanding the relationship between viral load and disease progression and transmissibility) are at significant risk for low adherence (Heyer & Ogunbanjo, 2006).

b.) Healthcare provision, service delivery and treatment access factors

Having a negative experience with healthcare providers is another key factor that undermines ART adherence. Engaging with healthcare providers who treat ART patients poorly or hold stigmatising views of key populations and people who are living with HIV often compels ART patients to drop out of their ART programme or to silently transfer to another healthcare facility which may lead to disruptions in their ART and lower their overall commitment to adhering to

their ART regimen (Kagee et al., 2011). Having negative experiences with healthcare providers in the past may instil a sense of distrust in and even a fear of healthcare providers, which may prevail for a long time and hinder the development of positive patient-healthcare relationships in the future (Ayieko et al., 2018).

ART patients who are unable to obtain a regular supply of medication due to medication stockouts or who have difficulty collecting their medication regularly due to long travel distances to the clinic or long waiting times at the pharmacy are especially vulnerable to becoming non-adherent to their ART regimens. This situation is worsened for ART patients who have difficulty accessing reliable and safe transport or who have to take time off work and lose a part of their income in order to collect their monthly medication (Adeniyi et al., 2018; Ayieko et al., 2018; Bukenya et al., 2019; Kagee et al., 2011). Lack of privacy during clinic visits as well as inconvenient appointment times and pharmacy business hours, may also contribute to ART patients discontinuing treatment (Kardas et al., 2013).

Healthcare facilities which provide insufficient HIV support services, such as limited HIV counselling or mental health support services, have been found to undermine ART adherence (Adeniyi et al., 2018; Kardas et al., 2013). Lack of available ART information sources and limited ART education can also contribute to ART non-adherence (Bukenya et al., 2019). Furthermore, the improper training of lay counsellors and other staff members who are tasked with pre- and post-test HIV counselling also contributes to non-adherence (Kagee et al., 2011).

A positive patient-healthcare provider relationship as well as satisfaction with one's healthcare providers are considered to be important predictors of ART adherence. Confidence in one's healthcare provider and positive perceptions of one's healthcare provider's competence has been found to support high adherence. Healthcare providers who communicate clearly and demonstrate compassion, offer patients the opportunity to talk about side-effects or other ARV-related problems and include their patients in treatment decision-making processes have been found to promote better adherence in their ART patients (Heyer & Ogunbanjo, 2006; Kardas et al., 2013). Having a well-structured treatment plan and receiving treatment in a structured healthcare facility also promote better adherence. The ease of visiting the healthcare provider and other healthcare facilities (e.g., the pharmacy and clinic) and receiving good quality referrals to other healthcare providers play an essential part in supporting sustained ART adherence (Kagee et al., 2011; Kardas et al., 2013).

c.) Structural factors which influence ART adherence

Poverty serves as a major obstacle to ART adherence. People living with HIV who face financial hardship may prioritise their immediate livelihood over their healthcare, such as going to work every day and not taking time off to visit the clinic. Community violence, crime, unemployment and inadequate housing may further undermine a person's ability to gain access and remain adherent to ART (Ayieko et al., 2018; Kagee et al., 2011; Kardas et al., 2013).

Being exposed to false information and inconsistent messaging about HIV, AIDS and ART in public fora, especially when the sources are political, religious or cultural leaders, negatively affect HIV adherence. This tends to promote misunderstandings and lowers trust in the efficacy of ART amongst the general public and people who are living with HIV (Adeniyi et al., 2018; Natrass, 2006).

State-funded temporary disability grants provided to people living with HIV who are unable to work and have a low CD4 count can inadvertently contribute to non-adherence. A person living with HIV may fear losing the additional income that the grant provides and may feel unable to gain employment to replace the income they received through the grant. As a result, individuals receiving a disability grant hinged upon CD4 count may decide to forgo ART to retain the grant (Haber et al., 2018; Moetseloa, 2018; Natrass, 2006).

Forced migration due to economic or political instability threatens to disrupt access to ART and other healthcare services. Finding new healthcare services in a new environment and gaining access to those services may be difficult. The challenges involved with re-enrolling oneself in an ART programme may ultimately contribute to non-adherence (Kagee et al., 2011).

Social norms and beliefs about gender and healthcare may also play a role in how quickly men and women initiate ART as well as how well they adhere to their ART regimens. Women may feel at greater risk of suffering adverse consequences (such as stigma and even physical violence and ostracisation) from disclosing their HIV status and hence feel unsafe to take their medication openly. Traditional and rigid perspectives on masculinity contribute to treatment non-adherence, as men may view healthcare as a feminine issue and may consider illness and the taking of medication as signs of weakness (Adeniyi et al., 2018; Ayieko et al., 2018; Kagee et al., 2011; Negash et al., 2013).

d.) Social and psychological factors

Fear of stigmatisation by family members, friends and community members represents one of the most significant barriers to ART adherence. Fear of possible stigma and discrimination keeps people living with HIV from seeking treatment and disclosing their HIV-positive status to others. This isolates them and cuts them off from social support, which could have helped them to cope with the HIV-positive diagnosis and adhere to the treatment regimen. Lack of social and family support also predicts lower levels of ART adherence (Adeniyi et al., 2018; Ayieko et al., 2018; Bukenya et al., 2019; Heyer & Ogunbanjo, 2006; Kagee et al., 2011).

Poor self-care and deteriorating mental health, particularly depression, anxiety and stress, are associated with lower levels of adherence (Glick et al., 2020; Heyer & Ogunbanjo, 2006; Kardas et al., 2013; Negash et al., 2013; Wasti et al., 2012). Experiencing internalised stigma and self-blame is associated with non-adherence (Negash et al., 2013). Denial, emotional avoidance and behavioural disengagement as coping strategies also tend to lead to non-adherence (Berghoff et al., 2018). Negative attitudes about ART and pessimism about being HIV-positive are also related to poorer adherence (Heyer & Ogunbanjo, 2006). Sharing ARVs with others or selling ARVs also contribute to poor ART adherence (Glick et al., 2020).

Having access to a social support network, including supportive friends and family, counsellors and peer support groups, is related to better adherence (Glick et al., 2020; Kardas et al., 2013; Wasti et al., 2012). A stable mental health status is a crucial predictor of ART adherence (Heyer & Ogunbanjo, 2006). Having goals and plans for the future, being optimistic and utilising problem-focused coping strategies have been associated with elevated levels of adherence (Heyer & Ogunbanjo, 2006). Positive attitudes about ART and high ART self-efficacy (i.e., the belief that one is able to adhere to the treatment regime) have been linked to higher rates of treatment adherence (Ayieko et al., 2018; Wasti et al., 2012). Being committed to improving one's health and preventing the transmission of the virus to someone else have also been identified as factors promoting ART adherence (Kim et al., 2016).

e.) General health factors

Deteriorating physical health, especially experiencing incapacitating pain and other severe HIV-related symptoms and complications, is related to lower adherence levels. Forgetfulness, poor concentration, insomnia, headaches and diarrhoea have been associated with poorer adherence (Heyer & Ogunbanjo, 2006). Substance abuse, including alcohol abuse, also predict

ART non-adherence (Adeniyi et al., 2018; Bukenya et al., 2019; Glick et al., 2020; Heyer & Ogunbanjo, 2006; Negash et al., 2013; Wasti et al., 2012).

Food insecurity plays an important role in predicting ART adherence – ART patients who experience frequent food insecurity and hunger tend to non-adhere and only take their ARVs on days when they have a meal (Adeniyi et al., 2018; Hardon et al., 2007). Younger people who are living with HIV tend to be less adherent to their treatment regimens than their older counterparts (Heyer & Ogunbanjo, 2006; Kardas et al., 2013). Being married or in a stable relationship is associated with improved adherence, while being single or divorced predicts worse adherence (Glick et al., 2020; Kardas et al., 2013).

An association has also been found between treatment non-adherence and the improvement in health status. Once ART patients start to feel better and notice an improvement in their health, they may feel that the ARVs are no longer necessary and start to forgo aspects of their treatment (Kardas et al., 2013). In some instances, ART patients may non-adhere and opt for alternative remedies that carry cultural or religious significance (Ayieko et al., 2018; Bukenya et al., 2019).

2.6. Prevention

In 2007, the UNAIDS published “Practical guidelines for intensifying HIV prevention”, a guide book which placed a strong emphasis on tailoring national HIV prevention approaches to match the unique local epidemic dynamics and the social context of population groups that are considered most vulnerable to HIV infection (UNAIDS, 2007). Based on this guidebook, the slogan “know your epidemic, know your response” became popular. The UNAIDS encouraged countries to understand their HIV epidemics by identifying the main drivers of HIV infection (including epidemiological, behavioural and social drivers) and the population sub-groups that are most vulnerable to HIV infection. Based on that information, countries would then be able to design a tailor-made HIV prevention approach that more accurately highlights who should be targeted and which prevention strategies would best suit their unique situation (UNAIDS, 2007). The “know your epidemic, know your response” approach is considered a milestone in the global effort to prevent the spread of HIV, as it formally stressed the importance of a.) collecting systematic evidence on the epidemic through routine data collection and monitoring systems; and b.) tailoring HIV prevention programmes based on that evidence (Hankins & de Zaluondo, 2010). HIV prevention approaches can be categorised into three broad categories: biomedical, behavioural and structural.

2.6.1. Biomedical Prevention Strategies

Biomedical prevention strategies include barrier methods; ARV-based methods and products; voluntary medical male circumcision (VMMC); VCT and self-testing; the prevention, screening and treatment of STIs, TB and other opportunistic infections; as well as ensuring that all medical equipment, especially injecting equipment, are clean or previously unused.

2.6.1.1. Barrier methods

Barrier methods include male and female condoms, cervical caps, and vaginal diaphragms. Consistent male condom use decreases the risk of HIV infection by approximately 80% (ranging from between 35% and 94% based on how it is used) (Weller & Davis, 2001). Numerous studies have demonstrated that condoms offer statistically significant protection against STI transmission for both men and women (Holmes et al., 2004). Research has shown that using male and female condoms together does not offer more protection against HIV infection than using only a male condom (Wiyeh et al., 2020). However, combining male and female condoms provides added protection against certain STIs, including chlamydia and gonorrhoea. While the female condom provides approximately the same amount of protection against semen exposure as male condoms (Macaluso et al., 2007), the precise efficacy rate of the female condom in preventing HIV infection is not well understood (Wiyeh et al., 2020).

Based on the knowledge that certain STIs, including HIV, preferentially infect the cervix and upper genital tract in women, investigations into the protective benefits of vaginal diaphragms and cervical caps as an HIV prevention tool have received research attention (Moench et al., 2001). However, recent studies suggest that using vaginal diaphragms and cervical caps offers no additional protection against HIV, HPV or HSV-2 infection over standalone male condom use (de Bruyn et al., 2011; Ramjee et al., 2008; Sawaya et al., 2008). Male condoms remain the most effective method for HIV and STI infection to date.

a.) Factors that influence condom use

Research suggests that condom use varies as people's perceived risk of HIV and STI infection changes over time (Nasrullah et al., 2017). Moreover, many people, including HIV key populations and people living with HIV, do not adhere to consistent condom use. The UNAIDS has noted that global rates of condom use have been steadily declining since the early 2010s, especially in sub-Saharan Africa, Latin America, and the Caribbean. The UNAIDS ascribes this decline to a reduction in funding for social marketing campaigns that were meant to create and sustain the demand for condoms (UNAIDS, 2020b).

Failing to use a condom every time one engages in sexual intercourse, failing to use a condom throughout the entire duration of intercourse, experiencing condom breakage or slippage, as well as improper lubricant use are all factors that markedly reduce the efficacy of condoms in preventing HIV acquisition (Warner & Stone, 2007). Persons who are single (i.e., not married or cohabiting) tend to report higher rates of condom use than married individuals. Men tend to report higher rates of condom use than women (Nasrullah et al., 2017).

Common reasons for not using condoms consistently include that condoms feel uncomfortable to use, that they are inconvenient to use, and that they reduce sexual pleasure and impede intimacy (Ajayi et al., 2019; Giano et al., 2019; Tavory & Swidler, 2009). Being under the influence of alcohol or drugs tends to lead to lower rates of condom use. Individuals who report trusting their partner, who only have sex with one partner and who know their partner's HIV and STI statuses are also less likely to use condoms (Ajayi et al., 2019; Giano et al., 2019).

Amongst sex workers, inconsistent condom use has been attributed to a lack of knowledge about HIV, low sexual control by sex workers, being unable to persuade a client to use a condom, being subjected to physical and sexual violence by clients, being under the influence of drugs or alcohol while doing sex work, having a client that is under the influence of drugs or alcohol, and being exposed to police harassment (Decker et al., 2020; Duff et al., 2018; Gharehghani et al., 2020; Wong et al., 2003). Research also suggests that sex workers may be more inclined not to use a condom when they perceive the client to be at low risk of being HIV-positive (Duff et al., 2018). Male clients of female sex workers are more likely to use a condom if they had a high level of perceived efficacy for condom use, had contracted an STI in the past, knew someone who was HIV-positive, considered themselves to be at high risk for HIV infection and had a high level of knowledge about HIV (Fauk et al., 2018; Li et al., 2018).

In low-resource communities, condoms are sometimes deemed too expensive to use on a regular basis (Ware et al., 2012). Fear of stigmatising responses from healthcare providers deterred some people, especially adolescents, young adults and other key populations such as MSM and sex workers, from accessing condoms from their local healthcare facility (Giano et al., 2019). For serodiscordant couples, condoms may not be a practical option if they have the desire to conceive (Ware et al., 2012).

Low and inconsistent adherence to condoms, driven by perceptions that condoms are expensive, uncomfortable or inconvenient to use, pose a major threat to HIV prevention efforts. Given that women, especially AGYW, are not always in a position to successfully negotiate

condom use with their sex partners, the need for an effective HIV prevention method that can be initiated by women became increasingly urgent. In response to this need, research on microbicides, vaginal rings and other female-controlled HIV prevention methods started to emerge in the mid-1990s (Elias & Coggins, 1996).

2.6.1.2. ARV-based prevention methods

ARV-based prevention methods, such as pre-exposure prophylaxis (PrEP)²⁶, PMTCT²⁷, and post-exposure prophylaxis (PEP),²⁸ aim to prevent HIV infection through the administering of one or more ARVs, either orally or via a product that is applied or inserted into the body (AIDSinfo, 2018). Research on the protective value of PrEP and PEP has received ample attention since the mid-2000s. Given that adherence to barrier methods is generally low and that women, especially AGYW, who are at a higher risk for HIV infection, do not always have control over condom usage, the need for an HIV prevention alternative was considered urgent. PrEP and PEP held promise as empowering, more convenient and easier to use HIV-prevention methods. PrEP and PEP would potentially be less cumbersome to use (taken daily or at specific times before and after risk exposure) and hence possibly easier to adhere to than condoms. PrEP is controlled by the individual, unlike condom use, which may depend on whether the sex partner agrees to use it. The use of PrEP and PEP is generally discreet, not visible and can, therefore, sometimes be used without the sex partner's knowledge. This is especially empowering for women and vulnerable individuals who are not necessarily always able to negotiate condom use and HIV prevention with their sex partners.

In 2015, the WHO released a recommendation that all individuals who are at a high risk of contracting HIV should be offered PrEP (WHO, 2015). As a result, the promotion of PrEP amongst key populations and continued research on the effectiveness, acceptability and accessibility of PrEP are receiving growing attention. The UNAIDS estimates that the number of people who have received PrEP has increased significantly from less than 2000 in 2016 to 1.6 million in 2021 (UNAIDS, 2022a). Globally, most PrEP users are homosexual men and

²⁶ PrEP involves administering a daily regime of ARVs to an HIV-negative person who is at very high risk for HIV infection (AIDSinfo, 2018).

²⁷ PMTCT involves strategies that are aimed at preventing the transmission of HIV from an HIV-positive mother to her HIV-negative infant. PMTCT primarily includes ART for the mother during pregnancy, administering ARVs prophylactically to the mother during labour and delivery, as well as administering ARVs to the newborn prophylactically (AIDSinfo, 2018).

²⁸ PEP refers to the provision of short-term ART to an HIV-negative person who was exposed to HIV, in order to prevent HIV infection from occurring. A distinction is sometimes made between occupational PEP (e.g., a doctor who suffers a needlestick injury) and non-occupational PEP (e.g., sharing a needle while taking drugs, or having sex with a person who is living with HIV) (AIDSinfo, 2018).

MSM (UNAIDS, 2020b); however, PrEP, as a novel HIV prevention method for AGYW in sub-Saharan Africa, is gaining growing interest (Celum et al., 2019).

a.) Microbicides

Microbicides are topical PrEP products typically available in gels, creams, fast-dissolve inserts, vaginal rings, films or slow-releasing sponges. It contains an ARV and other substances (such as spermicides) that prevent HIV and STI infection and, in some instances, also help prevent pregnancy (Shattock & Rosenberg, 2012). The first proof-of-concept that microbicides could prevent HIV infection in women was the Centre for the AIDS Programme of Research in South Africa (CAPRISA) 004 clinical trial (a two-arm, double-blind, randomized, placebo-controlled trial) that was conducted in South Africa (Abdool Karim et al., 2010). The CAPRISA 004 trial found that a microbicide which contained 1% Tenofovir was 35% effective in preventing HIV infection when the microbicide was applied at least 12 hours before and 12 hours after each sexual intercourse encounter. In participants who maintained high microbicide adherence (at least 80% adherence), the protective benefit of the gel rose to a 54% reduction in HIV acquisition. However, overall adherence to the microbicide was found to be very low – only 40% of participants in the trial maintained a 50% microbicide adherence level (Abdool Karim et al., 2010).

A follow-up trial, the Follow-on African Consortium for Tenofovir Studies (FACTS-001) study, conducted the same test of the 1% Tenofovir microbicide, but utilised a larger sample (Delany-Moretlwe et al., 2018). However, adherence to the microbicide was also found to be low, to such an extent that the study could not yield statistically significant results regarding the microbicide's efficacy (Delany-Moretlwe et al., 2018). Another large-scale clinical trial, entitled the Vaginal and Oral Interventions to Control the Epidemic (VOICE) trial (MTN-003) (a phase two, randomised, placebo-controlled trial), was conducted to test the efficacy of a microbicide with 1% tenofovir, applied daily, irrespective of whether the participant engaged in sexual activity or not. The VOICE trial also struggled with low adherence – only 20% of participants maintained high adherence levels. Ultimately, in the VOICE trial, researchers could not find a statistically significant reduction in HIV acquisition and concluded that the microbicide was ineffective in preventing HIV infection (Marrazzo et al., 2015).

b.) Silicone vaginal rings

Another form of PrEP is silicone vaginal rings which deliver ARVs intravaginally for HIV prevention. In 2016, the findings from two phase 3, randomised, double-blind, placebo-

controlled clinical trials which studied the efficacy and safety of a monthly vaginal ring which contained the ARV dapivirine were released. The trials, entitled *A Study to Prevent Infection with a Ring for Extended Use* (MTN-020–ASPIRE) and the *International Partnership for Microbicides* (IPM) 027 trial (the Ring Study), found that the monthly use of the vaginal ring by women aged 18 to 45 can reduce HIV infection by up to 37% if adherence remained consistently high (Baeten et al., 2016). The ring needed to be replaced every month and could be replaced by the women themselves. Although the ring was safe to use, adherence was found to be low (Baeten et al., 2016).

c.) Oral PrEP

Oral PrEP, especially in the combined form of two oral ARVs, tenofovir disoproxil fumarate and emtricitabine (TDF–FTC) (both NRTIs), are effective at preventing HIV infection. The Preexposure Prophylaxis Initiative (iPrEx) study (phase 3, randomised, double-blind, placebo-controlled clinical trial) assessed the effectiveness of the daily oral use of TDF–FTC as a PrEP for HIV infection in 2499 HIV-negative men, transgender women and MSM in Brazil, Ecuador, Peru, South Africa, Thailand and the USA (Grant et al., 2010). The study found that TDF-FTC reduced the likelihood of HIV infection by 44% and, if adherence to the PrEP was maintained at 90%, the TDF-FTC regime could reduce the likelihood of HIV infection by up to 73%. The TDF-FTC regime reduced HIV infection likelihood by as much as 92% among participants with detectable TDF-FTC levels (Grant et al., 2010).

The Intervention Préventive de l'Exposition aux Risques avec et pour les Gays (IPERGAY) study (a double-blind, randomised clinical trial) measured the efficacy of TDF-FTC over a two-month period as a PrEP for 400 HIV-negative MSM in France and Canada. Study participants were instructed to take at least one pill 24 hours before they had sex and another pill at least 24 hours afterwards. The results indicated that the TDF-FTC PrEP resulted in a relative reduction in HIV incidence of 86% (Molina et al., 2015). However, adherence to non-daily PrEP in the IPERGAY was found to be relatively low – 43% of participants used the PrEP correctly, while the adherence of 29% of participants was at a sub-optimal standard, and 28% of participants did not use the PrEP medication at all (Molina et al., 2015).

PrEP holds the potential to make serodiscordant sexual relationships safer by protecting the HIV-negative partner from HIV infection. The Pre-Exposure Prophylaxis to Prevent HIV-1 Acquisition Within HIV-1 Discordant Couples (Partners PrEP) study (a phase 3, randomised, double-blind, placebo-controlled clinical trial) examined whether a daily dose of TDF-only or

a daily dose of TDF-FTC is effective at preventing HIV infection in HIV-negative individuals in 4758 serodiscordant heterosexual couples in Kenya and Uganda (Baeten et al., 2012). The TDF-only regime was found to reduce the likelihood of HIV infection by 67%, while the TDF-FTC regimen reduced the likelihood of HIV infection by 75%. HIV infection risk was reduced by 86% and 90% if detectable levels of respectively TDF and TDF-FTC were found in study participants (Baeten et al., 2012). Study participants indicated that they preferred using the PrEP over the long-term use of condoms, as condoms were deemed expensive, uncomfortable and inconvenient to use on a permanent basis (Ware et al., 2012).

The Sustainable East Africa Research in Community Health (SEARCH) clinical trial (an open-label, randomised controlled study) aimed to assess the efficacy of evidence-based community-based VCT and treatment interventions as a way to eliminate HIV in the rural communities of Uganda and Kenya (Koss et al., 2020). The final phase of the SEARCH trial involved the roll-out of PrEP. PrEP counselling was offered to serodiscordant couples and others who were identified to be at high risk for HIV infection. Uptake of PrEP was found to be high, especially amongst young men under the age of 25 and persons in serodiscordant relationships. The researchers also noted that the frequency of PrEP use was dynamic and fluctuated based on participants changing perceptions of their HIV infection risk (Celum & Baeten, 2020).

d.) Daily vs event-driven PrEP

Whether PrEP should be taken daily or on an event-driven basis (i.e., only taking a PrEP tablet or using a PrEP product when a sex event is likely to occur) has received research attention. Some support has been lent to event-driven PrEP as it can encourage people to plan sexual encounters and prepare for them accordingly. It is also less cumbersome and potentially cheaper than taking a tablet daily (Van Griensven et al., 2010). The Alternative Dosing to Augment PrEP pill Taking (ADAPT) (HPTN 067) study (a randomised, open-label, phase two clinical trial) measured the acceptability and feasibility of daily versus non-daily (event-driven, coitally dependent) oral PrEP dosing in women in Cape Town, South Africa, and MSM and transgender women in Bangkok, Thailand, and in Harlem in the USA. The results from the trial indicated that, for study participants in South Africa and the USA, daily PrEP dosing brought about greater coverage of sex events and increased adherence (Bekker et al., 2018; Grant et al., 2018). In Thailand, a combination of both daily and non-daily PrEP use produced positive outcomes (Grant et al., 2018). Belief in the efficacy of PrEP was a key predictor of adherence in the ADAPT study (Chemnasiri et al., 2022).

A qualitative ADAPT sub-study, which involved 18 in-depth interviews and six focus groups with participants from the South African sample, revealed that the women in the non-daily PrEP cohort found it difficult to plan sex events and to adhere to the post-sex dose (Amico et al., 2017). Taking PrEP on a daily basis helped participants to develop a habit of taking their medication. Daily use of PrEP also meant that participants did not need to predict whether they would engage in sex on that day, making the use of the drug simpler (Amico et al., 2017; Bekker et al., 2018). The ADAPT study, therefore, lends support to the provision of both daily and non-daily PrEP as options for key populations and that women, in particular, may have better adherence and, as a result, improved efficacy results with a daily PrEP regimen (Bekker et al., 2018).

e.) Factors that influence PrEP uptake and continued use

Understanding what the demand for PrEP is and how the demand can be further enhanced and sustained has become an important part of PrEP research. While knowledge about PrEP is relatively high amongst homosexual men and MSM in high-income countries (Hayes et al., 2019), more work still needs to be done to raise awareness about PrEP amongst other key population groups (Celum et al., 2019; Goparaju et al., 2017).

People who consider themselves to be at high risk for HIV infection, including individuals who engage in condomless sex, have multiple concurrent sex partners and people who are in serodiscordant relationships, are most likely to be interested in using and initiating PrEP (Celum et al., 2019; Golub et al., 2019). Other factors that play a role in PrEP uptake include beliefs about the efficacy of PrEP, adherence self-efficacy, lower perceived sensitivity to PrEP, the ability to afford and conveniently access PrEP, and having accurate knowledge about PrEP (Golub et al., 2019; Goparaju et al., 2017; Krakower et al., 2014).

Anticipated stigmatisation from healthcare providers, family members and the community deter people from adopting PrEP (Golub et al., 2019; Goparaju et al., 2017). Over the years, PrEP has attracted stigmatising beliefs and perceptions, including that it promotes promiscuity and that those individuals who use it are promiscuous. Moreover, the general social stigma attached to HIV and the use of anti-AIDS medications as a possible indicator that someone is HIV-positive further discourage people from using PrEP (Goparaju et al., 2017). Other factors that may dissuade people from initiating PrEP include concerns about possible side-effects²⁹,

²⁹ Common side effects from daily oral PrEP usage include nausea, vomiting, dizziness and fatigue (Grant et al., 2010; Molina et al., 2015; Thigpen et al., 2012; Van Damme et al., 2012).

poor patient-healthcare provider communication, and lack of easy access to PrEP (Golub et al., 2019; Goparaju et al., 2017; Krakower et al., 2014).

A study on PrEP adoption and use by HIV-negative homosexual and bisexual men that was based on the Transtheoretical Model of Change (Prochaska & Velicer, 1997) revealed that most of the barriers to sustained PrEP use were located in the first stage (i.e., pre-contemplation) of behaviour change – 53% of their research participants remained in the first stage and did not proceed to the second stage of behaviour change (i.e., contemplation) (Parsons et al., 2017). This suggests that people who are not aware of their HIV infection risk, who do not consider their behaviour as potentially having negative consequences and who consider the adoption of a new habit or adjustment of their current behaviour as too cumbersome in comparison to the potential benefits of PrEP tend to persist in their current behaviour and lifestyle and adopt PrEP (Parsons et al., 2017).

A qualitative sub-study of the SEARCH project (an open-label, randomised control trial) explored the factors that influenced the uptake and continued use of PrEP amongst young adults in Kenya and Uganda (Camlin et al., 2020). The results indicated that the perceived severity of HIV, coupled with young people's perceived risk of HIV infection and the dynamics of HIV infection in their communities, played an essential role in their willingness to use PrEP. The participants noted that they did not consider HIV infection to be a serious condition, as ART is easily accessible and able to give people who are living with HIV a normal life. Unwanted pregnancy and getting cancer were considered more serious health concerns by both young men and women. However, the participants did admit that they considered the lifelong, daily use of ART as a burden that they would ideally like to avoid (Camlin et al., 2020).

Both male and female participants considered themselves to be at high risk for HIV infection, yet men and women reported different motivations for using PrEP. The female participants reported that they considered themselves at high risk for HIV infection due to the high-risk sexual behaviour of their partners (i.e., engaging in multiple concurrent sexual partnerships, low condom use and polygamy). They also explained that they engaged in transactional sexual relationships with older men to maintain their standard of living, which placed them at further risk for HIV infection. The female participants also reported that condom use amongst their sex partners was low and that they found it difficult to discuss HIV risk with their partners. For them, PrEP offers blanket HIV protection without negotiating condom use or HIV testing with their partners (Camlin et al., 2020).

The male participants reported that using PrEP allows them to have multiple concurrent partners and have sex without a condom. The young men emphasised that they knew that it was not uncommon for young women in their communities to have transactional sexual relationships with older men, which made the women vulnerable to HIV infection. Young men deemed the use of PrEP when having sex with young women as a way to reduce their own risk of HIV infection within this sexual network (Camlin et al., 2020).

The possible benefits and costs of taking PrEP and the normative influences that help and hinder the uptake and the continued use of PrEP emerged as important factors in dictating whether a young person will use PrEP (Camlin et al., 2020). Given that PrEP was still a relatively new HIV prevention method in the local communities, participants expressed concern about the efficacy and safety of the medication – with some indicating that they would need to learn more about PrEP before using it. Some participants emphasised that they needed “social proof” before they initiated PrEP themselves³⁰ (Camlin et al., 2020).

HIV-related stigma played a role in the participants’ willingness to take PrEP. Some participants feared that if they were seen taking the tablets or while collecting them at the local clinic, others might conclude that they were on ART and were HIV-positive. Moreover, parents prohibiting the use of PrEP and long travel distances to the nearest clinic were additional factors which impeded PrEP initiation and use (Camlin et al., 2020). Others raised concerns over the moral prohibitions against young people having sex and how this may hinder them from seeking PrEP and speaking honestly to healthcare practitioners about their sexual and reproductive health needs (Camlin et al., 2020).

Amongst those participants who initiated PrEP, reasons for discontinuing its use included not being able to bear the side-effects of the medication; not getting support from their partner or feeling that they had to hide it from their partner; no longer perceiving themselves to be at high risk for HIV infection; and having a relationship end which meant that continued use of PrEP was no longer necessary (Camlin et al., 2020).

³⁰ This finding points to the theory of social proof (Cialdini, 1987) which proposes that, when people are in a situation where they do not know how they should behave, they tend to mirror the actions of others. This finding can also be explained with Bandura’s (1986) concept of vicarious efficacy, whereby witnessing successful PrEP use by peers who are similar to yourself plays an important role in encouraging you to follow suit (Camlin et al., 2020).

f.) PrEP and PEP adherence

The efficacy of PrEP – whether it is in the form of a microbicide, a vaginal ring or a tablet – is highly dependent on adherence levels. Inconsistent use, under-dosing and missed dosages can radically reduce PrEP’s efficacy. Measuring adherence has become an important part of PrEP clinical trials to understand whether the drug is being used and, amongst those using it, whether it helps to prevent HIV infection. Adherence to PrEP is typically measured in the same ways as ART adherence³¹. However, when PrEP dosing is event-driven, testing for the presence of the PrEP’s active ingredient in participant samples is not possible as the use of the drug will understandably vary over time, thus making the objective monitoring of event-driven PrEP adherence especially difficult (Delany-Moretlwe et al., 2018).

Research suggests that people tend to use PrEP during periods when they perceive themselves to be at high risk for HIV infection; hence usage patterns over time may vary as perceived risk and sexual behaviour patterns fluctuate – for example, when serodiscordant couples are trying to conceive, during times when a person is single and dating, when a person suspects that their partner may be unfaithful or when the HIV status of a partner is unknown (Camlin et al., 2020; Celum & Baeten, 2020; Ware et al., 2012).

In the VOICE microbicide trial, low adherence was found to be associated with specific characteristics which also made women more at risk for HIV infection, such as being under the age of 25, being single and not having an independent income (Marrazzo et al., 2015). Risk factors for low adherence in the ASPIRE vaginal ring trial included being young (between the ages of 18 and 21 years), experiencing adverse treatment side-effects³², having doubts about the unproven safety and efficacy of the trial product and not having support from one’s partner (Roberts et al., 2020; Baeten et al., 2016). The researchers noted that adherence seemed to increase after one month of use, suggesting that participants needed time to familiarise themselves with the product and become comfortable using it (Baeten et al., 2016). This suggests that once the initial side-effects have waned and the person has become more at ease with using it and incorporated its use into their daily routine, they tend to persist in using the product.

In the iPrEx study, self-reported daily PrEP use was high (95% after week eight of the study); however, objectively measured PrEP usage was found to be markedly lower (51%) (Grant et

³¹ As described under the heading 2.5.11.1. *Monitoring ART adherence*, in this chapter.

³² Some of the most commonly reported adverse events included discomfort and minor infections such as urinary tract and/or bladder infection, vaginal discharge and itching (Baeten et al., 2016).

al., 2010). In response to this finding, researchers conducted additional research to identify the factors that influenced iPrEx participants' uptake of the PrEP medication and the factors that affected participants' comfort in reporting non-adherence (Amico et al., 2012). After evaluating the site-specific messaging at study sites and the messages participants received about adherence during their monthly counselling at clinic visits, Amico and colleagues identified several factors that may have contributed to participants' inaccurate reporting on their PrEP adherence (Amico et al., 2012). Their findings emphasise that adherence should not be promoted at all costs, which may inadvertently promote inaccurate adherence reports from participants. Instead, trials should be designed so that variability in adherence is acknowledged as normal behaviour, not bad or shameful, and no negative consequences will occur if a participant reports non-adherence. In order to help create an environment open to non-adherence reporting, preference should be given to the needs and experiences of participants during counselling and assessment sessions.

The Preexposure Prophylaxis Trial for HIV Prevention among African Women (FEM-PrEP) study (a phase three, double-blind, randomised, placebo-controlled trial) assessed the safety and efficacy of daily use of Truvada (tenofovir) as PrEP for HIV-negative women from Kenya, Tanzania, South Africa found adherence to the PrEP regimen to be so low (approximately 35 to 38%, but as low as 26% after follow-up visits) that the study was concluded prematurely (Thigpen et al., 2012; Van Damme et al., 2012).

The Partners PrEP study attained a very high adherence level (estimated at 92%) from their study participants in serodiscordant relationships (Baeten et al., 2012). In a cohort of their study, the researchers employed intensive adherence monitoring strategies, such as using pill bottles with caps which electronically count the number of times the bottle was opened, as well as unannounced home visits to count the number of tablets in study participants' pill bottles. The researchers believed these strategies bolstered PrEP adherence (Haberer et al., 2011). In-depth qualitative interviews with a sample of Partners PrEP study participants revealed that support from an HIV-positive partner and the absence of marital discord promoted adherence to PrEP (Ware et al., 2012).

g.) Future research focus areas

Given that adherence to barrier methods and PrEP methods have been found to be inconsistent and that certain key populations are less able to comply with strict barrier method use or consistent PrEP use, scientists are exploring longer-acting HIV prevention methods that rely

less heavily on the daily or coitally dependent administration of a drug or product, such as nanosystems for drug release, long-acting injectable ARVs and subcutaneous ARV-administering implants (FDA, 2021; Johnson et al., 2019; NIH, 2020c; Notario-Pérez et al., 2017).

The fairly consistent low adherence rates in past microbicide and PrEP clinical trials highlighted that, in order for people to initiate and consistently use these HIV prevention products, they had to, at the very least, like these products. Consequently, in recent years, more research has been focussing on the acceptability of various modes of ARV-based prevention methods and the unique preferences of different population groups. The Quatro study (a two-stage randomised cross-over acceptability study) assessed 100 young South African and Zimbabwean women's preferences concerning four types of placebo vaginal delivery microbicide products, namely film, dissolvable insert, gel, and ring (Weinrib et al., 2020). The Quatro study confirmed previous research that the most important predictors of satisfaction are ease of use and that the product should not interfere with typical daily activities. In a discrete choice experiment with 158 adult women and 204 adolescent girls in South Africa, Vickerman et al. (2020) compared preferences for oral PrEP, rings, and injectable long-lasting ARV agents based on the extent to which those products produced side effects and prevented pregnancy as well as HIV and STI transmission. Vickerman et al. (2020) found that injectable ARVs were considered the most desirable for all participants. However, adolescent girls had a very high preference for products that prevented pregnancy, to the extent that the only HIV prevention product or regimen that would enjoy successful uptake and consistent use from adolescent girls would be one that included pregnancy protection.

2.6.1.3. Voluntary medical male circumcision

Scientists became interested in the potential value of male circumcision in preventing HIV infection in the mid-1980s (Alcena, 1986; Fink, 1986). Since then, numerous studies have explored whether circumcised men have a lower chance of contracting HIV than their non-circumcised counterparts. However, compelling evidence to suggest its value as a HIV prevention method only emerged in 2005 when the ANRS 1265 Trial in Orange Farm, South Africa, became the first clinical trial to demonstrate the potential protective benefits of male circumcision (Auvert et al., 2005). The trial (a randomised, controlled, blindly evaluated intervention trial) randomly assigned 3 274 uncircumcised men between the ages of 18 and 24 into either the experimental group (where they were immediately offered medical male circumcision) or the control group. Over 21 months, all participants conducted follow-up

assessments to monitor HIV infection incidence. By the end of the trial, 20 HIV infections occurred in the intervention group (i.e., an incidence rate of 0.85 per 100 person-years), and 49 HIV infections occurred in the control group (i.e., an incidence rate of 2.1 per 100 person-years). The researchers thus concluded that the incidence rate ratio of HIV infection among men in the experimental group was 0.40 (95% CI: 0.24%–0.68%; $p < 0.001$) and that medical male circumcision thus provided up to 60% protection against heterosexual HIV transmission (Auvert et al., 2005).

Subsequent trials in Kenya (Bailey et al., 2007) and Uganda (Gray et al., 2007) found similar risk reduction rates. Since the announcement of these results, Voluntary Medical Male Circumcision (VMMC) has been actively promoted as an HIV prevention method that provides lifelong partial protection against female-to-male HIV transmission (UNAIDS, 2020b). VMMC has been found especially effective in combination with other HIV prevention methods, such as behaviour change, ART and PrEP (Jones et al., 2014). VMMC is especially promoted as an HIV prevention method in sub-Saharan Africa. The UNAIDS estimates that close to 32 million men and boys in 15 of the UNAIDS' priority countries³³ have received VMMC between 2008 and 2021 (UNAIDS, 2022c).

Further research on the protective value of VMMC has found that male circumcision offers some STI transmission protection for the female partners of men who have been circumcised, in particular against HSV-2, chlamydia, syphilis, cervical dysplasia and thereby lowers women's risk for developing cervical cancer (Grund et al., 2017). Evidence regarding the extent to which VMMC protects female partners from HIV infection appears to be inconsistent (Grund et al., 2017). Earlier research on VMMC and its protective value against HIV and STI transmission amongst MSM has been unable to find sufficient evidence to support VMMC as an HIV prevention strategy for MSM (Millett et al., 2008). A more recent meta-analysis of 62 observational studies, including 119 248 MSM that was published between 1993 and 2017, found that male circumcision was associated with a 23% reduction in HIV infection risk amongst MSM overall (Yuan et al., 2019). However, the protective benefits of male circumcision amongst MSM were only identified in low- and middle-income countries. In contrast, in high-income countries, the protective value of male circumcision could not be

³³ These priority countries include Botswana, Eswatini, South Africa, Lesotho, Zimbabwe, Namibia, Mozambique, Zambia, Malawi, Rwanda, Kenya, Uganda, Tanzania, Ethiopia, and South Sudan (UNAIDS, 2020b).

ascertained. The researchers concluded that this could be because VMMC is less relied on as an HIV prevention strategy in high-income countries (Yuan et al., 2019).

Although VMMC remains a public health priority and several studies continue to find evidence suggesting that VMMC promotes HIV incidence reduction, particularly in Southern and Eastern African countries (Morris, 2021), some researchers have called the protective benefit of VMMC into question. In a literature review of the evidence for the HIV prevention benefits and implications of VMMC in sub-Saharan Africa between 2005 and 2021, Luseno et al. (2021) found that the independent impact of VMMC on the population-level of the 15 priority countries remains unknown. Moreover, they determined that the HIV incidence rates were already declining by the time that VMMC was introduced as a public health HIV prevention method and that the widespread roll-out of ART, along with the integrated effects of other treatment and prevention campaigns, were more likely the cause for the observed reduction in the HIV incidence.

a.) Factors that influence the use of VMMC services

Factors that promote VMMC service usage include having a positive attitude towards male circumcision, such as the belief that it enhances sexual pleasure, promotes cleanliness and confidence as well as being encouraged by peers who have undergone the procedure (Macintyre et al., 2014; Tarimo et al., 2012). Several studies have indicated that while many men are interested in the risk reduction benefits of VMMC, circumcision is still primarily associated with cultural and religious practices and beliefs (Nxumalo & Mchunu, 2020; Rennie et al., 2015). In many cultures, male circumcision is a traditional coming-of-age practice that signifies a boy's transition to manhood to the rest of his community. As a long-standing traditional rite, it promotes cultural assimilation and belonging (Tarimo et al., 2012). However, not all communities practice male circumcision as part of their cultural traditions; hence, in those communities, men who are circumcised may be ridiculed for it (Macintyre et al., 2014).

Factors which make uncircumcised men apprehensive about circumcision include concerns that the procedure might be painful; that the equipment might not be clean and hygienic; that it might be unaffordable; that they are not at high risk for HIV infection and thus do not need to be circumcised; and that they might be shamed by others (or feel ashamed themselves) for undergoing the procedure later in life (Macintyre et al., 2014; Tarimo et al., 2012). Older men may be less inclined to utilise VMMC services compared to younger men, mainly because they consider themselves to be at low risk for HIV infection (Macintyre et al., 2014).

Several studies have indicated that knowledge about VMMC and its protective benefits are not well known and understood by women (Kalichman et al., 2018; Kapumba & King, 2019; Mantell et al., 2013). Misconceptions about the extent of protection that circumcision offers to circumcised men and their female partners appeared to be common, including the belief that a circumcised man is probably HIV-negative and that a woman who has sex with a circumcised man is less likely to contract HIV (Kalichman et al., 2018). Similarly, research has shown that members of the public are concerned that the wide-scale roll-out of VMMC might contribute to the increase in risky sexual behaviour, such as condom non-use and multiple partnering (Kalichman et al., 2018; Kapumba & King, 2019; Mantell et al., 2013).

2.6.2. Biomedical Prevention Methods and Compensatory Risk Behaviour

The introduction of TasP and biomedical HIV prevention methods such as PrEP, PEP and VMMC has revolutionised HIV prevention and given key populations and others who may be at risk for HIV infection an additional safety precaution against HIV infection. However, concerns have been raised that while biomedical HIV prevention methods may contribute to a marked reduction in the global spread of HIV, they may alter people's perceptions about the risk of HIV infection and consequently lead to a reduction in safe sexual behaviour (Cassell et al., 2006). This adjustment in people's behaviour in reaction to perceived lower levels of risk is commonly referred to as risk compensation (or behavioural disinhibition). It has been hailed as the "Achilles' heel of innovations in HIV prevention" (Cassell et al., 2006, p. 605).

For example, in 2015, when the WHO announced that PrEP should be offered to key populations and others who are at risk for HIV infection (WHO, 2015), a rebuttal article to a Lancet editorial entitled "PrEP: why are we waiting?" (The Lancet HIV, 2015), maintained that the normative aspects of PrEP use still needed to be carefully considered before large-scale distribution of PrEP could take place (Jansen et al., 2016):

Normative aspects [of PrEP use] have received little attention, such as people's own responsibility to use a condom, the relevance of being free of fear for HIV infection when having sex, and the relative importance of preventing HIV versus a possible rise in other sexually transmitted diseases because of reduced condom use. (pp. e11-e12).

How will people respond when they realise that they no longer have to fear HIV infection or transmission because there are biomedical methods that guarantee almost zero transmission? Will at-risk individuals still consistently use condoms when they have the alternative option to

take a daily pill instead? Could the greater availability of biomedical prevention methods lead to higher sexual risk-taking behaviour? Could it undermine gains made by behavioural prevention campaigns and promote the rise in STI infections? Given the reciprocal relationship between STIs and HIV, an increase in the incidence rates of STIs can be expected to influence HIV transmission dynamics (Quaife et al., 2020).

The concept of compensatory risk behaviour (also called behavioural disinhibition) is rooted in risk compensation theory, which suggests that people alter their behaviour in response to their perceived level of risk, behaving in less cautious and careful ways when they deem their risk of harm to be low and behaving more cautious and careful when their risk of harm is deemed high (Eaton & Kalichman, 2007; Peltzman, 1975; Wilde, 1982; 1998).

2.6.2.1. Studying risk compensation behaviour in the HIV field

Given the concerns that biomedical methods may increase compensatory risk behaviour, scientists have been especially interested in assessing the sexual risk behaviour of study participants during their participation in PrEP, PEP, VMMC or vaccine clinical trials. Compensatory risk behaviour is typically studied by assessing individual behaviour or analysing aggregate population-level data. While the latter is often used to study the effects of legislation and regulations, the former is typically used to study the direct effects of a risk-reduction product or method on individual behaviour, either in a real-world context or in an experimental environment (Hedlund, 2000).

Most research on risk compensation behaviour in the context of HIV prevention has studied risk behaviour by assessing the individual behaviour of study participants in clinically controlled trials or through observational studies. To this end, sexual risk behaviour includes engaging in sexual intercourse without a condom (or not using condoms consistently), having multiple concurrent partners and using substances or alcohol while engaging in sexual activities. The number of times a person has had sex within a given time period, as well as the acquisition of an STI, are also typically used as markers of possible risk behaviour.

Risk compensation behaviour is most often measured through behaviour indicators and STI incidence. Behaviour indicators for risk behaviour are measured through self-report methods (e.g., face-to-face interviews, audio computer-assisted self-interviewing, participant diaries), which may include asking participants details about their sexual behaviour before the study as well as during and/or after the study, in order to ascertain whether changes in typical sexual behaviour have occurred (Gable & Lagakos, 2008). Participants may be asked to report on the

number of sexual encounters they have had, the number of partners they have had, the number of times that condoms were used, and whether they engaged in substance abuse during sexual activity. As with subjective measures for ART adherence, self-report data about sexual risk behaviour is vulnerable to under-reporting due to a variety of factors, including social desirability bias and forgetting.

The only objective measure for sexual risk behaviour that is used in the literature entails testing participants (before, during and after trials) for an STI infection. If a participant becomes infected with HIV or any other STI during the course of the study, it serves as evidence that the participant was not using a condom every time they engaged in sexual activity during the study period.

One key criticism of the methodology of risk compensation research in the HIV context is that studies rarely measure the perception of risk (Holt & Murphy, 2017). Based on Risk Homeostasis Theory (Wilde, 1982; 1998), perception of risk precedes behaviour; therefore, monitoring participants' attitudes and perceptions of risk can help us better understand how participants view their perceived level of risk and how that relates to their target level of risk. It can also help us to understand better the chronological order in which perceptions and behaviours change over time (Holt & Murphy, 2017).

2.6.2.2. Compensatory risk behaviour and its implications

A review of the literature on risk compensation in TasP, PrEP, vaccine and other biomedical HIV prevention studies indicates that the efficacy of these treatments, coupled with the improved efficacy of ART to give people living with HIV greater longevity and quality of life, promotes optimism about these prevention and treatment options for HIV and lowers the perceived threat of HIV (Eaton & Kalichman, 2007; Moore et al., 2017; Quaife et al., 2020). Based on a review of the literature, it appears that compensatory risk behaviour is most likely to be expected as PrEP use becomes more widespread and, in the future, when an effective vaccine becomes available.

a.) Vaccine Trials

Increased risk behaviour has been noted in vaccine trial recipients in several studies. Optimism that the vaccine will be effective is the most common reason for engaging in more risky behaviour (Chesney et al., 1997; Crosby & Holtgrave, 2006). Some research also suggests that one of the main reasons people want to enrol in a vaccine trial is to continue to engage in risky sexual behaviour or increase their sexual risk-taking behaviour (Colfax et al., 2005; Newman

et al., 2004). Research on how people anticipate reacting to an HIV vaccine also suggests that people will likely make less frequent use of condoms and possibly engage in more multiple concurrent sexual partnerships if an effective vaccine was available (Andersson et al., 2012).

Some participants in the second and third phases of the HIV Vaccine Immunogenicity Study (HIVIS) 03 vaccine trial in Tanzania reported increased sexual risk-taking behaviour during their participation in the trial because they believed that the vaccine was protecting them against HIV infection. However, most participants reported in a qualitative study that, subsequent to their trial participation, they had a better understanding of safer sex practices and HIV testing (Iseselo et al., 2020). The researchers concluded that the participants' HIV prevention knowledge was minimal prior to the start of the trial and that the series of educational workshops on safer sex practices that they had to participate in as part of the vaccine trial may have helped to increase their knowledge about HIV, STIs and their prevention (Iseselo et al., 2020).

Research has found that the general public and members of key populations have concerns about how introducing an effective vaccine might change the level of caution and moral behaviour of individuals. Young South African men and women (aged 18 to 24) (n = 42) who participated in focus groups as part of a qualitative study on the acceptability of an HIV vaccine shared their concerns over the possible compensatory risk behaviour and unintended negative consequences that a vaccine might cause for themselves and their peers (MacPhail et al., 2012). Most participants feared that the availability of a vaccine would lead to a reduction in condom use and an increase in multiple concurrent partnerships and sexual activity in general amongst the youth. Some also noted that the vaccine might indirectly lead to a loss of fear of STIs and HIV, an increase in unplanned pregnancies, and unfaithfulness (MacPhail et al., 2012).

b.) Microbicides

Limited information about compensatory risk behaviour within microbicide and vaginal ring trials is available. During the CAPRISA 004 microbicide trial, scientists could not find evidence that the female participants engaged in risk compensation behaviour due to their use of the microbicide (Abdool Karim et al., 2010).

c.) Male circumcision

During the ANRS 1265 Trial, an increase in the number of sexual partners was noted in the circumcised group (Auvert et al., 2005). In the follow-up VMMC trial in Kenya, there was a significant increase in unprotected sex in the circumcised group. This group also reported less

frequent condom use since getting circumcised (Bailey et al., 2007). No sexual behavioural differences could be detected in the VMMC trial in Uganda (Gray et al., 2007). A meta-analysis of VMMC studies until 2020 determined that the likelihood of VMMC to lead to compensatory risk behaviour in the form of engaging in condomless sex and having multiple concurrent partners appears to be low (Gao et al., 2021). However, in some contexts where people lack proper knowledge about the limitations of VMMC's protective benefits, risk compensation may be a cause for concern (Andersson & Cockcroft, 2011).

d.) HAART and TasP

A meta-analysis of risk behaviour and ART studies that were published between 1996 to 2003 found that HIV-positive as well as HIV-negative persons who believed that HAART reduces the risk for HIV transmission and that HIV transmission is no longer a major concern because of the effectiveness of HAART, were more likely to practice unprotected sex (Crepaz et al., 2004).

HIV treatment optimism, beliefs that HAART and TasP reduce the seriousness of HIV, and beliefs that the risks of unprotected sex are less of a concern due to HAART and TasP have been found to positively correlate with increased sexual risk-taking behaviour amongst MSM (Halkitis et al., 2003; Hart & Williamson, 2005; Kalichman, 1998; Macapagal et al., 2017; Ostrow et al., 2002; Surkan et al., 2017; Van Der Snoek et al., 2006).

However, the literature on HAART, TasP and compensatory risk behaviour appears to be unclear. While some studies have found evidence to suggest that risk behaviour has increased as HAART was introduced into communities (e.g., Dukers et al., 2001; Hart & Williamson, 2005), other, especially more recent studies, seem to suggest that there may not be any meaningful differences between risk behaviours amongst people living with HIV who are on ART and those who are not (Lampe, 2016; Lampe et al., 2019).

e.) PrEP

PrEP use has been associated with an increase in condomless sex and an increase in STI infections amongst its users. A systematic review and meta-analysis of the effects of PrEP on sexual risk-taking behaviour, which involved the analysis of 16 observational studies and one open-label trial conducted between 2014 and 2017, found that PrEP use was significantly associated with increases in STI incidence (Traeger et al., 2018).

A review of the PrEP literature suggests that studying PrEP compensatory risk behaviour within the context of a clinical trial (especially placebo-controlled studies) might underestimate the extent of risk compensation in the real-world (Quaife et al., 2020). The review found that PrEP studies using a placebo-controlled methodology and self-reporting tended to find little evidence of increases in STI incidence and condomless sex (Fonner et al., 2016; Freeborn & Portillo, 2018; Quaife et al., 2020). However, in open-label trials where participants were certain that they were taking an effective PrEP, risk compensation was clearly noted in increased condomless sex and resultant increases in STI infections (Traeger et al., 2018; Quaife et al., 2020).

The 2019 Gay Community Periodic Survey, which is conducted annually in Sydney, Australia, surveyed 3 167 homosexual men and MSM. The survey found that the number of homosexual men and MSM who reported having condomless sex increased from 0.7% in 2015 to 36.5% in 2019 (Broady et al., 2019). Condomless sex with casual partners became increasingly common – the proportion of men reporting condomless sex with a casual partner increased significantly from 36.0% in 2015 to 61.5% in 2019. Moreover, the proportion of men who reported always using condoms with a casual partner decreased from 44.1% in 2015 to 24.5% in 2019. A steady increase in the prevalence of STIs amongst survey participants was also noted – from 14% in 2015 to 26.7% in 2019. These findings suggest that in communities where PrEP has become the favoured HIV prevention method, condom use is likely to decrease and STI prevalence is likely to increase (Broady et al., 2019).

f.) PEP

While a substantial body of evidence suggests that risk compensation occurs with the use of PrEP, the same cannot be said for PEP use. Several PEP studies have found no increases in risk behaviour (Martin et al., 2004), and some even found a decrease in the prevalence of risk behaviour after using PEP (Schechter et al., 2004). A qualitative study with MSM who participated in a PEP clinical trial revealed that taking PEP after possibly being exposed to HIV was considered a “wake-up call” for them as to how their life would change if they were to become HIV-positive (Körner et al., 2006, p. 881). Taking the PEP regimen, experiencing the side effects and worrying about possibly being infected with HIV motivated the participants to ensure that they maintained safe sex practices to avoid HIV infection (Körner et al., 2006).

2.6.3. Limitations of Biomedical Prevention Methods

While clinical studies on the efficacy of PrEP are promising, the results indicate that PrEP does not necessarily provide total protection against HIV infection (with relative risk reduction rates ranging from approximately 44% to 90%) and that strict adherence plays a critical role in the prevention method's success (Baeten et al., 2012; Grant et al., 2010). Similarly, the effectiveness of TasP hinges largely on treatment access, uptake and adherence.

The efficacy of TasP is also largely dependent on a person's general knowledge about ART and awareness of how consistent ART adherence can lead to viral suppression. Research has demonstrated that people living with HIV who have low health literacy are significantly less likely to have an undetectable HIV viral load. They are also less likely to know their current CD4 cell count and viral load, nor understand what those measures mean (Jones et al., 2013; Kalichman et al., 2000).

Research on MSM who use PrEP has found that viral load plays an integral part in negotiating condom use. Several studies have shown that serodiscordant MSM couples are more likely to engage in unprotected sex if the HIV-positive partner is believed to be virally suppressed (Prestage et al., 2009; Van De Ven et al., 2005; Van Den Boom et al., 2013). Additionally, a recent study found that it was not entirely uncommon for HIV-positive MSM in serodiscordant relationships to have an inaccurate perception of their viral load – 20% of participants reported that they were virally suppressed when objective tests revealed that they were not virally suppressed (Stephenson et al., 2020).

Moreover, the HIV viral load in genital secretion samples (e.g., semen samples) have been found to not always demonstrate a strong positive correlation with HIV viral load in blood samples (Kalichman et al., 2008a). Various factors, including the presence of an STI, the composition of the person's ART regimen and adherence level to ART, HIV treatment resistance as well as HIV disease stage, can influence the extent to which HIV viral load in genital secretions match HIV viral load in blood (Kalichman et al., 2008a). Of particular concern is how STIs cause the HIV viral load in genital secretions to increase disproportionately to the viral load levels in other bodily fluids. Research suggests that the HIV viral load in genital secretions can be up to eight times higher than in blood if the person living with HIV has an STI (Kalichman et al., 2008a). A person living with HIV can therefore have a low viral load in their blood, while the viral load in their genital secretions may be much higher. This means that drawing conclusions about the extent of viral suppression from blood

plasma samples alone may lead to incorrect assumptions about a person's transmission risk, especially if they have an STI. Moreover, the risk of HIV viral shedding due to the presence of an STI further increases infectiousness (Cohen, 2012).

Apart from the risk of HIV infection, STIs also lead to various sexual and reproductive health problems, such as infertility and the risk of developing cancer (Cohen, 2012). STIs can be viewed as a "hidden epidemic", given that many STIs remain asymptomatic and that some have non-serious symptoms that may remain untreated for a long time (Eng & Butler, 1997, p. xiii). Campaigns to prevent the spread of STIs have to some extent, been placed on the back burner, as most funding and attention have shifted to HIV. Although scientific interest in the relationship between STIs and HIV has yielded important information, recent interest in managing STIs to prevent HIV infection has waned due to poor results (Cohen, 2012; Padian et al., 2010).

2.6.4. Behavioural Prevention Strategies

In the early years of the global HIV epidemic, knowledge about the virus was still relatively limited. Successful medical treatment and biomedical prevention strategies were only starting to be developed and tested. While the biological mechanisms of HIV were still largely unknown, it seemed clear that there were specific behavioural factors which placed people at risk for contracting HIV. These behavioural factors entailed engaging in so-called "risky sex", that is, having sex without a condom, having sex with multiple concurrent partners (i.e., having several sexual partners within a relatively short timeframe) and engaging in alcohol use and substance abuse while having sex. Being sexually active within a community or social network where HIV prevalence is high and sharing needles for intravenous drug use were also identified as behavioural risk factors for HIV infection (Catalán et al., 1997).

Behavioural HIV prevention strategies were thus considered the most important and possibly only way to cease the spread of HIV (Fisher & Fisher, 1992). Public education and information dissemination to create awareness about HIV, its transmission modes and symptoms predominated during the pandemic's early years (Catalán et al., 1997). While these campaigns were meant to educate the general public, they were also explicitly aimed at populations deemed to be at especially high risk for infection. Apart from education and information dissemination, harm reduction and behaviour change interventions to reduce people's risk of contracting HIV became additional behavioural HIV prevention strategies. Acknowledging the importance of social support and belonging, stigma reduction programmes (hand in hand with

education and advocacy for the rights of people living with HIV) were also prioritised (Catalán et al., 1997).

2.6.4.1. Awareness raising and education

Awareness raising and educational programs are generally based on the assumption that increased information is necessary to make better-informed decisions and that improved knowledge about something tends to beget more favourable attitudes regarding that topic which will, consequently, motivate people to change their behaviour (Fisher & Fisher, 1992). Mass media and other public fora (e.g., social media, television, radio and print media) are most often used, along with community mobilisation (e.g., outreach events, public discussion forums) and interpersonal communication and counselling (e.g., peer education, interpersonal dialogue) (Bertrand et al., 2006). Reviews on the efficacy of HIV education programmes suggest that while they do appear to enhance HIV knowledge (especially regarding how HIV is transmitted), behavioural change as a result of these interventions appears to be less consistent. While some reviews indicate that increased condom use, risky sexual behaviour and behavioural skill can be altered through education programmes (Medley et al., 2009; Perazzo et al., 2017; Ruiz-Perez et al., 2017), many reviews have found little to no improvement in behavioural outcomes, especially when biomarkers are used instead of self-report data (Bertrand et al., 2006; Mahat & Scoloveno, 2018; Simoni et al., 2011).

2.6.4.2. Harm reduction

Harm reduction (or minimisation) refers to policies, strategies, and services that aim to reduce the risks associated with injecting drug use, including HIV transmission (WHO, 2012b). While it has been used in the context of addiction for many years, it became part of HIV prevention strategies in several countries in the late 1980s in response to the risks that needle sharing holds for injection drug users (Keane, 2003). To this end, harm reduction programmes for injection drug users typically involve one or more of the following: providing injection drug users with sterile needles through needle exchange initiatives; offering substitution therapy to reduce drug use harm (such as methadone maintenance treatment as a substitute for opioid abuse); and/or offering ART to injection drug users to reduce the risk of HIV infection within injection drug use communities (WHO, 2012b). Harm reduction programmes have been associated with decreased risk behaviours (including a reduction in the number of concurrent sex partners and increased condom use) (Kåberg et al., 2020; Karki et al., 2016) and reduced STI transmission (Platt et al., 2018) in injection drug users. While reviews of the individual effectiveness of needle and syringe programmes and opioid substitution therapy in reducing HIV transmission

have found moderate to strong effects, the evidence suggests that comprehensive harm reduction programmes are likely to be the most effective (Aspinall et al., 2014; MacArthur et al., 2014). Based on mathematical modelling, comprehensive harm reduction programmes are estimated to substantially impact communities where HIV transmission via injecting drug use predominates (Strathdee et al., 2010). However, it is considered by many to be a controversial HIV prevention strategy, and hence, harm reduction programmes are not commonly used, and evidence about their efficacy remains limited (Wilson et al., 2015; Wodak & Maher, 2010).

2.6.4.3. Encouraging abstinence and sexual debut delay

Programmes that promote abstinence as an HIV prevention strategy aim to demonstrate the various social, health and psychological benefits that abstinence offers and the risks of early sexual debut and/or sex outside of marriage. Abstinence can be promoted as a strategy to delay sexual debut until marriage or until a person is older and more mature (i.e., primary abstinence) as well as a strategy to return to after being sexually active in the past (i.e., secondary abstinence) (Underhill et al., 2007).

Abstinence-only programmes are primarily targeted at adolescents and young adults and are based on the assumption that abstinence is the only strategy that can truly keep a person safe from unwanted pregnancies, STIs and HIV (Kirby, 2008). It is, therefore, typically described as risk-avoidance or risk-elimination programmes as they are believed to remove young people from the risk of sex entirely. Other forms of HIV prevention, such as condom use, are not promoted within abstinence-only programmes. The assumption is that safe sex promotion reduces young people's risk for HIV prevention but does not completely eliminate it, as abstinence is meant to do (Underhill et al., 2007).

In contrast, abstinence-plus programmes offer messages about abstinence, but complement it with comprehensive education about sexual and reproductive health, information about HIV and STIs and safe sex (Underhill et al., 2007). Reviews of the literature suggest that comprehensive sex and STI/HIV education programmes (i.e., abstinence-plus programmes) are more effective at promoting positive sexual and reproductive health behaviour amongst the youth, including delaying sexual debut and increasing condom use compared to abstinence-only programmes (Kirby, 2008).

Religious and cultural beliefs around sexual behaviour play a strong role in abstinence-only promotion programmes. Religious organisations (including faith-based organisations and churches) and conservative religious countries have been known to be strong proponents of this HIV prevention strategy. In the early 2000s, the President's Emergency Plan for AIDS

Relief (PEPFAR), a prominent funder of HIV programmes in sub-Saharan Africa, strongly emphasised faith-based education and promoting abstinence until marriage. However, PEPFAR received relentless criticism for this restricted HIV prevention focus. Moreover, evidence that abstinence-only programmes have no significant impact on sexual risk behaviour and HIV transmission rates in sub-Saharan Africa also started to emerge. Consequently, PEPFAR eventually started to adjust its HIV prevention strategies in 2008 and completely halted abstinence-only funding in 2016 (Buse et al., 2016; Lo et al., 2016; Santelli et al., 2017; Santelli et al., 2013). As a result, abstinence-only programmes have fallen out of favour and have been replaced with abstinence-plus and other comprehensive sex education and HIV prevention programmes.

2.6.4.4. Multiple sexual partner reduction

Given that having multiple sex partners concurrently or in a short time frame is an important behavioural risk factor for HIV acquisition, many HIV prevention programmes have focussed on encouraging the public to reduce their number of sex partners. In Uganda, the call-to-action phrase “zero grazing” was used to encourage married couples to stop “grazing”, i.e., to have sexual relationships with other people (Green et al., 2006). The *One Love* campaign that was implemented in 2008 across several Southern African countries, including Zimbabwe, Zambia, Tanzania, South Africa, Namibia, Mozambique, Malawi, Lesotho, Eswatini, and Botswana, promoted partner reduction through health communication and edutainment across a variety of mass media channels (Jana et al., 2014).

While it is difficult to ascertain precisely how much partner reduction programmes in isolation contributed to the reduction in population-level HIV infections, a review of the research suggests that partner reduction may be a key factor in limiting the spread of HIV. If one considers how easily HIV can spread through large interconnected sexual networks, the reduction of these networks (reducing the number of people in each network and the connections between those networks) can contribute to a marked reduction in HIV spread (Shelton et al., 2004). Countries and communities where partner reduction became the primary or one of the leading HIV prevention strategies reported favourable outcomes (Eaton et al., 2010; Green et al., 2006). Research on the implementation of partner reduction programmes suggests that promoting partner communication, including strengthening people’s self-efficacy to discuss safe sex with their partner, should be emphasised in such interventions (Boone et al., 2015; Gause et al., 2018; Peragallo et al., 2012). Mathematical modelling studies have estimated that partner reduction can play an essential role in contributing to a reduction in HIV

transmission within combination prevention programmes where condom use and ART are also promoted (Lou et al., 2017).

2.6.4.5. Condom use promotion

Although consistent condom use can reduce HIV incidence by between 80% and 95% (Weller & Davis, 2001), numerous psychological and social factors hinder condom use. While condoms may be too expensive for some, many feel that condoms are inconvenient to use, uncomfortable and reduce sexual pleasure and intimacy (Giano et al., 2019). As a result, condoms tend to be used sporadically and inconsistently, depending on people's marital status and perception of risk (Nasrullah et al., 2017).

A review of the literature indicates that condom promotion programmes amongst key populations (especially amongst sex workers and their clients) can be highly effective in contributing to an adjustment in people's attitudes, beliefs and use of condoms (Evans et al., 2020; Foss et al., 2007). However, most condom promotion programmes rely on self-reported data on condom use, and few studies incorporate objective measures such as follow-up STI testing or pregnancy as markers of condom non-use (Free et al., 2011).

2.6.4.6. The ABCs of HIV prevention

The *Abstinence, Be Faithful and Consistent Condom Use* (ABC) HIV prevention strategy emerged in the 1980s and is the best-known HIV prevention model globally (Shelton et al., 2004). The ABC model is rooted in the USA government's health policy. This policy prioritised abstinence until marriage amongst heterosexual populations and early HIV behavioural prevention (such as reducing the number of sexual partners, consistent condom use, and knowing one's sexual partners) amongst homosexual male populations (Cohen & Tate, 2006; Su, 2010).

Starting from the late 1980s, the ABC model became popular in many sub-Saharan African countries via USA-funded HIV prevention programming, including Botswana, the Democratic Republic of the Congo, Eswatini, Uganda and Malawi (Cohen & Tate, 2006). The ABC model is often cited as being the critical factor behind the reduction in Uganda's HIV infection rate during the 1990s (Stoneburner & Low-Beer, 2004). Uganda's HIV infection rate decreased from 15% in the early 1990s to 5% in 2001 (Green et al., 2006). However, many argue that instead of the ABC model, the reduction in the number of multiple concurrent partnerships, strong political leadership, low levels of HIV-related stigma, social mobilisation and community-based HIV prevention efforts and support, as well as increasing public awareness

of health care risks, may have been the main contributing factors behind the declining HIV infection rate in Uganda (Brody, 2004; Epstein, 2008; Murphy et al., 2006).

While the precise application of the ABC model varied across different countries, it generally prioritised abstinence and faithfulness as the primary ways to prevent HIV infection (Murphy et al., 2006). Abstinence was promoted amongst young and unmarried people, and faithfulness was promoted amongst married couples. Consistent condom use was promoted to sexually active individuals; however, the promotion of condoms was considered to be controversial, especially amongst religious leaders and conservative political leaders, who played an important role in advising their communities and countries about how they should behave in order to avoid HIV infection (Trinitapoli, 2009). To them, promoting condoms appeared to be promoting promiscuity, and this helped to engender further stigma around the use, distribution and marketing of condoms (Cohen & Tate, 2006; Murphy et al., 2006)

While the ABC model was hailed in Uganda as a success, several sub-Saharan countries criticised the approach, noting that it was not scientifically sound nor culturally appropriate. By undermining local sexual norms and practices and removing safe sex from the HIV prevention agenda, consistent condom use and knowledge about using condoms remained low, placing people at risk instead of reducing their risk (Su, 2010). Moreover, the ABC model has been criticised for emphasising abstinence and faithfulness in contexts where women, in particular, are often not in a position to negotiate sex, condom use or fidelity (Cohen & Tate, 2006).

A review of the implementation of the ABC model across various countries, including Botswana, the Democratic Republic of Congo and Uganda, found that campaigns that focused primarily on abstinence and condom use did not fare well, mainly due to contrasting religious and cultural views about sexual behaviour. Instead, the review determined that campaigns which were more balanced in their promotion of ABC and especially those which emphasised the faithfulness component of the ABC model, produced better results (Monette, 2017). Given these criticisms and as HIV prevention programming started to move more towards surveillance-based public health (i.e., using public health data to inform HIV prevention policy), the ABC model gradually started to fall out of favour (Sweeney et al., 2013).

2.6.4.7. The role of behavioural prevention alongside biomedical HIV prevention

Advances in ART (especially the development of HAART and TasP) and innovations in biomedical HIV prevention (e.g., PrEP and PEP) have expanded HIV prevention options. Biomedical HIV prevention strategies were (and to some extent continue to be) feared as

something that would upend the efforts of social scientists to prevent the disease via behavioural strategies. In a letter to the editor of the journal AIDS, Nguyen et al. (2011) cautioned that “an overt emphasis on biomedical technologies risks eclipsing the importance of social change as the fundamental basis for prevention” (p. 1435). Concerns were raised that TasP and other biomedical HIV prevention methods would cause funders to shift their attention away from behavioural prevention strategies and that this would ultimately lead to TasP and other biomedical HIV prevention methods being prioritised over behavioural prevention methods (Nguyen et al., 2011; Zachariah et al., 2010).

However, findings from biomedical treatment and prevention clinical trials often highlight that we still lack knowledge about the social, cultural and psychological factors that influence health behaviour (Baeten et al., 2016; Celum & Baeten, 2020) and that behavioural and social science research still have several meaningful functions within the greater HIV research effort (Gaist & Stirratt, 2017). Low uptake and adherence to biomedical prevention methods and disengagement from ART care frustrate our efforts to halt the growth of the HIV epidemic. Research has found that social and psychological factors still play a pivotal role in the uptake, adherence and sustained use of ART and biomedical HIV prevention methods (e.g., Prudden et al., 2017). Perception of risk, stigma, substance use, depression as well as self-efficacy are some of the most important factors that have been identified as powerful predictors of ART and biomedical prevention method acceptance, initiation and adherence (Ahmed et al., 2018; Celum et al., 2019; Cichowitz et al., 2017; Heyer & Ogunbanjo, 2006). Concerns about uptake, retention and adherence, coupled with the emergence of compensatory (and continued) risk behaviour alongside the use of biomedical prevention and treatment methods, emphasise that behavioural HIV prevention strategies still have an essential part to play in preventing the spread of HIV in the PrEP and TasP era.

2.6.5. Structural Prevention Strategies

HIV prevention initiatives typically comprise primarily biomedical and behavioural strategies – educating the public, especially key populations, about HIV, making testing and treatment services widely available and ensuring that as many people living with HIV as possible are placed on ART. However, by the early 2000s, the CDC and other stakeholders started to recommend that HIV prevention interventions should target multiple socio-ecological levels to address health disparities and that greater community involvement is necessary for developing these interventions (Gordon et al., 2005). Accordingly, the content of HIV prevention programmes and research started to gradually shift towards a greater focus on structural factors,

stigma and discrimination, inequality, poverty, sexual violence, and harmful gender norms as factors that influence HIV risk and ART access (Colasanti & Armstrong, 2019; UNAIDS, 2018).

This opened up a new avenue for HIV prevention, namely *structural prevention*. According to Hankins and de Zaldondo (2010), structural HIV prevention strategies are aimed at “...addressing the social, economic, cultural, and legal constraints that create HIV risk environments and undermine the agency of individuals to protect themselves and others” (p. s70). Structural prevention interventions recognise the complexity of behaviour and the social and structural dynamics that make people vulnerable to HIV infection (Hankins & de Zaldondo, 2010). Structural strategies typically target society's environmental, social, economic and political dimensions that heighten HIV risk and vulnerability (Seeley et al., 2012). The WHO (2016b) have identified four structural “critical enablers” (p. 84) that can ultimately improve HIV prevention, treatment, care and support. These critical enablers include: reviewing discriminatory laws and policies, reducing stigma and discrimination, preventing violence against key populations, and community empowerment (WHO, 2016b).

Structural HIV prevention strategies include stigma and discrimination reduction and awareness programmes and policies; initiatives aimed at upholding the human rights of people who live with HIV; decriminalising key population behaviour; the provision of key population-friendly services; the improvement of key population's access to healthcare and legal services; improving health and legal literacy amongst key populations; stipends or cash transfers to at-risk young women to encourage them to complete their schooling, to take regular HIV tests and avoid risky sexual partnerships; microfinance programmes; youth and women's empowerment programmes; livelihood programmes; and other projects that are led by and/or meaningfully participated in by key populations (Seeley et al., 2012; WHO, 2016b).

While there is clear evidence to suggest that structural factors play an important role in shaping people's vulnerability to HIV infection and their access to treatment and care services, these factors (e.g., social norms and belief systems, poverty and inequality) are difficult to address effectively, and it will likely take many years to change (Gupta et al., 2008). Moreover, structural HIV prevention strategies such as microfinance programmes address HIV vulnerability indirectly, which complicates the evaluation of these interventions (i.e., to attribute cause and effect reliably) (Padian et al., 2010). Given these challenges, structural HIV prevention programmes may need to be planned in such a way that they continue for an

extended time period. Additionally, long-term follow-up monitoring and evaluation should be done to determine the true intended and unintended outcomes of these programmes. However, this will be highly resource-intensive and time-consuming.

2.6.6. Combination Prevention

A growing body of evidence suggests that combining biomedical, behavioural and structural approaches is the most effective HIV prevention strategy. Multi-component HIV-prevention interventions are typically referred to as *combination prevention* in the HIV and AIDS literature (UNAIDS, 2010). Combination prevention is based on the Highly Active Prevention Model (HARP) (coined by King Holmes), which is founded upon the idea that HIV prevention efforts should include a combination of multiple interventions, along with meaningful community involvement and strong leadership (Sahasrabuddhe & Vermund, 2009). The assumption behind combination prevention is that by using a multi-modal approach, one can address both the immediate dynamics of HIV risk and the underlying causes that promote vulnerability to HIV infection (Hankins & de Zaldoondo, 2010). The HARP model has been captured in a diagram which illustrates HIV combination prevention (Coates et al., 2008) (see Figure 2.3).

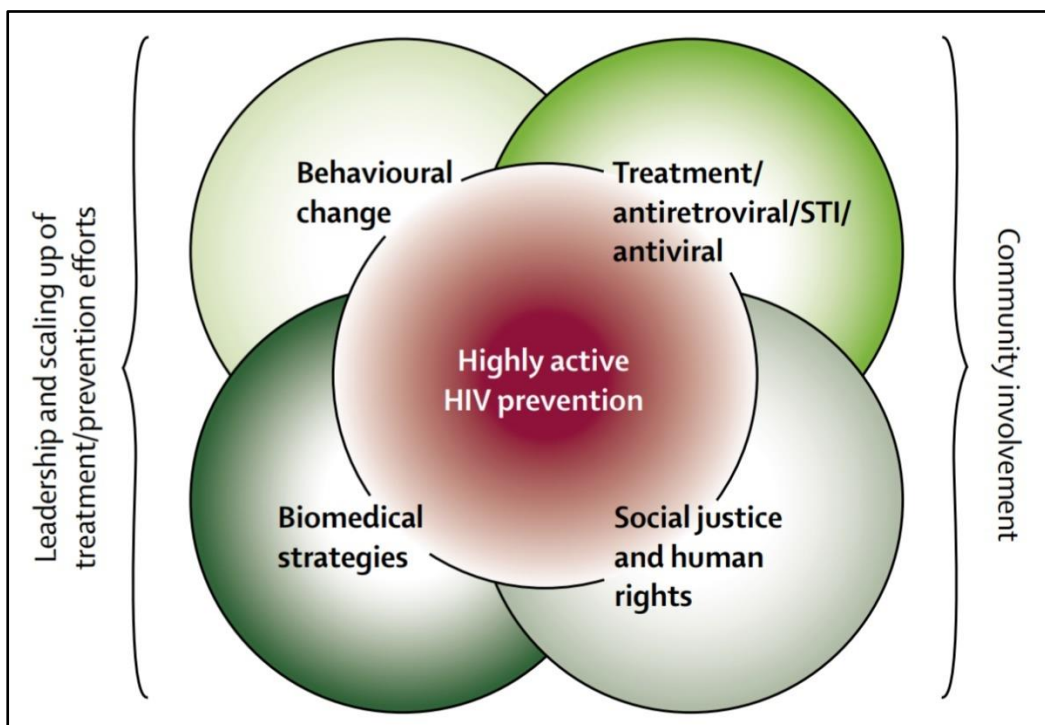


Figure 2.3 The Highly Active HIV Prevention Model (Coates et al., 2008, p. 670)

A systematic review of the findings from 64 randomised controlled trials which studied adherence to daily oral medication (until the end of 2011) concluded that complex, resource-

intensive interventions, which combined multiple adherence support approaches, showed the most substantial evidence for improving adherence (Marcus et al., 2014). However, the results from some large-scale, multi-component HIV prevention interventions, such as the *Determined, Resilient, Empowered, AIDS-free, Mentored and Safe* (DREAMS) study, were only able to produce weak evidence in support of the programme's ability to prevent HIV infection (Burke et al., 2020; Floyd et al., 2022; Mthiyane, 2020).

While combination prevention interventions seem promising, their complexity makes them difficult to evaluate. In particular, with regard to determining which of the various intervention components (or the synergism amongst different combinations of the intervention's components) contributed to the success of the intervention. Consequently, there is a lack of rigorous evaluations of combination interventions (Burke et al., 2018; Hosek & Pettifor, 2019).

2.7. Conclusion

Since HIV was first discovered in 1981, the virus has spread exponentially across the globe. A total of 84.2 million people have been infected with HIV, and over 40.1 million people have died of HIV since the start of the pandemic (UNAIDS, 2022b). Over the past four decades, we have seen major breakthroughs and scientific achievements with regard to the prevention and treatment of HIV, as well as unfortunate setbacks. Great strides have been made by the scientific community to understand the origins, spread and clinical presentation of HIV, making it one of the most researched viruses known to mankind (Barré-Sinoussi et al., 2013). The HIV mortality rate has decreased considerably (declining by 52% since 2010 and 68% since its peak in 2004), largely due to greater ART coverage and improved testing efforts (UNAIDS, 2022b).

However, over the last 40 years and through the wisdom of hundreds of thousands of studies, it has become clear that the social and psychological processes that underly risk behaviour, vulnerability to infection, as well as behaviour relating to testing, treatment seeking, uptake, retention and adherence is far more intricate than initially assumed (Catalán et al., 1997).

While an estimated 38.4 million people are living with HIV globally, two-thirds live in sub-Saharan Africa (UNAIDS, 2022b). South Africa, in particular, has become the epicentre of the HIV pandemic. In the next chapter, I take a closer look at the unique South African context, the drivers of the country's epidemic as well as the impact that HIV has had on the country.

Chapter 3: HIV and AIDS in the South African Context

“In the ruthless world of AIDS, there is no us and them. And in that world, silence is death.” (WHO, 2003c)

“Throughout human history, epidemic disease has constituted a natural experiment in how societies respond to disability, dependence, fear, and death. In this sense, the manner in which a society responds reveals its most fundamental cultural, social, and moral values. Disease is not merely a biological phenomenon; it is shaped by powerful behavioral, social, and political forces. Social values affect both the way we come to see and understand a particular disease and the interventions we undertake.”
(Brandt, 1988a, p. 414-415)

“South Africa’s social and historical context is one characterised by poverty and serious social problems which have been acerbated by the HIV/AIDS pandemic.” (Marchetti-Mercer, 2003, p. 10)

3.1. Introduction

In the previous chapter, I discussed the global HIV pandemic and the biomedical and socio-behavioural responses to the disease. The focus now turns to South Africa as the main focus of this study. Appendix B provides a detailed timeline of the South African HIV epidemic from 1982 to 2020. In this chapter, I focus on some of the most important issues that shaped the country’s response to HIV and AIDS, how the disease affected the already vulnerable population, and the key driving factors and possible causal pathways behind the spread of HIV in the country. This chapter is meant to serve as background context to the research theme and theoretical analysis, which will be discussed in chapters 7, 8 and 9.

3.2. The HIV Epidemic in South Africa (1982 – 2020)

The first two cases of HIV were detected in South Africa in 1982 (Ras et al., 1983). That same year, the UN’s General Assembly declared it to be the International Year of Mobilisation for

Sanctions against South Africa due to its racial segregation as well as the political and economic discriminatory legislation and policies of the apartheid government (UN, 1982). As HIV slowly took hold in the country throughout the 1980s, South Africa experienced increasing political tension and violence. In 1988, the South African Advisory Group initiated a health education programme and accompanying policies to address the spread of HIV. Their approach centred around condom distribution and education campaigns aimed at making the public aware of HIV (e.g., how it is transmitted, symptoms and disease progression) and promoting safe sex practices (e.g., abstinence, consistent condom use, reduction in concurrent sexual partners) (Simelela & Venter, 2014). However, the programme was largely unsuccessful in turning the tide during the late 1980s and early 1990s and it was met with a high degree of scepticism, resistance and distrust. The Advisory Group's efforts failed likely because it did not consult with all segments of South African society, including high-risk groups such as migrant workers, sex workers, gay groups and township residents (Sadie, 1992; Zwi & Bachmayer, 1990). In addition, a large proportion of the population distrusted the Apartheid government and was thus unreceptive to HIV prevention messages produced and disseminated by the government (Sadie, 1992). Given the tense political climate of the time and generally low levels of awareness about HIV and AIDS, government-based HIV prevention messages were misconstrued as being politically motivated and possibly part of a larger complot to stop black population growth (Visser & Sipsma, 2013). In response to the lack of productive HIV prevention information in the public domain, civil society, particularly gay community organisations, mobilised to develop appropriate and non-discriminatory HIV educational programmes. This included street theatre and puppetry shows which offered productive information on protecting oneself from HIV infection and other issues related to HIV and AIDS (Zwi & Bachmayer, 1990).

When the first democratic election was held in 1994, data from the annual national HIV surveys at antenatal clinics revealed that the HIV epidemic steadily grew from approximately 0.76% in 1990 to 7.6% in 1994 (McIntyre, 1996). While the apartheid government was criticised for not taking enough action to curb the spread of the disease, the new democratic government took a more active role in addressing HIV and AIDS head-on. The first National AIDS Plan for South Africa was released in 1994 – emphasising HIV prevention, treatment, care and support. It seemed as if the new government was committed to swiftly fighting HIV and AIDS. Unfortunately, the optimism was short-lived as continued distrust in the authorities, HIV

stigma, HIV denialism, and conspiracy beliefs about the prevention and treatment of HIV undermined HIV prevention efforts (Baleta, 1999a).

The period between 1998 to 2008 was a particularly trying decade for the country. The HIV prevalence rate increased from approximately 22.8% amongst antenatal women in 1998 to 30.5% seven years later in 2005 (Woldesenbet et al., 2019). The HIV epidemic soon turned into an AIDS epidemic, with over 1.7 million AIDS-related deaths between 2002 and 2008 (Stats SA, 2020). Meanwhile, HIV denialist ideology permeated the government's response to the crisis. President Thabo Mbeki, who was in office from 1999 to 2008, and in particular Manto Tshabalala-Msimang, who was the Minister of Health during that same period, held strong denialist beliefs regarding the cause of AIDS and how it should be treated (see Appendix B, 1996 – 2008). The politicising of the disease, coupled with unscientific and unempathetic approaches to preventing and treating HIV, played a key role in delaying the initiation of ART and spreading disinformation about HIV and AIDS in the country (Simelela & Venter, 2014).

In the absence of an official public healthcare ART plan, ARVs were only available at private healthcare facilities at very high prices, which most South Africans who were living with HIV could not afford. Public healthcare facilities only offered treatment for opportunistic infections associated with AIDS (McNeil, 2012). The government's unwillingness to acknowledge the true extent of the epidemic and its slow response to it resulted in the formation of a strong activist movement in the country. Several civil society and faith-based organisations were founded throughout the 1990s and early 2000s in response to the HIV epidemic and the lack of appropriate treatment. These organisations included, amongst others, the Treatment Action Campaign (TAC), Section27, the AIDS Law Project, the AIDS and Rights Alliance for Southern Africa, LoveLife South Africa, the Soul City Institute, the Desmond Tutu HIV Foundation, the Networking HIV and AIDS Community of South Africa (NACOSA), the AIDS Consortium, and the AIDS Foundation of South Africa. International HIV and human rights activists worked in solidarity with South African civil society organisations, particularly the TAC, to fight against the high cost of ART and to pressure the South African government to adopt WHO ART guidelines (Section27, 2018). ART and PMTCT were finally approved by the country's cabinet in 2003 and officially rolled out nationwide in 2004 (NDoH, 2003). Although the practical implementation of ART and PMTCT took a few years to mature, the UNAIDS estimates that by 2020 a total of 5.6 million people were on ART (72% of the total number of people living with HIV in South Africa) and that the vertical transmission of HIV has been reduced to 3.9% (UNAIDS, 2022a).

Given that South Africa has the largest population of people living with HIV, it became one of the most important HIV research sites globally from the late-1990s. South African research teams made substantial contributions to the scientific knowledge base, laying important foundations for further global HIV prevention, treatment and care research and policy development (e.g., Abdool Karim et al., 2010; Abdool Karim et al., 2019; Auvert et al., 2005; Bekker et al., 2018; Coutsooudis et al., 1999; Laher et al., 2020; Mayer et al., 2006; Moodley et al., 2003; Van Damme et al., 2002).

3.2.1. HIV Surveillance in South Africa

Obtaining accurate and reliable HIV morbidity and mortality rates have not been simple. Gaining a better understanding of the extent of the epidemic is essential to develop and implement health policy, prevention, treatment and care strategies, setting targets and monitoring programmes (Coetzee & Mahomed, 2014). One of the earliest sources of seroprevalence data was analysing routine blood donor screening samples (DNHPD, 1987; Prior & Buckle, 1990). Without any other reliable and consistent data source, blood donor screening samples can be a valuable source of seroprevalence data. However, it is generally not considered a helpful indicator for the general population as blood donor data mostly underrepresent large parts of the population, especially high-risk populations who are unlikely to donate blood (Schoub et al., 1988; Sedyaningsih-Mamahit et al., 2004).

The South African AIDS Advisory Group was founded on 8 March 1985 to advise the South African Department of National Health and Population Development (DNHPD) on HIV and AIDS (Kustner et al., 1994). HIV seroprevalence initially took the form of reporting documented cases as they were identified at healthcare facilities. Although this was in line with initial WHO guidelines, it quickly became apparent that case-by-case documentation was insufficient by the end of that decade (Kustner et al., 1994). The lack of reliable HIV-related data, especially within high-risk populations, posed a significant challenge to understanding the scope and nature of the epidemic in the country (O'Farrell & Windsor, 1991).

In 1990, the NDHPD conducted its first annual survey of HIV seroprevalence at antenatal clinics among pregnant women aged 15 to 49 years (DNHPD, 1990). The antenatal survey allowed for the passive collection of HIV seroprevalence data from many individuals in the heterosexual population (Kustner et al., 1994). The survey is now formally known as the South African National Department of Health's (NDoH) National Antenatal Sentinel HIV and Syphilis Survey (Woldesenbet et al., 2019). The survey is, however, not without bias, as the

sample only includes pregnant women who visit public antenatal clinics and excludes high-risk populations such as homosexual men.

Collecting seroprevalence data directly from populations considered to be at an elevated risk for HIV infection, such as STI clinic attendees, sex workers and homosexual men, has served as another important data source since the mid-1980s (Schoub et al., 1987). Similarly, small-scale surveys at sentinel sites, where the HIV prevalence rate was known to be high, were also conducted to obtain seroprevalence data and provide tentative extrapolations to other sites. The Hlabisa district in the Kwa-Zulu Natal province served as one such site since the early 1990s (Floyd et al., 1999). However, studies that focus on at-risk populations do not provide a comprehensive understanding of the morbidity rates across the entire population.

In 2002, the HSRC conducted their first South African National HIV Prevalence, Incidence, Behaviour and Communication Survey – a cross-sectional, population-based household survey spanning all nine provinces. As part of the survey, fieldworkers visit sampled homes and request informed consent to acquire a dried blood spot sample for anonymous HIV testing. Apart from HIV seroprevalence data, the survey also collects data on HIV testing history, HIV-related knowledge and attitudes as well as preventative and risk behaviour (Simbayi et al., 2019). Just over 39 000 individuals participated in the most recent survey in 2017 (Simbayi et al., 2019). While still a relatively small sample, it includes South Africans of all ages, across the entire demographic spectrum, and therefore helps to provide a complete picture of the epidemic.

Considering that HIV has a reasonably long natural history, a person may live with HIV without realising or even suspecting that they have it for several months and even years. It is only when they start feeling ill (when their immune system has been compromised through disease progression) that they seek medical treatment, get tested for HIV and receive a positive diagnosis. This delay between infection and diagnosis poses a challenge to HIV surveillance – leading to a lower estimate of HIV incidence and prevalence rates than what is the case in reality. While the percentage of undiagnosed HIV-positive cases was estimated to be as high as 80% in the early 2000s, increased HIV testing rates have helped to bring the percentage of undiagnosed HIV-positive cases down to as low as 23.7% in the early 2010s (Johnson et al., 2015). Higher HIV testing rates have helped to collect more accurate and complete HIV morbidity data.

HIV mortality statistics are primarily obtained from the civil registration system, including all death notification data. Statistics South Africa's (Stats SA) Mortality and Causes of Death report, released annually, contains the most reliable information in this regard (Stats SA, 2018). However, additional research, such as the National Burden of Disease Study by the South African Medical Research Council (SAMRC), provides a more detailed view of the main causes of death in the country (Bradshaw et al., 2003). In addition, various mathematical models³⁴ have been created to describe the HIV epidemic and make predictions about future outcomes (e.g., what HIV morbidity and mortality are likely to be, given various levels of ART coverage and other demographic variables). The Thembisa Model is currently considered to be the most reliable and comprehensive mathematical model available (Johnson et al., 2016).

One of the main challenges with ascertaining the HIV mortality rate is that the primary source of data (e.g., death certificates) is known to not always be completed correctly, which may ultimately contribute to an inaccurate reflection of the actual number of AIDS deaths (Akinnusi & Molosi, 2008; Burger et al., 2007; Groenewald et al., 2005). Oftentimes, the medical certifier does not know the HIV status of the deceased or does not have access to the patient's entire medical history to determine whether HIV may have been the cause of death. In such instances, the cause of death is often misattributed to another infectious disease, such as tuberculosis, influenza or pneumonia, which may have been the immediate cause of death, but was not the original, accurate cause of death (Groenewald et al., 2005).

Fear of discrimination and the prevailing social stigma surrounding HIV and AIDS have also contributed to the under-registration of AIDS deaths. Patients who fear differential treatment may opt not to disclose their HIV-positive status to their healthcare providers. Moreover, some life insurance and funeral policies may not pay out if the cause of death is due to AIDS. As a result, several anecdotal incidents have been noted of loved ones applying pressure on the doctor not to indicate that the cause of death was due to AIDS. Fear of the rest of the community finding out about the actual cause of death may also drive family members to conceal their loved one's HIV-positive status in such a way (Akinnusi & Molosi, 2008; Groenewald et al., 2005).

³⁴ These include the Actuarial Society of South Africa's AIDS and Demographic model (ASSA2008) (which has not been updated since 2011), the STI-HIV Interaction model (which has not been updated to include recent developments in the HIV prevention field), the UCT Paediatric HIV model (which was specifically developed to evaluate new PMTCT strategies), and the National Strategic Plan ART Need model (which was designed to predict the number of people who would require ART for the purpose of designing the South African 2012-2016 National Strategic Plan (Thembisa, n.d.).

Changes in coding practices at hospitals and mortuaries have also led to the inconsistent classification of AIDS deaths (Groenewald et al., 2005). As a result, it is estimated that a large percentage of deaths that AIDS caused were not classified as such. Although concerted efforts have been made to address the situation (Mphatswe et al., 2012), the misclassification and, thus, underrepresentation of the number of AIDS deaths remains a problem (Pillay-van Wyk et al., 2016). It is estimated that death registrations in South Africa were 91% complete from 2008 to 2016 (World Bank, 2019). Nevertheless, cross-sectional analyses indicate that as many as 40% of death notification forms contain significant errors which obscure the cause of death (Burger et al., 2007). In their cross-sectional analysis of death notification forms in the Cape Metropole between 2003 and 2004, Yudkin and colleagues found that there were discrepancies between the cause of death in the death notification forms and their corresponding medical records – while the medical records indicated that HIV was the cause of death in 34.9% of people aged 15 to 49, the death notification forms only attributed HIV to 22.1% of those deaths (Yudkin et al., 2009).

The misclassification and underrepresentation of AIDS deaths complicate the interpretation of South African mortality statistics. Government reports, which still rely primarily on death certificate data, tend to offer far lower estimates of AIDS deaths compared to mathematical modelling estimates and other methods, which include deaths resulting from conditions brought upon by an HIV infection (Groenewald et al., 2005).

The particularly low estimates produced in the late 1990s and early 2000s fuelled debate around the size and significance of the South African HIV epidemic (Groenewald et al., 2005). Birnbaum et al. (2011) estimate that close to 90% of AIDS deaths were misclassified between 1996 and 2006. While the rate of AIDS mortality was initially estimated to be 19% (uncertainty range: 7–28%), Birnbaum et al. (2011) estimate that the AIDS mortality rate was more likely closer to 48% (uncertainty range: 38–50%) between 1996 and 2006. Moreover, the slow data collection and reporting of all-cause mortality from healthcare facilities further delayed the study of AIDS-related mortality (Groenewald et al., 2005). Misconceptions about the magnitude of the epidemic, due to inadequate and incomplete data, worsened by HIV and AIDS denialism and stigma, might therefore have contributed to the South African HIV epidemic being a so-called “silent” epidemic during the 1990s.

3.2.2. HIV Morbidity and Mortality in South Africa

While many sub-Saharan African countries were overwhelmed by HIV and AIDS during the 1980s, the documented number of HIV cases and AIDS-related deaths in South Africa was relatively low in the 1980s. Given that the initial HIV cases were mostly white gay and bisexual men, the prevailing perception was that mostly white MSM was at risk for HIV infection. From 1982 to February 1990, 310 HIV cases were identified in South Africa (231 were white and 79 were black) (Zwi & Bachmayer, 1990). However, the HIV incidence rate increased rapidly from 1990 onwards. It is estimated that the HIV incidence rate increased from 0.76% in 1990 to 10.44% in 1995 (Woldesenbet et al., 2019). By 1991, the rate of new heterosexual HIV infections surpassed that of gay and bisexual HIV infections. Scientists were starting to raise the alarm that HIV and AIDS can spread widely into the country’s majority black population and devastate the country if something is not done quickly (McIntyre, 1996; Padayachee & Schall, 1990).

Figure 3.1 illustrates the national HIV incidence (1985/1986 - 2011/2012) and HIV prevalence (1990 - 2012) trends in people aged between 15 and 49 years for each province (Johnson et al., 2017).

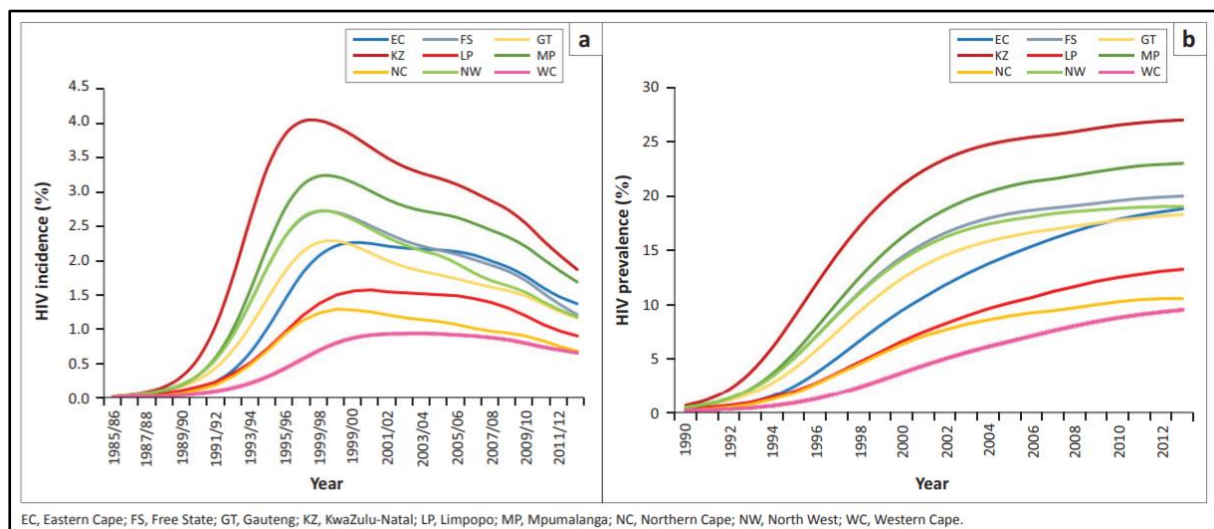


Figure 3. 1 National HIV incidence (1985/1986 - 2011/2012) and HIV prevalence (1990 - 2012) trends in 15-49-year-olds, per province³⁵ (Johnson et al., 2017, p. 5)

As predicted in the early 1990s, it is evident that HIV spread rapidly throughout the 1990s and most aggressively in the KwaZulu-Natal province. According to Campbell and Williams (1996), the period between 1990 and 1995 was a crucial moment in the South African HIV

³⁵ Lines represent posterior means (95% confidence intervals not shown).

epidemic. If determined action had been taken at that point to control the disease, the spread of HIV could have been vastly reduced. Early analyses from the mid-to-late 1990s indicated that HIV's intrinsic growth rate was significantly higher than previously estimated and that the country was heading for a disaster (Williams & Campbell, 1998).

HIV took a particularly destructive toll on the South African population. During the early to mid-2000s, arguably the worst years of the epidemic, total life expectancy fell to 54.1 in 2006 (52.3 for men and 55.7 for women). From 2002 to 2006, the annual infant mortality rate peaked at an average of 56 per 1 000 live births and the annual under-five years mortality rate at 75 per 1 000 live births. AIDS as the cause of death represented almost 40% of all deaths in South Africa between 2004 and 2008. It is estimated that approximately 3.4 million people died of AIDS in South Africa from 2002 to mid-2022 (Stats SA, 2022a).

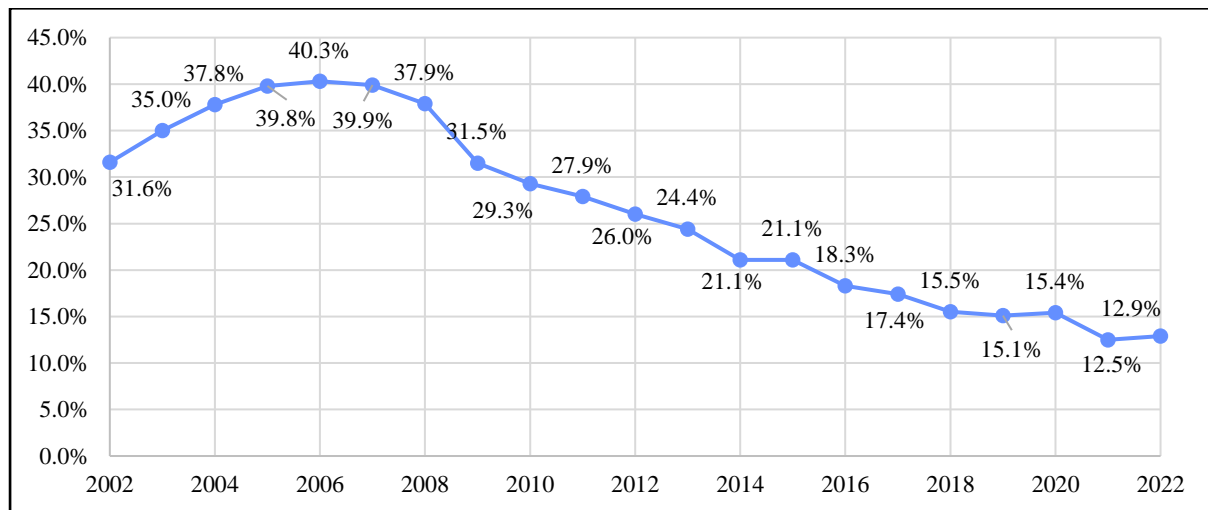


Figure 3. 2 Percentage of deaths in South Africa that was AIDS-related (2002-2022)
(Stats SA, 2022a, p. 16)

Figure 3.2 illustrates the percentage of deaths in South Africa from 2002 to 2022 that were AIDS-related deaths. The AIDS mortality rate has markedly decreased since ART became available. South Africa started offering ART to HIV-positive people with a CD4 count of 200 or less in 2004. However, the roll-out of ART commenced slowly, and it was only in 2006 that ART became more readily available across the country (Pillay-van Wyk et al., 2016). In 2013, the CD4 count threshold for ART initiation was adjusted to 350 and less (Simelela & Venter, 2014). From 1 September 2016, South Africa started providing ART to all HIV-positive people, regardless of their CD4 count (Medicines Information Centre, 2016). Analyses of data from the Thembisa Model estimate that the South African ART programme prevented as many as 1.72 million adult AIDS deaths between 2000 and 2014 (Johnson et al., 2017). Another

study that used data from the National Income Dynamics Study estimates that the introduction of ART led to annual reductions in annual mortality by 30.7% between 2006 and 2016 (Burger et al., 2019). Improved access to effective treatment has helped to increase total life expectancy by over ten years to 62.8 years in 2022 (60.0 for men and 65.6 for women) (Stats SA, 2022a). PMTCT services, which first became available in South Africa in 2002, contributed to an estimated 25% decrease in AIDS-related child and infant deaths between 2009 and 2012 (Simelela & Venter, 2014). In 2022, the infant mortality rate stood at an estimated 24.3 per 1 000 live births and the under-five mortality rate at 30.7 per 1 000 live births. AIDS-related deaths have also dropped markedly since the mid-2000s to 12.9% in 2022 (Stats SA, 2022a).

Although the eventual introduction of ART helped to reduce the AIDS mortality rate significantly, the number of AIDS deaths prevented through ART could have been much higher had ART been introduced to South African health facilities sooner (Johnson et al., 2017). The Thembisa Model estimates that, although approximately 6.15 million life years in adults were saved due to ART from 2000 to 2014, as many as 8.80 million life years in adults could have been saved if the South African government implemented the WHO (2004) guidelines and obtained higher ART uptake levels from 2004 onwards (Johnson et al., 2017). Moreover, researchers estimate that more than 330 000 AIDS deaths and 35 000 infant HIV infections can be attributed to the lack of ART from 2000 to 2005 (Chigwedere et al., 2008). The initial high cost of ART, coupled with a prevailing denialist stance amongst the South African government towards the use of ART to treat HIV, led to a delay in the initiation of treatment for many people living with HIV during the 1990s and early 2000s. This delay in initiating ART can also be seen as a cause for the continued high HIV incidence rate during the 2000s and the high HIV prevalence rate that South Africa is still experiencing (Bulled & Singer, 2020).

The HIV incidence rate from 2002 to 2022 is displayed in Figure 3.3. The HIV incidence rate has declined steadily since the mid-1990s. Analyses with the STI–HIV Interaction model and the ASSA2003 AIDS and Demographic model have suggested that this decline in the HIV incidence rate is primarily due to increased condom use (Johnson et al., 2012). However, given the considerable resources that have been placed behind expanding HIV prevention programming and treatment services to prevent risk behaviour and promote viral suppression, the current HIV infection rate is still unacceptably high.

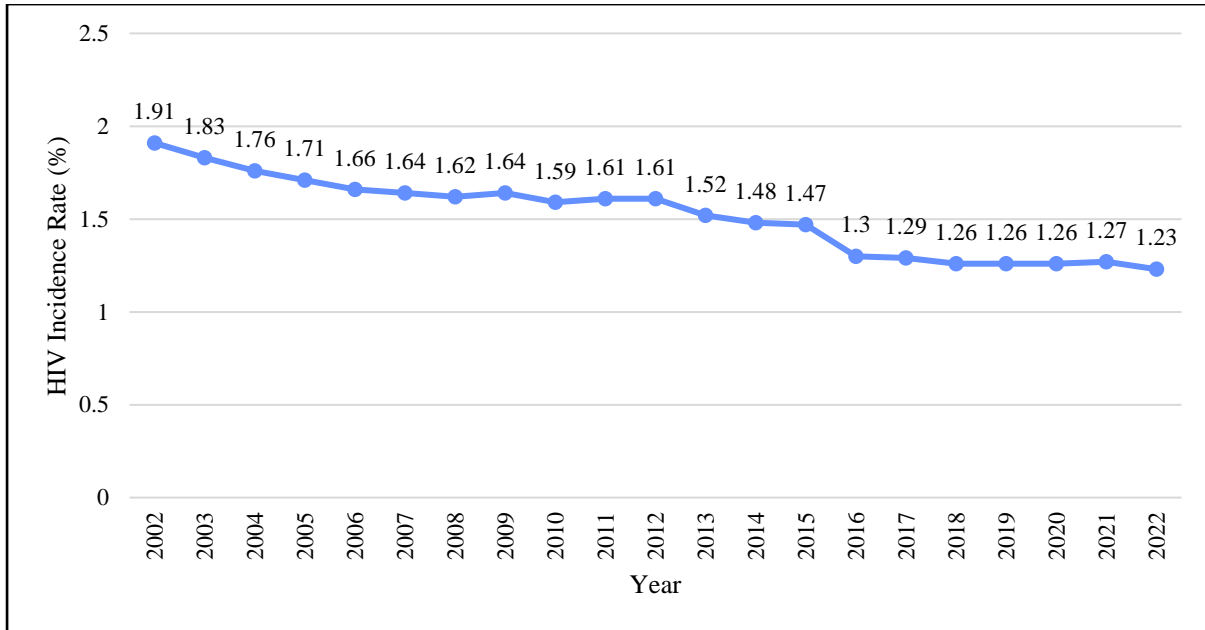


Figure 3.3 National HIV incidence (2002-2022) in 15-49-year-olds (Stats SA, 2022a, p. 41)

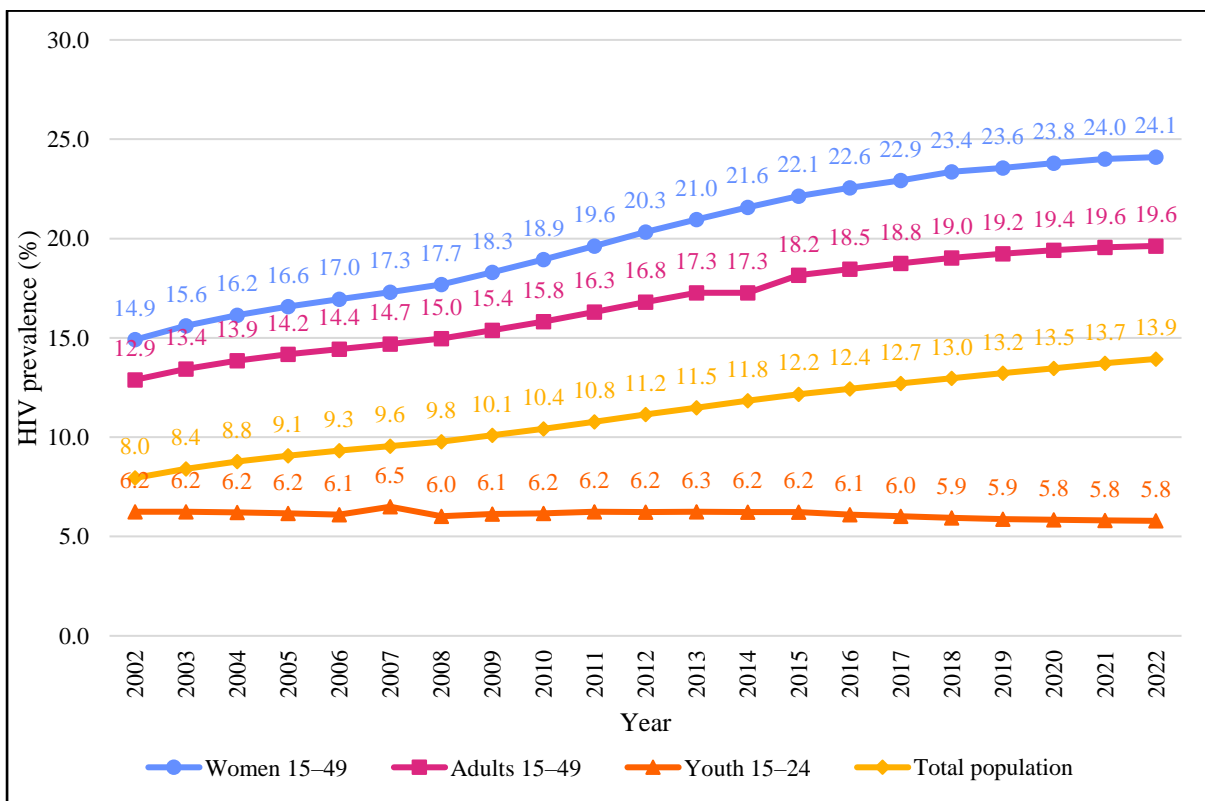


Figure 3.4 National HIV prevalence (2002-2020) in women aged 15 to 49, adults aged 15 to 49, youth aged 15 to 24 and in the total population (Stats SA, 2022a, p. 41)

Figure 3.4 presents the national HIV prevalence rates (2002-2020) in women aged 15 to 49, adults aged 15 to 49, youth aged 15 to 24 and the total population (Stats SA, 2022a). The most recent HIV prevalence data from Stats SA (2022a) places the overall South African HIV prevalence rate at 13.9% (approximately 8.35 million people) in mid-2022. For the 15 to 49 years age group, the HIV prevalence rate is estimated to be 19.6% (Stats SA, 2022a). Despite concerted HIV prevention efforts directed towards young women, this population group remains the most vulnerable to the disease.

3.2.3. TB Co-Morbidity and the Increasing Healthcare Burden

TB is the most common HIV-related opportunistic infection in South Africa. By the time HIV was first detected in South Africa, the country had already been in the troughs of a TB epidemic which was as high as 350 per 100 000 population in the 1960s (NDoH, 2007). The TB prevalence rate increased from 163 per 100 000 in 1986 to 628 per 100 000 in 2006 (NDoH, 2007). As the HIV prevalence rate rose from the early 1990s to a mature epidemic by the 2000s, a similar upward trend was observed in the TB prevalence rate (Karim et al., 2009).

The rise in TB and HIV coinfections placed an even greater burden on an already vulnerable public healthcare sector. The vast majority of South Africans use public health facilities. Over 83.9% of South Africans are not a member of a private medical aid scheme, largely because they cannot afford it and therefore rely on public health care (Stats SA, 2022b). The World Bank (2019) estimates that there were only 0.9 doctors and 3.5 nurses per 1 000 people (for the period 2009 to 2018) in South Africa. With 79% of all doctors working in the private healthcare sector, the number of doctors and medical specialists are even more constrained in the public sector, which serves the majority of South Africans (McIntyre et al., 2009). The public health sector suffers various challenges. Patients must endure overcrowding, long waiting lines, confidentiality breaches, and unsympathetic staff attitudes (McIntyre et al., 2009). Moreover, public health facilities are oftentimes plagued with staff shortages and burnout, management failures, medication and equipment shortages, limited availability of services, poor hygiene and infection control, poor recordkeeping, an increase in medical negligence litigation due to preventable mistakes, as well as dilapidated infrastructure (Maphumulo & Bhengu, 2019; Thomas & Valli, 2006). As a result, many people living with HIV are getting substandard health care.

3.2.4. Impact on the Economy

Although HIV had a more devastating impact on the unemployed, informally employed, and the semi- and unskilled segments of the population, the loss of life has substantially affected the South African economy (Arndt & Lewis, 2000). HIV influenced the availability of labour in the mining sector, which noted that high absenteeism and sick leave frequency harmed productivity and threatened safe mining (Pan Africa Resources, 2013). In response, large mining corporations such as Anglo American have invested in healthcare schemes for their employees to ensure they receive free ART (Anglo America, 2019). Despite the high costs involved, it was found to be cost-effective (Meyer-Rath et al., 2015). Other vital industrial sectors, such as agriculture, transport, manufacturing and tourism in South Africa, as well as other sub-Saharan countries, have also reported that HIV placed additional constraints on their operations through an increase in absenteeism, escalating employee benefit costs and shortages in skilled workers (Connelly et al., 2006). Representatives of the nursing (Altenroxel, 2000) and education (Louw et al., 2009) sectors also reported that HIV had a noticeable effect on their professions.

While the introduction of ART, increased HIV prevention efforts, and improved implementation of HIV-related policies have helped stem the AIDS mortality and morbidity rates, the economic burden of HIV prevention, especially treatment, is considerable. A review of South Africa's 2014/15 to 2016/17 health expenditure revealed that the country spends almost 25% of its national health budget on HIV and related maternal health and TB services. Moreover, the government, in partnership with international funding agencies (e.g., PEPFAR and the Global Fund), spends over 1.5 billion USD on HIV prevention, treatment and care yearly (Guthrie et al., 2018).

3.2.5. Impact on Communities and Family Life

Two of the most significant ways in which HIV and AIDS impacted communities, families and individuals have been through the increase in the number of children that have been left orphaned or vulnerable as a result of the disease, as well as pervasive stigma and discrimination against people who are living with or who are affected by the disease.

3.2.5.1. AIDS orphans and vulnerable children

HIV has undoubtedly redefined many families who lost one and, in some cases, even several loved ones due to AIDS. As the number of AIDS deaths rose, so did the number of child-

headed and skip-generation households³⁶. UNICEF estimates that by 2015, over 2 million children had been orphaned due to AIDS in South Africa (UNICEF, 2015). Since improved ARV treatment became available, the number of AIDS-related mortalities and the rate at which children become orphaned due to AIDS have decreased. However, orphanhood and the vulnerability that HIV and AIDS have caused are still a concern for social scientists and organisations working with HIV-affected children. Based on a comprehensive literature review, Nyamukapa et al. (2008) developed a theoretical framework which distils the causes and consequences of psychosocial distress among orphaned children made vulnerable by HIV and AIDS (see Figure 3.5).

Nyamukapa et al. (2008) distinguish between immediate, intermediate and long-term (i.e., cumulative) effects following the death of a parent to AIDS. Immediately after parental death, AIDS orphans are at risk for trauma, and given that their parent has died of AIDS, the fear that they may also be infected with HIV is typically an initial concern. Given the AIDS-related nature of the parent's death, fear of stigma and discrimination from the community and family members is also a concern and may hamper the orphan's access to support (Raymond & Zolnikov, 2018). Intermediate effects include food insecurity (due to lower household income) and heightened risk for abuse, neglect and exploitation, which can also make them vulnerable to contracting HIV themselves (Lata & Verma, 2013). AIDS orphans are also at an increased risk of being regularly absent from or dropping out of school and engaging in child labour, being separated from their other family members and siblings, and developing psychological distress symptoms (Joshi et al., 2017). Over the longer term, this may lead to an orphan developing sustained mental health difficulties, including depression, anxiety, low self-esteem, post-traumatic stress and other emotional and behavioural problems (Cluver et al., 2007). AIDS orphans may also be at risk of attaining a lower level of education and thus have lower employment prospects. Double-orphans are especially vulnerable to experiencing severe mental health, social and economic consequences (Sherr et al., 2014). On a national scale, AIDS-related orphanhood creates a greater demand for mental health, social security and protection services. It may have even broader economic, political and social implications over the long term (Nyamukapa et al., 2008).

³⁶ A child-headed household is a household where a minor (i.e., a person under the age of 18), is in charge of household decision-making and responsible for the care of others living in that household (Le Roux-Kemp, 2013). A skip-generation household refers to a living arrangement which only consists of children and people over the age of 60 – typically grandparents with their grandchildren – without any working-age adults (Zimmer, 2009).

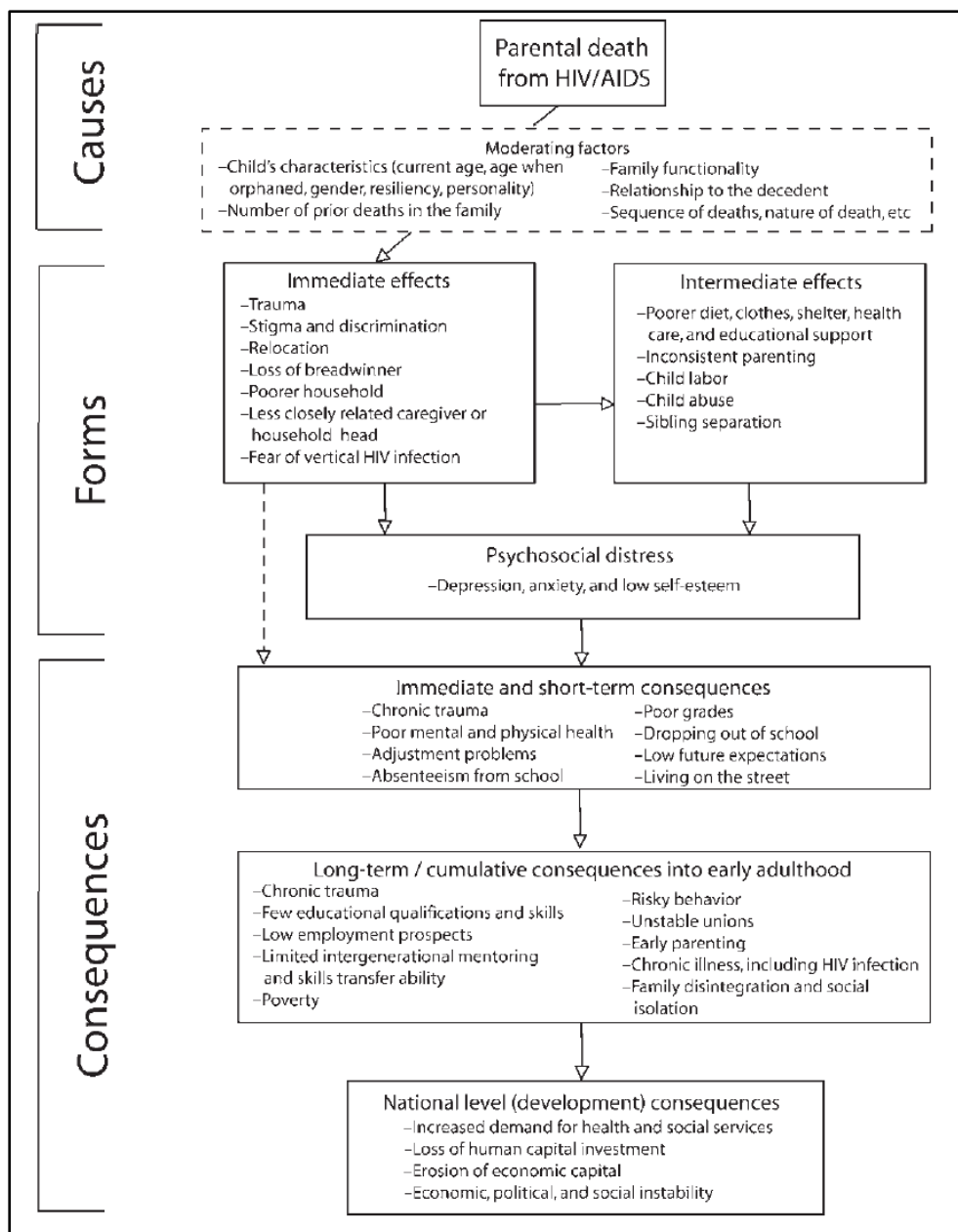


Figure 3. 5 Theoretical framework on the causes and consequences of psychosocial distress among children orphaned and made vulnerable by HIV/AIDS (Nyamukapa et al., 2008, p. 134)

3.2.5.2. Stigma and discrimination

Various sub-types of stigmas have been identified and used to study HIV and AIDS-related stigma and discrimination. Public stigma (or external HIV-related stigma) refers to the negative social and psychological reactions, including attitudes, opinions and behavioural intentions towards people who are living with HIV (Pryor & Reeder, 2011). A distinction can be made between instrumental (public) stigma: stigma that arises from an inflated sense of fear of becoming infected with HIV; and symbolic (public) stigma: the stigma that arises from a

negative moral judgement against people who are living with HIV (Maughan-Brown, 2006). Stigma by association is the social and psychological reactions that people have towards people (such as family members, caregivers and healthcare workers) who are associated with people who are living with HIV. Internalised stigma (or self-stigma, internal HIV-related stigma) refers to the negative beliefs that people who are living with HIV have about themselves based on the stigma they experience (including what they perceive or anticipate to experience), their fear of being stigmatised and the internalisation of others' stigmatising beliefs. Structural stigma refers to the stigma (and discrimination) that is perpetuated by societal norms, policies and institutions (Pryor & Reeder, 2011).

Research about HIV and AIDS-related stigma in South Africa in the 2000s (when the HIV prevalence and AIDS mortality rates were at their highest) revealed that HIV and AIDS-related stigma was generally quite high in the country and that many people would deny knowing someone who is living with HIV, despite living in communities that had particularly high HIV prevalence and AIDS mortality rates (Riffe & Fouche, 2007). Social scientists hypothesised that stigma might decrease as HIV and AIDS become better understood by the general public, thus reducing the amount of misinformation about the disease. The roll-out of ART was also expected to contribute to a reduction in HIV and AIDS-related stigma, as the symptoms of HIV and AIDS would be less visible, the adverse effects of HIV infection may be lessened, and the AIDS-related mortality rate would decrease, thus changing the public image of HIV (Maughan-Brown, 2010). In addition, as more people contract HIV, another hypothesis was that stigmatising views toward people living with HIV would decrease as more people would either be HIV-positive or know someone close to them who has it (Herek & Capitanio, 1997). The latter is referred to as the contact hypothesis of prejudice (Allport, 1954).

Maughan-Brown (2010) found that the introduction of ART and consistent national and community-based programmes did not appear to reduce HIV and AIDS-related stigma between 2003 and 2006 amongst young adults in Cape Town. Subsequent research on people who are living with HIV found that many continued to contend with stigma and discrimination in their everyday lives (Dos Santos et al., 2014; Peltzer & Pengpid, 2019). Research about the potential link between HIV testing uptake, ART access and HIV and AIDS-related stigma in South Africa have found no evidence to suggest that HIV testing and ART support a reduction in stigma (Stangl et al., 2020). Similarly, research in other sub-Saharan countries has found that increased HIV-related knowledge and widespread access to and uptake of ART have not contributed to substantial decreases in HIV and AIDS-related stigma (Chan & Tsai, 2016).

The most recent HSRC's National HIV Prevalence, Incidence, Behaviour and Communication Survey in 2017 noted consistently low levels of reported HIV-related stigma amongst the general South African population (Simbayi et al., 2019). There might thus be a discrepancy between what the general public reports as their attitudes and what people living with HIV personally experience. One possibility is that public stigma has decreased, but that perceived stigma remains high and contributes to continued high levels of internalised stigma amongst people living with HIV (Visser, 2018). Perceived stigma and the fear of discrimination have been identified as one of the key barriers to HIV testing and treatment services uptake and continue to cause hesitation amongst people who are living with HIV to share their status openly with extended family and their communities (Nachega et al., 2012; Treves-Kagan et al., 2017).

3.3. Causal Pathways and Contributing Factors of HIV Risk in South Africa

During the 1990s, the driving factors behind the spread of HIV were identified as being high rates of untreated STIs, as well as high levels of population movement due to the migrant labour system and social and political instability (Campbell & Williams, 1996; Lurie et al., 1997; Wilkinson et al., 1999). Further research in recent years has identified low rates of male circumcision as well as widespread multiple concurrent partnerships as two of the main factors that propel the spread of HIV in South Africa (Johnson et al., 2017). Moreover, early sexual debut, intergenerational sexual partnerships, and transactional sexual relationships have also been found to enhance the spread of HIV in communities (Dzomba et al., 2019). The cyclical relationship between poverty, food insecurity and HIV and AIDS and socio-cultural norms relating to gender and sexuality have also been cited as important structural contributors to the South African HIV epidemic (Eaton et al., 2014; Fox, 2012; Mufune, 2015).

3.3.1. STIs

Despite improved healthcare services, South Africa still endures one of the highest STI burdens in the world (Kularatne et al., 2018). Although the prevalence of syphilis has decreased significantly from approximately 10% in the 1980s to close to 1% in the mid-2010s, the prevalence rates of other STIs, such as chlamydia and gonorrhoea, have remained relatively stable over the last 30 years. In 2017, the prevalence rates were 6.6% and 3.4% for gonorrhoea and 14.7% and 6.0% for chlamydia for women and men, respectively. The development of treatment-resistant strains, the low number of people who seek STI care and the resultant high

number of people who have untreated STIs contribute to the sustained high rates of gonorrhoea and chlamydia (Kularatne et al., 2018).

STIs are especially prevalent amongst the youth, especially amongst young women. In a study that was conducted in KwaZulu-Natal with 1 342 young people between the ages of 15 and 24, Francis et al. (2018) found the prevalence of chlamydia (5% in men and 11% in women), HSV-2 (17% in men and 29% in women), and bacterial vaginosis (42% in women) to be particularly high. In a surveillance study of STI prevalence amongst antenatal women in KwaZulu-Natal, Moodley et al. (2015) found that 32.3% of women tested positive for either trichomoniasis, bacterial vaginosis or gonorrhoea during pregnancy and 19.2% of women continued to test positive for at least one of these STIs 14 weeks post-partum. Similarly, Joseph Davey et al. (2019) found the STI prevalence rate of women at an antenatal clinic in Cape Town to be 32%. Women who were living with HIV presented with a markedly higher rate of STI infection (39%) compared to women who were not HIV-positive (28%) (Joseph Davey et al., 2019), which is in line with previous research about the reciprocal relationship between HIV and STIs³⁷.

It is particularly problematic that many STIs go undiagnosed because they are asymptomatic (Kaida et al., 2018). It is estimated that as many as 50 to 57% of genital tract infections (GTIs) in South African women are asymptomatic and go undiagnosed and untreated (Francis et al., 2018; Wilkinson et al., 1999). Kaida and colleagues found that of those research participants (aged between 16 and 24 years) who had a laboratory-diagnosed GTI, 77.8% of females and 100% of males reported no GTI-related symptoms (Kaida et al., 2018). In other words, although these young men and women had a GTI, they had no GTI symptoms and therefore did not realise that they had a GTI, nor did they seek treatment for it. Similarly, Francis et al. (2018) found that 75% of young women in their study who had at least one STI reported no symptoms. Having an untreated STI greatly increases one's risk of HIV infection, may reduce the effectiveness of intra-vaginal PrEP and compromises overall sexual and reproductive health (Abdool Karim et al., 2019; Fox & Fidler, 2010).

3.3.2. Poverty

Poverty has been widely cited as one of the main drivers behind the spread of HIV in South Africa and the rest of the developing world (Mufune, 2015). One conceptual framework which

³⁷ See Chapter 2, under the heading 2.5.4. *The reciprocal relationship between STIs and HIV.*

attempts to make sense of this association is the Jaipur Paradigm³⁸ which was conceived in the mid-1990s during a training workshop in Jaipur, India and later published by Barnett et al. (2000). The Jaipur Paradigm holds that the extent to which a society is susceptible and vulnerable to HIV is based on two factors, namely its degree of social cohesion and its overall level of wealth (Barnett et al., 2000). A distinction is drawn between susceptibility and vulnerability – susceptibility is understood as a social attribute which determines how likely a society is to be at risk of developing an HIV epidemic. Vulnerability refers to the social and economic factors which determine the severity of an HIV epidemic in a society (Barnett et al., 2000). The authors loosely define social cohesion as relating to cultural homogeneity and stability in society, be it through authoritarian cultural, religious or political systems or solidarity amongst individuals, households, churches, NGOs and other community-based groups. The authors refer to the overall level of wealth as the extent to which wealth is distributed equally and social support is available in a society. Figure 3.6 is a matrix that illustrates how social cohesion and overall level of wealth may influence susceptibility and vulnerability.

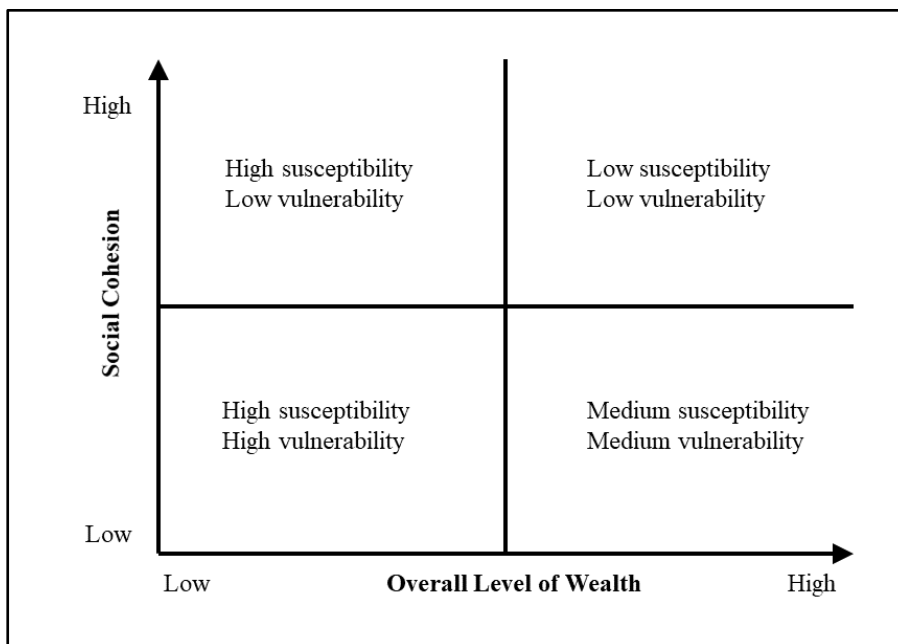


Figure 3. 6 The Jaipur Paradigm (Barnett et al., 2000, p. 1100)

Barnett et al. (2000) assert that societies with high social cohesion and high overall wealth are the least susceptible and vulnerable to HIV and that societies with high overall wealth but low

³⁸ It is not a paradigm in the technical sense of the word (see Chapter 5, under the heading 5.3. *Defining Theory*), yet it is the term that Barnett et al. (2000) uses.

social cohesion will likely have a medium level of susceptibility and vulnerability to HIV. Low overall wealth is expected to facilitate high susceptibility to HIV, and if it is coupled with low social cohesion, the society is likely also to be particularly vulnerable to HIV.

While the Jaipur Paradigm makes a valuable contribution to our understanding of HIV by highlighting the macro-context of poverty and how it, along with social cohesion, have large-scale and far-reaching influences on society, it runs the risk of committing the ecological fallacy of equating population-level associations with associations on the interpersonal and individual-levels. In other words, Barnett et al. (2000) mistakenly infer that the association between social cohesion, the overall level of wealth and population-level HIV prevalence holds for individual-level HIV risk as well (Myer, 2002). Moreover, the Jaipur Paradigm does not directly account for the possible moderating influences of intra-, and interpersonal factors, culture, gender and access to ART. A deeper understanding of the underlying mechanisms that facilitate the association between social cohesion, overall levels of wealth and HIV risk are needed (Mufune, 2015). Within the context of poverty, migrant labour and food insecurity stand out as two of the most important mechanisms through which societies are made vulnerable to HIV.

3.3.3. Migration and Migrant Labour

Migration and, in particular, the migrant labour system in South Africa have been identified as one of the major structural driving forces behind the country's HIV epidemic (Dzomba et al., 2019). In their review of the literature, Weine and Kashuba (2012) identified several possible causal determinants and pathways which may help to explain how labour migration increases HIV infection risk. They organised these determinants within a multi-level framework, which includes four levels: policy, socio-cultural, health and mental health, and sexual practices (see Figure 3.7).

A lack of job opportunities, especially in rural areas, leads to labour migration as breadwinners move to urban areas or mines, where they can find employment. Although this alleviates household financial strain to an extent, prolonged absence from the home can lead to a disintegration of the family system, including strained relationships with children and with spouses or partners and extended family members. This creates a home environment wherein children are raised by a single parent or extended family members, where they may lack a stable father- and/or mother figure (Hall & Posel, 2019).

<p>Policy determinants</p> <ul style="list-style-type: none"> • Prolonged and/or frequent absence from the home • Financial status • Difficult working and housing conditions • Limited access to health care • Legal status • Language barriers
<p>Socio-cultural context</p> <ul style="list-style-type: none"> • Cultural norms • Family separation • Low social support
<p>Health and mental health</p> <ul style="list-style-type: none"> • Substance use • Other STIs • Mental health problems • Lack of HIV testing
<p>Sexual practices</p> <ul style="list-style-type: none"> • Limited condom use • Multiple partnering • Visiting sex workers • Low HIV/STI knowledge • Low perceived HIV risk • Early sexual debut • MSM and situationally-gay sex

Figure 3. 7 A multi-level framework for understanding the association between labour migration and HIV risk (Weine & Kashuba, 2012)

Moreover, migrant labourers are often subjected to poor living and working conditions that increase stress and risk of injury and health complications and, especially when combined with a lack of recreational facilities, can predispose them towards engaging in substance abuse and risky sexual practices. Social isolation and feelings of loneliness, coupled with a lack of social support due to being separated from their family, low perceived HIV infection risk, and the existence of social and cultural norms which condones high-risk sexual practices, may further promote sexual risk behaviour. These risky sexual practices may include irregular use of condoms, having multiple concurrent sexual partners, visiting sex workers and engaging in sex with other men without protection (Campbell, 2000; Pelders & Nelson, 2019; Romero-Daza & Himmelgreen, 2018; Weine & Kashuba, 2012).

Limited sexual and reproductive health knowledge, as well as limited access to or use of healthcare facilities places migrant labourers at further risk of not knowing their HIV status

and living with an untreated STI, which places them at risk for HIV infection. Foreign migrant labourers who are not legally in the country or do not speak any of the country's official languages are at a particularly high risk of not accessing healthcare services (Steenberg, 2020). Given the continued risks associated with migration labour and HIV, social scientists have called for HIV prevention, treatment and care programmes to be more migration-aware and mobility-competent (e.g., Gruchy & Vearey, 2020).

3.3.7. Alcohol and Substance abuse

Substance abuse, particularly heavy drinking and alcohol abuse, has been identified as one of the key factors contributing to HIV acquisition vulnerability. Morojele et al. (2006) created a model which summarises some of the main factors that link alcohol abuse with sexual risk behaviour (see Figure 3.8).

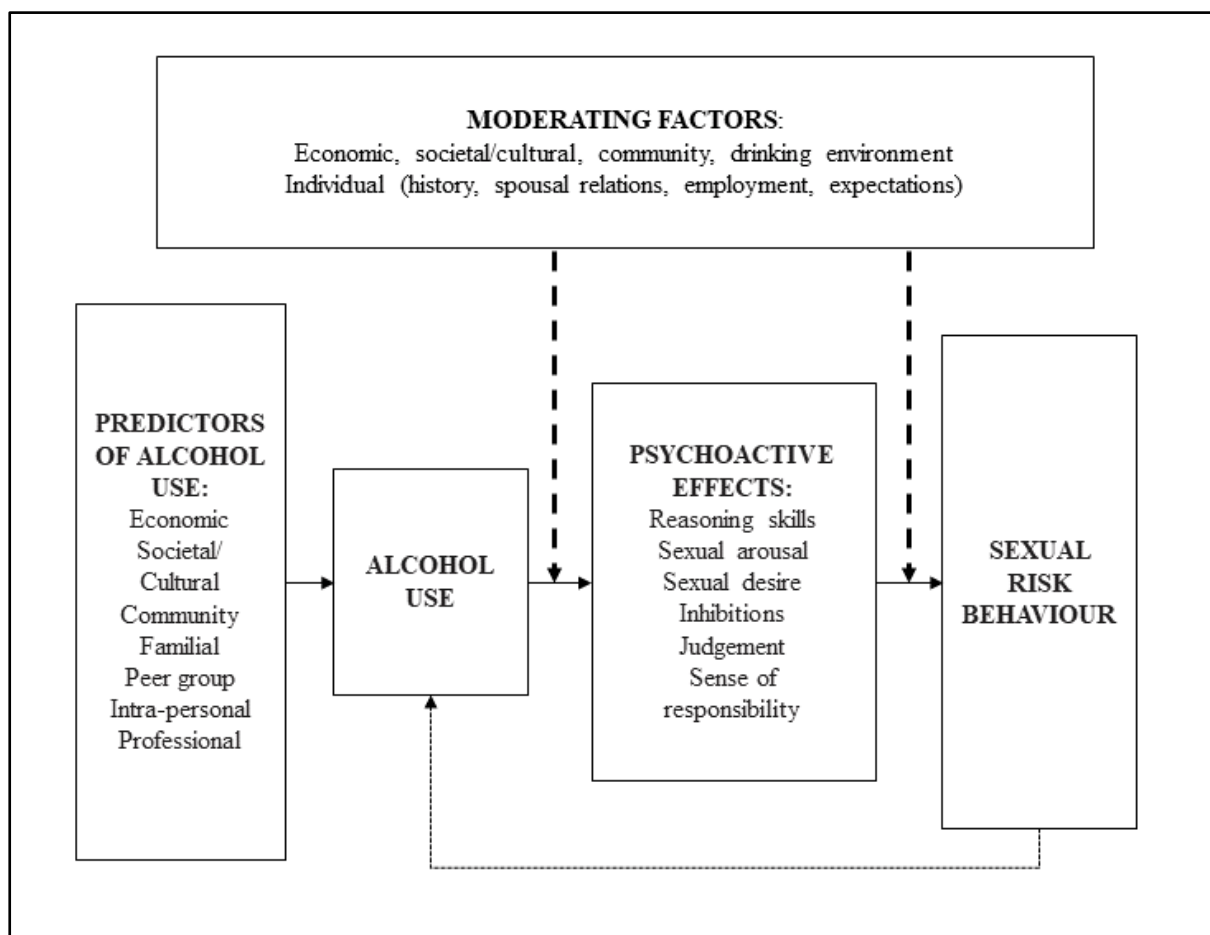


Figure 3. 8 Model of alcohol use and sexual risk behaviour (Morojele, 2006, p. 225)

Socio-economically deprived communities that have high unemployment rates and few recreational facilities are known to be particularly burdened with high alcohol abuse (Eaton et

al., 2014). Moreover, being in work, social or peer-group environments where heavy drinking is encouraged is also likely to place a person at risk for abusing alcohol. Alcohol has various psychoactive effects, which may lower a person's inhibitions and reduce their ability to make sound decisions. Based on the extent to which moderating factors are present, such as an enabling environment and personal factors, a person who is under the influence of alcohol may be susceptible to having risky sexual encounters (including unprotected and transactional sex) and, especially in the case of women, be at risk of experiencing gender-based and sexual violence (Hatcher et al., 2019). Alcohol also weakens the immune system, further raising the possibility of contracting HIV (Pasala et al., 2015). Given the high rates of alcohol and drug abuse and concomitant sexual risk behaviours, many studies and risk reduction interventions have been implemented to study and intervene in the relationship between HIV, sexual risk-taking behaviour and substance abuse (e.g., Wechsberg et al., 2017).

3.3.2. The Cyclical Relationship Between Food Insecurity and HIV

HIV and AIDS can have a considerable impact on families and communities. This impact is amplified within the context of poverty. This cyclical relationship between food insecurity and HIV is delineated in Weiser et al.'s (2011) conceptual framework, displayed in Figure 3.9.

As depicted in diagram a) in Figure 3.9, food insecurity is often brought upon by structural determinants, such as environmental disasters, socio-political factors such as civil unrest and political instability, economic factors such as high unemployment rates and poverty, and worsened by social factors such as gender discrimination and AIDS-related stigma. Weiser et al. (2011) identify three pathways on the household level through which food insecurity can enhance the risk of HIV acquisition and transmission and promote AIDS-related morbidity and mortality.

1. The nutritional pathway involves not having enough food to eat or having only poor-quality food to eat, which contributes to various health problems (such as malnutrition and obesity), including compromising the immune system due to a lack of vital macro- and micro-nutrients.
2. The mental health pathway involves developing feelings of deprivation, shame, helplessness, anxiety and depression due to a lack of access to food and concerns about survival and one's ability to care for one's family.
3. The behavioural pathway involves engaging in behaviours that place one at risk for HIV acquisition, HIV transmission, as well as any other behaviours that may lead to

the worsening of one's health, such as abusing substances, not adhering to ART, not seeking regular healthcare and engaging in unprotected sex.

Diagram b) in Figure 3.9 outlines how these pathways can contribute to HIV acquisition and transmission. Poor nutrition may lead to compromised gut and mucosal integrity and immune system inefficiencies, which may contribute to a heightened risk for horizontal HIV transmission and the development of opportunistic infections (Pribram, 2011; Zicari et al., 2019). Food insecurity may also lead to ART non-adherence, which, in turn, will lead to unsuppressed viral loads, making HIV-positive family members more likely to infect others and become more vulnerable to opportunistic infections (Pribram, 2011). Moreover, food insecurity may lead to risky infant feeding practices, placing infants at risk for vertical HIV acquisition from their mothers (Fabusoro et al., 2021).

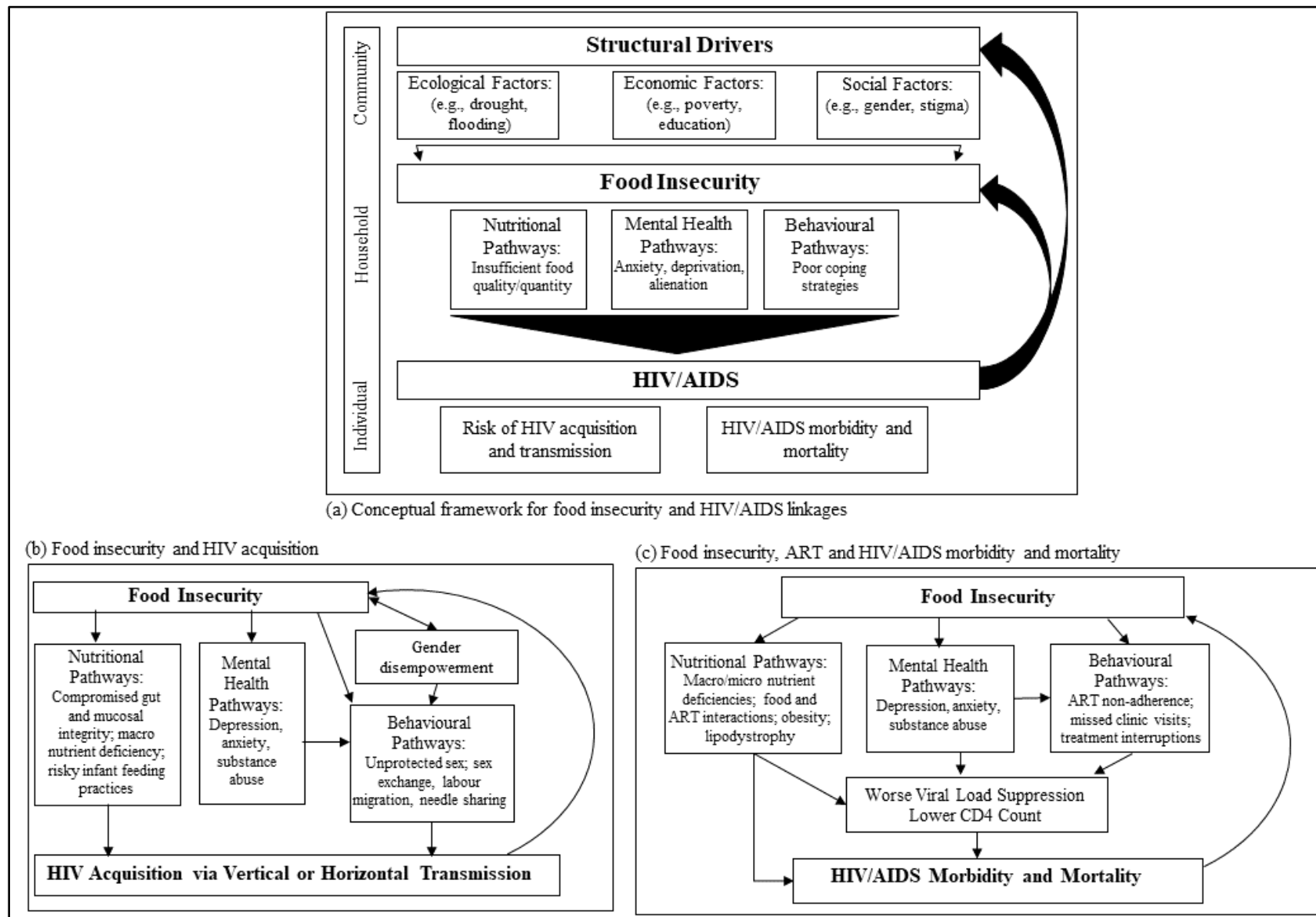


Figure 3. 9 Weiser’s Conceptual framework for food insecurity and HIV/AIDS (Weiser et al., 2011, p. s1730-s1731)

In order to provide for oneself and one's family, the household breadwinner may need to migrate and spend extended periods away from their spouse and family members. As mentioned earlier, labour migration has been identified as a key driver of HIV transmission in South Africa. The inability to obtain an income and provide for one's family may compel some people to engage in transactional sexual relationships (where condom use may not be consistent) to obtain an income. Moreover, poor mental health may also lead to substance abuse and risky, unprotected sex (Chop et al., 2017). Migrant labour, unprotected sex and transactional sex place individuals at risk for HIV acquisition and transmission. Women are particularly vulnerable to decreasing mental health in the context of food insecurity and engaging in transactional sex as a survival strategy (Boneya et al., 2019; Chop et al., 2017).

Diagram c) in Figure 3.9 outlines how food insecurity and AIDS-related morbidity and mortality are associated with each other. A lack of enough high-quality food can lead to poor health outcomes for all family members, especially those living with HIV. A lack of food can cause complications with ART, making ART non-adherence and treatment interruptions more likely. Non-adherence and treatment interruptions worsen health through faster disease progression and greater risk for AIDS-related mortality (Pribram, 2011). Moreover, labour migration may cause breadwinners living with HIV to miss healthcare appointments and lead to interruptions in their treatment, thus making them vulnerable to worsening health outcomes. Depression, anxiety and substance abuse also place people who are living with HIV at risk for ART non-adherence and raises their risk for engaging in risky sexual practices, which may lead to STI acquisition and HIV transmission to other sex partners (Aibibula et al., 2017; Ayano et al., 2020; Britton et al., 2021).

The worsening health of an HIV-positive family member, especially if they are the household breadwinner, is likely to put additional strain on the household as they may not be able to be as economically productive as before and may not be able to earn as much money as they used to. Moreover, the HIV-positive family member may require additional medical treatment and home care, which may place a further strain on the other members of the household and the household's financial resources (Ivers et al., 2009). In such circumstances, children may assume more household and caregiving responsibilities and, in the absence of a caregiver, may even drop out of school and become the new household breadwinner and/or the primary caregiver (Weiser et al., 2011). AIDS-related community stigma may cause the household to keep the nature of their family member's illness a secret and be unwilling to ask for or be

offered any help from extended family or the local community, thus placing further strain on the household (Ivers et al., 2009).

3.3.5. Intergenerational, Transactional and Multiple Concurrent Sexual Relationships

As mentioned in Chapter 2³⁹, AGYW remains the population group with the highest HIV prevalence rate in South Africa and the sub-Saharan African region (UNAIDS, 2020b). The HIV infection rate amongst young South African women aged 20 to 24 years rose from 6.9% in 1992 to 21.1% in 1995 (Coleman, & Wilkinson, 1997). By 2004, the HIV infection rate for this age group rose to its highest at 30.8%, where after it slowly declined to approximately 21.9% in 2017 (Woldesenbet et al., 2019). The HIV prevalence rates in adults aged 25 to 49 years also clearly show the sex difference. By 2017, the HIV prevalence rate for women aged 25 to 49 years was estimated to be 33.3%, while the HIV prevalence rate of their male counterparts was 19.4% (Simbayi et al., 2019).

Phylogenetic research in South Africa suggests that young women become infected with HIV earlier than their male peers and that they are most likely to contract HIV through sexual relationships with older men (De Oliveira et al., 2017). When young women reach their mid-to-late-20s, they tend to revert to engaging in sexual relationships with men closer to their own age, which then facilitates the transmission of the virus to their male peers, who then continue the cycle by engaging in sexual relationships with younger women (Akullian et al., 2017; De Oliveira et al., 2017). Adolescent girls under the age of 19 are particularly at high risk for contracting HIV through an age-disparate relationship compared to young women over the age of 19 (Topazian et al., 2020).

Both transactional sex and multiple long-term concurrent sexual partnering have been associated with a higher risk of HIV infection (Maughan-Brown et al., 2016; Morris et al., 2010). However, some social scientists have emphasised the importance of understanding both practices within cultural and historical context in order to appreciate why it occurs and what the transaction element of the relationship means to those who engage in it (Hunter, 2015). While transactional sex may occur as a survival strategy in the context of extreme poverty (as noted earlier), transactional sex has also been described as a form of so-called “consumption sex” whereby upwardly mobile AGYW engage in sex in exchange for gifts and money in order to afford expensive and fashionable commodities (Leclerc-Madlala, 2003; Mampane, 2018;

³⁹ Under the heading 2.4. *Key Populations*.

Zembe et al., 2013). Moreover, transactional sex often co-occurs with multiple sexual partnering. Women in these relationships may even be aware of the existence of other partners but allow it and even engage in unprotected sex with their partner, despite knowing that they are potentially at risk for HIV (Leclerc-Madlala, 2003). Ranganathan et al. (2017) highlight that transactional sexual relationships (note, not formal sex work, but the exchange of gifts or money for sex within the context of a relationship) are not uncommon in South Africa and may serve an important symbolic function for AGYW in establishing romantic relationships and, in their view, ultimately improving their exertion of power in current and future relationships. However, being in a relationship involving exchange is often likely to place AGYW at risk of losing agency and, ultimately, at a higher risk of contracting STIs or HIV (Ranganathan et al., 2017).

3.4. Conclusion

HIV arrived in South Africa just as the country underwent a radical and hopeful political transition. However, the magnitude of the pending crisis was not adequately heeded in the early years of the pandemic, and poor HIV surveillance, as well as a lack of political will and competing interests, led to a delayed and initially ineffective response to the HIV and AIDS crisis. Although the country has made marked improvements in the way it addresses HIV prevention, treatment and care in recent years, it remains one of the countries with the largest HIV prevalence rates globally. Moreover, HIV incidence rates remain high, especially among the youth. Given its large HIV-positive population and extensive research infrastructure, South Africa has been at the centre of several major clinical trials with regional and international partners. Researchers who work within the fields of Social, Health and Community Psychology and related fields such as Anthropology, Sociology and Public Health have been particularly active in studying the social and behavioural aspects of HIV and AIDS. Hence it serves as an ideal setting for studying research priority trends and theory use in the social and behavioural study of HIV and AIDS. The following chapter describes this study's theoretical point of departure, Critical Realism.

Chapter 4: Critical Realism: A Theoretical Point of Departure

“What society is held to be also affects how it is studied” – Margaret Archer (1995, p. 2)

4.1. Introduction

In this chapter, I provide an overview of Critical Realism, which served as this study’s theoretical point of departure. Despite the variability that one encounters when attempting to define the term, Critical Realism could be best described as a reflexive philosophical system within the post-positivist tradition which allows us to reconcile and find a midway between the fundamentally different ontological and epistemological viewpoints of Positivism and Interpretivism (Archer et al., 2016; Sayer, 2010). This chapter provides an overview of Critical Realism’s origin, how it positions itself ontologically and epistemologically, its approach to the structure-agency problem, its understanding of causation, its approach to the social research process and the use of critical theorising as a central component to the social sciences.

4.2. Critical Realism: Key Figures and Origins

Critical Realism originated in the 1970s, largely within the United Kingdom. While the works of Ted Benton (1977/2014), Rom Harré (1970), Edward H. Madden (Harré & Madden, 1975) and Russell Keat (1971; Keat & Urry, 1975/2011) could be considered to be part of the initial thinking that stimulated the development of Critical Realism, Roy Bhaskar is the philosopher of science most associated with Critical Realism. Bhaskar devoted his career to the development and exposition of Critical Realism, hoping that it would provide us with the means to gain deeper insight into and a more structural understanding of society’s problems (Menon, 2015). Bhaskar’s *A Realist Theory of Science* (Bhaskar, 1975/2008) and *The Possibility of Naturalism* (Bhaskar, 1979/2014), as well as his many additional works on Critical Realism (e.g., Bhaskar, 1986/2009; Bhaskar, 2016; Bhaskar et al., 2015), continue to be the most influential and comprehensive interpretation of Critical Realism. Other philosophers and social theorists who are proponents of Bhaskar’s work and who have conducted further work on Critical Realism include, amongst others, Margaret Archer (2000/2004), Andrew Collier

(1994), Mervyn Hartwig (Hartwig, 2015), Andrew Sayer (2010), Justin Cruickshank (2002), Dave Elder-Vass (2010), and Berth Danermark (Danermark et al., 2019).

4.3. Ontological and Epistemological Positioning

Critical Realism was born out of growing dissatisfaction with the prevailing influence of Positivism and the mounting impact of Interpretivism on the social sciences. Bhaskar believed that social theory and western science contained a number of fundamental intellectual mistakes which created false dualisms, such as individualism versus collectivism, structure versus agency, subjectivism versus objectivism, causes and reason, body and mind, reification and voluntarism, values versus facts, and scientific analysis versus moral criticism (Bhaskar, 1979/2014). Moreover, Bhaskar criticised both Positivism and Interpretivism for reducing ontology to epistemology, thereby committing the epistemic fallacy. This refers to the intellectual mistake of conflating **ontology**, in other words, “the study of being” (Crotty, 1998/2020, p. 10), with **epistemology**, the “way of understanding and explaining how [we] know what [we] know” (Crotty, 1998/2020, p. 3). What is considered to be real and what is deemed to be the nature of reality is thereby limited to our knowledge (or our ability to know) of reality (Bhaskar, 1975/2008). Bhaskar argued that while Positivism and Interpretivism stand at opposite ends of ontological and epistemological spectrums⁴⁰, both reduce the *nature* of reality to our *knowledge* of reality (or our ability to know reality) (Bhaskar, 1975/2008; Fletcher, 2017).

Positivism maintains a realist ontology; that is, it proposes a single external reality governed by universal laws, which exist independently from human minds and to which we have direct access. Positivism holds an empiricist and objectivist epistemology, maintaining that we can extract objective, *a posteriori*, knowledge about the world through our senses (including through experiments and research methods) and that we can make generalised conclusions based on our observations of the world (Levers, 2013). However, Positivism conflates our ability to see the world only as well as our senses are able to guide us, with the erroneous belief that the real world is limited to what we can observe. Furthermore, under the Positivist tradition, theories are considered accurate representations of the world that describe the law-

⁴⁰ It is important to note that, while Positivism and Interpretivism are often classified as two distinct opposite categories, scientists’ epistemological and ontological views are better described as being positioned on a continuum where Positivism and Interpretivism lie on extreme ends of the scale, and moderate to neutral stances can be found between them. While both Positivism and Interpretivism have their supporters, many scientists may in reality ascribe to more moderate forms of either, or even switch between the two over time and based on the type of work that they are engaged in.

like nature of cause and effect. Theories are hence used to verify real-world observations and are typically also used to predict events and phenomena (Godfrey-Smith, 2009). Given this nomothetic approach to knowledge, Positivism tends to neglect contextual and subjective factors and their role in shaping human action and meaning, instead focusing on objectively derived causal laws to explain human behaviour and social phenomena. Positivism also tends to follow a “value-free” approach to science, maintaining that scientists can place themselves outside of the study area, essentially detaching themselves from the phenomena they are studying and examining them objectively (Godfrey-Smith, 2009).

Interpretivism holds the relativist ontological belief that a single external world does not exist and that reality is relative and constructed through social and other influential forces. Interpretivism maintains that we do not have direct access to the world. As far as epistemology is concerned, Interpretivism maintains a subjectivist point of view, purporting that objective knowledge of the world is not possible, but rather that knowledge is always constructed through interpretation and subjective meanings. Interpretivism proposes that we are only able to generate knowledge through interpreting subjective meanings and actions and that this knowledge is not a universal truth, nor is it generalisable outside of the contexts in which the meanings and actions take place (Denzin & Lincoln, 2018; Levers, 2013).

However, Interpretivism mistakenly conflates our fallible ability to know the world with the supposed nature of reality. By combining an ontological relativist position with an epistemological subjectivist position, Interpretivism ultimately makes research impossible, as it rejects the possibilities of a knowable world and the generalisability of experiences and meanings. Hence such a philosophical position undermines the production of knowledge and our capacity to understand the world’s problems and find appropriate solutions for them (Cruickshank, 2012).

Critical Realism proposes that just because our knowledge of the world is acquired in a certain way does not mean the world is really like that. As a result, Critical Realism adopts a transcendental realist view of reality, maintaining that social and natural reality exists and is, to a large extent, independent of our thoughts, beliefs, knowledge and theories about it. Critical Realism proposes that the existence of events and causal mechanisms are not dependent on our observation of them (Sayer, 2000). Moreover, we can study the world and “know” (i.e., attempt to understand) the world, and we can make productive use of knowledge that promotes scientific progress and that benefits society (Bhaskar, 1975/2008).

However, Critical Realism recognises that there is an important difference between the social world and the natural world. The objects in the natural world are socially defined, but naturally produced. In contrast, the social world's objects are socially defined and socially produced (Danermark et al., 2019). Hence, natural scientists relate to their research objects in a straightforward, one-directional, subject-object relationship, which Giddens (1976) refers to as a *single hermeneutic*. Given that social objects are both socially defined and produced, studying them necessitates a research approach that allows for interpreting social interpretations (i.e., interpreting people's interpretations). The social scientist, therefore, finds themselves in a *double hermeneutic* relationship with their research object (Giddens, 1976). The social world is therefore considered to be intrinsically meaningful – social phenomena and events carry inherent meaning that shapes and defines them. Bhaskar (1975/2008) refers to this as the social world being *concept dependent*, given that we can simultaneously study social phenomena, but the phenomena are dependent on our knowledge of them.

Epistemologically, Critical Realism aligns with epistemic relativism, maintaining that knowledge is a product of interpretation, socially constructed, fallible, and relative to contextual factors (Sayer, 2000). As Bhaskar (1986/2009, p. 66) describes: "...there is no way of knowing the world except under particular more or less historically transient descriptions and what is known exists and acts independently of those descriptions". Scientific activities, including social science research, are therefore seen as social endeavours and influenced by scientists' value positions. Critical Realism, therefore, also regards theories, scientific knowledge, and methods as social products co-produced through scientific inquiry (López, 2003). As a result, Critical Realism questions whether we can really deem current theories as absolutely accurate and hence allows for theories to be critically examined, adjusted or discarded and replaced by better theories. As our knowledge of the world improves, so do we adjust our theories and replace them with newer, better ones (Danermark et al., 2019).

Critical Realism makes a clear distinction between the world and our experience of the world. Bhaskar (1975/2008) formalises this distinction and differentiates between the *intransitive* and *transitive* domains of knowledge. The intransitive domain refers to the world in which we live and remains the same regardless of what we think of it. The intransitive domain includes the physical and social phenomena that we study. In other words, the objects of science (i.e., the objects that science studies) lie within the intransitive domain of knowledge. The intransitive domain of knowledge is theory-laden instead of theory-determined, as our observations of reality are assisted by our prior understanding of the world and existing theoretical structures.

Yet, the reality remains independent of our understanding and theories of it (Bhaskar, 1979/2014).

The transitive domain refers to our experiences, beliefs, knowledge and theories about reality (Bhaskar, 1975/2008). That which lies in the transitive domain of reality is formed through our interaction with reality (e.g., through research). As such, they are not necessarily directly equal to reality, only representations of our understanding and experience of reality. By implication, objects in the transitive domain of reality are fallible, may contradict each other, and may change over time (i.e., evolve or be replaced) as we learn more about the world. Competing scientific fields are, therefore, able to have the same object of study (i.e., operate within the same intransitive domain) while having different theories and understandings about the object of study (i.e., the fields make use of different transitive objects to study the same object in the intransitive domain) (Sayer, 2000).

Critical Realism deems theories to be fallible representations of our understanding of reality which may be adjusted or abandoned over time (Cruickshank, 2012). Bhaskar (1979/2014) maintains that a relativist view of epistemology (i.e., epistemic relativism) is necessary as our understanding of the world is always relative to theory. We construct theories based on how we understand the world to work and use those theories as a basis from which to do our research. However, we should be prepared to replace our theories with alternative theories which are better able to explain reality (Bhaskar, 1975/2008).

To this end, Bhaskar (1986/2009) maintains that we have the ability to evaluate diverse and competing claims about the world and that by doing so, we can uncover better ways of knowing. Bhaskar refers to this as **judgemental rationality**. Critical Realism's ontological Realism offers the condition of possibility to exercise judgemental rationality, while epistemic relativism provides the reason and importance for judgemental rationality (Bhaskar, 1986/2009). Although Critical Realism ascribes to a pluralistic view of knowledge – respecting and being open to different systems of thought and approaches – it does not fall into the trap in which relativism finds itself, whereby it maintains that different standpoints and views are equal, even equally correct, and that no judgement between correct versus incorrect or better versus worse can be made (Archer et al., 2013). With such a view, it would be impossible to conduct scientific research, make any claims about the world, or identify what we should do to improve society. Instead, Critical Realism maintains that we can and must commit ourselves to the rational evaluation (i.e., the judgement) of knowledge claims. Not only is this vital for

science to be productive, but it also allows us to engage with current systems of thought critically and examine how they have been generated, maintained and reproduced over time (Bhaskar, 1986/2009).

While a Positivist (i.e., naïve realist) would view knowledge as facts and an Interpretivist (i.e., radical relativist) would view knowledge as something akin to a socially constructed opinion, the Critical Realist views knowledge as a judgement based on an evaluation that has been made and which itself is open to critique and evaluation. Moreover, our beliefs about reality and knowledge and our ability to know clearly impact how we engage in critical thinking and how we practice scientific inquiry (Archer et al., 2013).

4.4. An Open System, Stratified Ontology

While ontology is often taken for granted or implied but not thoroughly discussed (e.g., Crotty, 1998/2020), Bhaskar places ontology at the centre of Critical Realism. Bhaskar's Critical Realism was inspired by Immanuel Kant's Transcendental Idealism (Kant, 1787/2008) which requires us to explore the *conditions of possibility* for reality, our existence and our knowledge. The transcendental method of Kant asks us to question what would have to be the case for what we know to be true to really be true (Kant, 1787/2008). Bhaskar took this question further and applied it to science – proposing that we should question why scientific experiments are possible as well as why scientific experiments are necessary for us to gain knowledge about the world (Bhaskar, 1975/2008).

Bhaskar noted that making predictions about what would happen within the confines of controlled environments, such as experiments in a laboratory, appeared to be much easier (and yielded more successful predictions) than predicting what would occur in uncontrolled environments. In other words, predictions are more likely to be successful within the controlled context of an experiment, yet, outside of the confines of a controlled environment, predictions seem less reliable. What this observation suggests, proposed Bhaskar, was that the controlled environments in which experiments are conducted are fundamentally different to the real world. Bhaskar concluded that this was ultimately an ontological matter – the real world is most likely an open system comprising independent structures and mechanisms that influence events. In contrast, when an experiment is done, scientists close the experimental environment off from the real world (in order to control as many variables as possible), but by doing so, it makes the experimental context a closed system which does not accurately reflect the events that naturally occur in the real world (Bhaskar, 1975/2008; Bhaskar et al., 2010). Such a closing

off of the experimental environment from the real world unintentionally leads to scientists observing phenomena and sequences of events which would not necessarily happen in the real world and causes scientists to make conclusions about the real world based on events observed in closed systems that are inherently not natural, nor a true reflection of reality (Collier, 1994; López, 2003).

In order for science to be possible, Bhaskar maintains, scientists need to employ an ontological perspective that is in accordance with reality. Bhaskar proposes that reality can be best understood by employing a **stratified ontology** wherein reality is made up of three distinct levels of reality: the real, the actual and the empirical (Bhaskar, 1975/2008) (see Figure 4.1).

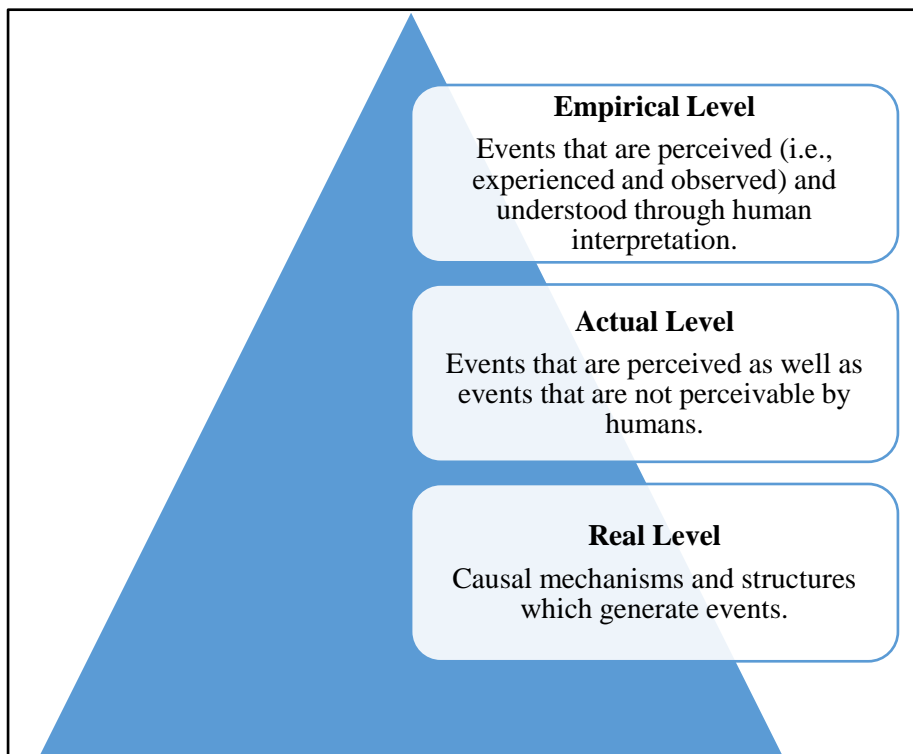


Figure 4. 1 The Three Levels of Reality (Bhaskar, 1975/2008)

The **real** level (the reality) includes all natural and social objects and structures that exist, whether we are able to perceive them or not. Their existence is not dependent on our knowledge of them. Importantly, these objects and structures possess both causal powers (i.e., the capacity to act in a certain way) and causal liabilities (i.e., a susceptibility in response to certain forms of change) that are situated in the real level of reality (Sayer, 2000). This level entails knowledge about *everything that is really happening* and *why* it is happening.

The **actual** level (the actuality) is where the causal powers and liabilities of the structures and objects are activated. This level includes events (observable and unobservable) and the actions of structures, and the consequences of those actions on other structures and objects (Sayer, 2000). This level entails knowledge about what is *actually* happening in the world, whether we are able to perceive it or not. It is important to note here that the events that occur on the actual level are effects of causal mechanisms that are housed at the real level. One should, therefore, not make the mistake of equating events with reality itself (López, 2003).

The **empirical** level (the experience) refers to the domain of experience that is observable to us (Sayer, 2000). This level entails knowledge about what is *perceived* to be taking place (i.e., what we are able to observe).

This stratified ontological view reminds us that entities may exist while not being directly perceivable by us. While making observations may give us confidence that certain things exist, the stratified ontology of Critical Realism asserts that their existence is not dependent on our observation of them (Sayer, 2000).

Bhaskar further states that this stratified ontological view allows for emergence to be possible, i.e., objects in the world can combine to form new phenomena and that these new phenomena have properties that are unique and irreducible to the objects that were used to form them (Bhaskar, 1975/2008). Bhaskar uses the example of water, which is comprised of hydrogen and oxygen. While we can study water by identifying its components, the characteristics of its components on their own do not give us a complete understanding of water (Bhaskar, 1975/2008).

From a psychological perspective, one could, for example, look at human behaviour as being determined by a myriad of social processes (e.g., parental bonding, peer influences), psychological processes (e.g., temperament, personality styles) and physiological processes (e.g., hormones, brain structure), which themselves are also further determined by finer grain variables to the point of cellular biology. Nevertheless, a description and explanation of our behaviour cannot be reduced to our bodily cells or these separate physiological, psychological or social processes, even though they technically form the building blocks of who we are. In the same way, social and natural phenomena, albeit complex and comprising various sub-structures and components, should not be reduced to those sub-structures and components (Bhaskar, 1975/2008; Sayer, 2010).

A stratified ontology also implies that social phenomena may change over time and respond to changing contextual factors and may present differently in different settings. This places into question the extent to which observations (which occur at the empirical level and, to some extent, at the actual level) can be generalised across time and space. Thus, this ontology may require social scientists to invest more resources in conceptualising social phenomena to better understand them and the ways in which they respond to different conditions and contextual factors (Sayer, 2000).

The metaphor of an iceberg is often used to describe the stratified reality of Critical Realism. The empirical level is the part of the iceberg that is exposed above the water level (i.e., that which is perceivable to us) (Fletcher, 2017). Meanwhile, the actual and the real levels are the much larger, submerged part of the iceberg that is not directly perceivable to us. It is at these deeper levels that social scientists seek to find the deeper, inner functioning of social phenomena (Pawson & Tilley, 1997). Similarly, we can also compare the stratified ontology to a clock – while the face of the clock is directly perceivable to us (i.e., on the empirical level), the inside of the clock which contains its inner components (e.g., the wheels, barrels, springs), are hidden from view. Yet, it moves the minute and hour hands which we see on the face of the clock (Pawson & Tilley, 1997). Although the clock conveys the stratified nature of reality by explaining how the deeper-seated mechanisms of an object can be the causal driving factors behind what we observe in the world, one should keep in mind that the clock is a closed system and therefore does not fully describe the way emergent, open system nature of the social world.

Described another way, one can also view the social world's emergent, stratified, open system reality in terms of having an expansive view over a landscape. If we look out over a landscape from a high viewpoint, we see, for example, many trees, a river, a road and a mountain range further away from us in the distant background. Looking at the landscape from afar gives us a good idea of what the landscape is like in general, yet there are many things we cannot directly observe from that viewpoint (e.g., the animals, birds and insects, the wind, pollen in the air). We can use a camera to capture specific moments in time of specific objects in the landscape or use binoculars to focus on specific objects (e.g., we can see some of the larger animals that are in the open). However, we cannot see absolutely everything in the landscape (e.g., smaller animals and animals hidden in underground burrows). We can also decide to focus our attention on specific objects in the landscape (e.g., on a specific tree) and even venture out of our viewpoint to that specific tree that we are studying, cut one of its branches off, take it back to our viewpoint and study the branch closely. We will be able to learn even more about the tree

(or at least more specifically about its branches) in this way. While we may be able to learn a number of things about that particular tree, we lose sight of the rest of the landscape momentarily as we focus on our tree of interest.

Meanwhile, many processes (including past, current and potential future) are taking place that contribute to what we see from our viewpoint. However, these processes are not directly perceivable to us. The geological forces that contributed to the formation of the distant mountains and other processes that contributed to the formation of the river and, for example, the growth patterns of the trees are not directly visible to us from our viewpoint. Nor are the territories of different predators, the migration pattern of the birds, or the distribution of a tree's seeds.

If, for example, a rainstorm erupts while we are observing the landscape, we may be able to see how the rain influences some aspects of the landscape (e.g., everything getting wet, birds flying to safety in the trees). There are other consequences of the rain that we may only be able to observe after some time has passed – for example, eventually, the river may start to overflow, and the storm and the resulting flood may damage trees.

Hence, our observations are limited to the relative foreground of the landscape. We cannot see into the infinite distance, our view is blocked by objects (e.g., large trees, hills and mountains) and limited by our eyesight capabilities. Moreover, our view of the landscape is limited by time, space and perspective – we can only perceive from a limited number of perspectives (i.e., viewpoints) at a time, and we cannot move around in time to observe future consequences or re-visit past events directly. In other words, what we see does not immediately convey the full meaning of what is happening in front of us. The landscape is an open environment (open system) not controlled by anything in particular, but subject to many causal forces, such as animal migration patterns, weather patterns, insect activity, geological forces and so on.

While understanding specific objects may contribute to our knowledge of the entire landscape, eventually, we may be tempted to focus exclusively on specific objects and underestimate or disregard the influence of other factors on the specific objects. As we grow our knowledge of the landscape, we start to learn more about the specific objects and the causal mechanisms that operate within it. As we learn more about the specific objects and causal mechanisms, we learn more about the overall landscape.

What is happening in the landscape clearly cannot be reduced to only the growth pattern of the trees (i.e., to one specific aspect of the landscape). Yet we also cannot fully understand the

growth pattern of the trees by only studying the trees and not looking at other structures and forces that operate around them (e.g., the way animal activity influences the growth of the trees, the way the mountains influence the weather in the area, etc.).

Given its stratified, emergent, open-systems ontological perspective, Critical Realism gives us the opportunity to look at the broader landscape, to obtain a meta-view, so to speak, and to ask deeper questions about the landscape and what lies within it. The focus in many conceptual frameworks is often placed on scope (or level of abstraction) as a theoretical demarcation. That is, a distinction is made between macro-level and micro-level determinants of behaviour. Critical Realism's emergent, stratified ontology takes a different, less often used, approach by utilising depth as the theoretical demarcation – that is, distinguishing between a superficial level of reality (i.e., empirical) and deeper, more meaningful levels of reality (i.e., actual and real) (Carolan, 2005). This allows Critical Realism to be a powerful tool for analysing and critiquing theories, systems of thought and research disciplines⁴¹.

4.5. Structure and Agency

Critical Realism maintains that Positivism and Interpretivism create a false ontological dualism between structure and agency (Bhaskar, 1979/2014). The social sciences have always been characterised by the ubiquitous tension between structure and agency. The structure-agency problem essentially entails positions for and against the notion that human behaviour is determined by influential societal structures (including historical, religious, governmental, economic, cultural and social structures) that are external to the individual and the extent to which individuals possess free will to choose how to live their own lives. To this end, structure refers to the organised nature of society which permits and hinders human action, while agency refers to the ability of humans to make decisions and act upon those decisions, independent of external forces (Archer et al., 2013). The structure-agency problem lies at the core of social science. As Margaret Archer (1995) states:

Necessarily then, the problem of the relationship between individual and society was the central sociological problem from the beginning. The vexatious task of understanding the linkage between 'structure and agency'

⁴¹ Critical Realism's view of causal explanation will follow later in this chapter, under the heading 4.6. *Critical Realism's View of Causation*.

will always retain this centrality because it derives from what society intrinsically is. (p. 1).

The structure-agency problem lies at the crux of understanding what influences human behaviour and social phenomena. If we want to understand what causes certain social phenomena and even more so if we want to determine how we can change human behaviour, we inevitably have to engage in the structure-agency debate. Other dualisms which speak to this same dichotomy between structure and agency, albeit from different perspectives, include subject versus object, voluntarism versus determinism, freedom versus control, power versus structure, psychological versus sociological, individual versus society, micro versus macro, acting versus being acted upon, intentionality versus behavioural outcomes, and the meaning of behaviour versus the behaviour itself (Archer, 1988/1996; Henslin, 1988; Ritzer & Stepnisky, 2021).

The positions that concern themselves with the structure-agency problem could best be described as extending across a continuum. On the one extreme end of the continuum is the Individualist position, which maintains that only individuals (i.e., social actors) exist and that all behaviour and social interaction are derived from mechanisms inherent to the individual. As per the Individualist position, humans have absolute freedom of choice as well as freedom of action to be able to do what they want to do. Individuals shape and even symbolically construct their environment and reality through their decisions and interactions with the world, and individuals are at no point influenced by outside structural forces. The Individualist position, therefore, focuses on individuals and their perceptions, intentions, motives and ability to construct and interact with reality (Elder-Vass, 2010; Henslin, 1988). Phenomenology, Constructionism and Interpretivism are situated on the Individualist side of the structure-agency problem continuum.

On the other extreme end of the continuum is the Structuralist position which holds that structural forces determine human behaviour. The Structuralist position implies that humans have no autonomy and are under the control of structural forces which govern how they think, feel and behave. The Structuralist position, therefore, focuses on systems (e.g., social, economic and political systems) as well as the structure of and interrelationships between social groups and society (Elder-Vass, 2010; Henslin, 1988). Marxism, especially Structural Marxism (Althusser, 1971), leans towards the Structuralist side of the structure-agency debate.

The Individualist and the Structuralist positions have both been criticised for oversimplifying the structure-agency problem. Critical Realism rejects both extreme versions of Individualism and Structuralism and considers them reductionistic (Archer, 2000/2004). The Individualist assumption that only individuals are “real” is rejected by Critical Realism, as it does not consider the importance of context in shaping human behaviour and thoughts (Cruickshank, 2012). Moreover, Critical Realism rejects the Structuralist position for not taking into account human free will and hence being deterministic. If people have no free will, they do not possess the potential to change their circumstances and improve their lives. While the Individualist position is unrealistic in its neglect of structural influences on human culture and action, the Structuralist position is deemed fatalistic and ahistorical, as structures cannot exist without individuals, and there are clearly ways in which individuals can usurp structural forces and act in accordance with their own choosing (Cruickshank, 2012).

Archer (1995) argues that the longstanding unresolved tension between structure and agency has led social theories (such as those found in Sociology, Psychology and Economy) to lean noticeably to either side of the Individualism-Structuralism continuum. Archer (1995) maintains that the lack of theorising about emergence – specifically the emergent relationships between phenomena – has resulted in the cause of phenomena being attributed either to structure or agency. Hence, structure and agency are either privileged or denied causal autonomy and become conflated with each other in the process. Archer distinguishes between three types of conflation: a). **downwards conflation**, where agency is denied causal autonomy and structure alone, is seen to have causal efficacy (i.e., Structuralism); b). **upwards conflation** where structure is denied causal autonomy and agency alone is seen to have causal efficacy (i.e., individualism); and c). **central conflation** where structure and agency are viewed as being constitutive of each other to the extent that agency produces structure which at the same time limits and enables agency (Archer, 1988/1996; Archer, 1995).

Many theorists have attempted to resolve the structure-agency problem by integrating some extent of autonomy with the influence of structural forces. Most notably, Structuration theory holds that social action and interaction produce and recreate social structures and human agency and that there is, in essence, an inter-dependence between structure and agency (Giddens, 1991). Structuration theory maintains that structure and agency necessitate one another and that a complex interplay produces and reproduces human action and social structures (Archer, 1982). However, in her comprehensive critique of Structuration theory,

Archer (1982) argues that Structuration theory centrally conflates structure and agency, resulting in the simultaneous and mutual constitution of both at the same time.

According to Archer (1982; 1995), upwards, downwards and central conflation ultimately compress societal strata together, thus impeding the ability to analyse them properly. Instead, Archer maintains that a more productive way of addressing the structure-agency problem would be to create an analytical structure which allows one to untangle structure and agency from one another while also addressing temporal and historical dimensions of society. To this end, Archer (1982) developed the morphogenetic analytical scheme (illustrated in Figure 4.2).

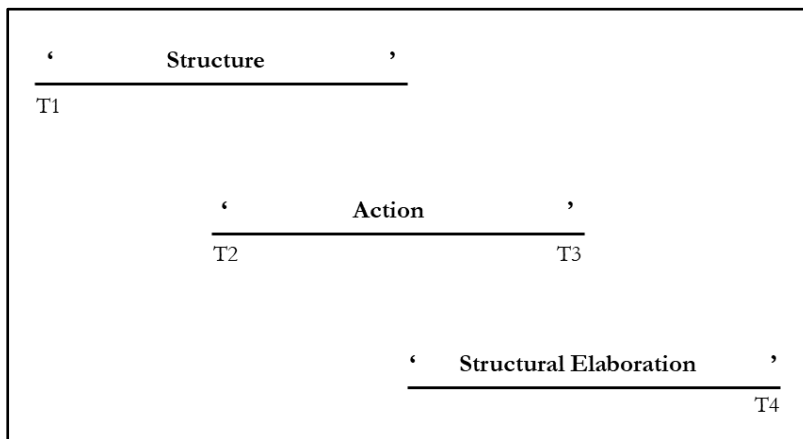


Figure 4. 2 The morphogenetic analytical scheme (Archer, 1982, p. 468)⁴²

The morphogenetic analytical scheme allows structure and agency to be understood as distinct but mutually dependent phenomena. The concept of emergence applies to structure and agency – both have innate properties that can produce new properties irreducible to their original properties (Archer, 1995). Consequently, structural and action properties are autonomous from each other and exercise independent causal influences (Archer, 1995). This also implies that emergence occurs in real time and can be understood in both spatial and temporal terms. In order to make better sense of this, Archer’s (1982) morphogenetic approach to the study of structure and agency presupposes that structure logically exists prior to action and that action can transform structure, resulting in structural elaboration, which takes place afterwards. All three lines in the diagram (see Figure 4.2.) are continuous, meaning that all three processes – structure, agency and structural elaboration – occur in parallel and could be seen as separate but inter-related, morphogenetic cycles (Archer, 1982).

⁴² T1, 2, 3, 4 represents the sequence of events over time.

The emergence of social structures means that they cannot exist independently of the social activities and practices which they cause and which they are influenced by. As a result, it is not possible to isolate social structures and study them independently. However, Archer’s morphogenetic approach to the study of structure and agency offers a solution to this. Delineating structure and agency across temporal morphogenetic cycles allows for analytical dualism – an approach which permits the researcher to take advantage of the temporal conceptualisation of Archer’s (1982) morphogenetic approach by isolating structural factors separately in order to determine how they influence human behaviour and, consequently, how the interaction with the individual serves to transform (i.e., elaborate on) the initial structure. This approach allows the researcher to theorise about the interplay between structure and agency (i.e., the extent to which either may contribute to human behaviour and social phenomena overall) and the cyclical and temporal nature of structural production and elaboration (Archer, 1982).

Bhaskar (1979/2014) agrees that there is a dynamic relationship between structure and agency, but that structure precedes agency as structure sets the material causes for human action. In other words, human action would not be possible without social structure as it provides the material means (i.e., context and resources) necessary for humans to live in and act upon it. Social structure (i.e., society) is comprised of various sub-structures, relationships and practices. Bhaskar maintains that social structures are emergent properties of social action (i.e., produced and reproduced by human action) and, simultaneously, structures also influence human action to varying degrees without predetermining human action (Bhaskar, 1975/2008). In order to give theoretical shape to this, Bhaskar developed the Transformational Model of Social Activity (TMSA), depicted in Figure 4.3 below.

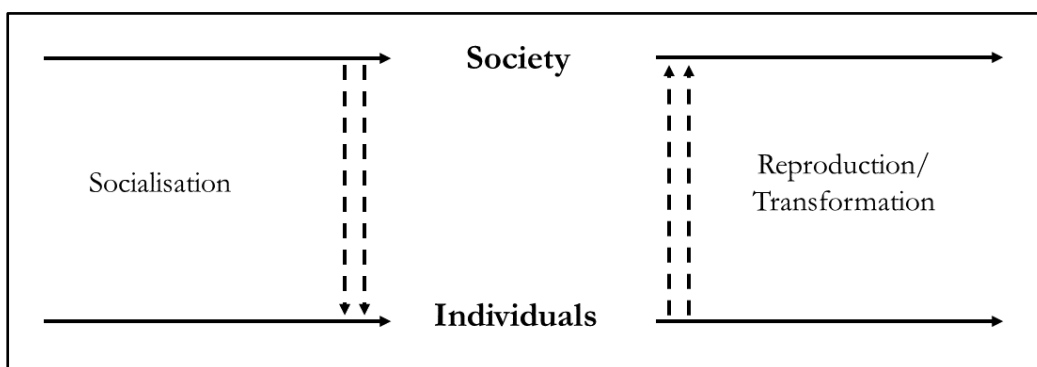


Figure 4.3 The Transformational Model of Social Activity by Bhaskar (1979/2014, p. 40)

The TMSA (Bhaskar, 1979/2014) illustrates this iterative relationship between individuals and society. Society influences human behaviour through socialisation processes and provides the contextual environment wherein human action can take place. Human action causes society to continuously reproduce and transform over time (Bhaskar, 1979/2014). In later years, Bhaskar’s ideas about Critical Realism evolved to form what is referred to as Dialectical Critical Realism (or the second phase of Critical Realism) (Bhaskar, 1993/2008). Bhaskar expanded on his TMSA to form what he refers to as the Four-Planar Social Being Model (see Figure 4.4) (Bhaskar, 1993/2008).

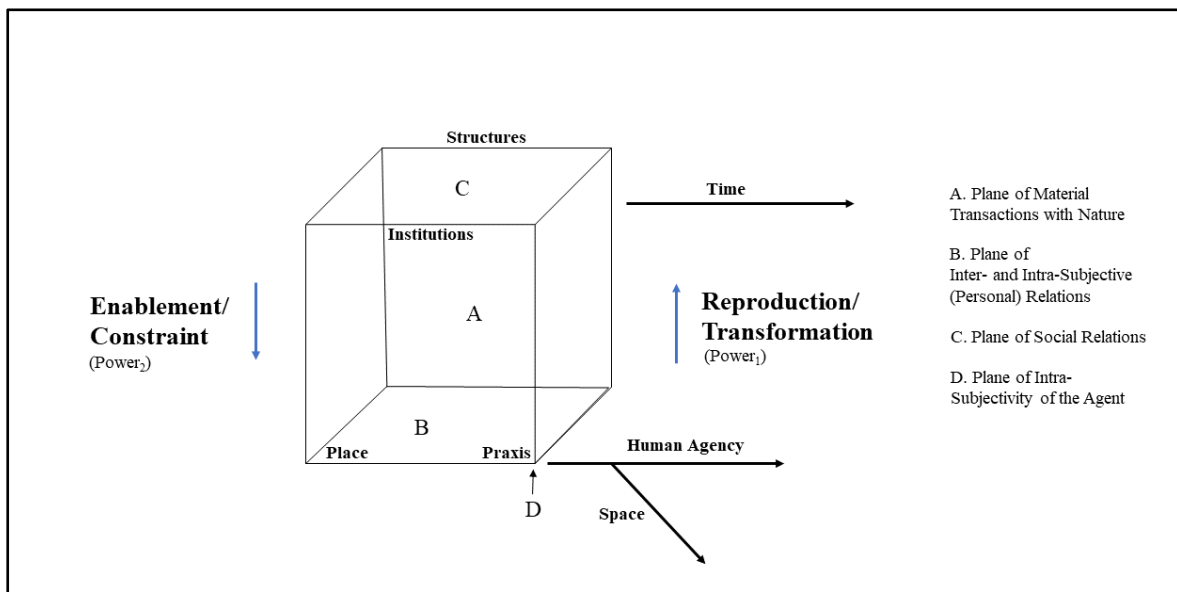


Figure 4. 4 The Four-Planar Social Being Model (Bhaskar, 1993/2008, p. 150)

The Four-Planar Social Being Model is visualised as a cube with four dialectically independent planes. Each represents a dimension of social life, namely transactions with nature, inter- and intra-subjective relations, social relations and intra-subjectivity (Bhaskar, 1993/2008). Bhaskar (1993/2008) also distinguishes between the power which reproduces and transforms (which Bhaskar refers to as $Power_1$) and power which places constraints and/or enables individuals and which governs the distribution of resources and social and cultural stratification (which Bhaskar refers to as $Power_2$). The Four-Planar Social Being Model allows for a deeper exploration of the relationship between structure and agency within a stratified social world.

4.6. Critical Realism’s View of Causation

Critical Realism rejects Hume’s successionist view of causation and the hypothetico-deductive model of scientific inquiry, which assumes a flat ontology, a closed-system worldview that is

comprised of fixed, law-like regularities (Sayer, 2000). As mentioned earlier, Critical Realism maintains that the world is arranged as an open and stratified system. While regularities, in the form of a consistent pattern of events and universal laws, may occur and be perceptible in closed systems, where variables are controlled and the closed environment is essentially cut-off from the real world, these regularities are unlikely to occur naturally in an open system (Bhaskar, 1975/2008). According to Critical Realism, seeking universal laws and patterns is not a worthwhile scientific pursuit, especially within the social sciences, and is unlikely to yield useful information to us about how the world really works and how we should go about addressing problems in our world (Bhaskar, 1975/2008).

Bhaskar (1975/2008) maintains that scientists should view the world as an emergent, stratified open system which is influenced by unobservable structures (Cruickshank, 2012). The use of a stratified ontology makes Critical Realism unique in that it views the world as comprising different levels of reality (i.e., it has ontological depth), as opposed to grouping what we observe and what really exists together or only distinguishing between what we observe and what happens without considering deeper underlying causal mechanisms (Sayer, 2000). This ontological approach allows the social scientist to understand social phenomena beyond the observable level and thus obtain a deeper appreciation for the underlying and contextual factors that shape social phenomena. The linear relationship between cause and effect falls flat under this view of causality, and instead, is replaced by a generative view of causality which understands causality as a process by which underlying explanatory mechanisms generate (i.e., build up, form, produce) events and effects in the world (Bhaskar, 1975/2008; Pawson & Tilley, 1997).

The Critical Realist view of causation is depicted in Figure 4.5. At the core of Critical Realism's view of causality is the belief that the repeated observation of events (be it two variables co-occurring or a regular pattern of events) does not constitute causality. Instead, the emergent, stratified ontology of Critical Realism dictates that mechanisms at a deeper level of reality (i.e., the real level of reality) cause the events that unfold in the world (Sayer, 2000). Within the real level lie objects and structures, which are comprised of elements. Objects, entities, and structures can include individuals, groups, families, communities, organisations, businesses, governments, corporations, and other social, cultural, and organisational groupings. These objects and structures are comprised of elements which, for example, in the case of a family, would include the family members and their relationships with each other. Elements possess

causal powers, and when the powers of these elements are combined, their combined power is emergent (i.e., irreducible and uniquely different from their individual powers) (Sayer, 2000).

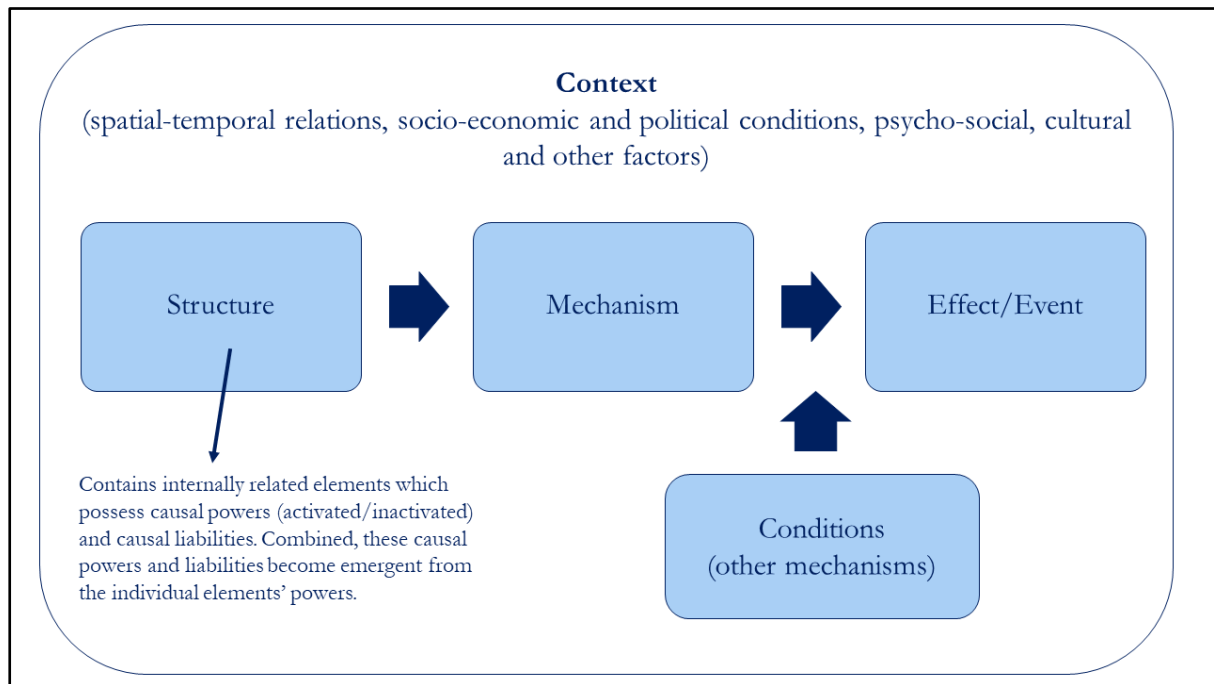


Figure 4.5 The Critical Realist View of Causation – attenuated from Sayer (2000, p. 15)

Bhaskar emphasises that the causal mechanisms are transfactual in nature; that is, they operate as tendencies, rather than infallible regularities (Bhaskar, 1975/2008). Causal mechanisms may therefore be active under certain conditions, but lay dormant (i.e., exist in an unrealised, unexercised or passive state) under other conditions (Psillos, 2007; Sayer, 2000). The causal mechanisms can be activated by their surrounding conditions, and these conditions can also disrupt, hinder or modify how these causal mechanisms produce effects and events in the world. These conditions entail both the broader context – including the spatial and temporal context, the socio-economic, political, psycho-social and cultural contexts – and the presence of other causal mechanisms emanating from other structures. An effect can also be caused by more than one causal mechanism; stated differently, a diverse set of causal mechanisms can produce the same effect (Sayer, 2000). Causal mechanisms may be isolated within a closed system (e.g., while being studied in a controlled clinical trial), and in such a setting, they may present differently, or not at all, compared to how they could present in their “natural” open system environment (Bhaskar, 1975/2008).

A stratified ontological view implies that the social world is complex and that a wide variety of mechanisms could be active in shaping the social world. This multi-mechanismicity (i.e., a

multiplicity of mechanisms) in an open system world encourages us to study social phenomena from various perspectives and strata. Instead of taking a reductionist stance by reducing phenomena to sub-components, Critical Realism encourages us to study social phenomena in a more interdisciplinary manner, incorporating perspectives from different study areas and disciplines (Bhaskar et al., 2017).

4.7. Conducting Research from a Stratified, Open-System Ontological Perspective and Critical Theorising

Bhaskar (1975/2008) outlines his view of how scientific discoveries occur and how a scientific discipline grows in Figure 4.6. Between steps one and two, research and model building occur whereby generative causal mechanisms are captured into hypotheses and emerging, untested theories. At this point, these observed mechanisms are still untested and, for lack of a better description, still imagined until empirical testing proves that it is real. Hence, between steps two and three, these tentative theories and hypotheses are subjected to empirical testing to determine whether they are absorbed into the scientific knowledge base.

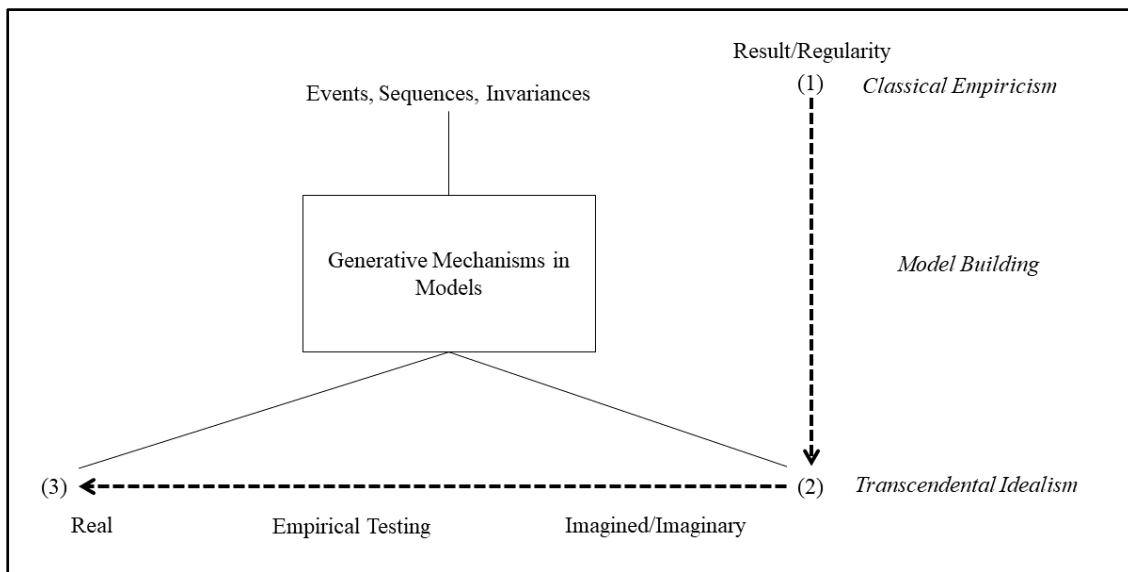


Figure 4. 6 Bhaskar’s Logic of Scientific Discovery (1975/2008, p. 4)

Given a generative view of causality, a Critical Realist does not expect to study regularities in the form of cause-and-effect relationships. Instead of finding regularities and making predictions based on observed patterns and events, Critical Realism encourages the social scientist to identify, describe and explain causal mechanisms. According to Critical Realism, social scientists should “...use theory to interpret how structures [operate] in an open system” (Cruickshank, 2012, p.80). The task of the social scientist is, therefore, not only to study

observable events (on the empirical or actual levels of reality), but also to identify what underlying social structures contribute to the phenomena under study (Porter & Ryan, 1996). This necessitates looking beyond the empirical level and learning more about the nature of the structures, objects or entities that are producing the social phenomena (i.e., the events or effects) (Sayer, 2000).

Critical Realism does not necessarily promote the use of specific research methods. It allows for both quantitative (measurement) and qualitative (interpretation) research methods to permit researchers epistemic access to the social world; however, the research methods need to be appropriate for the phenomena and the aspect of reality that is to be studied (Maree, 2020). To this end, “it is important to determine the limits of epistemic access of methods and their subject matter” (Maree, 2020, p. 28). While quantitative research methods are able to provide epistemic access to phenomena that can be measured, it provides no or, at best, limited access to other phenomena which cannot be measured. A qualitative interpretation might be better suited to the latter type of phenomena.

Critical Realism encourages the use of theory to uncover causal mechanisms⁴³; emphasises the value of critique to analyse actualist, reductionist and monodisciplinary research, systems of thought and theories; and emphasises the necessity of examining the ontological aspects of research and social phenomena.

Regarding the critique and analysis of theory, Bhaskar (2010) distinguishes between three types of meta-critique. The first is *immanent critique* which entails evaluating a system of thought on its own terms, highlighting internal contradictions. This may also include “Achilles’ heel

⁴³ To this end, Bhaskar recommends two theoretical analysis sequences that a social scientist could use, known as the *Description, Retrodution, Elimination, Identification, Correction* (DREIC) schema and the *Resolution, Redescription, Retrodiction, Elimination, Identification* (RRREIC) schema. The DREIC schema should be used in order to discover causal mechanisms theoretically. The process commences with the description of patterns of events or phenomena; then the retrodution of explanatory mechanisms or the structures is possibly at play; thereafter the elimination of unlikely competing alternatives; then the identification of the generative mechanism(s) or structure(s) that are deemed to be causally efficacious; and lastly the systematic correction of earlier research findings based on this new identification (Bhaskar et al., 2017, p.3). Taking this analysis further in order to identify which causal mechanisms are active within an open system, Bhaskar suggest the use of the RRREI schema. The first step of RRREI is to resolve the complexity of the phenomena under study by identifying the various causes that may have contributed to it. The second step is to redescribe those identified causes in an explanatory manner from an abstract level to a specific level. The third step is retrodiction – the process by which the causal tendencies of the mechanisms that were identified through the DREIC process is examined further in order to ascertain which of these mechanisms may be contributing to the social phenomena. The fourth step is to eliminate all explanations and possible causal mechanisms that do not provide a sufficient explanation for the phenomena. The fifth and final step is to identify the mechanisms which provides a coherent explanation. One can also add a sixth step, which would involve correcting previous theories and explanations of the phenomena (Bhaskar et al., 2017; Isaksen, 2016).

critique” (Bhaskar, 2010, pg. 21), which entails focussing one’s critique on the strongest (i.e., most compelling) aspect of the system of thought. The second form of critique is *omissive critique* (or metacritique₁) which entails focusing on the limitations and significant omissions of the system of thought. The third form of critique is *explanatory critique* (or metacritique₂) which involves a comprehensive evaluation of the system of thought, examining its limitations, strengths and weaknesses, as well as how this system of thought was created and able to establish itself in a study field. Explanatory critique may also include further analysis of the effects this system of thought has had and the impact it has made in its field of study or discipline in which it is typically used (Bhaskar, 2010).

Having an emergent and stratified ontological point of departure allows social scientists to consider *conditions of possibility and potential* (e.g., What could take place, given the nature of phenomena?), *conditions of existence* (e.g., Would the phenomena be able to exist without specific structures, objects or entities?) as well as *conditions of necessity* (e.g., What is necessary for phenomena to take place?) (Sayer, 2000). Exploring these ontological questions forces the social scientist to examine the concepts within their studies more closely, and Sayer (2000, p.17) goes so far as to say that it is “fundamental to theorising in social science”.

In addition, Critical Realism encourages subjecting theories to critique to “seek better alternatives” (Cruickshank, 2012, p.80), i.e., to develop theories with better explanatory power. Critical theorising is therefore viewed in productive terms, not to dismantle or disrupt knowledge systems purposefully, but to develop improved ways of knowing. Knapp (2009, p.137) identifies two features of critical theorising:

- 1) The critical analysis of the explicit and implicit assumptions underlying a theory, research methodology and conceptualisation (i.e., ontology and philosophical assumptions) of the social phenomena under study; and
- 2) The critical analysis of how the theory, method and conceptualisation (i.e., ontology and philosophical assumptions) of the phenomenon compared to other ways of theorising, understanding and studying the phenomena.

Archer (1995) reminds us that ontology plays a crucial role in conducting research and theorising. Archer (1995) refers to this as a “tripartite link between ontology, methodology and practical social theory” (p. 3) which represents the connection which exists between ontology, theory and methodology (see Figure 4.7).

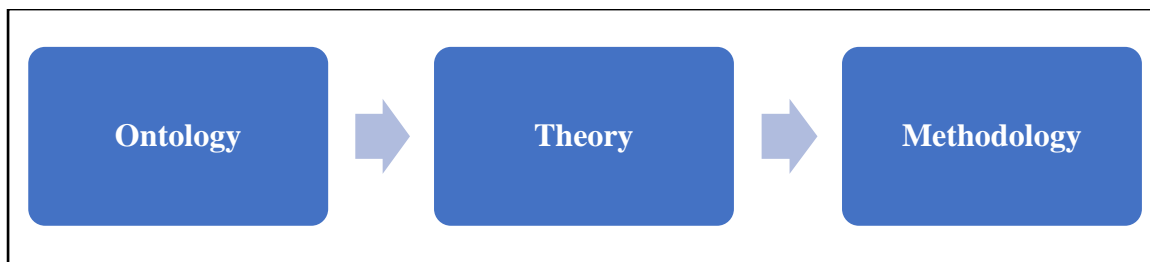


Figure 4.7 Archer's (1995, p. 3) Tripartite Link Between Ontology, Methodology and Practical Social Theory

Our choice in ontology has significant implications for the type of theories we call upon in our work and how we conduct our research (i.e., what research approaches and methods we choose to use). For example, if we adhere to a realist ontological worldview, we are likely to follow a deductive research approach, mostly use quantitative research methods and use theories and/or develop theories that are meant to verify or predict the existence of phenomena, patterns or regularities in the world. Conversely, a relativist worldview is likely to predispose social scientists to employ inductive research strategies and qualitative research approaches, and utilise theory for the purposes of gaining a deeper understanding of a phenomenon or interpreting its significance within a specific context⁴⁴. Hence, ontology essentially sets the tone for how we look at our objects of study and how we conduct our research in practice. As López (2003) states:

...whether we acknowledge them or not, whether they exist implicitly or explicitly in our theoretical discourses, meta-theoretical stances logically position (but, note, do not narrowly determine!) how we go about giving accounts of the social world, and how we test the validity of these accounts. (p. 77).

Critical Realism, therefore, warns scientists that they should not be naïve about their ontological views' impact on their research, including their choice of theory, research methods and even what is studied and what is not subjected to scientific inquiry. Moreover, scientists should be mindful of the important role that their choice of method plays in supporting or hindering theory development and testing. Archer (1995) describes methodology as the crucial

⁴⁴ There is a great deal of variation in the extent to which social scientists adhere to these categorisations of ontology, methodology and theory. Different ontological, epistemological and methodological positions are often described in the literature as dichotomies (e.g., realism vs relativism, quantitative vs qualitative). In reality, these positions exist on a continuum. Hence, the ontological, epistemological and methodological positions that social scientists assume are often more nuanced.

link between ontology and theory. To this end, the methodology can play a regulatory role with regard to theory development – encouraging theory development in certain directions, while discouraging theory development in other directions (Archer, 1995).

It is important to recognise the tripartite linkage between ontology, methodology and theory (Archer, 1995). A review of the social science literature quickly reveals that it is not uncommon for the practical aspects of research (i.e., the methodology and empirical findings) to be discussed separately from the theoretical aspects of research (Danermark et al., 2019). Moreover, the use of theory (and the ontological and epistemological basis of the study) is often implied but not explicitly stated, or mentioned but not demonstrated to be used to inform and guide the study in a meaningful way (Prestwich et al., 2014). Theorising is an essential component of the research method, and as Danermark and colleagues (2019) highlight: “Social scientific workmanship is basically about analysing and developing the theoretical language, about developing theoretical starting points for empirical analyses, and about linking, in various ways, theory with empirical research” (p. 3). Separating theory and ontology from method leads us to produce empirical results devoid of any theoretical and philosophical meaning and do not contribute to an ultimate deeper understanding of the causal mechanisms contributing to the social phenomena under study. Although empirical research that does not engage with theory can still provide interesting results and insights into social phenomena, it lacks depth and does not connect to the theoretical understanding of the phenomena.

Limited engagement with theory also betrays a lack of appreciation for the way in which the phenomena and the constructs that we study are inherently theory-defined, and that underlying theory regulates not only how we understand these phenomena, but also how we study them (Danermark et al., 2019). This creates the risk for social scientists to take the meaning of social phenomena for granted and proceed with their research without challenging or questioning how their understanding of the phenomena was shaped and how it influences the trajectory of their research and their methodological choices.

Beyond practising reflexivity, Critical Realism encourages scientists to engage in critical theorising by carefully considering these linkages between ontology, theory and methodology and to make underlying assumptions about these linkages explicit. By following such a critical theorising approach, one can “theorise both more deeply and more broadly, to become both more philosophically astute and dialogically engaged” (Knapp, 2009, p. 137) and consequently contribute to a more advanced scientific knowledge base.

The open system, stratified and emergent ontological view of Critical Realism implies that nothing is predetermined and that changes can be made to correct problems in the world, including with regard to how we conduct social science. One of the key motivations behind the development of Critical Realism was Bhaskar's discontent with the socio-economic theories of the time, which he felt did not adequately explain the real-world issues of the time (Graeber, 2014). Bhaskar (1986/2009) maintained that scientific knowledge and theory should be applied for social good and used to criticise illicit, unjust and immoral events and practices in the world. Hence, Critical Realism views social science as having the potential to play an emancipatory role in society. Social science can achieve this by engaging with normative questions about events and practices in the world and examining the feasibility of alternative solutions to societal problems (Sayer, 1997).

To this end, Critical Realism has assumed the role of philosophical underlabourer – serving as a guiding framework for the critique, rational evaluation and theoretical analysis of existing thought systems and study areas (Bhaskar, 2010). In doing so, it is hoped that Critical Realism may help to identify unhelpful and ineffective thought systems and clear the way towards better ways of knowing and doing science. Given that Critical Realism views all explanations of reality as transitive and promotes the use of judgemental rationality as a vehicle through which competing explanations and varying accounts of social phenomena can be evaluated, it has the potential to play an important role in clarifying our thinking about the phenomena that we study and the way we conduct our research. Bhaskar promoted the Critical Realist study of Climate Change (Bhaskar et al., 2017), and Critical Realism has served as a philosophical underlabourer across various fields of study, including research on the application and development of the feminist political economy theory (Fletcher, 2017), the relationship between human rights and social determinants of health (Haigh et al., 2019), as well as the study of organisations (Edwards et al., 2014) and business management (Vincent & O'Mahoney, 2018).

However, it has been noted that there is still a lack of publications which engage with the practical application of Critical Realism (Ackroyd & Karlsson, 2014; Fletcher, 2017). A review of the literature reveals that most publications that mention Critical Realism are entirely devoted to the philosophical aspects of Critical Realism or apply Critical Realism in an empirical research setting. However, the latter does not necessarily always provide precise descriptions of exactly how Critical Realism was applied to the study, how it informed the research methodology or how it was used to interpret the research findings (Fletcher, 2017). This lack of methodological guidance places Critical Realism at a disadvantage in growing into

an applied research approach and making the impact that Bhaskar had envisioned. The present study addresses this limitation by developing a meta-theoretical analysis framework that is grounded in Critical Realism, which can be applied to the analysis of social and psychological theories.

4.8. Conclusion

Critical Realism provides much-needed meta-theoretical clarity into the social sciences and social theorising in particular (Sayer, 1997). Critical Realists' assumptions of the structure of reality, knowledge, and our ability to know and discern are defined by transcendental realist ontology, epistemic relativist epistemology and judgemental rationality. Critical Realism illuminates the complex relationship between reality and research, reminding us that the world and our knowledge of it are not the same things. It encourages social scientists to reflect upon the ontological underpinnings of the structures and phenomena which they study and to recognise how these underlying assumptions can shape, not only scientific practices, but also scientists thinking and knowledge about the world.

From a Critical Realist perspective, utilising theory for the benefit of society necessitates engaging with theory critically. Critical Realists view theories as instruments that are fallible and malleable across time and various contexts (Sayer, 2000). A theory that possesses better explanatory power can better explain reality and the structures and causal mechanisms relevant to the phenomena under study. Critical Realism's open systems ontology allows for a better understanding of how causation takes place within the complex and unpredictable reality of the social world (Morton, 2006).

With this in mind, this study uses Critical Realism as its theoretical point of departure. Critical Realism will be used to develop a meta-theoretical analysis framework and guide the critique of prominent paradigms in the behavioural and social science study of HIV and AIDS in South Africa. In the following chapter, I focus more narrowly on theories and, in particular, explore the linkage between theory, research and practice, as well as how theories can be analysed and how meta-theoretical analysis can be used productively to enhance generative theory development.

Chapter 5: Scientific Knowledge and Theorising

“The confusion and barrenness of psychology is not to be explained by calling it a 'young science'; its state is not comparable with that of physics, for example, in its beginnings. ...For in psychology there are experimental methods and conceptual confusion. (As in the other case conceptual confusion and methods of proof). The existence of the experimental method makes us think we have the means of solving the problems which trouble us; though problems and method pass each other by.”

- Ludwig Wittgenstein (1953/1986, p.xiv)

“Without accompanying theoretical rigor, methodological rigor and vast amounts of confirming data, although clearly essential to science, are insufficient to warrant a knowledge claim as fully mature scientific knowledge.” – Stan J. Knapp (2009, p.136)

5.1. Introduction

In the previous chapter, I explored Critical Realism as a theoretical framework for this study and discussed how a stratified, emergent ontology lays the foundation for a deeper exploration of the complex social world. In this chapter, I move the discussion to a closer look at scientific knowledge and theorising in the social and behavioural sciences. The focus on scientific knowledge and how scientific disciplines develop over time is meant to serve as context to better understand the conceptual and theoretical problems that Psychology and the social sciences grapple with. These challenges have spilled over into Psychology's various subfields and application areas, including the social and behavioural study of HIV and AIDS.

The vital synergistic relationship between theory, research and practice is emphasised, and it is made clear that a study field which does not actively and critically engage with its theories is bound to become degenerative and unresponsive to the needs of both scientists and practitioners. Meta-theorising is proposed as a way to elucidate the underlying assumptions of

theories, critically evaluate them and propose new avenues for theorising to address this stagnation.

5.2. Scientific Knowledge

For the purposes of this discussion, I will define scientific knowledge as knowledge that is gained from scientific processes, and thus includes theories, theoretical concepts and empirical evidence. Each scientific study makes a small contribution to our scientific knowledge base, either by confirming previous research findings, extending current knowledge, or making new connections within the knowledge base. Scientific knowledge is, therefore, constantly evolving and provisional (McAdams & Pals, 2007). The scientific community is broadly defined as those who practice science. Scientists work together, check and critique each other's work, as well as motivate and influence each other. In this section, I will contextualise my discussion about scientific knowledge and theorising by examining the functions of scientific knowledge and how scientific knowledge evolves.

5.2.1. The Functions of Scientific Knowledge

In general, scientific knowledge is expected to serve most, if not all, of the following five functions⁴⁵:

1. to describe, organise and classify phenomena and events,
2. to explain past events,
3. to predict future events,
4. to provide deeper insight and understanding of the causes of phenomena and events,
and
5. to control phenomena and events (Reynolds, 1971/2007).

5.2.1.1. Describing, classifying and organising events and phenomena

The first function (i.e., to describe, classify and organise events and phenomena) is science's simplest and often most agreed-upon purpose. It entails defining and providing precise descriptions of phenomena as well as describing how different phenomena might be related to one another. Not only does this allow for differentiating various types of phenomena and related events, but it also serves as a guide for the more precise study of phenomena and the recording of observations (Whitley et al., 2013). This function of scientific knowledge lays the foundation for the remaining functions. The Diagnostic and Statistical Manual of Mental

⁴⁵ These functions can also be seen as the goals of science.

Disorders (American Psychiatric Association, 2013) is an example of the description, classification and organisation of psychological phenomena.

5.2.1.2. Explaining past and predicting future events and phenomena

The second and third functions (i.e., to explain past events and predict future events) require scientists to have a good understanding of phenomena and the factors that influence them. It necessitates scientists to draw upon observations that were made at one particular point in time (and in one particular place) and, based on these inherently limited observations, infer what may have played a role in making those events occur and under what circumstances one can expect these events to take place again.

Scientific prediction can take the form of forecasting (i.e., predicting that something will happen real world) and through the development of research hypotheses that originate from a theory (i.e., predicting that a study will have a certain outcome) (Whitley et al., 2013). Real-world predictions are essential for developing therapeutic behavioural interventions such as programmes aimed at behaviour change.

The development of research hypotheses and the testing thereof represents an essential component of scientific practice. Hypothesis development and testing serve to test the theories on which they are based and consequently contribute to a better understanding of the theory's validity and whether it should be used to explain and predict phenomena (Whitley et al., 2013). Since theories play an important role in guiding scientific practice and the practical application of scientific knowledge in the real world, it is vital that theories be tested and open to scrutiny.

5.2.1.3. Providing deeper insight into the causes of phenomena and events

The fourth function (i.e., to provide deeper insight and understanding of the causes of phenomena and events) implies that scientific knowledge should be able to explain phenomena on a deeper level than what mere observation would be able to provide. Not only do we want to know what the phenomena entail, but we also need to understand why it occurs. Although the second and third functions of scientific knowledge require some level of understanding, the fourth function calls for a deeper level of insight into the causal mechanisms involved and how these mechanisms are linked to concepts and events in the real world (Reynolds, 1971/2007).

a.) Cause and effect terminology

Within the context of scientific practice, a number of key terms are used to describe cause and effect. The terms that are most often used in the scientific literature are *independent* and

dependent variables. In the context of an experiment, an independent variable will be manipulated in a carefully controlled environment, and the dependent variable will be assessed to determine to what extent the independent variable influences the dependent variable (Cook et al., 2002). If the manipulation of the independent variable is found to cause changes in the dependent variable, one may conclude that the dependent variable is essentially dependent on the other variable (i.e., the independent variable). The independent variable can therefore be seen as the cause, while the dependent variable as the effect. The terms *dependent* and *independent* are relative to each other and not absolute; a variable is considered dependent based on its relationship with the independent variable (Whitley et al., 2013). Variables can also be described as mediators, moderators or confounders. A mediating variable is a third variable that is conceptually located between the independent and dependent variables and transfers the causal influence from the independent variable to the dependent variable. The mediating variable essentially helps to explain the causal process between the independent and dependent variables (Cook et al., 2002). For example, the Health Belief Model holds that health beliefs mediate the relationship between socio-demographic variables and health behaviour (Orbell et al., 2020). A moderating variable affects the strength and the direction of the causal relationship between the independent and dependent variables. Instead of standing between the independent and dependent variables, the moderating variable only affects the causal relationship between the two variables (Cook et al., 2002). For example, the Theory of Planned Behaviour holds that the degree of behavioural control people has in a given situation will serve as a moderating variable on the effect of intention on behaviour (Ajzen & Schmidt, 2020). A confounding variable is an extraneous variable which covaries with the dependent variable, and as a result, it may be considered to have predictive value and even be misattributed as the independent variable (Cook et al., 2002).

It is important to note that different disciplines and study fields tend to use different, more contextually appropriate terms to refer to cause and effect. Causal factors (i.e., factors that are believed to cause an effect) are often referred to in the health behaviour literature as determinants or drivers of a disease or condition. Conversely, effects are sometimes referred to as outcomes (i.e., acceptable health outcomes). The study of health behaviour strongly emphasises determining what causes and, therefore, what places people at risk for poor health outcomes. *Markers of risk* are variables that are associated with a medical condition, but it is not the true cause of that medical condition (Ehrlich et al., 2014). For example, being overweight is a marker for hypertension, but it is not the only one, nor is it the main cause of

hypertension. The term *risk factor* is often used to refer to variables (including cognitive and psychological attributes, behaviours, demographics and socio-economic factors) which place people at risk of contracting a disease or developing a medical condition (Ehrlich et al., 2014). Hence, the use of the term *risk factor* implies that the factor (i.e., a variable) has some predictive value. However, when something is deemed as a risk factor for a medical condition, it does not necessarily mean that it directly causes that medical condition. It could be a marker or proxy for the condition (Ehrlich et al., 2014). For example, race and ethnicity may be associated with hypertension, and thus someone could be considered *at-risk* for hypertension based on their race or ethnicity; however, more factors need to be considered when making a formal hypertension diagnosis.

Another term often used in behavioural medicine and epidemiology studies is *causal pathways*. This refers to the causal linkage (i.e., relationship) between a cause variable and the effect variable(s). The focus is on the route connecting two or more variables. Several causal pathways could be involved in the development of a phenomenon. Isolating a causal relationship's precise pathway can help identify what may need to be changed, or where intervention could be done to influence an outcome.

b.) Different perspectives on causality

There are multiple perspectives on how cause and effect manifest themselves in the natural and social world. Causation represents a very substantive part of the philosophy of science literature. With this section, my aim will not be to provide a comprehensive summary of causation, but rather to focus on key perspectives on causality relevant to Psychology, specifically the study of health behaviour.

The successionist view (or regularity theory) of causation (see Figure 5.1) is largely based on the Scottish Philosopher Sir David Hume's view of causation and is most closely associated with the positivist epistemology tradition. Hume proposed that there are three conditions for inferring causality, namely: contiguity (i.e., the suspected cause and effect variables should be in close contact or proximity to each other); temporal precedence (i.e., the cause variable must happen before the effect variable); and constant conjunction (i.e., the cause variable must always be present when the effect occurs) (Hume, 1960).

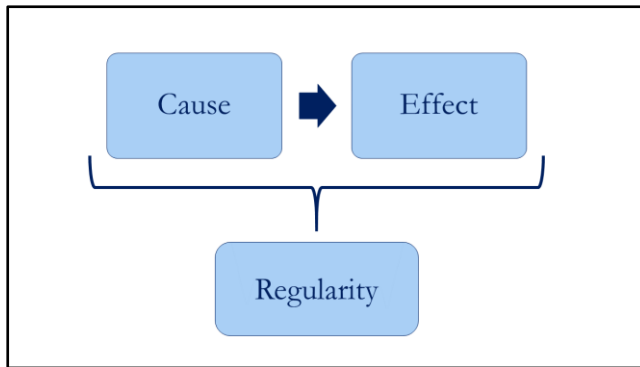


Figure 5. 1 The Successionist View of Causation (Sayer, 2000, p. 14)

The successionist view of causation maintains that causal relationships occur regularly and consistently and produce the same outcome (i.e., effect) every single time across various settings. Hence, the successionist view of causation essentially understands cause-and-effect relationships as law-like regularities (Befani, 2012). Related to this view of causation is the event-based view of causality, which maintains that events from one causal process can cause another set of events to occur (Lowe, 2001)⁴⁶. The successionist and event-based views of causation are criticised for mistaking high correlational relationships as causal relationships (Befani, 2012) and offering a restricted view of causation that is out of sync with the way the natural and social world is structured, as it necessitates regularity and restricts causality to the observable level of reality (Bhaskar, 1975/2008).

By contrast, a pluralistic view of causation maintains that causal relationships are not necessarily structured as single cause-effect relationships and that a complex interplay of causes can contribute to effects (Gerring, 2005). In this regard, Aristotle’s understanding of causality comes to mind⁴⁷ as well as generative views on causation, such as Critical Realism’s

⁴⁶ The concept of a “root cause” is sometimes used to refer to the initial event which set a causal mechanism into motion or the singular and true cause of a phenomena. In Psychology, Epidemiology and related fields, the concept of a root or real cause is not commonly used and even debatable, mostly because it is unlikely that social, behavioural and medical phenomena only have one solitary ultimate cause or that the initial event which set a causal mechanism into motion is distinguishable from other causal factors (Ehrlich et al., 2014). Instead, it is more likely that social, behavioural and medical phenomena are brought about through a chain of causal events and causal mechanisms.

⁴⁷ Aristotle concluded that there are four possible ways to explain why events occur or why things are the way they are. According to Aristotle, the causes of phenomena can be material, formal, efficient or final in nature (Aristotle & Book, 1933; Hankinson, 1998). The material cause (also referred to as matter) refers to the material that something consists of or originates from, or that which persists when the object changes. For example, the material cause of a house is bricks and cement. The formal cause (also referred to as form) refers to something’s structure, arrangement, appearance or shape which determines how it functions. For example, the formal cause of a house is its architectural design which distinguishes it from other buildings, such as a church building or a shopping mall. The efficient cause (also referred to as the agent or moving cause) refers to an external entity or object that interacts with something which causes it to change. For example, the builder, carpenter, electrician and others who contributed to the construction of the house can be seen as the house’s efficient causes. Lastly, the

view of causation which understands causation as resulting from causal mechanisms that are situated at a deeper level of reality (i.e., the real level of reality) (Sayer, 2000)⁴⁸. A pluralistic view of causation implies that causal evidence may take various forms and that several methods could be used to study causality. In recent years, evidential pluralism has gained increasing support from philosophers of science and scientists in the social and health sciences (Rocca & Anjum, 2020). Some of the most prominent theories of causality in the social and health sciences that are subsumed under the pluralistic view of causation include counterfactual causation, essentialism (i.e., sufficient-component cause) (Rothman, 2012), and multilevel causation (Glennan, 2002).

Counterfactual causation distinguishes between effects that occur under specific conditions versus effects that occur under alternative conditions (Parascandola & Weed, 2001). For example, comparing the outcome that a specific medication has on a patient to the outcome of treatment without that specific medication. Counterfactual causes can be deterministic (i.e., the effect will occur each time as a result of the cause) or probabilistic (i.e., the likelihood of the effect occurring increases when the cause is present) (Frosch & Johnson-Laird, 2011). A probabilistic understanding of causation predominates in the social sciences (as well as related health sciences such as epidemiology) (Parascandola & Weed, 2001). Related to the concept of counterfactual causation is the more recent idea of causal dispositionalism, which views counterfactual causes as dispositions (Mumford & Anjum, 2011). According to causal dispositionalism, a causal variable consists of an inherent characteristic (i.e., a dispositional property) which essentially gives it causal “powers”. Dispositions can remain unmanifested (i.e., unactivated) and will be activated once it comes into contact with other dispositions, which, when simultaneously present, can bring about an effect (Anjum & Mumford, 2018). Causality is therefore viewed as a complex interplay of multiple variables that have the necessary dispositional properties to cause a specific effect (Mumford & Anjum, 2011).

The essentialist view of causation proposes that cause takes the form of a group of variables that, when present together, are necessary and sufficient for an effect to occur (Rothman, 2012). Rothman (1976) distinguishes between the necessary cause, the sufficient cause and the sufficient-component cause of a medical condition. The necessary cause is a variable that must

final cause (also referred to as the end or purpose cause) is the ultimate purpose or completion of something. For example, the final cause of a house is for people to live in it (Aristotle & Book, 1933; Hankinson, 1998). When considering all four causes, Aristotle’s efficient cause is the cause that comes the closest to the modern day understanding of the concept of “cause”.

⁴⁸ See Chapter 4, heading 4.6. *Critical Realism’s View of Causation*.

be present for the effect to occur. For example, HIV is the necessary cause of AIDS. The sufficient cause is a variable that, when present, will infallibly lead to the effect (i.e., it guarantees that the effect will occur). A component cause is an additional causal factor or combination of factors which increases the likelihood of an effect occurring. Examples of component causes could be poor nutrition and healthcare-seeking behaviour. A sufficient-component cause refers to a minimum combination of variables which are significant enough to cause the effect when present at the same time. An example of a sufficient-component cause could include the simultaneous presence of a genetic defect, poor lifestyle choices and specific environmental conditions (Parascandola & Weed, 2001; Rothman, 2012). Distinguishing between necessary, component, and sufficient causes helps to understand health phenomena resulting from a combination of factors – while a single causal factor may play a direct role in the development of some effects, specific combinations of factors can also be responsible (Ehrlich et al., 2014). For example, the necessary cause of AIDS is HIV. However, repeatedly engaging in risky sexual behaviour, exposure to someone who is HIV-positive and non-adherence to ART would qualify as a sufficient-component cause for AIDS (Aschengrau & Seage, 2013).

Another way to consider causation is through different levels of observation, hierarchical structure or organisational strata. A distinction is often made between bottom-up and top-down explanations (Ellis, 2012). Bottom-up explanations follow a reductionist perspective by explaining higher-level phenomena through lower-level phenomena (e.g., using microsystems to explain health outcomes). While this way of understanding phenomena may, under some circumstances, yield interesting findings, it conflicts with the emergent nature of the natural and especially the social world⁴⁹ and therefore is not expected to provide a comprehensive understanding of causality (Ellis, 2012). Top-down explanations assume that higher-level phenomena provide a context wherein lower-level phenomena can take place. The higher-level phenomena can, therefore, channel, constrain and promote various lower-level phenomena (Ellis, 2012). Top-down explanations can also be viewed as reductionistic as they often fail to acknowledge the lower levels' emergent potential (Danermark et al., 2019). In the social sciences, both bottom-up and top-down perspectives of causality are drawn upon. As mentioned in Chapter 2⁵⁰, recent years have seen an increasing focus on structural factors' role in shaping social and health outcomes, reflecting a growing move towards top-down causality.

⁴⁹ See Chapter 4, heading 4.4. *An Open System, Stratified Ontology.*

⁵⁰ See Chapter 2, under the heading 2.6.5. *Structural Prevention Strategies.*

The Socio-Ecological Model offers a way to consider causal factors across different strata (see Figure 5.2). According to the Socio-Ecological Model, determinants of health can be found across various levels, including the biological (or individual), behavioural, social, and structural levels (Ehrlich et al., 2014). The biological level may include genetics, age, gender and general health status. The behavioural level includes habits and other behaviours (e.g., dietary habits and sexual behaviour). The social level includes factors that relate to the family, peers and community and may include socio-economic status, social norms, access to healthcare and the physical environment. The structural level involves higher-level socio-political and economic factors such as migration, access to employment, laws and policies, public transport planning and design as well as healthcare quality.

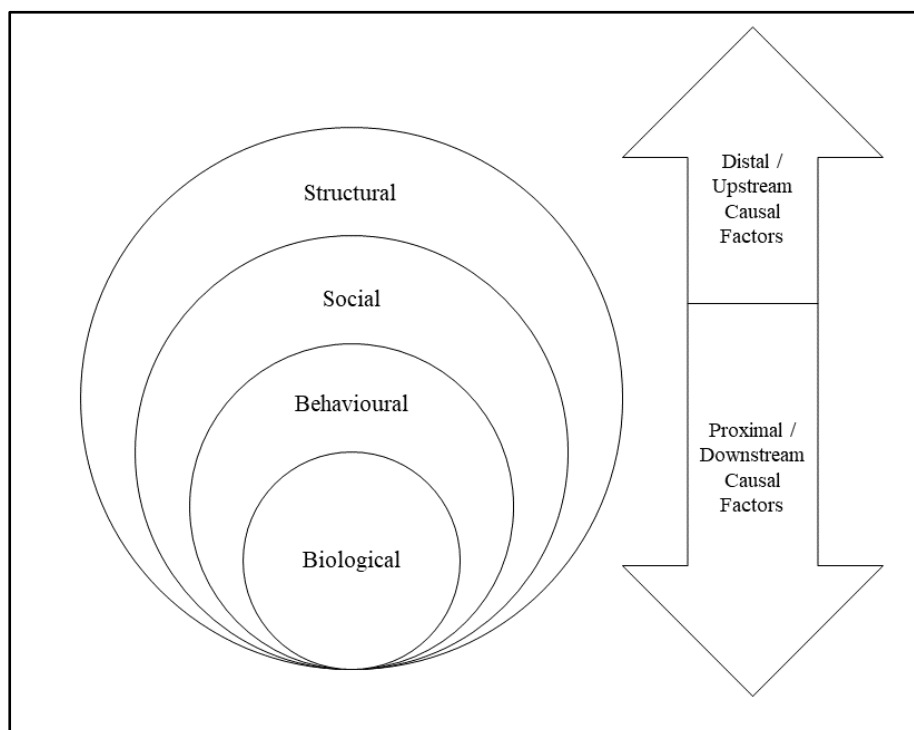


Figure 5.2 The Socio-Ecological Model

Multi-level causation also allows for consideration of presumed causal factors that are conceptually, spatially or temporally closest to the effect as well as causal factors that are situated further away from the effect. Scientists in the social and health sciences often make a distinction between proximal (or downstream) and distal (or upstream) causal factors. Proximal causes are causal determinants that are those factors which are more likely to be inherent (or closest) to the individual, such as their genetics, age, healthcare habits and beliefs. Proximal causes are typically considered to be the immediate cause of an effect. By contrast, distal causes are higher-level social and structural causal determinants such as socio-economic factors,

social norms and belief systems. In some instances, distal causes may be the ultimate, true cause of an effect or indirectly contribute to the effect (Ehrlich et al., 2014; Krieger, 2011). For example, risky sexual behaviour is a proximal causal determinant of HIV infection, while social norms regarding gender and sexuality may be viewed as a distal causal determinant of HIV infection. Causal factors on each level are interlinked. Structural factors such as discrimination, limited educational opportunities, poor healthcare and pervasive unemployment can influence social factors such as the level of access to quality healthcare and the development of harmful gender norms and suboptimal health behaviour and attitudes. This, in turn, influences individuals' behaviour and may predispose them to unhealthy and even risky behaviours (Ehrlich et al., 2014). Described differently, distal, societal factors may be a major driving force behind risk behaviours, while proximal factors explain the exact mechanisms by which these behaviours place individuals at risk for developing medical conditions (Krieger, 2011). While individuals have some control over the behavioural and certain social determinants of health (e.g., their health habits and choice of sex partners), biological and structural factors are largely outside the individual's control.

5.2.1.4. Controlling phenomena and events

The final function of scientific knowledge is to influence events and phenomena and find actionable solutions to present-day problems. To this end, it is expected that the knowledge that scientists gain from the descriptive, in-depth study of social and behavioural phenomena can help to provide useful insights and potentially inform strategies for controlling those and related phenomena (Whitley et al., 2013). Changing unhealthy, harmful, maladaptive and other undesirable behaviour has become an important part of psychological science. The psychological theory and practice of adjusting behaviour have been adopted in various fields, including public health. Controlling and changing behaviour necessitates understanding which variables and mechanisms are at play in creating and perpetuating the targeted behaviour, how these relevant variables synergise and influence one another, as well as how to change the most important of those variables in order to achieve a change in behaviour (Michie et al., 2014). Although many theories exist that are meant to aid in controlling and changing behaviour, and countless behaviour change techniques have been developed, the business of successfully and sustainably changing behaviour remains a challenge.

The ways these theories are used, particularly misused, in behavioural interventions are one important part of the problem (Davies et al., 2010; Michie et al., 2014; Michie & Prestwich, 2010). In addition, finding user-friendly ways in which theory can be made practical for

developing, implementing and evaluating interventions represent a complex challenge. The Behaviour Change Wheel (Michie et al., 2011) and other frameworks that are meant to guide the development and evaluation of interventions (e.g., French et al., 2012; Wingood & DiClemente, 2008), have provided some solutions in this regard.

Furthermore, researchers need to find ways to ensure that their research impacts the real world. This necessitates that researchers translate their research findings into practice through targeted knowledge dissemination and the development of policy recommendations, evidence-based practice guidelines and practical interventions. It also requires researchers to work closely with practitioners, policymakers, members of the public or a targeted community to ensure that their research is relevant and of practical value to those it is meant to serve.

5.2.1.5. Summary

In summation, the scientific study of behavioural phenomena aims to perform five functions, namely to describe, organise and classify phenomena and events; to explain past events; to predict future events; to provide deeper insight and understanding of the causes of phenomena and events; and to control phenomena and events. The five functions are interrelated and build upon each other. Scientific statements that offer explanations and descriptions of behavioural phenomena are inherently also useful for the classification of behavioural phenomena. Given that they offer some level of insight into the causes of behavioural phenomena, they can also be used to change behavioural phenomena. Moreover, without a proper description and an in-depth understanding of behavioural phenomena, explanation, prediction, and control will be impossible.

5.2.2. The Development of Scientific Knowledge

New scientific ideas are constantly formulated, tested and shared within the scientific community. These ideas may take the form of a few rudimentary statements that serve as the initial conceptualisation of an idea, or they could take the form of a well-developed and refined theory, model or framework. However, at their essence, they represent novel ideas that may become influential in changing the way scientists and society understand some aspects of the natural or social world. Reynolds (1971/2007, p.1) emphasises that “...the ultimate test of any idea is its utility in achieving the goals of science, and good ideas in clumsy form generally gain wider acceptance than poor ideas in correct form, although it may take longer. There is no substitute for a good idea.”

5.2.2.1. Paradigms and the maturation of scientific disciplines

Reynolds (1971/2007) distinguishes between three types of “new ideas” in science: Kuhnian paradigms, paradigms and paradigm variations. The term “paradigm” is best associated with Thomas Kuhn, who defined it as “universally recognised scientific achievements that for a time provide model problems and solutions to a community of practitioners” (Kuhn, 1962/2012, p. viii). Kuhn proposed four criteria for a paradigm, namely:

1. The new theory signifies a radical new way of thinking about a phenomenon;
2. The new theory offers a new research approach or methodology for collecting evidence to support the theory;
3. The new theory presents new research problems to study; and
4. The new theory is able to explain phenomena that previous theories could not explain adequately (Kuhn, 1962/2012).

A paradigm shift represents a significant change in the way a discipline understands and explains phenomena as well as how it conducts research (i.e., the discipline’s scientific methods and practices) (Kuhn, 1962/2012). Kuhn envisions a paradigm shift as a dramatic, unprecedented shift from the traditional (i.e., mainstream, status quo) way of understanding and studying phenomena to a radically new way of understanding and studying the same phenomena⁵¹. A Kuhnian paradigm, therefore, challenges the status quo in a scientific discipline and compels scientists to become more sceptical of their current understanding of a research topic. A Kuhnian paradigm may ultimately replace its predecessors and become the dominant theory in a field until another novel Kuhnian paradigm emerges or exist in parallel with other theories.

As well-known and radical as Kuhnian paradigms are, they tend to occur rather infrequently. More often, when a new idea emerges in a discipline, it is less radical than the Kuhnian paradigm shift, but still offers a new way of understanding and studying phenomena. These paradigms are inclined to have the following traits:

1. The new theory is a novel description of phenomena, however, the description is not radically different from existing theories;

⁵¹ The term “Kuhnian revolution” is sometimes used to refer to a radical paradigm shift as described here.

2. The new theory proposes a new research approach or methodology for collecting evidence to support the theory, however, it does not represent a dramatic change in research approach or methodology;
3. The new theory proposes new research questions and directions for scientific inquiry; and
4. The new theory explains phenomena and events that were not adequately explained by existing theories (Reynolds, 1971/2007).

In other words, paradigms represent a less extreme change in understanding and studying phenomena than Kuhnian paradigms. Most new theories and research approaches fall into this paradigm category. When a new paradigm is proposed (a Kuhn paradigm or a less dramatic paradigm), some details about the theory may still be unclear or left to remain ambiguous. In order to address these gaps and to make the theory more specific, other theorists may take it upon themselves to refine the theory. As a result, the original theory may have several variations that become influential theories in their own right. These paradigm variations may differ in their emphasis on certain aspects of the original theory. They may have a slightly different orientation towards certain aspects of the original theory while still agreeing with the essence of the original theory. There are several examples of paradigm variations throughout the social sciences. Paradigm variations of Freud's theory of personality include theories which emphasise the important role of an unconscious mental process (such as the theories of personality of Alfred Adler, Carl Jung and Otto Rank); theories which highlight the important role of cultural influences on the human psyche (such as the theories of personality of Karen Horney and Erich Fromm); as well as theories which offer a more refined and novel perspective on the role of the ego (such as the theories of personality of Erik Erikson and Rudolph Loewenstein) (Reynolds, 1971/2007).

Although a new theory may represent a novel and insightful way to study phenomena, its acceptance by the scientific community is not guaranteed. Given the large volume of new scientific knowledge produced and disseminated annually through peer-reviewed journal articles, scientific books and other publications, the scientific community is virtually inundated with new ideas, perspectives, methods and approaches. A select few of these novel ideas will enjoy a wide readership and may be cited numerous times, while the majority of ideas will remain largely obscured and unknown. In a review of 48 000 Psychology publications from 2005 to 2010, the average number of citations per publication was 12, and 75% of all publications received fewer than 27 citations (Kurilla, 2015).

The scientific community is tasked with not only processing a large amount of information in their respective fields, but also distinguishing between new, ground-breaking ideas and ideas that are ultimately not useful (Niu & Hemminger, 2012). An idea may initially appear to be promising as a new perspective on an existing research problem; however, after several years and numerous studies, it may be found that it is not as accurate or as useful as previously thought. Moreover, social interactions within the scientific community, including competition and collaboration amongst scientists, may play an important role in developing and accepting new theories and research methods (Hull, 1988). Lastly, new ideas which represent a radical shift from the existing way of thinking about a research problem or that make use of novel concepts which have not been defined previously may initially be met with resistance and critique and may remain on the fringes of a discipline for several years before mounting evidence compels scientists to accept it into their scientific practices (Reynolds, 1971/2007).

Thomas Kuhn takes a socio-historical approach to make sense of how scientific disciplines mature over time. Kuhn proposed that scientific disciplines develop through predictable stages (Kuhn, 1962/2012). The first stage is the pre-paradigm stage – the discipline contains several knowledge bases and theories, none of which are particularly dominant. According to Kuhn, a discipline matures and becomes a genuine scientific field once a single paradigm becomes the lead theory within that discipline. Thereafter, the discipline will move through a predictable cycle, which commences with a stable period where research is conducted under the leading paradigm (Kuhn also refers to this as the normal science phase). During this period of stability, new unsolved questions and unresolved research problems gradually emerge, which the leading paradigm cannot fully account for. While many unresolved questions are shelved with the expectation that they will be resolved at a later point in time, other unresolved questions become fundamental issues of contention within the scientific community. This ultimately culminates in a crisis wherein the leading paradigm slowly loses its influence over the scientific community. New theories and perspectives are proposed that promise to resolve the unsolved questions left by the leading paradigm. If a new theory emerges which is particularly persuasive and resolves all the fundamental problems of the leading paradigm, while opening up new avenues for research, the stage is set for the gradual phasing out of the leading paradigm. As proponents of the new theory move into positions of power in the scientific community (e.g., becoming journal editors, textbook writers or providers of research grants), the influence of the new theory gradually starts to spread, eventually leading to the total replacement of the former leading paradigm with the new theory. The cycle is then repeated with the new theory as the

established paradigm of the scientific discipline (Kuhn, 1962/2012). A key prerequisite for a scientific discipline to move through these Kuhnian stages is that it must be self-correcting. In other words, it must be able to discard theoretical knowledge which does not have sufficient supporting empirical evidence. Remaining sceptical of theories and subjecting theories to empirical tests and critique is essential in order to maintain a self-correcting scientific discipline. From a Critical Realist perspective, one could also add that a field should remain meta-theoretically reflective to grow as a scientific discipline.

Bernard Cohen developed similar stages to Kuhn, through which he believes disciplines mature (Cohen, 1985). According to Cohen (1985) a scientific discipline emerges through a creative scientific revolution phase where a scientist (or group of scientists) proposes a radically new perspective in the form of a new method, framework or theory. Thereafter, the new perspective and novel ideas are documented in non-public formats, such as private research notes and diary entries. As these new ideas gradually start to circulate through the scientific community, first informally and then increasingly through public fora (e.g., journal publications), increased exposure to them leads to public debates and critiques, refining the new ideas into formal theories. As mounting empirical evidence becomes publicly available that demonstrates the utility and explanatory power of the new theory, it gradually gains influence across the scientific community and eventually becomes the dominant paradigm in that discipline (Cohen, 1985). Cohen (1985) proposes four tests that can be used to determine whether a scientific revolution (i.e., paradigm shift) has occurred in a discipline. These tests include:

1. Contemporary testimony: Scientists practising during the shift regard it as a scientific revolution and report that it brought about a radical change to their discipline. This test is considered to be the main criterion, while the remaining criteria are meant to serve as supplementation.
2. Later documentary history: Publications written after the shift regard it as a revolutionary scientific paradigm shift.
3. Historians' judgment: Historians in the discipline regard it as a scientific revolution.
4. Opinion of working scientists: Modern scientists perceive the shift as a scientific revolution (Cohen, 1985; Leahey, 1992).

Roy Porter proposed four criteria for identifying significant scientific revolutions (Porter, 1986). The first criterium is that the scientific revolution should involve the destabilisation and complete replacement of the orthodox (i.e., traditional) paradigm. This period should be

marked with a challenge, resistance and, eventually, conquest. The second criterium is that the scientific revolution should be significant (i.e., large-scale) and convey a sense of urgency (i.e., the pressing need for a new paradigm). The third criterion involves that the revolution should be public and clearly visible to scientific community members. Lastly, Porter's fourth criterium states that the scientific revolution should spread across at least a number of countries and not be limited to only a small group of scientists (Porter, 1986).

Kuhn's seminal work has received criticism for being "...an attractive "forward-looking statement" about what the history and philosophy of science could be, not an example of what it was already" (Biagioli, 2012, p. 482), given that the development of scientific disciplines is not always occurring in step with Kuhn's predictable stages, that paradigm shifts are not always revolutionary but more akin to gradual drifts toward new perspectives, that new paradigms are not necessarily incommensurable with the status quo paradigms that they seek to replace, and that many natural and social science disciplines are home to a variety of heterogeneous theories and research approaches, and that this heterogeneity can be sustained, seemingly indefinitely (Biagioli, 2012; Edwards & Wilcox, 2011; Galison & Stump, 1996).

Despite these critiques, Kuhn's description of the maturation of scientific disciplines provides a useful socio-historical metasytem for studying scientific disciplines and remains one of the most well-known and influential descriptions of the evolution of scientific knowledge (Fajardo-Ortiz et al., 2017; Ritzer, 1975). Other, more divergent perspectives on how scientific disciplines evolve have also been proposed. Karl Popper maintained that, in order for a discipline to be considered scientific, it should be comprised of empirically falsifiable theories (i.e., theories which can be empirically tested and proven as false) (Popper, 1963). Popper, therefore, encourages scientists to build their discipline by conducting research with the goal of disproving their theories instead of continuously attempting to find evidence to support their theories. However, a review of the history of science literature (and especially the social sciences) reveals that scientists are reluctant to reject a theory entirely. Instead, theories that have been falsified (i.e., to some extent proven incorrect) are typically shelved and may resurface later when new empirical evidence emerges which supports them (Kaplan, 1964/2017; Meehl, 1978). Critics of Popper maintain that his view of how one should distinguish between a scientific and non-scientific discipline is too rigid and absolute and that the reality of scientific knowledge development is much more nuanced.

Paul Feyerabend had a radical view of the status of science in society and how scientific disciplines are meant to evolve over time (Feyerabend, 1975). Feyerabend rejected the idea of a single, dominant set of scientific methodological rules that guide knowledge production, as he believed that the use of a universal set of methods (i.e., one way of practising science) would restrict scientists' ability to conduct useful and novel research and ultimately impede scientific progress. Moreover, Feyerabend believed that science holds an authoritarian status in society and that science should not be seen as the only viable source of facts and knowledge in society. He proposed a pluralistic view of science, believing that multiple methods, theories and approaches can (and should) co-exist at the same time, even if they contradict each other, as this would be a more accurate representation of the real world and can help to identify anomalies in established theories (Bschir, 2015). As far as theory development and testing were concerned, Feyerabend maintained that scientists should make use of ad hoc (i.e., temporary, as needed) methods and theories to help make a new theory compatible with current empirical evidence until supporting theoretical and empirical evidence for the theory (or parts of the theory that was initially unsupported) can be ascertained, instead of abandoning the new theory entirely (Feyerabend, 1975). Feyerabend agreed with the Kuhnian concept of paradigms and paradigm shifts, however, he emphasised that the dominant nature of paradigms may also hinder the development of radically different and novel theories and, as a result, may contribute to the slower production of knowledge in a scientific field (Feyerabend, 1978).

Imre Lakatos distinguished between disciplines that have a scientific (or progressive) research programme and disciplines which have a pseudoscientific (or degenerating) research programme (Lakatos, 1976). Lakatos maintains that, for a scientific discipline to grow and thrive, it needs to develop and consistently maintain a theoretically and empirically progressive research programme. This means that the discipline should produce a sequence of theories over time and that each new theory should provide a more comprehensive and deeper understanding of a phenomenon than its predecessors. Each new theory should also produce novel insights and predictions, which further research should be able to substantiate at least to a moderate degree, if not entirely. If a discipline's research programme is not able to produce successive novel theories that build upon each other in this manner, the discipline is considered by Lakatos as regressive and stagnant. It will eventually become evident that the discipline's research programme is not producing useful, effective or accurate scientific knowledge and that a new research programme is required. According to Lakatos, a discipline's research programme may be scientific (i.e., theoretically and empirically progressive) at one point in time, but if the

research programme ceases to remain scientifically progressive, it may lose its status as a scientific discipline (Lakatos, 1976).

Kaplan (1964/2017) describes two processes by which scientific knowledge development can occur: *extension* and *intension*. Knowledge growth through extension involves taking a comprehensive explanation of a specific (i.e., narrowly defined) subject area and applying it to explain related subject areas (Kaplan, 1964/2017). For example, using knowledge about behaviour change in the context of preventing lifestyle diseases, to explain behaviour change in the context of the prevention of sexually transmitted infections. Knowledge growth through intension entails the gradual refinement of scientific knowledge, from a partial explanation to a gradually more precise explanation of a subject area (Kaplan, 1964/2017). For example, Freud's theory of personality and psychoanalysis provided a broad framework for studying human behaviour. In contrast, the gradual refinement of the theory and the development of variations on the theory by other scientists helped to create a more precise understanding of the psychoanalytic theory and method.

Klaus Fiedler's (2004, 2018) concept of the creative cycle and the growth of Psychology as a science based on George Kelly's (1955) ideas of creativity in science is also worth mentioning here. This creative cycle entails a dialectic interaction between so-called *loosening and tightening games* (i.e., processes) in science (Fiedler, 2004). Loosening processes involve engaging in divergent thinking, detaching oneself from prior knowledge, traditional ideas and methods to produce a variety of novel ideas. Loosening may also involve borrowing metaphors and concepts from other fields and experimenting with novel methods (Fiedler, 2004). Tightening processes complement loosening processes by entailing the critical evaluation of various ideas, choosing the most effective, useful and/or applicable methods and ideas while discarding those ideas and methods that do not hold up against rigorous criteria. Tightening processes thus involve theory testing and falsification, validating measures, as well as the critical analysis and evaluation of theories and methods (Fiedler, 2004). Fiedler (2018) argues that a dynamic interplay should exist between these two processes and that disciplines that engage too much time and resources in either process may fail to develop properly. As far as Psychology is concerned, Fiedler argues that the calls for more rigorous methods and statistical techniques and the excessive importance of statistical significance (all examples of tightening processes) at the expense of divergent thinking and novel methods (i.e., loosening processes) are not going to improve the quality of science in Psychology. Instead, some of Psychology's most prominent and influential theories were developed through the initial engagement with

loosening processes, followed by iterative steps of tightening and loosening (Fiedler, 2018). Neglecting loosening processes may therefore lead to stagnation in the field.

Through his study of the history of Psychology and Kuhn’s theory of scientific development, K.B. Madsen (1988) developed a classification schema for Psychology which attempts to integrate the micro- and macro-levels of scientific development in the field (see Figure 5.3).

Historical meta-theory Systems-levels	<i>External History of Science</i>	<i>Combined External and Internal History of Science</i>	<i>Internal History of Science</i>
<i>Cultures and Societies</i>	<i>Cultural history of science</i> <i>Socio-economic history of science</i>	Sociology of Science	
<i>Scientific Community</i>	Social Psychology of Science		<i>History of the scientific community</i>
<i>The Researcher</i>	Psychology of Science		<i>Biographical history of science</i>

Figure 5.3 Madsen’s (1988, p. 9) Classification Schema for the Scientific Development of Psychology

Madsen (1988) maintains that internal and external factors shape the development of a scientific discipline and that a discipline can be studied on three distinct levels: the *researcher*, the *scientific community*, and the *cultural and societal*. Internal factors that shape scientific development include a discipline’s subject matter, methods, and research findings. The results of empirical research are used to inform the development of theories. A new theory can either be a generalisation (or extension) of an existing theory or a completely new conceptualisation of phenomena. Over time, theories may be integrated or synthesised. Internal factors also include the lives of scientists, their intellectual development and scientific work, as well as their values and practices. Internal factors inform the micro-development of scientific disciplines – in other words, how empirical work is conducted and how that influences the development of ideas and theories. The study of the internal factors that guide scientific

development can be referred to as the Psychology of Science, and such an inquiry would inevitably focus on the researcher level (Madsen, 1988).

External factors shaping scientific development include cultural shifts, political change, economic factors and other societal factors. External factors inform the broad, macro-level development of the discipline. A study of the macro-level development of a discipline can be referred to as the Sociology of Science, where the focus lies exclusively on the societal and cultural forces that shaped the discipline (Madsen, 1988).

Between the macro- and micro-level study of science lies an intermediate level wherein the focus is placed on scientific communities (i.e., the informal groups of scientists, research institutions, schools of thought and research traditions) and their pursuit of producing and systematising knowledge. A study of the history and processes by which scientific communities operate can be referred to as the Social Psychology Study of Science (Madsen, 1988). Studying science from these distinct levels, one is better able to appreciate how theories developed and remained in use (or fell out of favour) over the course of history.

5.2.2.2. Research fronts as signposts for scientific knowledge development

More recently, the term “research front” (or “paradigmatic research front”) has gained increased interest as another way to better understand and describe the evolution of new ideas in scientific disciplines. Research fronts are essentially clusters of scientific knowledge (i.e., journal articles and edited books) that are centred around a specific topic or method and cite common base literature (Morris et al., 2003). Studying research fronts highlights which scientific publications are particularly influential in forming the leading ideas in a study field. Moreover, studying citation patterns within a scientific discipline reveals how scientists communicate their ideas to each other and how they refine and build upon one another's ideas. In so doing, they systematically shape their field's knowledge base over time. Therefore, studying research fronts offers us a novel way to study consensus within scientific communities, indicates which theories, approaches or topics are dominant over time, and help us compile a comprehensive longitudinal review of the study field (Small & Greenlee, 1989).

Research fronts are traditionally studied through keyword and co-citation analysis (e.g., Small & Greenlee, 1989), although more recently, scientists have turned to text mining and network analysis (e.g., Fajardo-Ortiz et al., 2017), Latent Dirichlet Allocation (e.g., Lakeh & Ghaffarzadegan, 2017), mixed research methods (e.g., Upham & Small, 2010), and software tools such as CitNetExplorer (e.g., Van Eck & Waltman, 2014). A novel study by Upham and

Small (2010) is of particular interest in this regard. They analysed research fronts in science and technology. The investigators used quantitative data analysis techniques to organise research fronts into five distinct groups. These groups include (Upham & Small, 2010):

1. Emerging research fronts: Relatively new scientific knowledge that is making inroads in the literature;
2. Growing research fronts: Established scientific knowledge that is being cited increasingly over the years;
3. Stable research fronts: Scientific knowledge that has enjoyed relatively stable use over time;
4. Shrinking research fronts: Scientific knowledge that is cited increasingly less often; and
5. Exiting research fronts: Scientific knowledge which received attention in prior years, but which has become virtually absent from the literature in recent years.

Upham and Small (2010) supplemented their quantitative analysis with in-depth qualitative interviews with experts in the relevant fields. Studying research fronts offers a useful way to categorise paradigmatic research fronts in a scientific field. The present study drew upon this element of Upham and Small's (2010) study to describe paradigm trends in the behavioural and social study of HIV and AIDS in the South African literature.

5.2.3. The Development of Scientific Knowledge in the Study of HIV

The second chapter of this thesis provided an overview of the development of our understanding of HIV and AIDS and the study thereof. However, I would like to discuss a few key studies which examined the evolution of paradigmatic research fronts in the HIV and AIDS literature. The majority of co-citation and bibliometric studies focus on the biomedical study of HIV and AIDS (e.g., Xu et al., 2021). Small and Greenlee (1989) conducted the first co-citation study of HIV and AIDS research in the late 1980s. Their study yielded a detailed analysis of how biomedical knowledge about the virus and its clinical symptoms initially developed and how shifts in biomedical research focus areas occurred (Small & Greenlee, 1989).

More recently, Fajardo-Ortiz and colleagues (2017) conducted a comprehensive bibliometric review of the global biomedical HIV literature from 1983 to 2016 to study the structure and evolution of research fronts in the field. They identified 13 research fronts in the field. The oldest and most extensive research front pertained to clinical knowledge about how the disease

presents in patients. A total of nine research fronts pertained to the study of specific molecular structures and mechanisms. In contrast, the remaining research fronts focused on the development of medication and the study of HIV on the cellular level (Fajardo-Ortiz et al., 2017). The investigators also found that the evolution of research fronts “occurred in successive ‘waves’” (Fajardo-Ortiz et al., 2017, p.1) over time, and corresponded with technological developments in the field, the increased specialisation of the scientific communities that were studying HIV and AIDS, as well as the changing epidemiology of HIV (i.e., the mortality and morbidity rates as well as the geographic spread of the disease) (Fajardo-Ortiz et al., 2017). Hence, the investigators concluded that the successive waves they identified through their analysis indicate sequential shifts in paradigmatic focus in the biomedical study of HIV (Fajardo-Ortiz et al., 2017).

More recently, a few behavioural and social sciences bibliometric reviews have been conducted. Lakeh and Ghaffarzadegan (2017) assessed the trends of behavioural and social science research in the HIV and AIDS field. Through an analysis of HIV and AIDS publications between 1985 and 2012 in the Scopus database, the investigators found that behavioural and social science topics in the HIV and AIDS literature increased gradually from around 1989 onwards and gained momentum in the early 2000s. The investigators identified five key sub-topics, namely prevention and intervention, mental health, sexual risks, social support and stigma, and drug users. Research prevention and intervention were found to enjoy the most attention overall, increasing markedly from the mid-2000s onwards. A steady increase in publications on mental health, sexual risks, social support, and stigma was also noted. Research on drug users was particularly high during the mid-1980s to early 1990s, whereafter interest in this key population dropped steadily as the focus gradually shifted to other key population groups. Lakeh and Ghaffarzadegan (2017) also examined the regional spread of behavioural and social science publications and found that regional publication trends existed, which reflected the global epidemiology of HIV. Research in Sub-Saharan Africa continuously dominated the literature base from the 1980s onwards. While drug injection as a research topic never enjoyed much popularity in sub-Saharan African publications, the region produced a substantial amount of research on HIV prevention and interventions, stigma and social support, far more than any other world region. North America led the way in research on mental health and sexual risk (Lakeh & Ghaffarzadegan, 2017).

Shirley (2010) conducted a bibliometric review of trends in the study of HIV and AIDS within the Community Psychology field in South Africa between 1990 and 2009. The most popular

topic during this time in South Africa (and internationally) was articles examining HIV infection risk. Other topics that received considerable research attention in South Africa included attitudes and knowledge relating to HIV; critique on the use of individual-centred theories and methods in South African HIV research; the development of novel methodologies; HIV and mental health; HIV and mass media communication and education; as well as psychological adjustment. Articles that critiqued the use of individual-centred theories and methods started to emerge in the early 1990s and have remained present in the literature ever since (Shirley, 2010).

Sweileh (2019) reviewed AIDS-related stigma and discrimination publications from 1980 to 2017 that were archived in the Scopus database. In contrast to Lakeh and Ghaffarzadegan (2017), Sweileh (2019) found that most AIDS-related stigma and discrimination publications were published by institutions from the United States of America (48.9%), but that African institutions also contributed meaningfully to the stigma and discrimination knowledge base (21.2% of the total number of publications). Sweileh (2019) determined that research on AIDS-related stigma and discrimination represented an important part of behavioural and social science research from the start of the pandemic, but that interest in the topic grew substantially from the early 2000s onwards.

5.2.4. The Development of Scientific Knowledge in Psychology

At its core, Psychology is the study of the human mind and behaviour (APA, 2020a). Given the broad nature of such a scope, research and practice in the field of Psychology spread over several subfields and specialisations, such as clinical, community, counselling, educational, industrial, forensic and Neuro-Psychology. Psychology originated from Philosophy, and ideas about the human mind, behaviour, mental health, mental disorders, and the treatment thereof can be traced back to ancient times (Robinson, 1995). Modern Psychology has its roots in Western Europe and North America and developed during the mid-19th century. Hence, Modern (i.e., Western) Psychology is founded upon the social and intellectual conditions of that era and, to a large extent, is still deeply influenced by research and theory development from those world regions (Schultz & Schultz, 2011). K.B. Madsen applied Kuhn's theory of scientific development to the evolution of Psychology as a scientific discipline (see Figure 5.4, which I have attenuated to include more recent developments in Psychology).

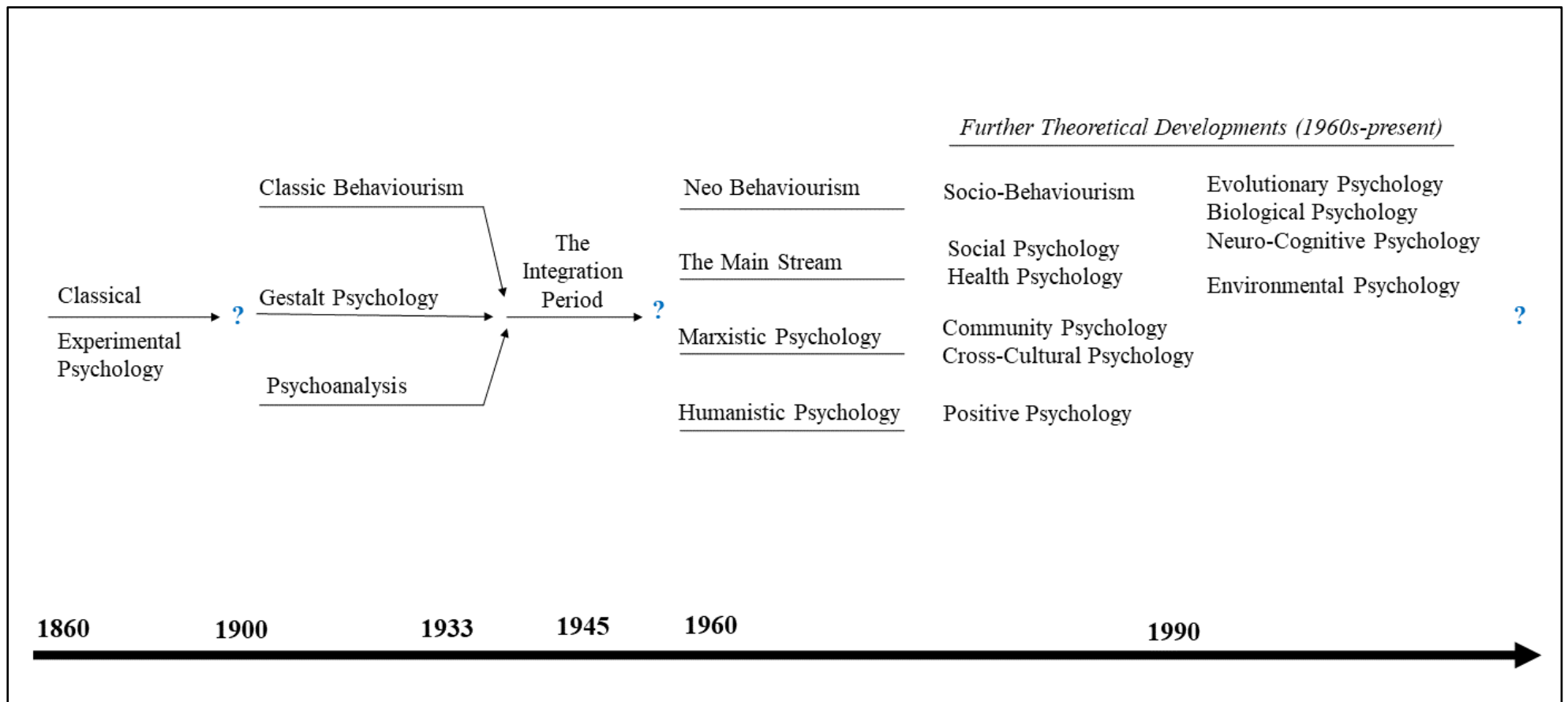


Figure 5. 4 The Development of Psychology as a Scientific Discipline Based on an attenuated model by Madsen (1988, p. 63)

While it must be noted that many regard Psychology as being “pre-paradigmatic” given that the field is largely based on multiple theoretical frameworks instead of one dominant paradigm, Madsen attempted to create a historical timeline which points out where possible “normal science periods” and “crisis periods” (denoted with question marks) may have taken shape, even though they may not fully comply with Kuhn’s original theory. With this in mind, I will use Madsen’s (1988) framework as a general structure for a short discussion on the historical trends in Psychology.

Madsen (1988) describes the beginning of Psychology’s development (approximately between 1860 and 1900) as a stable period, characterised by mostly classical experimental theories, methods and practices. During this era, Psychology was based upon Structuralism, based on the work of Wilhelm Wundt and Edward Bradford Titchener and the later rise of Functionalism, based on the work of William James. During this period, Psychology attempted to distinguish itself from Philosophy by adopting experimental methods (Schultz & Schultz, 2011). However, already during this period, distinct differences in ideas existed around what the exact subject matter and methods of Psychology should be (Willy, 1899).

The first period of school formation in Psychology took place between 1900 and 1933 (Madsen, 1988). The three schools of thought which emerged were Gestalt Psychology, Psychoanalysis, and Behaviourism. Gestalt Psychology, pioneered by Wolfgang Köhler, Max Wertheimer and Kurt Koffka, emerged in Germany in revolt against Structuralism. Central to Gestalt Psychology was the (at the time) divergent idea that psychological phenomena should be viewed as structured and organised wholes and that it would be unproductive and invalid to focus narrowly (and reductionistically) only on the components of consciousness. Gestalt psychologists focused most of their attention on human perception and learning and made important contributions to the study of cognition, social processes, personality, and motivation (Schultz & Schultz, 2011).

Sigmund Freud’s theory of personality and his development of psychoanalysis from the late 1880s to the early 1930s represented another radical new perspective on studying the human condition. Freud’s theory revealed a new, previously unexplored avenue for understanding human behaviour through conscious and largely unconscious mental processes. Various adherents to the psychoanalytic school of thought have refined the theory (labelled Neo-Freudians) or proposed their own conceptualisation of a psychanalytic theory (such as Carl Jung’s analytical psychology) (Schultz & Schultz, 2011).

The introduction of John B. Watson's behaviourist theory in 1913 in the USA heralded a radically new perspective on how to study and make sense of human nature (Leahey, 1992). Behaviourism shifted the focus from internal mental processes to the results of those processes. Given the difficulty with verifying abstract phenomena, Watson insisted that the only viable way for Psychology to study the human mind is to focus on observable phenomena and to adopt empirical and objective methods. From the 1930s, Watson's Behaviourism (also referred to as Classical Behaviourism) was gradually replaced by Neo-Behaviourism through the works of Edward Chace Tolman, Clark Leonard Hull and B.F. Skinner who incorporated some elements of cognition into their work. Behaviourism made important, foundational contributions to theories of learning, motivation and goal orientation, as well as to behaviour modification (Schultz & Schultz, 2011).

From approximately the 1950s, growing interest in cognitive processes led to the development of a new school of thought out of Neo-Behaviourism, called Cognitivism, which was led by the work of George Miller and Ulric Neisser. The cognitivists adhered to positivist methods, focussed exclusively on cognitive systems and processes and tended to view the human mind in mechanistic terms, akin to a clock or a computer (Schultz & Schultz, 2011).

As Gestalt Psychology, Psychoanalysis and Behaviourism gained greater following and prominence, another period of relative stability ensued from approximately 1933 to 1960. However, rifts in the discipline and within the schools prompted the second period of school formation to commence around the 1960s (Madsen, 1988). Starting in the 1960s and gaining momentum from the 1970s onwards, a prominent intergenerational cultural shift took place in the Western world. Advanced industrial societies, or at least certain parts of those societies, were starting to shift from materialistic values (also referred to as acquisitive values), which prioritised physical safety, nourishment, economic stability and social order, to post-materialistic values (also referred to as post-bourgeois values), which prioritised well-being, quality of life, self-expression, belonging and which inherently welcomed the idea of radical social change (Inglehart, 1971). Inglehart's (2008, 2018) research, which spanned from the 1970s until the 2010s, indicates that the intergenerational shift in values can be attributed to the economic prosperity which started after the Second World War from 1945, which increased the standard of living in advanced industrial societies and hence caused members of those societies to develop greater existential security. This value shift also affected academia and in particular, the social sciences.

An interpretive (or hermeneutic) turn took place in the social sciences in the early 1970s. The reductionist, positivistic and objectivist scientific perspectives of the time came under mounting pressure as they appeared to be out of touch with the real world and did not seem appropriate for studying social phenomena. Instead, many started to believe (interpretivists as they are sometimes referred to) that a more interpretive and holistic approach and mindset is needed to study the subtleties of human nature (Hoy, 1993; Rabinow & Sullivan, 1979). Moreover, adherents of interpretivism started to question the concept of universal truth and, instead, maintained a relativist position, claiming that concepts of truth and knowledge are heavily dependent on human's personal experiences and their culture. Science as a value-free, objective project also came under scrutiny, as adherents of interpretivism started to become more aware and attuned to the way in which values influence scientific practices and the interpretation of scientific findings (Rabinow & Sullivan, 1979).

The hermeneutic turn thus signified a significant shift towards an alternative view of how social phenomena should be understood and studied. Hence a move away from realist, objectivist perspectives and methods of studying human nature, towards a perspective of science that embraces relativist and subjectivist approaches took hold of the social sciences. Methods of explanation and prediction were placed aside in favour of methods which valued interpretation and understanding. Consequently, Post-Modern and Post-Structuralist theoretical approaches and qualitative research approaches started to gain popularity (Rabinow & Sullivan, 1979).

During this same period of cultural change, a gradual loss of interest in the individual as a creative and capable agent started to emerge. A growing interest in external factors and their influence on the individual started to take shape (Ritzer, 1989). This shift transferred into social science theory, especially in Sociology, but also to a degree in Psychology, and led to a move away from micro-level theories and theories based on individualist values towards macro-level theories and theories based on collectivist values. It also prompted a deeper interest in the collective self and its relationship with social groups and the study of multiculturalism. This gave rise to the development of and renewed interest in macro-level theories such as Conflict Theory, Neo-Marxism, Feminist Theory, Systems Theory and other theories which viewed the individual within the context of a social group (Hogg & Williams, 2000).

Psychology, which thus far was largely practised within the confines of a laboratory, was coming under increasing pressure to become more socially relevant to become more applicable in the real world. Moreover, social scientists became dissatisfied with the grand theories of the

1930s and 1940s, which offered insightful ideas but vague and, at times, reductionist statements about the world and human nature that did not seem to align with the real world and were difficult to test and apply. As a result, social scientists increasingly started to seek more concrete, smaller-in-scope theories (such as middle-range theories⁵²) (Kruglanski, 2001).

Within the Neo-Behaviourism school, growing discontent with the rigid focus on observable processes at the expense of mental and cognitive processes emerged and was labelled as the “cognitive challenge”. This gave rise to Socio-Behaviourism in the 1960s, which is best associated with Albert Bandura and Julian Rotter. Socio-Behaviourism focuses on how social and mental processes influence each other and produce behaviour. The most seminal theoretical work out of the Socio-Behaviourism school of thought was the Social Learning Theory by Bandura (1977a), which was later refined to become the Social Cognitive Theory (Bandura, 1986). Other important theoretical concepts which emerged during this time included *self-efficacy* (Bandura, 1982) and *locus of control* (Rotter, 1966). Bandura saw the value of Socio-Behaviourism in its potential to change undesirable, disordered or unhealthy behaviour through modelling behaviour and observation. Social Cognitive Theory and related principles from Socio-Behaviourism have been co-opted into various fields, including business and education, as well as in the study of health behaviour. Various theories have been developed that were derived from Social Cognitive Theory. Socio-Behaviourism as a school of thought remains influential in Psychology, both in therapeutic practice and research (Schultz & Schultz, 2011).

Although psychoanalysis provided novel and thought-provoking insights into the field of Psychology, the theory’s abstract constructs made it difficult to study empirically. As a result, psychoanalysis as a theory for guiding therapeutic practice has remained relevant over the years; however, its use in empirical research has largely declined since the theory’s hay day. However, psychoanalysis and Gestalt Psychology, existentialism and phenomenology, as well as the cultural shifts mentioned earlier, laid the foundation for Humanistic Psychology to emerge in the early 1960s (Schultz & Schultz, 2011).

Humanistic Psychology did not seek to revise the current theories in Psychology, which it considered to be reductionistic, narrow, clinical and fatalistic, but instead wanted to supplement them with a more positive, less deterministic perspective. In accordance with the value shift at the time, Humanistic Psychology proposed a shift in perspective towards the positive aspects

⁵² Types of theory, including middle-range theories, will be discussed later in this chapter under the heading 5.4.4. *Level of Abstraction and Scope*.

of human nature, including focusing on the fulfilment of human potential, personal growth, meaning-making and human strength. Concepts best associated with Humanistic Psychology include *self-actualisation* (Rogers, 1961) and the *hierarchy of needs* (Maslow, 1970). The founders of Humanistic Psychology are Carl Rogers and Abraham Maslow, and other prominent adherents include Rollo May, Alfred Adler and Erich Fromm (Schultz & Schultz, 2011).

Humanistic Psychology questioned the utility of traditional research methods as these methods were mostly derived from the natural sciences and are not necessarily able to access and make sense of the subtleties of the human experience. As a result, the door was opened for alternative, non-positivist research methods to enter into Psychology. By the 1980s, qualitative research methods became associated with the Humanistic approach to Psychology and became more popular in the field⁵³ (Wertz, 2001). While Humanistic Psychology never produced a dominant theory, its ideas promoted the development of Positive Psychology (Seligman, 1998) in the 1990s and popularised self-help as a way to promote personal growth (Schultz & Schultz, 2011).

From approximately the 1950s, Gestalt Psychology came under severe criticism as empirical evidence started to cast doubt over the validity of some of the school's claims (Wagemans, 2015). The rise of Cognitivism and Neuroscience further pushed Gestalt Psychology into the shadows, leading to most of its adherents abandoning formal Gestalt Psychology and moving into the latter fields and to what would later be described as mainstream Psychology. The study of cognitive and neurological processes (i.e., cognitive neuroscience) increased in popularity over the years and remained a productive sub-field of Psychology (Schultz & Schultz, 2011). Coupled with a growing interest in the way in which microeconomics, evolutionary processes, as well as neurological and physiological processes are inter-related with psychological processes, further specialisations emerged, including Behavioural Economics, Evolutionary Psychology, Biological Psychology, Neuro Psychology and Psychoneuroimmunology, which continues to be active research programmes in the discipline.

⁵³ Rennie et al., (2002) conducted a review of articles in the PsycINFO database that were published between 1900 and 1999, with a specific focus on the historic use of qualitative research approaches. The investigators found that, aside from the use of phenomenological research approaches, qualitative research (including generic qualitative research, discourse analysis and grounded theory research) only started to emerge in the Psychology literature in the 1980s, whereafter its use rose dramatically from the 1990s onwards. North America was found to be the region that contributed the largest proportion of the qualitative research literature (Rennie et al., 2002).

The pressure to become more relevant beyond the study of the individual, which started in the 1960s, but intensified in the 1980s, compelled Psychology to seek ways in which it could become more practically applicable. Moreover, growing interest in culture prompted Psychology to extend its reach into cross-cultural theory and practice. As a result, numerous (often interdisciplinary) sub-specialities started to emerge in an effort to apply psychological knowledge to a variety of practical issues. Such specialities included, amongst others, Social Psychology, Community Psychology and Health Psychology. The pursuit of relevancy remains a priority for Psychologists, reflected through continued discussions about how Psychologists can be more active in governmental advisory committees and how psychological research could be applied in drafting laws, regulations and policies (Premachandra & Lewis, 2020).

5.2.5. Research Fronts in Psychology

5.2.5.1. International research fronts in Psychology

Research front analysis of literature in the field of Psychology has substantiated the emergence of the aforementioned trends and gradual shifts in perspectives. Robins et al. (1999) studied the prominence of the four psychological schools of thought by conducting a keyword analysis of articles that were publicised in the *American Psychologist*, *Annual Review of Psychology*, *Psychological Bulletin*, or *Psychological Review* between 1967 and 1994. The investigators found that research within the psychoanalytic tradition has remained low throughout the study period. While the behavioural school was the most prominent tradition during the 1950s and 1960s, interest in the school declined from the 1970s as cognitive psychology became more popular. The number of articles devoted to the cognitive tradition has grown steadily since the 1970s, and it has remained the most prominent school since the mid-1970s. Neuro-Psychology started to gain popularity in the 1980s and became more prominent towards the end of the study period (the mid-1990s) (Robins et al., 1999).

Several historical reviews of the *Journal of Counselling Psychology* have noted that the number of theoretical articles tended to be low and might even be decreasing in recent years (Buboltz et al., 1999; Scheel et al., 2011). While research that pertained to counselling processes and counselling outcomes was historically the dominant research that was published in the journal, this trend declined from the 1980s. From the 1990s, a sharp increase was noted in multiculturalism and diversity research, including articles which pertained to racial identity and attitudes, multi-cultural competence, sexual orientation, psychological distress and perceived

discrimination, as well as trauma and sex (Buboltz et al., 2010; Oh et al., 2017; Parent et al., 2021).

Bittermann and Fischer (2018) analysed 314 573 articles from the PSYNDEX psychological publication database that were published between 1980 to 2016. The authors found a sharp increase in publications that pertained to Neuropsychology from the mid-2000s, reflecting a growing interest in the field as well as the increasing accessibility of neuro-cognitive research measures and apparatus. Cross-cultural research increased gradually from the early 1990s and reached its peak in 2010, whereafter, the number of articles on this topic started to decline slowly. The authors also noted a distinct digital communication trend which grew in popularity from the early 2000s.

In their analysis of scientific trends in the field of Clinical Psychology from 2007 to 2018 in three dominant, international peer-reviewed journals (namely *The Annual Review of Clinical Psychology*, *Clinical Psychology Review* and *Health Psychology Review*), Liu et al. (2020) found that behaviour intervention as a research topic increased markedly since 2007. This echoes the recent increase in large-scale behavioural and psycho-social interventions and the demand for research on the efficacy of such interventions in preventing and treating mental and physical illness. Given that large amounts of resources are invested in such interventions, as well as the novelty of some of the techniques that are used, there is a high degree of interest amongst scientists, programme implementers, practitioners, government institutions and funding agencies to determine whether these interventions work and how they could potentially be improved.

5.2.5.2. Research fronts in Psychology in South Africa

Several reviews of the Psychology literature in South Africa have also been conducted. Van Staden and Visser (1990) reviewed articles published between 1979 and 1988 in the South African Journal of Psychology. The investigators found that topics related to clinical and counselling psychology, personality psychology, developmental psychology and psychometry were the most popular. While approximately 33% of the articles entailed theoretical work, only 14.3% of them were considered to contribute meaningfully to theory development (Van Staden & Visser, 1990).

In a review of South African articles that were published between 1948 and 1988 in seven journals,⁵⁴ Seedat (1998) found that traditional topics (such as assessment and research methodology) and approaches (i.e., quantitative methods) remained the most prevalent throughout the review period. Seedat (1998) noted a steady increase in articles investigating the ideological premises of Psychology in South Africa.

More recently, Macleod (2004) conducted a situational analysis of articles in the South African Journal of Psychology and other South African articles in the PsycINFO database from 1999 to mid-2004. Macleod (2004) found empirical quantitative articles were most prevalent, with theoretical articles (i.e., articles which described a theoretical argument) only comprising 9.3% of articles in the South African Journal of Psychology and 6.7% of the remaining articles in the South African PsycINFO database. So-called “hard-science frameworks”, such as positivist approaches, Psychometry, Neuro-Psychology, Psychiatry, and Evolutionary Psychology, were found to be the most prevalent theoretical resources in both the *South African Journal of Psychology* and the South African PsycINFO database, followed by individual-focused theory (such as “attitude, identity, personality, wellness, moral development, risk and resilience”) and systems-oriented theory (such as “socio-ecological, cultural, community, health systems, organisational”) (Macleod, 2004, p. 617-618). A rising trend was noted in the prevalence of postmodern theories such as social constructionism, poststructuralism and postcolonialism during the 1999 to mid-2004 time period. The most popular articles in the South African Journal of Psychology were assessment, the truth and reconciliation commission, stress, psychopathology, sexual abuse and rape, professional training and reproductive health. Within the South African PsycINFO database, the top article topics included: HIV and AIDS, psychopathology, counselling and psychotherapy, assessment, violence and crime, mental health services and substance abuse (Macleod, 2004). Ultimately, Macleod (2004) highlighted that traditional Psychology topics and approaches (e.g., assessment and quantitative methods) remained common in the South African Psychology literature, while social and community-based topics (e.g., unemployment and poverty, racism, land reform, and public sector and institutional transformation) and approaches (e.g., black consciousness, feminism and Marxism) remained relatively understudied.

The relevance of Psychology in the South African context started to attract critical discussion and debate in the late 1980s. In line with similar international debates, South African

⁵⁴ *Psychologia Africana, Humanitas, Journal of Behavioural Science, Psygram, South African Psychologist, the South African Journal of Psychology and Psychology in Society.*

psychologists started to debate what Psychology's role was during the Apartheid regime and how it could "become more relevant to the local socio-political context" (De la Rey & Ipser, 2004, p. 544). In response to this debate, academic courses and publications started to include topics such as poverty and inequality, racism, social justice, sexism, discrimination and class oppression and calls were made for psychologists to take up an activist role through their work (De la Rey & Ipser, 2004). As Leach et al. (2003) state:

It is recommended that counselling psychologists in South Africa become more proactive to be further recognised as a useful entity and better serve community needs. Recognition can be accomplished by better alignment with medicine, forming working groups, becoming more politicised, and emphasising the rich cultural diversity that exists in the country through training and outreach. (p. 619).

In response to these calls to action and a shift in perspective on the role of Psychology in society, theoretical criticism and political activism became an increasing trend in South African Psychology. A shift toward community-based approaches and conceptual frameworks which draw upon theories such as liberation psychology, empowerment theory, socio-ecological models and systems theory also became apparent in the early 1990s (De la Rey & Ipser, 2004). In addition, a growing interest developed in creating and further refining alternative conceptual frameworks to the traditional Eurocentric and Western conceptual frameworks that represent a large part of the Psychology field. Renewed interest in African Philosophy, Liberation Psychology and indigenous knowledge systems and beliefs brought about the development of African Psychology which aims to "...build a relevant, appropriate, socio-politically conscious, transformed, or decolonised discipline and profession" (Ratele, 2017, p. 274). The impetus toward building a decolonised body of knowledge and practice for Psychology in South Africa has increased in recent years, in particular in response to the Fees Must Fall student protests in 2015 and 2016 (Pillay, 2017). Since then, there has been a growing interest amongst South African and international scholars and institutions to explore the possibilities behind the decolonisation of Western schools of thought, including Psychology (Malherbe et al., 2021).

5.2.6. Implications for Psychology

Psychology is characterised by an abundance of theories, approaches, methods, specialisations and contrasting perspectives. There is evidently no single, dominant paradigm that leads all

research and practice in the field of Psychology. Hence, many philosophers of science would classify Psychology as being in Kuhn's pre-paradigm stage of scientific maturation, while others may even describe Psychology as "principally non-paradigmatic", "multi-paradigmatic" or "poly-paradigmatic" (Klochko, 2008, p. 25). The use of multiple theoretical approaches in Psychology can be seen as a strength – implying that the individual can be studied in depth from multiple perspectives and dimensions and that a pluralistic approach to Psychology may yield more novel and integrated research findings (McAdams & Pals, 2007; Watanabe, 2010). However, the converse may also be argued that Psychology views the human mind and behaviour through a fragmented set of lenses (i.e., sub-fields) which may lead to a fragmented view of its subject (Klochko, 2008). However, of greater concern is the manner in which established theories remain unchallenged and theories for which limited support is available are never truly discarded and publicly rejected. In the words of Abraham Kaplan (1964/2017):

It might well be said that the predicament of behavioural science is not the absence of theory but its proliferation. The history of science is undeniably a history of the successive replacement of poor theories by better ones, but advances depend on the way in which each takes account of the achievement of its predecessors. Much of the theorising in behavioural science is not building on what has already been established so much as laying out new foundations, or even worse, producing only another set of blueprints. (p. 304).

Meehl (1978) makes a similar observation with regard to what he refers to as "soft psychology", such as social psychology wherein the socio-behavioural study of HIV mostly finds itself:

Perhaps the easiest way to convince yourself is by scanning the literature of soft psychology over the last 30 years and noticing what happens to theories. Most of them suffer the fate that General MacArthur ascribed to old generals – they never die, they just slowly fade away. In the developed sciences, theories tend either to become widely accepted and built into the larger edifice of well-tested human knowledge or else they suffer destruction in the face of recalcitrant facts and are abandoned, perhaps regretfully as a "nice try." But in fields like personology and social psychology, this seems not to happen. There is a period of enthusiasm about a new theory, a period of attempted application to several fact domains, a period of disillusionment as

the negative data come in, a growing bafflement about inconsistent and unreplicable empirical results, multiple resort to ad hoc excuses, and then finally people just sort of lose interest in the thing and pursue other endeavours. (p. 807).

Several prominent psychologists and philosophers, such as Ludwig Wittgenstein (1953/1986), Joseph Royce (1978), Paul Meehl (1978), Arie Kruglanski (2001) and Walter Mischel (2005) and have commented that Psychology suffers from theoretical immaturity and conceptual confusion. As, Jordaan and Jordaan (1980) state:

But anyone who is familiar with the corpus of knowledge in Psychology, should realise that the psychological science in its current stage of development cannot offer any sound truths about human functioning. What Psychology has done thus far and what it continues to do is to provide us with an overwhelming collection of 'facts' in the form of relatively clear answers to precisely formulated questions on specific aspects of human nature. (p. 28).

Over the years, the situation has not changed much, as Mackay and Petocz (2011) state:

Despite the volume of empirical research, psychology is no grand monolith rising on a foundation of common psychological knowledge and theory. ...alongside the rapid expansion of the discipline there is a morass of conflicting theories together with, for the most part, an insouciance about the matter. Indeed, psychology is not so much one discipline as many, a large, disparate and sprawling enterprise, whose subdomains, ranging from cultural studies to brain science, depend on concepts of mind, action and person so various that they are almost unrecognisable as part of the same venture. (p. 17).

In an effort to address this, proposals have been made to place a greater emphasis on theory development in Psychology, as well as to build a unifying, comprehensive, theoretical framework that would encapsulate the entire or at least large sub-fields of the discipline (Jordaan & Jordaan, 1980; Retief, 1986; Royce, 1987). In response to these proposals, debates regarding the exact nature and extent of the problem and the preconditions for unification emerged and continue until the present (e.g., Gaj, 2016; Goertzen, 2008; Zagaria & Zennaro, 2020).

Establishing unity in a scientific discipline is extraordinarily difficult as achieving “unity” would involve not only establishing unison on the field’s primary theoretical point of departure, but also agreement regarding the method, concept definitions, language (i.e., wording), epistemological and ontological perspectives as well as agreement on the precise subject matter and goals of the discipline (Gaj, 2016). Given Psychology’s scope, subject matter and the diversity of underlying meta-theories on which the field draws, it may not be possible or desirable to unify the entire field (Watanabe, 2010). However, several authors have proposed ways in which Psychology, or at least subdivisions of the field, could potentially be unified (e.g., Henriques, 2011; Muthukrishna & Henrich, 2019; Sternberg et al., 2001).

More recently, in a 2021 special issue of the *Perspectives on Psychological Science* journal entitled *Theory in Psychological Science*, 17 papers were dedicated to the relevance of Meehl’s (1978) observations to present-day Psychology, particularly within the current context of the so-called “replication crisis”. The replication crisis, which came to light around the mid-2010s, has demonstrated that Psychology may not have been as self-correcting and as self-critical as it should have been. Most of the discussions around what may have caused this crisis have centred around questionable research practices, in particular biased research designs and the improper analysis and interpretation of data, as well as maladaptive incentives and perverse researcher motivations (Higginson & Munafò, 2016; Janke et al., 2019; Macleod, 2018; Maggio et al., 2019; Open Science Collaboration, 2015). The recommendations for addressing this crisis typically involve improving methodological rigour and enforcing stricter peer-review processes to identify biases and improper data practices (Simmons et al., 2011). Hence, the problem and the solution are primarily considered empirical-level issues (Edlund et al., 2022). While macro-level issues such as the values, culture and practices of the scientific community are also considered, the theoretical, meta-theoretical and philosophical factors are discussed far less often (Wiggins & Christopherson, 2019). This has been recognised by some in the international psychological science community, who have deemed the present crisis as a crisis of *theory*, rather than one of *replication* (Irvine, 2021; Klein, 2014; Proulx & Morey, 2021). They argue that the troubles in Psychology, including the lack of replication, are due to “...the under-developed state of theory in many areas of psychology” (Klein, 2014, p. 326), inadequate research designs to test theories properly, and an over-reliance on statistical methods, at the expense of theory (Proulx & Morey, 2021).

In other words, not only are the research designs of many psychological studies ineffective at theory testing (Bruton et al., 2020; Levenson, 2017), but many of the theories themselves do

not allow for proper testing (Klein, 2014) and, in many cases, not enough descriptive research, concept formation and appropriate measurement development is conducted to facilitate proper theory testing (Scheel et al., 2021). Hence the focus shifts from testing theory to collecting loosely connected evidence, which does not tell us enough about the variables and their inter-relationships (Levenson, 2017). This leaves research psychologists unsatisfied both in terms of being unable to make sense of the complexity of the phenomena under study and leaving the theory in an uncomfortable state of limited validity and utility.

In order to address this crisis of theory, authors have made several recommendations, including that:

- a.) More attention should be placed on the development of theory (Irvine, 2021). To this end, Scheel et al. (2021) recommend that a greater effort should be made to properly formulate concepts, develop valid and reliable measures, develop the causal structure of the theory, specify the boundary conditions of the theory, develop and test the theory's auxiliary assumptions and provide specific statistical predictions when pre-registering a study.
- b.) More descriptive and explorative research should be done to obtain a deeper and more comprehensive understanding of the phenomena under study (Scheel et al., 2021).
- c.) Changes should be made in terms of how theory is taught at the university level (Proulx & Morey, 2021).
- d.) Instead of placing an inordinate emphasis on the value of research novelty, the culture of psychological science should shift towards valuing the importance of incremental scientific progress through cooperative research efforts and theory-based research (Proulx & Morey, 2021).

5.3. Defining Theory

The word *theory* is derived from the Greek word *theorein*, which means to look at, observe and examine (Vivien, 2014). Theory is a “highly ‘elastic’ term in science”, and a precise and nuanced definition of theory varies depending on a person's perspective on the purpose and desired structure, outcome and scope of theory (Sayer, 2010, p. 49). Hence, I will use this section to discuss how theory can be defined and categorised and what may be considered necessary for a set of statements to be labelled as a *theory*.

Generally, the term *theory* refers to a broad reference framework that offers a deeper understanding and explanation of a particular phenomenon. At its simplest, a theory can be

defined as a “set of statements about relationships between variables” (Whitley et al., 2013, p. 8) or “a set of interrelated relational statements about a phenomenon that is useful for description, explanation, prediction, and prescription or control” (Walker & Avant, 2011, p. 193). A more interpretive perspective may describe theory as “...an organised, coherent, and systematic articulation of a set of issues that are communicated as a meaningful whole” (Reeves et al., 2008, p. 633). Theories are “creative products of scientific minds” (Kimble, 1989, p. 498), i.e., constructed by scientists to help make sense of, study and communicate ideas about a phenomenon.

Madsen (1988) distinguishes between a narrow and a broad definition of theory. A narrow definition of theory describes it as “a set of hypotheses with the associated model” (Madsen, 1988, p. 25). Madsen’s broad definition of theory considers it to be a “complete, scientific text” which includes meta-theses that are “sets of philosophical statements”, hypotheses that are “sets of explanatory or hermeneutical statements” (which, when placed together, form a “model”), and data-theses which are “sets of descriptive statements” (Madsen, 1988, p. 25). Madsen (1988), therefore, views theory as being comprised of three levels, namely the philosophical (meta) level, the theoretical level (where hypotheses are outlined and connected to each other), and the empirical level (where appropriate sources and types of data and research methods for the theory is described). Madsen’s description of theory is a productive approach to analysing and critiquing theory; hence I will return to his conceptualisation later on in this chapter in my discussion of meta-theorising.

Sayer (2010) outlines three ways in which the term “*theory*” is typically used in the social sciences:

- 1) Theory as a framework for ordering and categorising observational data in such a way that it allows for the development of predictions and for the explanation and description of phenomena.
- 2) Theory as an “examined conceptualisation” (Sayer, 2010, p. 35) of phenomena.
- 3) Theory as an explanation for or tentative statement about phenomena.

The third use of the term is especially common amongst the general public and lay audiences – essentially equating *theory* with *hypothesis*. From a Critical Realist perspective, Sayer (2010) argues that theory as a framework for categorising relies on an incorrect understanding of the relationship between theory and our abilities to perceive the world. Given the theory-laden nature of our observation (i.e., our perception is already mediated by existing theory and our

past experiences and understanding of phenomena), and the theory-independent nature of reality (i.e., it remains independent of our thoughts and opinions), the view that theory is a framework for ordering our observational data becomes problematic (Bhaskar, 1979/2014; Sayer, 2010). Instead, Sayer (2010) maintains that theory is best understood as a conceptualisation that is mediated by our prior understanding and examination of phenomena.

Mention must be made of several related terms that are often conflated with the theory term in scholarly texts. It is important to note that the terms *conceptual framework*, *model*, *paradigm*, *school of thought* and *meta-theory* are often used in contradicting and vague ways in the literature.

The term “conceptual framework” is often used to refer to a set of statements that serves as a conceptual guide for further research, analysis or practice. One could describe models, theories, paradigms and meta-theories as types of conceptual frameworks, which vary with regard to their level of abstraction and scope. Hence when the term “conceptual framework” is used, it is used as an overarching term which includes models, theories, paradigms and meta-theories.

A model can best be described as “a restricted conceptual framework offering a partial description of a phenomenon or parts of the phenomenon” (Maree, 2020, p. 15). The term *model* is also commonly used to refer to a mathematical and statistical (i.e., data) model, the description of processes and systems, and as a basic, often oversimplified, visual representation (or summary) of a theory or an outline of a tentative theoretical conceptualisation. Given the potential for confusion I try to avoid using the term *model* when referring to theories, unless the theory is specifically called a *model*.

While Kuhn’s (1962/2012) conceptualisation of a paradigm has already been discussed, earlier in this chapter, the term is used in more general terms to refer to a group of theories which, although they have different explanatory systems, are all similar in terms of their underlying assumptions and the thematic areas on which they tend to focus (Maree, 2020). For example, the Psychodynamic paradigm encapsulates a specific perspective on the human mind and behaviour, and consists of a number of theories that each provide a related, but distinctive description of phenomena. Feminism can also be seen as a paradigm in this regard, as it is home to numerous specific feminist theories. However, the term *paradigm* is often used in different ways, often conflicting with other related terms. Morgan (2007) identifies four ways in which paradigms have been described and used in the scientific literature. They are arranged from the most abstract and comprehensive to the most specific and narrow in scope.

- 1) Paradigms as worldviews: Paradigms are viewed as comprehensive perspectives on reality (such as values and beliefs) that implicitly and pervasively inform social scientists' research by influencing the way they think about the world, the nature of their research and the phenomena they study. Given their broadly defined nature, they often cannot offer specific methods or concepts that are directly relevant to research. Yet, they can inform a specific perspective from which to approach research.
- 2) Paradigms as epistemological stances: Paradigms are defined along epistemological boundaries. Different epistemological positions, such as pragmatism, realism or constructivism, could thus be considered paradigms. This view of paradigms has become the most commonly used way social scientists use the term paradigm. Although epistemological stances offer some degree of guidance regarding research method and approach (more so than theory as a worldview), it remains relatively abstract. The term *meta-theory*, as it is typically used in the literature, is perhaps closest to this conceptual description.
- 3) Paradigms as shared beliefs among members of a speciality area: Paradigms are viewed as a shared consensus on a particular belief system and/or way in which to study and understand a phenomenon. This conceptualisation of a paradigm is similar to the term *school of thought* (or *intellectual tradition*), which is a descriptive name that is typically given to a group of people who share the same beliefs, views, approaches or perspectives (APA, 2020b). Kuhn's original formulation of a paradigm resembles this perspective.
- 4) Paradigms as models or exemplars for research: Paradigms are viewed as model examples of how a field conceptualises and studies phenomena. This interpretation of the paradigm term has not received much research attention and is rarely used.

Overton (2013) created a framework for studying human development, wherein he describes scientific paradigms as consisting of nested concepts (see Figure 5.5). The framework emphasises the hierarchical nature of paradigms and that the various components that form part of a paradigm are connected to each other in a logically coherent manner. Overton (2013) describes paradigms as being built upon worldviews – coherent sets of epistemological and ontological principles and philosophical assumptions (encompassing Morgan's first and second conceptualisation of paradigms). Nested within these worldviews are meta-theories which include principles that have more direct relevance to a scientific field of study (i.e., they are less abstract than the worldview, and more precise in their approach to specific

phenomena). Meta-theories create the intellectual and sociohistorical context (i.e., laying the foundation) wherein more concrete components, such as theories, theoretical constructs, hypotheses and even methods, can be developed to study relevant domains of inquiry. Overton (2013) stresses that a paradigm's nested components must always be aligned with its worldviews, or the paradigm will become logically inconsistent and incoherent. The value of looking at paradigms from this perspective is that it demonstrates how paradigms and the collections of theories, concepts and methods that they subsume are shaped by underlying epistemological and ontological principles and philosophical assumptions.

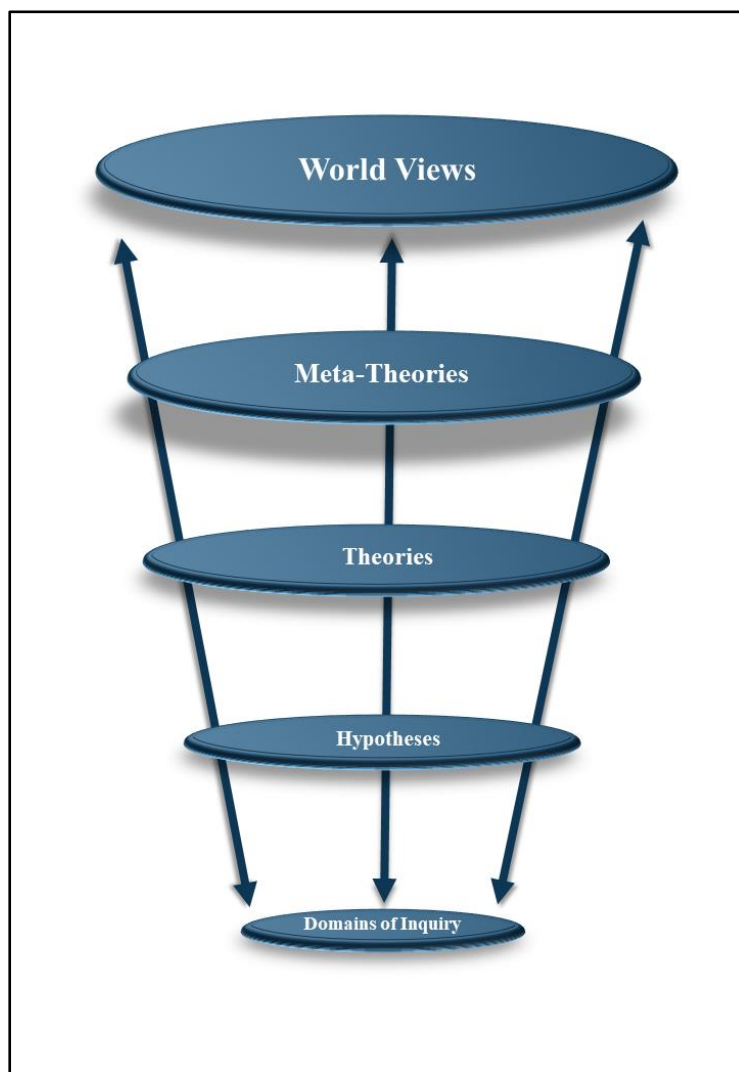


Figure 5.5 The nested concepts of a scientific paradigm (Overton, 2013, p. 26)

For the purposes of this thesis, I will use the term paradigm to refer to a group of theories which are all similar in terms of their underlying assumptions and the thematic areas on which they tend to focus (Maree, 2020). According to this definition, Socio-Behaviourism, Humanist

Theory, and Psychodynamic Theory would be examples of paradigms within Psychology. By contrast, I will use the term meta-theory to refer to conceptual frameworks, which, as their most outstanding feature, represent a specific ontological and epistemological stance or related set of assumptions about how research should be approached and conducted. Hence, Critical Realism, Constructivism, and Post-Positivism would be examples of meta-theories.

A common conceptual demarcation that is often cited in the literature, particularly as it pertains to qualitative research, is Guba and Lincoln's (1994) four (what they refer to as) *paradigms* in the social sciences, namely Positivism, Post-Positivism, Constructivism and Critical Theories. In a later version of the text, Guba and Lincoln (2005) added a fifth, namely the Participatory paradigm. Their descriptions of these paradigms reveal that they view them not as collections of theories (although theories could technically be nested within them), but instead, they place the focus on the paradigms as belief systems that convey specific ontological, epistemological and methodological positions (Guba & Lincoln 1994; Lincoln et al., 2018). According to my understanding of the terms *paradigm* and *meta-theory*, as discussed earlier in this section, I would classify Guba and Lincoln's (1994; 2005) paradigms as meta-theories.

It is also important to remember that some conceptual frameworks can technically be defined as both a meta-theory and a paradigm – depending on how they are used. For example, Feminism represents a unique set of world views that underpins social and political movements, people's lifestyle choices, and personal worldviews. Feminist researchers draw upon these worldviews to frame and guide their observations and empirical study of social phenomena and events. Hence, to the extent that Feminism has its own distinct ontological and epistemological positions, Feminism could be seen as a meta-theory. Yet the body of conceptual work that is based upon Feminist thought includes a variety of theories, such as Connell's (1987/2013) Theory of Gender and Power and Butler's (1990/2002) Theory of Gender Performance. Hence, Feminism could be seen as a paradigm in that it is the intellectual home of several theories with a Feminist underpinning in common.

5.4. Theory Classifications

Theories can be classified based on their structure, purpose, level of specificity and precision, level of abstraction, and scope. In this section, I will provide a brief general overview of the various ways in which theories, especially theories in the social sciences, are classified.

5.4.1. Structure and Purpose

One of the most commonly used theory classifications, which focuses mostly on the theory's structure and purpose, is to distinguish between three theory forms, namely the set-of-laws form, the axiomatic form, and the causal process form (Reynolds, 1971/2007). The set-of-laws form is based on the belief that scientific knowledge is (or at least should be) arranged in the form of empirical and generalised laws. Hence, theories with a set-of-laws form are typically formulated in such a way that reads like general rules (e.g., if A, then B). Set-of-laws theories are generally abstract and written in such a way that they are independent of space (i.e., specific geographical locations) and time. Hence, the laws set forth in such a theory are expected to hold across various settings and be particularly useful in explaining past events and predicting future events. The set-of-laws theory form remains popular in the natural sciences and is relatively uncommon in the social sciences (Reynolds, 1971/2007).

The axiomatic form is based on the belief that scientific knowledge should be arranged as an interrelated set of definitions, axioms and propositions. The axiomatic form is ideally suited for mathematical theory and thus is mostly used in mathematics and related fields (Reynolds, 1971/2007).

The causal process theory form comprises interconnected statements and definitions describing one or more causal processes, the conditions under which these processes may be activated, and the effect one or more independent variables may have on one or several dependent variables. Given its emphasis on causal processes, the causal process theory form offers a way to gain a sense of understanding (as a function of science), more so than perhaps the set-of-laws and axiomatic forms. Psychological theories tend to follow mostly the causal process form (Reynolds, 1971/2007).

Another approach is categorising theories based on their purpose to describe, explain and/or predict. Descriptive theories are the simplest type of theory as it only describes and/or classify the main characteristics, dimensions or defining traits of phenomena. Descriptive theories are particularly constructed (and tend to be most useful) when there is a lack of knowledge about a particular phenomenon. Exploratory and descriptive research typically generate descriptive theories (Fawcett, 1986/1999).

Explanatory theories emphasise the relationships between concepts and their descriptions of how and why different phenomena and concepts are related to one another. The creation of explanatory theories requires a greater sense of understanding about a phenomenon and can

therefore emerge from (i.e., be the product of refinement of) descriptive theories (Fawcett, 1986/1999).

Predictive theories build upon the insights gained from explanatory theories by developing an even more comprehensive understanding of the phenomenon. The relationships between concepts are defined more clearly, and differences between aspects of the phenomenon are better outlined. Hence, this theory allows scientists to predict how a phenomenon may change. Predictive theories are developed and tested through experimental research (Fawcett, 1986/1999).

Fawcett (1986/1999) sees the three types of theories as representations of different levels of understanding of a phenomenon. Descriptive theories represent the most basic level of understanding of a novel phenomenon; explanatory theories represent a more nuanced understanding of the phenomenon; and predictive theories represent a deep understanding of how the phenomenon is influenced and changed by internal and external factors (Fawcett, 1986/1999).

Glanz et al. (2015) distinguish between theories of the problem and theories of action. Problem theories are used to describe, explain and predict phenomena, and these theories provide details about how variables influence each other and might cause phenomena. In contrast, action theories (also called change theories) specify how an intervention is expected to influence variables and bring about behavioural or social change. Action theories are, therefore, typically used to guide the development and evaluation of interventions. A third type of theory, intervention theory, connects action theories to a specific problem by making the change theory more specific and directly applicable to a particular problem.

5.4.2. Theoretical Approach

Theories can also be described according to their theoretical approach. To this end, a distinction is made between functional theories, mechanistic theories, stage theories and typologies. Functional theories describe phenomena in terms of the phenomena's purpose. Theories in the field of Evolutionary Psychology often lend themselves to a functional theoretical approach.

Mechanistic theories emphasise the causal mechanisms or processes underlying a phenomenon. They are founded upon the assumption that behaviour and other psychological processes are inherently similar to mechanical, chemical or physiological processes in the natural sciences (APA, 2020c).

Stage theories organise and describe events or the development of a phenomenon across a series of stages or steps. With the progression from one stage to the next, experiences and insights that were gained from the previous stages are integrated to inform progression into the later stages. Psychology has several stage theories, including cognitive development (e.g., Jean Piaget's stages of cognitive development), personality and psycho-social development (e.g., Sigmund Freud's stages of psychosexual development and Erik Erikson's stages of human development), as well as health behaviour (e.g., James O. Prochaska and Carlo Di Clemente's Transtheoretical Model of Health Behavior Change).

Finally, theories that take on a typology format organise and classify psychological and behavioural phenomena (such as behaviours, personality traits, types of intelligence, emotions or coping mechanisms) into distinct groups. Howard Gardner's theory of multiple intelligences and Susan Folkman and Richard S. Lazarus's (1987) transactional theory of stress and coping are examples of such theories.

5.4.3. Precision and Generality

Theories can also be categorised based on their level of precision (i.e., a high degree of accuracy in predicting events) and generality (i.e., a wide spectrum of contexts to which the theory applies) (Reynolds, 1971/2007; Whitley et al., 2013). To this end, theories that are high in precision are typically low in generality (i.e., they are only applicable in a few specific circumstances). Conversely, theories that are high in generality tend to be low in precision (i.e., they are applicable over a wide range of circumstances but do not offer very accurate predictions). Furthermore, theories may also vary in specificity (i.e., the specificity with which they define and describe concepts and the relationships between them). Clear descriptions are preferred over vague and ambiguous theoretical statements. Yet, scientific theories should be abstract to the extent that they can be applied to a variety of contexts and scenarios. Although a scientific statement that is more concrete (i.e., very specific to a certain scenario) may be more descriptive, it also becomes less generalisable and, thus, less useful for prediction.

5.4.4. Level of Abstraction and Scope

Lastly, theories can also be categorised based on their level of abstraction and scope. This thinking allows one to situate theories along a reduction chain or hierarchy. Theories higher up in the hierarchy are essentially more abstract, lie closer to a paradigm's first principles (i.e., basic assumptions) and tend to be wider in scope. Theories that are lower in the hierarchy are more concrete, closer to empirical data and narrower in scope. Hence, higher-level theories

provide more general, holistic insights about phenomena, while lower-level theories offer more simple but specific insights about a phenomenon. Neither is necessarily better or more scientific than the other (Kaplan, 1964/2017).

Kaplan (1964/2017) broadly distinguishes between macro (or molar) theories and micro (or molecular) theories based on the comprehensiveness of the events that they explain. Kaplan (1964/2017) notes that micro theories tend to be perceived as more useful and explanatory than macro theories within scientific communities. Hence, subject matter for which no micro theory has been developed, tend to be viewed as less understood by scientists (Kaplan, 1964/2017).

One of the best-known delineations of different types of theory based on level of abstraction and scope is to distinguish between grand theory, named by C. Wright Mills (1959/2000), middle-range theory, which was first proposed by Merton (1968) and micro theory (Higgins & Moore, 2000). Figure 5.6 illustrates the degree of abstraction as it ranges from highly abstract in the form of a grand theory to more concrete in the form of a micro-level theory.

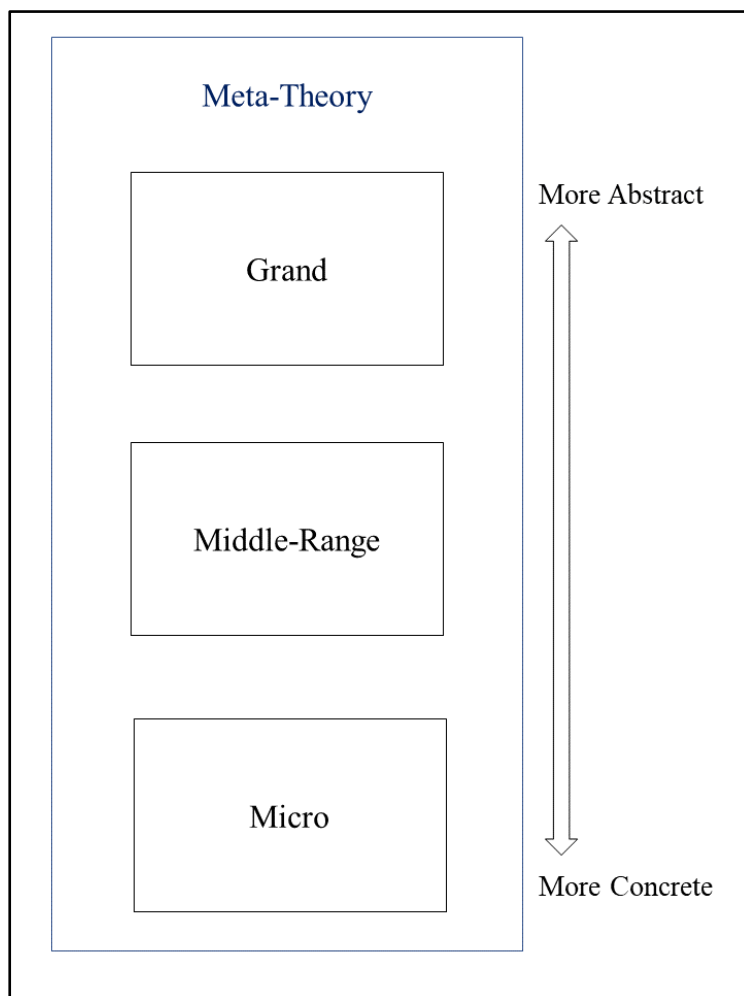


Figure 5. 6 Types of Theory Organised Along a Chain of Abstraction

Higgins and Moore (2000, p. 180) define grand theories as “highly abstract theoretical systems that frame our disciplinary knowledge.” Grand theories offer scientists “universal explanations and an understanding of” a particular study field, “but not the particulars that are necessary for empirical testing. As a result, they [grand theories] have little predictive capability.” (Higgins & Moore, 2000, pp. 180-181). Grand theories tend to focus on universal and societal-level phenomena and events.

Given the inconsistent use of terminology across disciplines and texts, the definitions of the terms *grand theory*, *meta-theory* and *paradigm* often become confused. While a grand theory refers to a theory that is comprehensive (i.e., grand) in scope, a meta-theory refers to the theory which provides the philosophical (including ontological and epistemological) underpinning for other theories and research programmes (hence it is depicted in Figure 5.6 as underlying and being more abstract than the other theories), whereas a paradigm refers to the collection of theories that share similar assumptions and approaches to studying the social and behavioural phenomena.

Middle-range theories are “sufficiently specific to guide research and practice, yet sufficiently general to cross multiple populations and to encompass similar phenomena” (Lenz et al., 1995, p. 5). Middle-range theories are more closely attached to empirical data than grand theories, yet they remain abstract enough to allow for phenomena to be studied from a contextual vantage point.

Although their narrow scope and application field may limit generalisability, micro-level theories tend to be more concrete and applicable and thus essential to the description, organisation and testing of ideas, both in research and practice settings (Higgins & Moore, 2000). According to Kaplan (1964/2017), many social scientists, especially Psychologists, tend to favour micro-level theories for use in basic or applied research. This inclination towards lower-level theories could be because these types of theories provide specific and easily measurable descriptions of phenomena⁵⁵ that allows psychologists to make more accurate predictions and describe phenomena in greater detail. However, this preference also reflects the underlying assumption that the individual should be the unit of analysis in Psychology and

⁵⁵ Kruglanski (2001) notes that a gradual shift from grand theories to middle-range theories occurred due to the growing concern with the difficulties in conducting empirical research and theory testing with grand theories which are by nature highly abstract. Merton’s (1968) proposal to shift to theories in the middle-range (i.e., lower than grand theory) level, offered psychologists the opportunity to strike a balance between theoretical sophistication and empirical adequacy and in so doing, lay the ground work for the expected eventual maturation of the discipline and the development of more expansive theories (Kruglanski, 2001). The latter is however still in question.

that we can draw conclusions about the social process by analysing the individual exclusively (i.e., methodological individualism) (Kaplan, 1964/2017). While there is undoubtedly merit and important reasons why one would focus one's intellectual work solely on studying the individual, it does indicate that there may be meaningful limitations in the way psychologists understand group and society-level phenomena and events.

Another concern that Kaplan (1964/2017) raises in relation to the popularity of micro theories is the emphasis on entities and structures (i.e., variables and constructs) at the possible expense of processes and functions. This may be due to the fact that entities and structures are easier to identify and measure, than underlying processes, inter-relationships and functions (which are more likely to shift a theory to a higher, more abstract level). However, this also points to a reductionist view of human and social processes and a possible unwillingness or perceived inability to view and study psychological phenomena in an integrated (i.e., non-dualistic) manner (Kaplan, 1964/2017). This reflects the ongoing tensions between micro and macro, the study of the self and the self in context, and between basic and applied research and theorising, which has been present in Psychology for most of its existence.

5.5. Linking Theory, Research and Practical Application

Theory, research and practice are meant to be interconnected in science, informing and shaping each other synergistically. There are four ways in which theory, research and practice can be linked, namely through theory-testing research, theory generating-research, theory-framed research and theory-evaluation research (McKenna, 2006).

The first way is through theory-testing research, whereby research empirically tests a theory (McKenna, 2006). Based on the study's results, the theory may be rejected as false, or (most likely) adjusted and subjected to further testing.

Scientists can also take advantage of applied settings to test their theories. To this end, Rothman (2004) argues that health behaviour interventions offer ideal opportunities to test established theories and emerging theoretical concepts. Rothman (2004) argues that:

...progress in our understanding of and ability to promote health behaviour change depends upon greater interdependence in the research activities undertaken by basic and applied behavioural scientists. In particular, both theorists and interventionists need to treat a theory as a dynamic entity whose

form and value rests upon it being rigorously applied, tested and refined in both the laboratory and the field. (p. 1).

Although a vast number of HIV prevention and other health behaviour change programmes are conducted annually, few are rigorously tested and evaluated (Byrne, 2020). Oftentimes, such programmes are developed without being based on a theory or without clearly articulating how the programme activities will lead to the intended outcomes of the programme (Rothman, 2004). Moreover, many programmes fail to put research processes in place in order to ensure that reliable and valid baseline (or similar counterfactual) data are collected and to systematically collect data throughout the course of the programme for evaluation purposes. As a result, it is difficult to retroactively determine whether the programme was effective and why it was effective, let alone whether it supports a behavioural theory. The precise mechanisms by which behaviour is changed, including the moderating variables, and the effects of and interactions between components of complex interventions, are therefore never properly studied and remain unclear to the scientific community (Byrne, 2020). Consequently, such programmes do not contribute to the scientific knowledge development of the subject matter and, if anything, slow knowledge generation down.

As a result of this gap between theory and practice in the health behaviour change field, several approaches have been developed to assist researchers and practitioners in creating theory-based interventions. Some of the most prominent of these approaches include the Theoretical Domains Framework (French et al., 2012), the precede-proceed model (Green & Kreuter, 1999), the Behaviour Change Wheel (Michie et al., 2012), and Intervention Mapping (Fernandez et al., 2019).

The second way theory, research and practice can inform each other is through theory-generating research, whereby anecdotal observations and practical experiences spark an interest in a new phenomenon or novel idea. The new phenomenon or idea is then subjected to research, and based on the findings of this research, a theory can be derived (McKenna, 2006).

The third mechanism by which theory, research and practice can shape each other is through theory-framed research and theory-framed practice (McKenna, 2006). To this end, a theory is used as a framework to guide the research project, including the conceptual framework on which the study is based, its use of data collection and analysis methods, as well as its interpretation of the study's findings. Similarly, theory can also directly inform practice by indicating how interventionists should design and structure programmes and how they should

make sense of the intervention's outcomes. Social scientists generally agree that theory-based behavioural interventions provide better results than interventions not based on a theory (e.g., Gourlan et al., 2015; Van Dulmen et al., 2007; Webb et al., 2010)⁵⁶.

The fourth way theory, research and practice can work synergistically is through theory-evaluation research (McKenna, 2006). This involves the critical analysis of the utilisation of theory in practice (i.e., how the theory has been used in applied settings) as well as in research settings (i.e., how the theory has been used within research projects and across disciplinary fields). The current study is taking this route of theory-evaluation research by exploring and analysing the use of theory in the South African HIV and AIDS research setting.

5.5.1. Monological versus Dialogical Theory-Research Relationships

Drawing on the work of John Stuart Mill (2002), Knapp (2009) argues that, in order for a discipline to progress, it should engage in critical theorising, and there should be a dialogical relationship between theory and research. Monological theorising and research occur when theorising and research occur separately from each other, within the confines of their own publications, language, methods, logic and assumptions (Knapp, 2009). Mill (2002) cautions against relying solely on methodological rigour to substantiate knowledge claims, insisting that science should pay equal attention to theoretical rigour and recognise that theories are fallible and should constantly be scrutinised. Such a separation between theory and research will ultimately slow the growth of the field's knowledge base and lead to "...the acceptance of, at best, premature understandings of phenomena and, at worst, incorrect or inadequate knowledge claims" (Knapp, 2009, p. 136).

Many authors of academic research papers and even entire disciplines place a great deal of emphasis on their research's methodological rigour, such as their use of reliable measurements or advanced statistical techniques. In so doing, authors of such papers imply that their research (and their knowledge claims that are based on that research) are more empirical, scientific and even more trustworthy than earlier less methodologically rigorous papers. While this may be

⁵⁶ There are examples of interventions that are effective despite not being explicitly linked to a specific theory. For example, a review of the efficacy of different approaches to improving medication adherence determined that technical interventions, such as simplifying a patient's treatment regime or improving the ease of use of medication storage products was the most commonly effective tactic to improve adherence (van Dulmen et al., 2007). However, it is important to note that technical interventions such as those are tacitly based on the biomedical model, however it is rarely explicitly stated as such in publications.

true to some extent, it creates the impression that scientific progress is being made as a result of the implementation of greater methodological rigour (Knapp, 2009).

Theorising tends to progress slowly, is often the result of cumulative efforts by a scientific community spanning over several years, and in many ways, never completely concludes as further testing, application, and refinement can always continue. Hence, theorising requires patience, a sceptical view of scientific knowledge claims, and the understanding that theories are inherently fallible.

The allure of methodological rigour lies precisely in its ability to provide quick, simple answers to research questions. The recent rise of so-called “big data” and the emphasis on data as seen in the increasing interest in and use of data-informed approaches and data-driven decision-making reveal the appeal that data has over the scientific community as well as the public and private sectors (e.g., Cukier & Mayer-Schoenberger, 2013). Although analysing large amounts of data can yield surprising insights and new ideas about how different variables may be correlated with each other, the concern is that it cannot provide clear and compelling answers for why events occur and may lead to the development of premature conclusions. Scientists need to not only describe and organise phenomena, but also explain events and develop a deeper sense of understanding within their fields of study. While advances in research methodology have certainly played an important role in building our knowledge base, scientists may have become overly confident in their methods and perhaps rely too heavily on them at the expense of theorising (Proulx & Morey, 2021).

A dialogical relationship between theory and research will yield the generative potential of theory and integrate the four functions of scientific knowledge⁵⁷. Knapp (2009) highlights five generative potentialities (i.e., functions) of theory, namely:

1. to describe phenomena (descriptive function),
2. to increase understanding and extend knowledge (sensitising function),
3. to integrate knowledge about events and phenomena (integration function),
4. to explain empirical data (explanatory function), and
5. to capture and reflect values and ideological beliefs about society and the human condition (value function) (Knapp, 2009).

⁵⁷ Discussed earlier in this chapter, under the heading 5.2.1. *The Functions of Scientific Knowledge*.

6. A sixth function could be added, namely, that theory guides action (action function) (Whitley et al., 2013).

Theory has a descriptive function, as it can be used to describe phenomena, and to order and classify data and experiences relating to that phenomena. Furthermore, theories name and define the key variables and concepts that are responsible for causing or contributing in some way to the phenomena and clearly explain the relationships between these variables (Knapp, 2009; Whitley et al., 2013).

Theory has a sensitising function by making social scientists more aware of meaningful events and processes and by directing scientists' attention to previously unknown phenomena (Knapp, 2009). In addition, theory allows scientists to integrate observations and, in doing so, to make sense of what otherwise may seem like disparate events and phenomena (Knapp, 2009). Theories can also be used to identify linkages with other theories and to integrate concepts, theoretical propositions and constructs, thereby allowing social scientists to build a more comprehensive and generalised body of knowledge (Knapp, 2009; Whitley et al., 2013). A well-known function of theory is its ability to integrate and explain empirical data and observations. Consequently, theory can help scientists to understand why events occur, form predictions about future events, test their predictions against empirical data, and ultimately build a more comprehensive and deeper understanding of social and behavioural phenomena (Knapp, 2009).

Knapp (2009, p. 135) notes that theories reflect inherent and underlying assumptions about the individual and modern society and highlights that "...as theories describe the world, they emphasise features of the world in ways that serve to sustain or promote certain values embedded in their way of understanding phenomena". For example, ecological theories inherently emphasise social, collectivist understandings of the world and how social contexts act upon the individual and communities (Knapp, 2009).

Theory also plays an instrumental role in guiding action, and theories can shape psychological practice and respond to it. To this end, theories are used to inform practical applications, such as behavioural and therapeutic interventions, best practice guidelines and policies (Sayer, 2000; Whitley et al., 2013).

While theory has several generative functions, Knapp (2009) highlights that theory can yield degenerative results if a field lacks critical theorising and engages in "monological" theorising and research (Knapp, 2009, p. 135). In other words, if theorising takes place in isolation, it can

easily lead to misconceptions and misunderstandings about meaningful aspects of phenomena, contribute to a lack of sensitivity to novel events and leads to the hurried explanation of phenomena (Knapp, 2009). Moreover, theory that is devoid of good descriptive data (both quantitative and qualitative) will “impoverish reality” and become further disconnected from the real world (Billig, 2019, p. 10). Uncritical theorising can also contribute to the perpetuation of theories which lack empirical evidence or that provide explanations to some, but not all, aspects of a phenomenon, leaving the scientific community with a flawed and/or incomplete understanding of social and behavioural phenomena. The rigid and mechanistic use of theory devoid of imagination and novelty is bound to lead to stagnation, boredom with theory and uninteresting research findings (Hagger, 2015).

Monological theorising can also lead to confirmation bias, i.e., unconsciously favouring evidence that supports one’s theoretical point of departure and “underdetermined and predictable” interpretations of research results (Slife et al., 2017, p. 4). Uncritical theorising and theorising within a closed system where other conceptual perspectives are scarce can contribute to a situation where the leading paradigm in a field may come to dominate our worldviews to such an extent that it overshadows other viewpoints and ultimately reproduces an understanding of the world that begets its description of reality. As Ogden (1995) explains:

...recent theories within the discipline represent a closer approximation to the true nature of the subject (the individual), because this individual is itself a product of disciplinary theory. Within this reanalysis, the individual (the subject) and the discipline (the subject) become as one and causes of change are located within this unit. The theoretical window, therefore, not only accurately describes - and at times transforms and distorts - but begins to constitute its own subject. (p. 263).

In other words, the theory explains behaviour and other social phenomena so well, because its ontological assumptions have become ingrained in our understanding of the world. Hence, we no longer see how the theory influences our perceptions and interpretations, because we are uncritical of its assumptions and simply accept it as being fundamentally true. This renders us, as social scientists, unable to distinguish between our observations and how the theory may alter our observations. Without remaining cognisant that our observations are theory-dependent, we risk becoming uncritical of our observations and interpretations of the world. We then become passive reproducers of a worldview instead of active users of a theory. This

is ultimately where this thesis attempts to contribute to the field of Psychology and the study of HIV: by illuminating what guides our understanding of the social and behavioural aspects of HIV and AIDS, and in particular, the underlying assumptions that the literature is based upon, and what the implications of these assumptions might be.

5.6. Evaluating Theories and their Application in Research and Practice

The purpose of evaluating theories is to assess their value for contributing to progress in the development of scientific knowledge (Kaplan, 1964/2017). Theories are often analysed by examining their history and internal structure as well as by using specific criteria to evaluate and compare different theories with each other. Theory evaluation may also explore how a theory is utilised (in research and practical contexts), the evidence base for a theory, and how it contributes to knowledge development in a scientific field (McKenna, 2006). In this section, I will discuss the criteria and methods used to analyse and evaluate theories in the social sciences.

5.6.1. Criteria for Evaluating Theory

There are various general ways in which researchers and theorists have attempted to analyse and evaluate theories. To this end, researchers use specific criteria to evaluate between and compare theories, as well as evaluate theories according to their scope and applicability to a specific research topic or subject, the extent to which empirical evidence exists to support the theories, their perceived strengths and weaknesses and their history. There are various perspectives regarding what constitutes criteria for a “good” theory, including: testability, falsifiability, measurability, generalisability, simplicity⁵⁸, reducibility, coherence, clarity of constructs and the relationships between constructs, extensibility, accuracy, predictive ability and success, verisimilitude, explanatory power, producing novel insights, fertility, having empirical support, unifying power, operational adequacy and empirical adequacy, pragmatic

⁵⁸ Simplicity (i.e., the number of variables and processes described by a theory) is a well-known and often proposed as a desirable trait for a theory (Baker, 2016). However, what constitutes as “simple” or “simpler” is subjective in the absence of specific criteria. Moreover, the idea of parsimony is in conflict with the complex nature of social and psychological phenomena. If a theory (or concept) were simple it may be easy to use and test, however it may not provide a comprehensive sense of understanding of the phenomenon. In contrast, a less simple theory may be more difficult to use and validate, but it may yield more insight regarding the phenomenon (Reynolds, 1971/2007). Ultimately, simplicity is desirable, but should not be sought after without considering other factors and the nature of one’s subject matter.

adequacy as well as practical utility and usefulness (Bacharach, 1989; Fawcett, 2005; Hean et al., 2016; Meehl, 1990; Michie et al., 2014; Royce, 1978; Walker & Avant, 2011).

Shaw and Costanzo (1982) provide a framework which outlines three essential and five desirable criteria for a good theory. The three essential criteria that a theory should have include logical consistency (i.e., the theory should not contradict itself), falsifiability (i.e., it should be possible to derive and test hypotheses from the theory to determine if the theory is false) and agreement with known data (i.e., the theory should be able to explain existing data that falls within its scope)⁵⁹. Desirable criteria for a good theory include clarity, simplicity, consistency with related theories, applicability with the real world, and the theory should stimulate basic and applied research (Shaw & Costanzo, 1982).

Walker and Avant (2011) recommend a six-step process to analyse a theory. This first step is to identify the origins of the theory. This entails finding out what the original purpose of the theory was (i.e., why it was developed) and what the theory development process involved. The second step is to assess the meaning of the theory. To this end, the theory analyst must identify the theory's concepts, assess their definitions, and identify the theory's propositional statements and the nature of its variable relationships. The third step is to examine the logical adequacy of the theory. This will involve examining how predictions are made with the theory, the logical structure of the theory's content, and whether there are any logical fallacies or inconsistencies in the theory. The fourth step is to determine to what extent the theory is useful. Walker and Avant (2011) identify three points to consider when making this determination: a.) the amount of research that the theory has generated; b.) the relevance the theory has to important and/or relevant problems; c.) the extent to which the theory has the potential to influence a field's research, practice or education. The fifth step is to identify the simplicity and generalisability of the theory. This can be achieved by examining the scope of the theory and the existing body of research in which the theory has been used. The sixth, and final step, is to identify the testability of the theory. This can be done by examining whether the theory is supported by a body of empirical evidence and whether it is possible to derive testable hypotheses from the theory (Walker & Avant, 2011).

⁵⁹ This is certainly not a straight forward matter. As Mario Bunge (1966, p. 334) states: "a theory, if true, can be employed successfully in applied research and in practice itself – as long as the theory is relevant to either. ...But the converse is not true, that is, the practical success or failure of a scientific theory is no objective index of its truth value". There are various ways in which a theory can be applied incorrectly in an applied setting (or in a way that implicitly undermines it) and there are also several methodological errors that could lead to poor theory testing (Byrne, 2020). However, a scientific community would have to, at some point, evaluate the merits of a theory and decide whether it is still applicable, useful and effective within their subject area.

Using distinct criteria to evaluate theories may be useful, however, they also pose a number of challenges. In order for criteria to be useful for evaluation purposes, they need to be formally defined and understood as such in a consistent manner. Moreover, the evidence that should be used to determine whether a criterion has been met and the relative weighting of criteria needs to be clearly demarcated and agreed upon by scientists. In other words, there should be some form of agreement on the criteria across disciplines and scientific communities (McMullin, 1990). This is clearly an unlikely ideal. In addition, most of the criteria mentioned above need to be understood within the context of the theory, its area of application, and the assumptions that underlie it. Some criteria may be more appropriate to apply to some theories than to others. Theory evaluation which does not take a theory's background (i.e., origin, development and original intended purpose) and assumptions into account, may form inaccurate conclusions about the theory. Consequently, while all the criteria mentioned above certainly have some merit on their own, there is no single criterium for a good theory. Nuanced and contextualised analysis of multiple criteria needs to be conducted when reviewing and analysing a theory.

5.6.2. Comparing and Choosing Between Theories

Related to the concept of theory analysis is theory comparison. Reynolds (1971/2007) cautions us against using theory comparison as a way to detect and distinguish between correct and incorrect theories, or true and false theories. It is important to note that theory comparison is much more complex than it may seem and has inherent limitations that one should be aware of. Reynolds (1971/2007) highlights four issues to consider in this regard. Firstly, one should not expect social scientific knowledge to always be perfect, infallible descriptions of social reality. Instead of distinguishing between "correct" and "incorrect" theories, it would be more productive to explore different theories' abilities to help us develop more accurate descriptions of specific psychological and social phenomena. Secondly, although comparison may be useful to review supporting empirical evidence for different theories, a comparison should not be used as a way to accept or reject theories. Thirdly, it is likely to be more productive and insightful to study the extent to which different theoretical processes affect a phenomenon rather than to attempt a comparison of theoretical processes to determine which ones are correct and incorrect⁶⁰. Lastly, one should keep in mind that theories are rarely directly comparable, given

⁶⁰ Given the complexity of social and psychological phenomena and their underlying causal processes, one can assume that multiple theoretical processes are applicable to the study of a phenomenon. The task of the scientist should therefore be to delve deeper into how various processes influence a phenomenon (Reynolds, 1971/2007).

that they are usually quite specific regarding the conditions under which they are applicable (Reynolds, 1971/2007).

With that being said, a scientist may find themselves in a situation where there is more than one theory that could be used to explain the same phenomena. While compatible theories could be used together to explain different aspects and processes of the same phenomena or event, a choice between incompatible theories will have to be made (Reynolds, 1971/2007). Under such circumstances, a scientist will have to find a way to judge different theories and decide which ones are suitable for use.

To this end, it may be useful for the scientist to explore to what extent the theories are compatible with each other. This could involve determining what their underlying assumptions about the phenomena are, whether the theories are applicable under the same circumstances and to what extent supporting empirical evidence is available for each theory and/or the extent to which each theory is able to explain empirical data (Reynolds, 1971/2007). The more data a theory is able to explain, the more useful it is likely to be. In addition, when the need for a deeper understanding of the underlying causal dynamics of a phenomenon is necessary, the theory that provides a more detailed description of causal processes would be the better choice (Reynolds, 1971/2007). From a Critical Realist perspective, practical utility (i.e., practical adequacy and usefulness) would also be considered an important criterion for a “good” theory (Sayer, 2010). Bhaskar (1986/2009) emphasised the need for social science to play an emancipatory role in society, and part of this requires theories to be practically useful (Sayer, 1997).

As mentioned earlier, other ways of evaluating theories include examining their scope and applicability to a specific topic or research problem, studying the extent to which empirical evidence exists to support different theories, assessing their perceived strengths and weaknesses and exploring their history (e.g., Rhodes et al., 2019; Turner & Shepherd, 1999).

5.6.3. Evaluation of the Use of Theory in Research and Practice

Another productive way to evaluate theories is by examining the extent to which and how they are applied to research and practical scenarios. A number of methods to conduct such an evaluation have been developed that typically review how visible theories are in publications, as well as how exactly they are described in publications and what purpose they served in the study.

Several theory evaluation studies have attempted to study the visibility of theory in the academic literature of a specific discipline or study area. The distinction is typically drawn between present and absent theory (i.e., whether a theory could be identified in a publication) and the proportion of theoretical articles in a set of literature. Some studies may even distinguish between the explicit and implicit use of theory (i.e., whether a theory is specifically mentioned or whether it is implied through statements that are suggestive of a particular theory) (e.g., Colquitt & Zapata-Phelan, 2007). While the explicit use of theories is fairly easy to accomplish, identifying implicit theory use is not as simple, as it requires a more thorough study of the article and its references, possibly even conducting interviews with the article's authors and could ultimately still lead to incorrect conclusions about which theories may have influenced the authors.

Bradbury-Jones et al. (2014) devised a theory visibility typology which ranks publications based on how clearly the theory is referred to and how thoroughly it is applied in the publication. The levels include: theory as being seemingly absent, implied use of theory, partially applied theory, retrospectively applied theory and consistently applied theory.

Beyond simply studying the visibility of theory, other theory evaluations aim to examine articles more thoroughly in order to determine how theories were utilised. To this end, theory evaluations may study the reasons article authors offer for their choice of theory, the extent to which theory informed different aspects of the study (or practical application) (e.g., Michie & Prestwich, 2010), and the extent to which the theory was tested, the methods that were used to test the theory, and the extent to which theory development or refinement may have taken place. One such example is the theoretical contribution taxonomy for empirical articles by Colquitt and Zapata-Phelan (2007). The taxonomy was originally developed in the Business Science field, and it understands theoretical contribution as comprising both theory testing and theory building.

In their view, theory testing encompasses the extent to which the research is grounded upon existing theory, conceptual arguments or past empirical findings. Theory building entails the extent to which the research produces new theories or theoretical constructs, explores new, previously unexplored processes or phenomena or builds upon existing theories or the existing empirical evidence base (Colquitt & Zapata-Phelan, 2007).

The taxonomy requires that a reviewer rate each article on a Likert-scale of one to five regarding the extent to which the article reports on theory testing and theory building. Based

on the theory testing and theory building scores, each article can then be placed into one of five theoretical contribution categories, namely:

- a.) Reporters: Articles with virtually no trace of theory building or testing,
- b.) Testers: Articles which report primarily on theory testing, with no theory building,
- c.) Qualifiers: Articles which display an intermediate level of both theory testing and building,
- d.) Builders: Articles which primarily report on theory building, with no theory testing, and
- e.) Expanders: Articles which display a high degree of both theory testing and building.

Colquitt and Zapata-Phelan (2007) consider builders, testers and expanders to offer a high degree of theoretical contribution, while they consider reporters and qualifiers to offer a low degree of theoretical contribution. Figure 5.7 illustrates the Likert-scales for theory testing and theory building and the theoretical contribution categories.

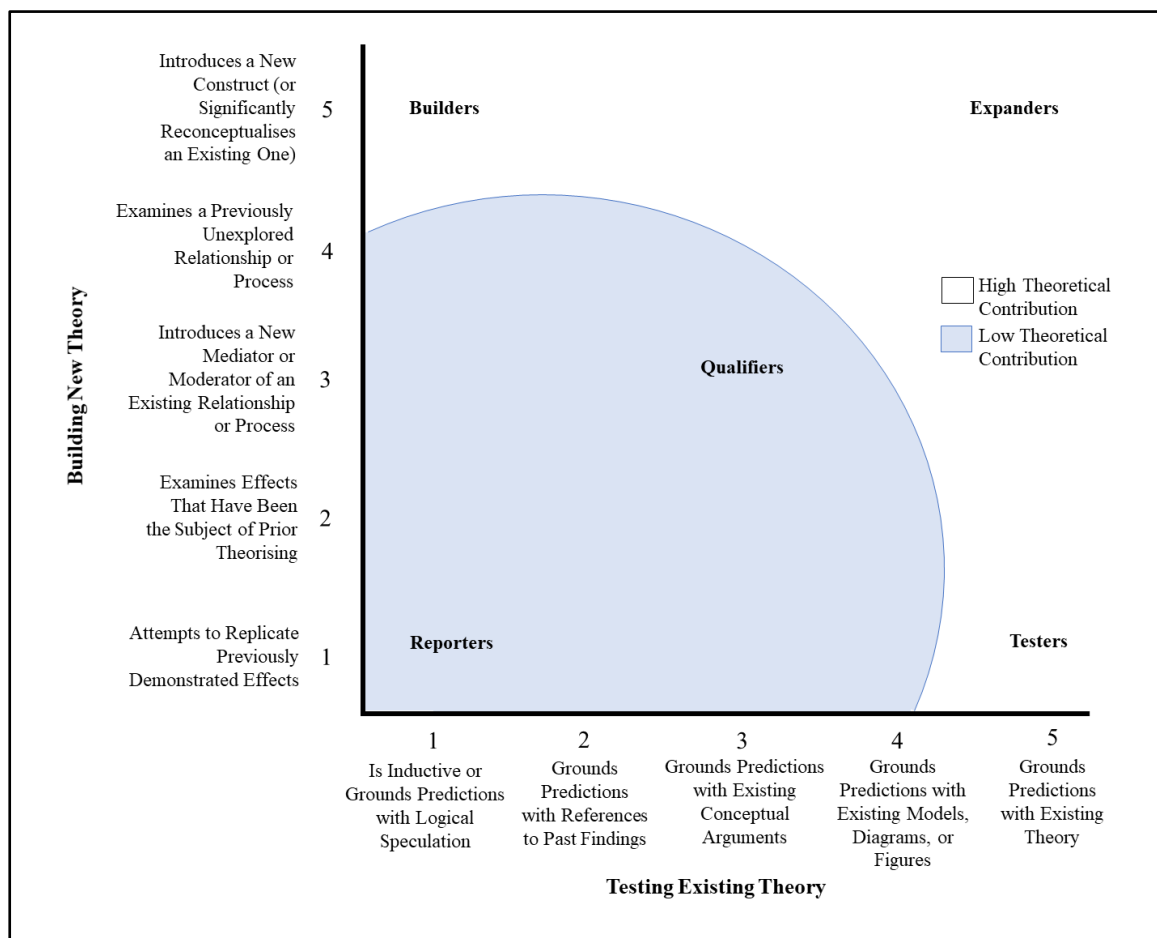


Figure 5.7 Taxonomy of theoretical contributions for empirical articles (Colquitt & Zapata-Phelan, 2007, p. 1283)

Although Colquitt and Zapata-Phelan (2007) distinguish between low and high theoretical contribution, it is important to note that different levels of theory testing and theory building are expected in a field over time as it grows its knowledge base. For example, exploratory research, which involves low theory testing and theory building, would be expected in the early stages of a study field's development. As a study field matures, formal theories are developed and tested, which is then reflected in research, becoming higher in theory building and theory testing (Colquitt & Zapata-Phelan, 2007). Thus, each type of theoretical contribution (i.e., reporting, qualifying, testing, building and expanding) contributes to the study field in its own way.

5.7. Theory Use in the Current Research Literature: Challenges and Critiques

Throughout this chapter, I have described what theory should be and how it should be applied in the research context. However, the reality is that theorising and theory application are not always conducted as ideally as it should be done. The purpose of this section is thus to highlight some of the main flaws and shortcomings of theory utilisation in the academic literature, specifically as it pertains to the study of human behaviour.

5.7.1. The Limited, Implicit and Inadequate Implementation of Theory

Reviews of the social and behavioural science literature have demonstrated a number of concerning issues relating to theorising, the use of theory and the reporting thereof in the academic literature. What appears quite prevalent across several theory review studies is the apparent lack of the explicit and meaningful use of theory in publications. In their review of trends in Clinical Psychology from 2007 to 2018 in three dominant, international peer-reviewed journals, Liu et al. (2020) found that theory as a topic has steadily decreased in popularity since 2007.

Painter et al. (2008)'s review of the health behaviour literature that was published between 2000 and 2005 determined that approximately 35% of publications mentioned the use of theory, and of those articles which utilised theory, most (59.4%) used the theory to inform their empirical study, while 21.7% used the theory in an applied context, 11.6% used it for the purposes of theory building, while only 7.2% tested theory. A review of theory visibility in qualitative research in the health and social sciences revealed that only a small set of articles applied theory consistently throughout the research process (Bradbury-Jones et al., 2014).

Research in other fields, such as medical education (e.g., Norman, 2007) and criminology (e.g., Steyn & Klopper, 2015), have noted a similar lack of research of engagement with theory⁶¹.

While it is understandable that many publications would report on empirical research, what is concerning is the limited use of theory in those empirical research publications and the lack of articles that deal with subject matter from a theoretical perspective. This reveals a general trend towards a more data-focused approach to science, favouring methodological rigour over theoretical rigour.

Deeper analyses of the prevalence of theory in the academic literature have indicated that theory is sometimes implicitly used in research, but not explicitly referred to in the publication. In other words, one may pick up subtle references or indications that a particular theory or conceptual framework served as the theoretical point of departure of the research, yet no specific mention of that theory or framework is made in the publication (Colquitt & Zapata-Phelan, 2007; Lavee & Dollahite, 1991; Michielsen et al., 2012; Poucher et al., 2020).

Furthermore, reviews of theory utilisation in the academic literature reveal that most publications that mention a specific theory explicitly do not provide sufficient descriptions about why that theory was chosen for their study (i.e., why the theory is applicable to their subject matter), nor how exactly the theory was applied to the study (i.e., how did the researchers use the theory in their study). When theories are explicitly used, many publication authors appear to use theory in a non-specific manner to lightly frame their study (i.e., to explain the general perspective which they are taking with the study), yet no specific theory testing or direct application of the theory is made (Hastings et al., 2020; Liang et al., 2017; Michie & Johnston, 2012). Similarly, authors sometimes mention a meta-theory or similarly broad theoretical approach and apply it crudely and vaguely to their study. At other times, authors only mention the theory in the discussion section of their papers to serve as a post-hoc explanation for their research findings.

For example, Davies et al. (2010) reviewed theory utilisation in the design, implementation and evaluation of health behaviour programmes that were published between 1966 and 1998. The investigators found that 22.5% of programmes incorporated theory to some degree, but only 6% of programmes explicitly named a theory and clearly outlined how it was used to

⁶¹ The problem is by no means new and has been commented on for several decades. For example, Van Staden and Visser (1990, p.54) noted an “apparent lack of sustained interest in theory development” in their review of South African Psychology journal articles that were published between 1979 and 1988.

inform the programme. In particular, Davies et al. (2010) found that most articles provided poor justification for their choice of theory and specific constructs. Similarly, Prestwich et al. (2014) found a lack of descriptive reporting on theory use in many health behaviour change articles. In particular, Prestwich et al. (2014) noted that as many as 90% of articles did not clarify the linkages between theoretical constructs and behaviour change techniques.

Another notable shortcoming that has been noted is that theories are often used in an oversimplified and partial manner (Delissaint, 2008; Tudge et al., 2016). This contributes to the misrepresentation of the theory in the literature and restricts the testing thereof (Tudge et al., 2016).

This lack of clarity surrounding how a theory was used to inform an empirical study or practical application (e.g., behavioural intervention) is particularly dangerous as it essentially creates a gap between the empirical data of the study and the theoretical constructs and statements of the theory. As a result, other scientists cannot establish linkages between the theoretical constructs and the study's empirical data, making it difficult to determine what parts of the theory were perhaps tested or used in the study (Prestwich et al., 2015). The efficacy and usefulness of theories thereby remain untested, and evidence about the potential efficacy and utility of theories remain inconclusive and unclear. Moreover, other scientists cannot readily replicate the study accurately, as the article does not provide sufficient information to allow for precise replication.

On a deeper level, philosophers and historians of Psychology have noted that there seems to be a disconnect between the methods psychological researchers use and the theoretical frameworks from which they claim to be working. Mackay and Petocz (2011, p. 22) refer to this method-theory incongruence as an example of a “metatheoretically unreflective” practice in Psychology which leads to the naïve belief that Psychology is growing as a discipline and contributes to the use of a diverse range of theories without awareness (or clarity) about how these theories are rooted in epistemology and ontology.

5.7.2. Possible Reasons for Poor Theory Utilisation

A review of the academic literature offers limited information on what may be the reason for this limited, implicit and inadequate use of theory in publications. However, broadly speaking, three possible categories of factors could play a role, namely theory-user factors, structural factors and theory factors (Chen et al., 2017; Jarrott & Smith, 2010; Lavee & Dollahite, 1991; Porter & Ryan, 1996; Robila & Taylor, 2001; Taylor & Bagd, 2005).

5.7.2.1. Theory-user factors

Theory-user factors relate to how researchers and practitioners think about and use theory. Researchers and practitioners do not necessarily possess the necessary skill set, knowledge, theory awareness or theory appreciation to use and test theories or to accurately report on theory use. Reynolds (1971/2007) suspects that the lack of clarity in theoretical writings in the social sciences may be due to social scientists' fundamental lack of understanding of how scientific knowledge should look and how they should create and contribute to a scientific knowledge base. As a result, researchers and practitioners may intentionally and/or unintentionally neglect to use theory or write imprecise reports on their use of theory.

Some researchers may not value theory enough to integrate it explicitly into their research findings, instead placing more emphasis on their research methods, data and findings (Robila & Taylor, 2001; Taylor & Bagd, 2005). Others may fail to identify the linkage between their research topic or applied programme and a relevant theory, and still others may assume that their implied use of theory will be sufficiently understood by the reader (Chen et al., 2017; Taylor & Bagd, 2005). A lack of in-depth knowledge about the relevant theories in one's field, including their specific uses, strengths and limitations, could also play a role in the misuse of theory (Tudge et al., 2016). The latter may be especially relevant for inexperienced researchers.

Lavee and Dollahite (1991) comment that although researchers are generally good methodologists, they are not necessarily trained to be good theorists. Hill (n.d.) in Lavee and Dollahite (1991, p. 370) notes that "the most difficult stage for researchers is the translation of the research idea into a research problem that has both theoretical relevance and some practical usefulness".

Furthermore, researchers can become complacent with their theoretical predilections and hence close themselves off from other perspectives. As Slife et al. (2017, p. 6) state: "Since humans appear to be naturally drawn to like-minded fellows (ideological echo chambers) and toward the path of least resistance, psychologists will likely need to make concerted efforts to intentionally expose themselves to alternative worldview perspectives".

Another factor that could play a role in the misuse of theory (and perhaps the multi-theory state of Psychology) is the high number of inter-disciplinary research which started to grow in the 1980s (Van Noorden, 2015). Although Psychology is the quintessential discipline for studying human behaviour, many disciplines, especially those in the social, economic, political and medical sciences, implicitly engage in psychological research to some degree. The scientific

community that studies health behaviour has been remarkably diverse (Van Noorden, 2015). In addition, when behavioural interventions are designed and implemented, the practitioners involved in such projects are not necessarily psychologists, but may hail from various disciplines. As a result, theories from other fields find their way into behavioural change programmes and research, and in some instances, non-Psychology researchers and practitioners lack the awareness of relevant psychological theories to know when and how to use them.

Danermark et al. (2019) observe that the division of labour between researchers and practitioners may also be of importance here. Danermark et al. (2019, p. 199) remark that “...there is a clear tendency to remove as many abstractions and theoretical concepts as possible when [researchers are] “handing over” knowledge” to practitioners in an effort to make the information more practically useful to them. Practitioners may prefer research lectures and publications that provide relatable and practical guidelines. Although this way of imparting knowledge to practitioners may be useful in some respects, Danermark et al. (2019) caution that this approach may oversimplify the complexity of the social world and prevent practitioners from connecting their practical work with the deeper, underlying causes of the problems which they are attempting to solve.

5.7.2.2. Structural factors

Structural factors relating to practice, research and knowledge dissemination could also play a role in the inadequate use of theory. In their investigation of the theory-practice gap in nursing, Porter and Ryan (1996) concluded that the organisational system in health care facilities, such as a heavy workload and time constraints, limit nurses’ ability to adhere to theory-based guidelines. This may suggest that structural factors, including the work environments of practitioners, may limit the extent to which they can engage with theory in their day-to-day activities.

A case can also be made for the responsibility editors and peer-reviewers of academic journals have to promote and facilitate the link between theory and research (Taylor & Bagd, 2005). Journals generally enforce stringent word count restrictions, limiting the space devoted to a discussion on theory (Barley, 2006; Taylor & Bagd, 2005). Moreover, journals may tend to systematically favour empirical articles over purely theoretical (non-empirical) articles, thereby perpetuating the notion that theoretical articles are not as publishable as empirical articles (Taylor & Bagd, 2005).

Walters (1986) in Lavee and Dollahite (1991) maintained that in the quest to be published, the ability to conduct research is prized above the ability to use and contribute to theory. It appears that little has changed since then. Proulx and Morey (2021) note that, while it was common for one's manuscript to be rejected for not furthering theory, a shift in publication trends seemed to have occurred in recent years, one which rewards novelty above all else. Counterintuitive, surprising and exciting research findings are considered more attractive for publication than theory-based research, which might be more likely to confirm previous research or produce results that might seem obvious (Ogden, 2014; Proulx & Morey, 2021).

Recent studies on publication and research activity trends reveal an interesting phenomenon – while the number of researchers employed at research institutions and the number of published journal articles has increased significantly in almost every scientific discipline over the last few decades, research productivity has decreased, and the quality of research papers (based on the number of citations) seems to be waning (Bloom et al., 2020; Chu & Evans, 2021). While the incentive to publish is high, the quality of the research has not improved and may even have declined (Chu & Evans, 2021).

Consequently, researchers are not necessarily motivated by the current research dissemination and publication systems to actively engage with theory. Given the lack of research on the motivational factors that play a role in researchers' and practitioners' decision-making regarding theory, the true extent and determinants of the problem remain largely unknown and speculative.

5.7.2.3. Theory factors

The limited use of theory could also be attributed to weaknesses in our currently available theories. Social science theories, including theories in Psychology, have been criticised on various grounds, including their real-world applicability, explanatory power and testability. Due to a perceived lack of relevance to contemporary issues, researchers may find it challenging to use theory to guide their research. Some theories, particularly general theoretical frameworks, have been criticised for not being empirically testable or only partially testable, as it is difficult to directly connect their constructs and assumptions to empirical research (Lavee & Dollahite, 1991; Robila & Taylor, 2001).

Imprecise wording and vague and abstract constructs hamper the application of theory within the research setting even more. This is especially true for higher-level theories (e.g., Grand

Theories), which are hard to test empirically and apply without modification or refinement (Lavee & Dollahite, 1991; Robila & Taylor, 2001).

As mentioned earlier, monological theorising can contribute to the hurried explanation of a novel observation (Knapp, 2009). Wood et al. (2018, p. 405) refer to this as the “force-fitting” of theories onto emerging phenomena. When a phenomenon is still relatively new, and the scientific community does not yet fully understand it, the temptation arises to find a quick explanation for it by describing the phenomenon through an existing theory (Wood et al., 2018). Naturally, this is, to some extent, expected in many disciplines, as scientists use theories to make sense of our empirical observations. However, if the force-fitting of theory onto phenomena is not followed by rigorous testing of that theory’s ability to explain phenomena, but is instead left uncritically to be used as an explanation for the phenomena, it will ultimately prevent a deeper exploration of the unique underlying mechanisms and processes that produce and contribute to the phenomena. Consequently, scientists are encouraged to constantly question whether their theories are appropriate and cautioned against too hastily accepting a theoretical explanation as adequate without deeper analysis and theorising.

Jarrott and Smith (2010) note that although academic theories may broaden our understanding of social phenomena, they tend not to provide sufficient guidance on how to utilise this understanding in a practical manner (i.e., how to use the theory for intervention purposes practically). From a practitioner’s point of view, research findings and even theories are often seen as being out of touch with the real world. Hence, research and theory seem irrelevant to their day-to-day work (Dolmans & Tigelaar, 2012). The level of detail the authors provide when describing research findings and their implications for application may be one contributing factor. Premachandra and Lewis (2020) found that only approximately 64% of published peer-reviewed literature on psychological interventions reports enough information in order for practitioners to implement the interventions accurately.

The sheer number of theories, coupled with limited guiding criteria for choosing an appropriate theory and limited information to allow researchers and practitioners to compare theories in order to choose the appropriate one, might also play an important role in the poor, oversimplified and limited use of theories (Birken et al., 2017; Hastings et al., 2020)

While the theory-user factors that are mentioned earlier could play a part in the perception that theory is not practically useful, it is worth noting that theories are typically meant to be applied within the borders of specific conditions (i.e., it is only relevant within a narrow field of

experience), and this may contribute to the divide that is observed between practice and theory (Kaplan, 1964/2017). In their review of interventions for the promotion of medication adherence, Van Dulmen et al. (2007, p. 55) noted that “there are other theoretical models that seem plausible for explaining non-adherence, but not very effective in improving adherence behaviour”. This reveals an interesting observation that while some health behaviour theories may be very useful at explaining or describing a particular behaviour, they may not be effective when applied in real-world or experimental environments to address that behaviour.

While this disconnect between the theory and the real world may be because the particular theory is over-simplistic, vaguely described or false (i.e., it does not account for all the concepts, relationships and processes that really underly the behaviour), another reason could be linked to the original purpose for which psychological theories were developed and their underlying ontological and epistemological assumptions of theories. Gaj (2018) highlights the fundamental difference between understanding reality and changing reality⁶². Psychology primarily sought to understand behaviour and social processes. However, over time growing interest in psychological knowledge as a way to change and control phenomena has been placing mounting pressure on the discipline. It has revealed several conceptual and methodological limits to what psychological science can accomplish in a practical sense (Gaj, 2018).

Considered on a deeper level, I would argue that different theories are inherently based on different assumptions about the world, human nature, and how scientific knowledge should be structured. Theories based on positivist assumptions that value prediction and control as functions of scientific knowledge may be better suited to predict (and possibly control) behaviour. Conversely, theories based on more interpretivist-leaning assumptions that value understanding and describing events may explain a particular phenomenon very well, but may fall short when it is expected to inform interventions aimed at behaviour change. Moreover, theories which are aimed at describing and predicting individual-level phenomena cannot be directly applied to higher, macro-level phenomena and be expected to be valid and deliver the same depth of understanding, utility and accuracy. In this regard, Gaj (2018) warns against the uncritical transfer of theories or methods that originated or that was applied in one setting to other settings.

⁶² As Kurt Lewin famously said: “if you want truly to understand something, try to change it”

5.7.3. Enduring Conceptual, Methodological and Theoretical Challenges

Related to the challenges of theory usage in the social sciences are the unique conceptual, methodological and theoretical challenges which emerge when one studies social and psychological phenomena. Social science subject matter is inherently different to the phenomena which are studied in the natural sciences⁶³. Reynolds (1971/2007) identifies five key challenges inherent to studying social and psychological phenomena. These challenges include: a.) the complexity of phenomena and behavioural interventions; b.) construct confusion and the lack of intersubjective measurement strategies for abstract concepts; c.) the challenges involved in studying social and behavioural phenomena in unnatural or closed system settings; d.) the vulnerability of the research process to the subjective opinions, values and belief systems of scientists and those who fund and commission research; and e.) the unique ethical issues to consider when researching people (Reynolds, 1971/2007).

5.7.3.1. The complex nature of social and psychological phenomena and behavioural interventions

The first problem is that social and psychological phenomena are produced through complex inter-relationships between numerous variables and processes, which may be subtle and difficult to identify and isolate for study (Goroff et al., 2018; Reynolds, 1971/2007). Theory aims to simplify and organise social phenomena, while the real world is complex and disordered. This simplified representation of reality may obscure subtle inter-relationships and create the impression that the theory does not fit or adequately explain the causal mechanisms at play. As mentioned earlier, theories should be parsimonious, yet capable of handling complexity; however striking a balance between simplicity and intricate complexity is difficult (Kaplan, 1964/2017; Reynolds, 1971/2007).

When tasked with evaluating behavioural interventions, scientists are often faced with the challenge of identifying and isolating specific practical theory-based components in an intervention. The complexity of many behavioural interventions (especially those that utilise combination prevention approaches) makes it difficult to determine which theoretical aspects of the intervention were responsible for the intervention's outcomes and how the intervention should be refined to be more effective (Van Dulmen et al., 2007). As mentioned earlier⁶⁴, comparing theories or aspects of different theories is not a simple matter, given the inherent

⁶³ See Bhaskar's notion of concept dependence in Chapter 4, under the heading 4.3. *Ontological and Epistemological Positioning*.

⁶⁴ Under heading 5.6.2. *Comparing and Choosing Between Theories*.

differences between theories. As a result, a limited number of publications outline theory comparisons. The lack of empirical studies that explicitly compare theoretical components and theories further complicates the matter (Van Dulmen et al., 2007).

The context in which psycho-social phenomena are studied can markedly influence the effectiveness of behavioural programmes or strategies (Earl & Lewis, 2019; Goroff et al., 2018). Hence, what may seem to work in one context, may not work in another. This lack of generalisability and inability to successfully scale up promising behavioural interventions are ongoing frustrations for both social scientists and practitioners.

Moreover, behaviour and many other important psychological outcomes (such as life satisfaction, attitudes, values, and well-being) do not change within a short time period. Instead, it may take several years, if not longer, to truly understand what variables reliably predict and influence behavioural and psycho-social outcomes. Most empirical studies on behavioural and psycho-social outcomes are cohort studies or experimental studies that only span a short time. While such studies provide interesting results, they also leave us with many unanswered questions, such as the direction of the observed effects and the temporal relationships amongst the variables (Levenson, 2017).

Some outcomes from behavioural change programmes may appear “changed” during and immediately after the intervention, but this change may not be sustained over time. The majority of behavioural programmes do not have monitoring and evaluation frameworks that allow for the long-term evaluation of the program after it has been concluded and thus do not examine the sustainability of their interventions. As a result, the longitudinal study of psychological phenomena is not conducted nearly as often as it should be. This is disheartening, given that prediction and the useful application of psychological knowledge is a key priority in Psychology, which could benefit greatly from longitudinal scientific work. The lack of longitudinal data impedes theorising in the field, as the collection of comprehensive, long-term data could be valuable in getting a deeper understanding of how (and if) theories reliably predict psycho-social behaviours over time and what other factors may play a role in those behaviours (Levenson, 2017).

5.7.3.2. Construct confusion and the lack of intersubjective measurement strategies for abstract concepts

The second challenge is that Psychology deals mostly with hypothetical variables, which, by their nature, are abstract (i.e., not directly observable or tangible) and hence difficult to

measure. Social scientists create abstract concepts (hypothetical constructs) and measurement strategies which will allow them to measure these abstract concepts in concrete environments. Hypothetical constructs can be simple and unidimensional, comprising of only one component (i.e., one defining feature); however, mostly, they tend to be complex, multidimensional and consisting of multiple components (i.e., multiple defining features) (Whitley et al., 2013).

It remains challenging to develop valid and useful intersubjective measurement strategies for abstract concepts that can be used consistently with a high degree of validity (Reynolds, 1971/2007). While there should be clarity between constructs and their relationships with reality (i.e., conceptual clarity) (Gaj, 2018), several psychological and related behavioural constructs have been identified as being poorly defined and conceptualised as well as insufficiently operationalised. An early example of this is *aspiration*, which was considered an important construct for explaining a wide range of behaviours by psychologists in the 1930s and 1940s, but it quietly fell out of favour over time (e.g., Meehl, 1978). More recent examples of unclear constructs include *resilience* (e.g., Luthar et al., 2000), *loneliness* (e.g., McHugh Power et al., 2018), *creativity* (e.g., Unsworth, 2001), *entrepreneurial mindset* (e.g., Zappe, 2018), *group cohesion* (e.g., Carron & Brawley, 2000), *mindfulness* (e.g., Grossman & Van Dam, 2011), *early childhood adversity* (Smith & Pollak, 2021), and *self-esteem* (e.g., Judge & Bono, 2001).

Hypothetical constructs are, per definition, hypothetical and hence cannot be directly observed or measured, nor can it necessarily be absolutely certain that they even exist (or at least exist in the way that we have conceptualised them). Many psychological constructs (as well as constructs from other social sciences) are defined in divergent, circular and ambiguous ways, have vague boundaries, and many concepts overlap markedly with other similar concepts to the point where they become conflated with (and practically indistinguishable from) each other (Zagaria & Zennaro, 2020). For example, *loneliness* is often conflated with other concepts such as *social isolation*, *lack of social support* and *low social connectedness* (McHugh Power et al., 2018). Moreover, psychologists may fall into the trap of concretising hypothetical concepts reified (i.e., treating them as if they are real things) when they might, in reality, be placeholders for an entirely different thing or set of processes. It is also not uncommon to see new concepts emerge in the literature that are essentially old concepts that have been reformulated (e.g., Fonseca et al., 2019). This leads to the proverbial “reinvention of the wheel” and, instead of building upon and growing the field’s existing knowledge, contributes to scientific stagnation (Kruglanski, 2001).

Given the diversity and ambiguity of concept definitions, one cannot help but wonder if a.) the concept truly exists, b.) whether we really understand what this concept is, and c.) whether the concept is at all useful or valuable within research and intervention settings⁶⁵. The primacy that empirical data seems to have over theory in Psychology might be one contributing factor to the uncritical use of constructs (i.e., the data a construct yields is considered valuable to such an extent that social scientists are willing to disregard the theoretical and conceptual inconsistencies underlying the construct). Construct confusion leads to the inconsistent measurement of the concepts and the divergent application of it in applied settings; and, consequently, might be one of the reasons why behavioural interventions fail to be effective in real-world settings (McHugh Power et al., 2018).

How we conceptualise and thus theorise about a phenomenon has a crucial impact on how we choose to study the phenomenon and how we apply scientific knowledge in real-world contexts. For example, our conceptualisation of behavioural maintenance (including how habits and behaviours are formed and maintained) constrains how we develop health behaviour change interventions and therapeutic programmes (e.g., Rothman, 2000). A limited, one-sided understanding of phenomena will lead to a limiting and ineffective theory and practical application. The uncritical acceptance and reification of hypothetical constructs are likely at the heart of this issue. Moreover, conceptualising a construct as a unidimensional construct when it most likely entails multiple components could be another contributing factor to this matter.

5.7.3.3. Vulnerability to participant manipulation

The third problem with studying social and psychological phenomena is that the study process is vulnerable to participant manipulation (Reynolds, 1971/2007). Under observation, people tend to adjust their behaviour and may even feel obliged to adjust their behaviour in response to subtle demand characteristics present in the research context (Orne, 1962). Even though care might be taken to ensure that the study environment is as natural and neutral as possible, the research setting inevitably creates an unnatural (i.e., closed-system) scenario to some extent (Bhaskar et al., 2010). Within the field of HIV, this is a common problem when studying sexual risk behaviour through self-report measures, such as during the study of compensatory risk behaviour in PrEP and vaccine trials.

⁶⁵ In this regard, E.O. Wilson's quote comes to mind: "Sometimes a concept is baffling not because it is profound but because it is wrong".

In addition, given the personal nature of psycho-social research, laypersons can identify with the content and compare their experiences with social science theory and research. This creates a unique situation where laypersons may object to certain social science research findings or theories if it appears to be different to their personal experiences and beliefs (Reynolds, 1971/2007). Although this may not necessarily affect the study of social and psychological phenomena, it has an effect on how social science research is accepted by society and applied in programmes.

5.7.3.4. Lack of regard for the value-laden nature of theorising and research

The fourth challenge relates to how subjective opinions, values and belief systems influence the theorising and research processes (Reynolds, 1971/2007). Although attempts are made to keep research as value-free and objective as possible, the reality is that social scientists' preconceived ideas and belief systems can easily shape essential aspects of their research, including their choice of the study topic, research methods and interpretation of the research findings. The same can also be said for individuals in positions of power at research institutions, universities, government departments, intergovernmental organisations and funding organisations. Their value systems can play an agenda-setting role in what study topics obtain funding for research, the methods and approaches used to study those topics, what research findings are implemented into mainstream practice and policy and what scientific knowledge gains broad recognition inside and beyond the scientific community.

Theories themselves are also implicitly based upon assumptions and values which may influence, amongst other things, which phenomena are worthwhile and important to study; what the social benefits of research should be; how concepts should be defined and measured; how participants should be involved in the research process; the extent to which internal and external validity should be sought and preserved; as well as how the research findings should be interpreted and used (McKenna, 2006). Philosophical beliefs and values can profoundly influence empirical research and theorising. In this regard, Wood et al. (2018) argue that using a theory without taking its origins and assumptions into account can lead to shallow theory use (i.e., theory use that lacks depth) and lead to empirical research that is disconnected (and not aligned with) its underlying theory.

5.7.3.5. Ethical considerations

The fifth challenge involves the unique ethical issues which need to be considered when studying human behaviour (Reynolds, 1971/2007). Specific study designs may yield insightful

results but are not ethical to conduct. Moreover, special precautions may be needed when studying sensitive research topics or when research participants are considered vulnerable (Reynolds, 1971/2007). This may restrict the extent to which certain theories can be tested.

From an ethical point of view, it is also important to keep in mind that theorising and using theories have real consequences for the beneficiaries of theory-informed interventions. It thus also serves as an important reminder that the use of theory should be done in a responsible, ethical and professional manner in order to avoid constructing programmes and interventions that are irrelevant, harmful or ineffective (Gaj, 2018).

5.8. Meta-Theoretical Analysis

Meta-theoretical analysis (also referred to as meta-theorising) refers to the reflexive and systematic study of theory (Ritzer, 1990b). As López (2003) explains:

...meta-theoretical arguments, in the field of social theory, are aimed at establishing the mode of existence of those causal mechanisms that are social in nature (social ontology), how it is possible that we can have knowledge of them (epistemology), and what the techniques, procedures and processes are that we should deploy in order to produce said knowledge (methodology).
(p. 77).

Whereas the previous discussion on theory evaluation focused mostly on analysing the traits of a theory as well as their visibility in the literature, meta-theoretical analysis aims to study a theory (and collections of theories) at a deeper level. Although meta-theorising may have originated out of, and is best associated with, Sociology, meta-theorising has been applied in Psychology (e.g., Madsen, 1988; Meehl, 1992; Royce, 1978) and several other disciplines, such as Management and Organisational Studies (e.g., Burrell & Morgan, 2017; Johnson & Duberley, 2000) and Nursing (e.g., Fawcett, 1986/1999).

There are four approaches to meta-theorising, distinguished from each other based on their outcomes. Ritzer (1990b) identified three types of meta-theorising. The first and best-known type of meta-theorising is meta-theorising as a means of attaining a deeper understanding of a theory (M_U) which is meant to yield comprehensive insight into the theory. M_U may extend beyond a study of theories to also include theorists and the wider community and contexts that surround the theory's use and development (Ritzer, 1990b). The second is meta-theorising as an introduction to theory development (M_P), which aims to lay a proper foundation for

developing a new theory. The third is meta-theorising as a source of perspectives that overarch theory (M_O), which is meant to produce an overarching perspective (i.e., a meta-theory), which encapsulates all theories in a field or at least a section of theories in a particular discipline (Ritzer, 1990b). Colomy (1991) adds a fourth type of meta-theorising, namely meta-theorising as adjudication (M_A), which entails using a set of explicit and universal criteria to evaluate competing scientific approaches' competing claims and their analytic merit.

Meta-theoretical analysis intrinsically recognises that there are various competing philosophies and research programmes within the social sciences. This competition between worldviews and approaches can lead to the intellectual isolation of scientific communities and knowledge and distort our view of which arguments are better suited to advance scientific knowledge. Meta-theorising addresses this distortion by identifying, studying and evaluating the theories and philosophical assumptions of different social scientific approaches (Colomy, 1991). The meta-theorising welcomes conceptual pluralism; however, it also calls for the scientist to assume an objective and appraising stance. This aligns with Bhaskar's (2010) notion of judgemental rationality – to evaluate competing explanations and varying accounts of social phenomena, thereby clarifying our thinking about how we understand our research subject matter and the way it influences our research and the conclusions we draw from our findings.

5.8.1. Approaches to Meta-Theoretical Analysis

There is a wide selection of criteria that a scientist could potentially use as a structure for their meta-theoretical analysis. It is not necessarily practical or useful to use all possible criteria; hence, many meta-theoretical studies focus on specific areas of concern. Most meta-theoretical studies explore the underlying assumptions of a discipline or subject matter through its use of theories by conducting an in-depth study of the relevant literature. The study of underlying assumptions could be left open-ended or structured around specific criteria or a formal meta-theoretical framework. Such frameworks generally attempt to organise theories along continuums or categories (typically along prominent dichotomies or established conceptual demarcations), such as agency and structure, internal and external, subjective and objective, personal and subpersonal, and micro and macro distinctions.

One example of such a meta-theoretical framework could be created by using a socio-ecological model to organise theories according to the ecological level at which they are directed. Goldman and Schmalz (2001) provide some guidance in this regard by highlighting that the factors that compromise health can be located on different socio-ecological levels and

that different theories can help explain socio-behavioural phenomena on each of these levels and suggest ways to intervene on each of these levels, as illustrated in Figure 5.8.

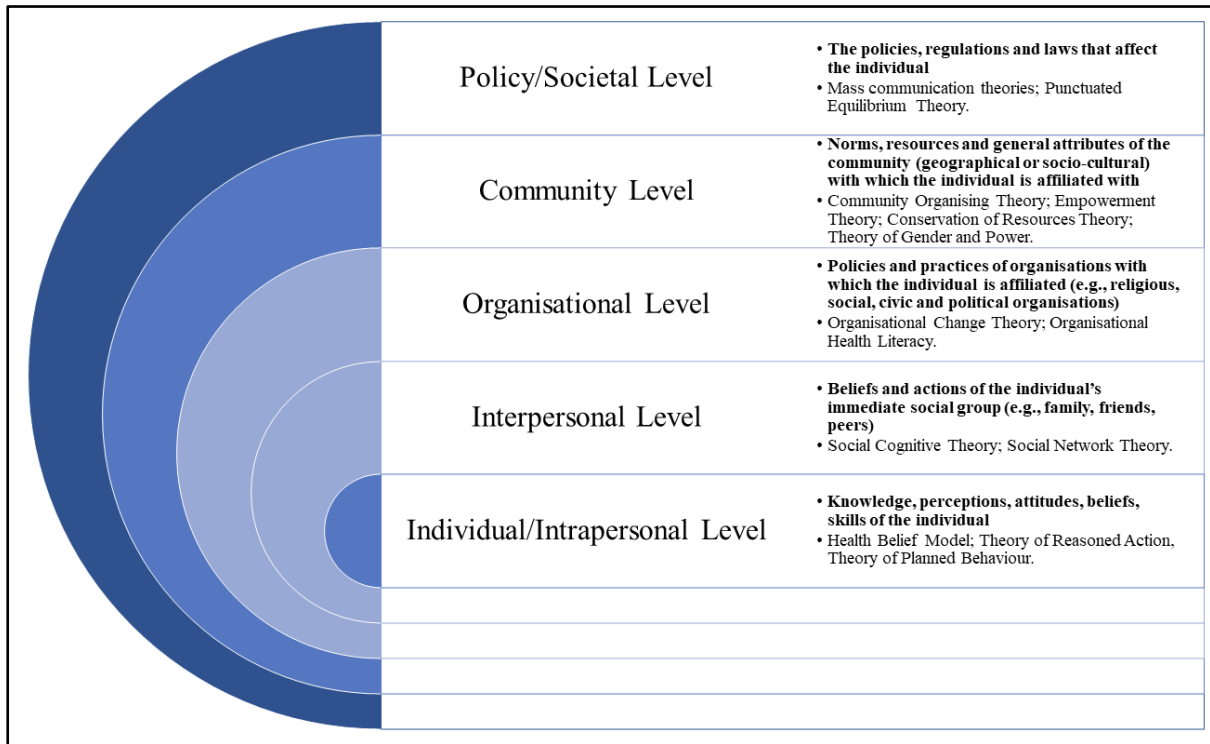


Figure 5. 8 A Socio-Ecological Meta-Theory of Health, based on Goldman and Schmalz (2001, p. 277)

The individual (intrapersonal) level involves the individual's knowledge, perceptions, attitudes, beliefs and skills and is addressed by theories such as the Health Belief Model. The interpersonal level entails the beliefs, values and actions of the individual's immediate social group, such as family members and friends and is addressed by theories such as the Social Cognitive Theory. The organisational level relates to the policies, practices and culture within the organisations with which the individual is affiliated (such as religious and political organisations) and is addressed by theories such as the Organisational Change Theory. The community level relates to the norms, attributes and resources of the geographical and/or cultural community of which the individual is a member. Theories that address the community level may include the Empowerment Theory and the Community Organising Theory. At the highest level is the policy (societal) level, which involves the laws, regulations and policies that directly and indirectly affect the individual and can be addressed by a theory such as the Mass Communication Theory (Goldman & Schmalz, 2001).

Burrell and Morgan's (2017) framework, which originates from the Organisational Sciences, situates theories on four continuums, namely ontology (realism to nominalism), epistemology (positivism to anti-positivism), human nature (determinism to voluntarism) and methodology (nomothetic to ideographic). Although the four continuums produce a comprehensive view of theory, it seems as if the framework itself does not allow for deeper analysis and examination of how the continuums are interrelated to each other. Another example includes Whittington's framework (1988), which places theories in one of four quadrants depending on their assumptions regarding the environmental structure and human agency (see Figure 5.9).

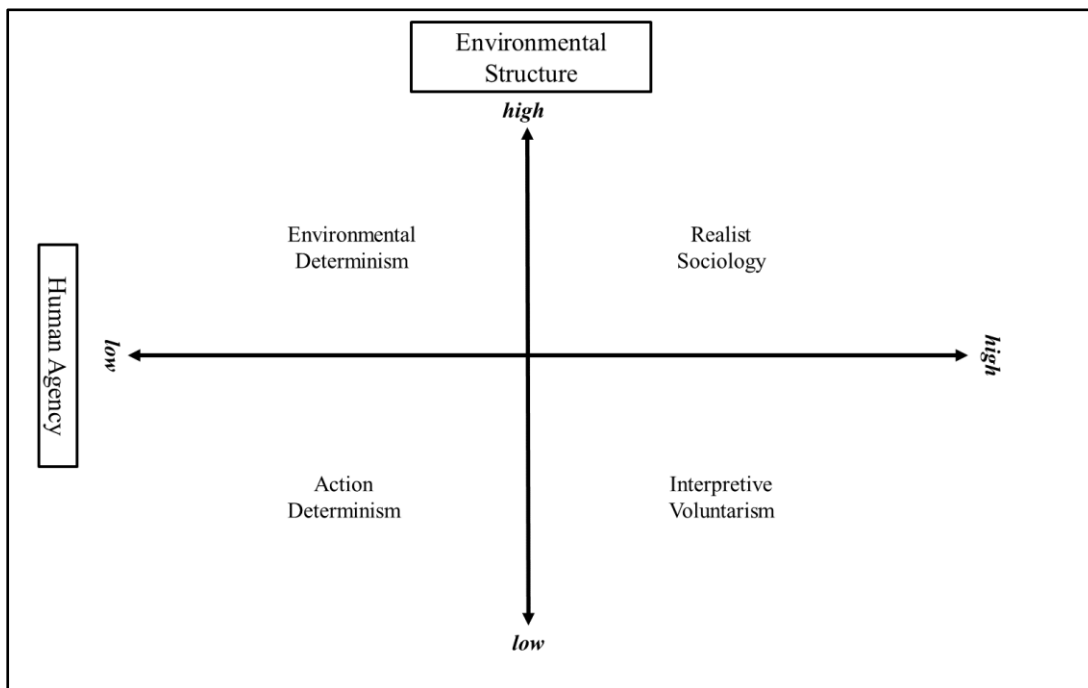


Figure 5. 9 Whittington's framework (1988, p. 524)

Similarly, Babcock and colleagues developed a meta-theoretical framework for analysing Evolutionary Systems Theory (Babcock, 2012) and their Hierarchically Mechanistic Mind Theory (Babcock et al., 2019). Their meta-theoretical analysis outlines four levels. On the first level, the theory is assessed in terms of its level of analysis (including its focus on proximate versus distal factors), the paradigm (sub-field of Psychology) it falls under, and the scientific disciplines which are associated with it. On the second level, it explores the domain of inquiry (research problem area) on which it focuses, the specific middle-range or meta-theories that may form part of the theory (if the analysis is about a meta-theory or broader set of theories), and the core hypotheses that are associated with the theory. The third level explores the

temporal⁶⁶ and systemic⁶⁷ domains of the theory. The fourth and final level examines the specific research methods that are suitable and epistemologically aligned with the theory.

Tsuneo Watanabe (2010) designed a metascientific framework (see Figure 5.10) as a basis for which to better understand pluralism in Psychology. The metascientific framework is comprised of two levels: the epistemological and methodological levels. The epistemological level represents the dichotomy between studying human behaviour from an internal, first-person perspective and studying human behaviour from an external, third-person perspective. The methodological level represents the dichotomy between conducting research with the purpose of explaining phenomena (typically with an impersonal approach) and conducting research with the purpose of understanding phenomena (typically with a second-person approach) (Watanabe, 2010).

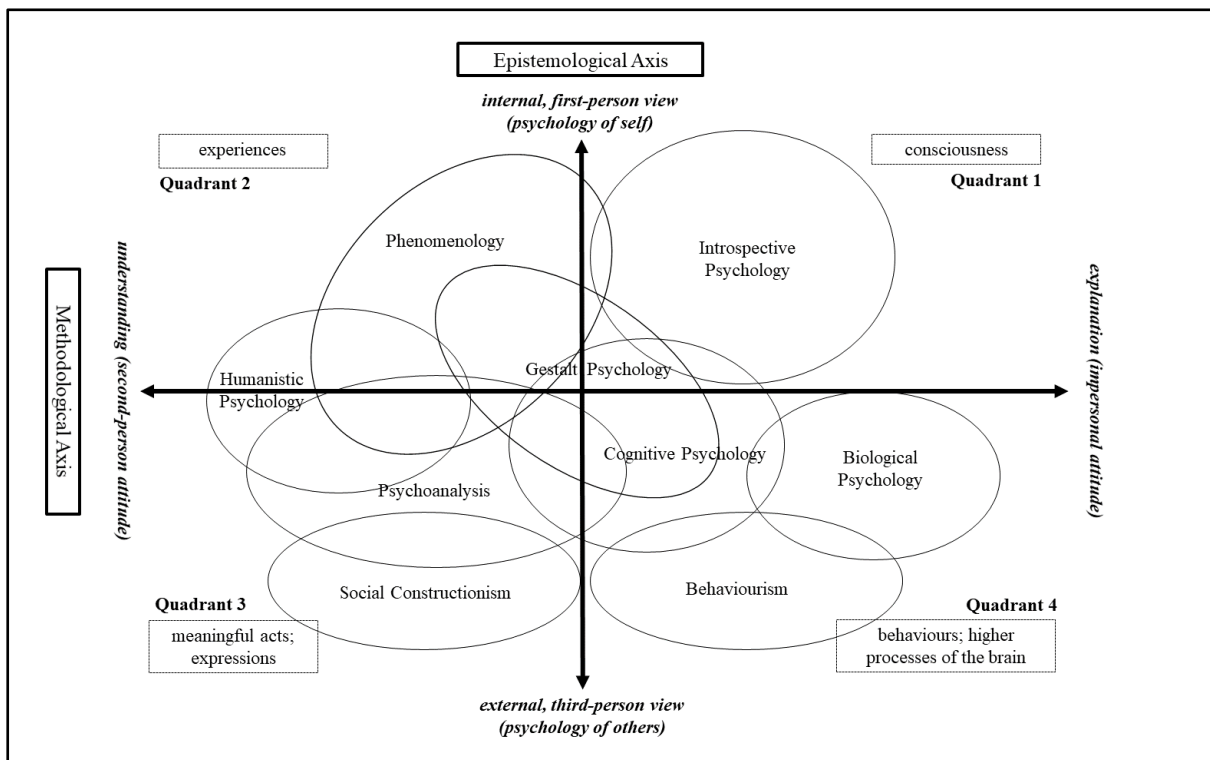


Figure 5. 10 Watanabe (2010, p. 257) Historical Trends in Psychology

The two meta-scientific levels form a two-dimensional (four-quadrant) framework that is then overlaid with the major trends (in some cases, perhaps also viewed as paradigms) in

⁶⁶ The temporal domain refers to the way the temporal perspective of the theory, that is, whether it describes real-time processes, developmental processes, intergenerational processes or evolutionary processes (Babcock, 2012).

⁶⁷ The spatial (or diversity) domain refers to the socio-ecological and/or systemic level on which the theory focusses. This may include, amongst others, the individual and individual differences, between group differences, dyadic relationships, groups, the individual in context (Babcock, 2012).

Psychology. The first quadrant, which favours the internal, first-person perspective and explanation, denotes the study of consciousness. The second quadrant, which favours the internal, first-person perspective and understanding, denotes the study of experiences. The third quadrant, which favours the external, third-person perspective and understanding, denotes the study of meaningful acts and expressions. The fourth quadrant, which favours the external, third-person perspective and explanation, denotes the study of behaviours and higher processes of the brain (Watanabe, 2010, p. 257).

The placement of theories and trends along continuums of meaningful dichotomies can be very useful to describe a theory and compare multiple theoretical approaches. However, this type of framework does not, on its own, allow for deeper analysis of the theory, nor does it allow access to the different components of a theory and the inter-relationships between its philosophical underpinnings, its theoretical statements, methods and empirics. The latter is important in order to connect ontology, theory and method with each other – as stressed by Margaret Archer (1995) – and to conduct a more comprehensive review of the theory. Hence, a meta-theoretical analysis should preferably be expanded to assess the linkages between assumptions, theories and empirical methods and data. K.B. Madsen’s (1988) Systemology is one of the most well-known meta-theoretical frameworks in Psychology in this regard.

5.8.1.1. Systemology

K.B. Madsen describes science as “the social-cultural system of individuals who are engaged in empirical research, theoretical, and philosophical thinking. It produces scientific texts which, in their complete versions, include three levels of abstraction: the philosophical metalevel, the theoretical hypothetical level, and the empirical data level” (Madsen, 1987, p.168). Madsen, who was strongly influenced by the philosophical work of Thomas Kuhn and the theoretical research of Sigmund Koch, developed a keen interest in studying meta-scientific theories, particularly psychological theories (Madsen, 1987). Madsen’s further research on the philosophy of science (specifically Psychology) yielded his unique interpretation of metascience and how Psychology develops as a scientific discipline⁶⁸. This led to the development of *Systemology* – a meta-theoretical framework which allows for the systematic classification and analysis of scientific theories. The Systemology framework is visualised in Figure 5.11 below.

⁶⁸ As briefly described earlier under the heading 5.2.2.1. *Paradigms and the Maturation of Scientific Disciplines*.

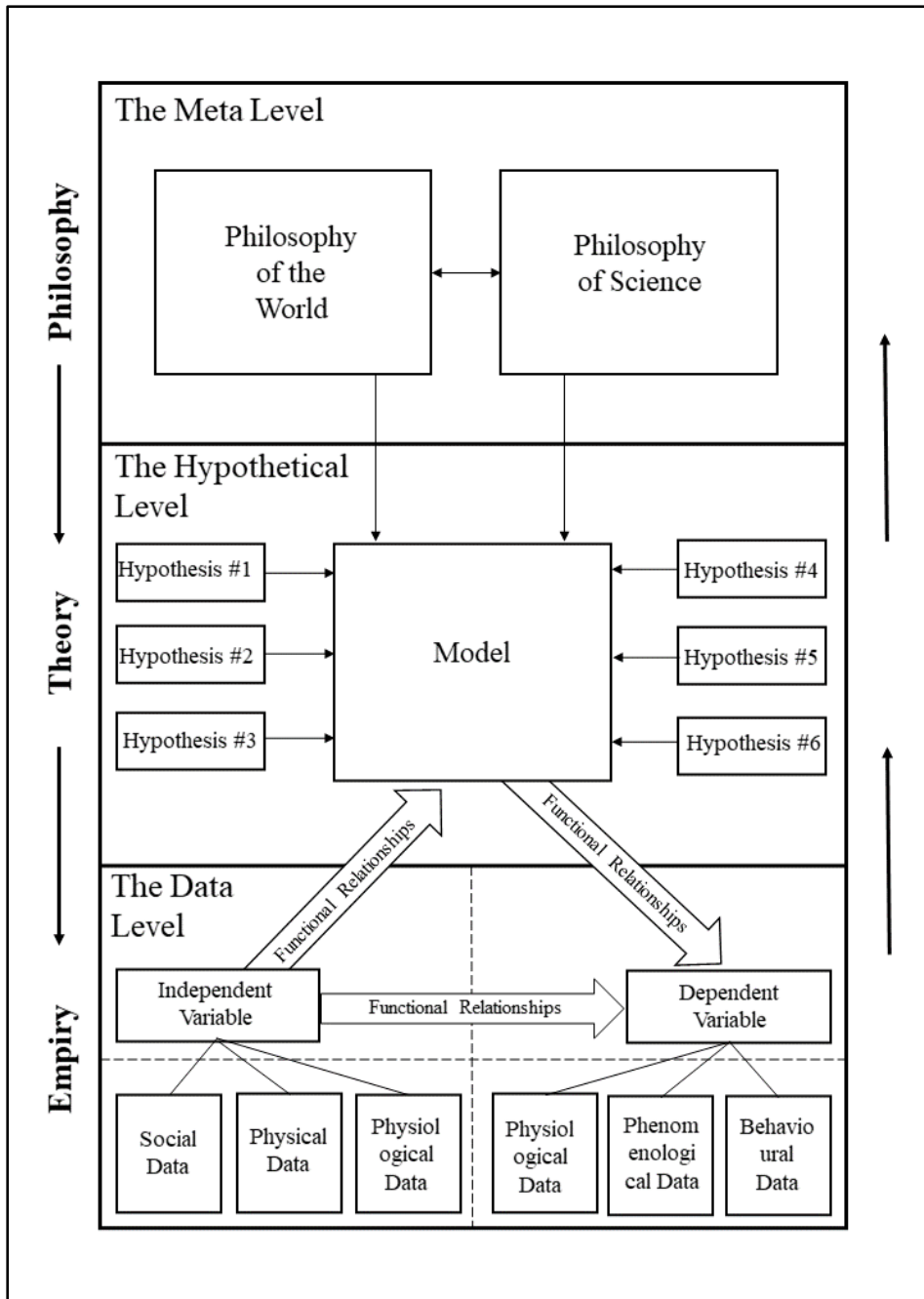


Figure 5. 11 The Hierarchical Structure of Theory (Madsen, 1988, p. 29)

The Systemology framework is divided into three strata (or levels of discourse), namely the meta-level (which includes the theory’s ontological and philosophical underpinnings), the hypothetical level (which includes the theory’s hypothetical terms, scientific hypotheses, its hypotheses system and the resulting theoretical model), as well as the empiry (i.e., data) level (which includes the theory’s use of abstract and concrete data) (Madsen, 1988). It is worth mentioning that these strata differ in abstraction to a general degree and that the level of

abstraction within stratum may also vary. These strata align with Madsen's (1988) broad definition of theory, described earlier in this chapter⁶⁹.

The strata can be further classified based on a.) the processes of which the stratum is a product of; b.) the type of language that is used to describe theses within the stratum; and c.) the purpose of the stratum. This is outlined in Figure 5.12.

Criterion of classification Level of Discourse	<i>Producing Processes</i>	<i>Linguistic Category</i>	<i>Purpose (Function)</i>
<i>Meta-stratum (meta-theses)</i>	<i>Philosophical (divergent, creative, intuitive thinking)</i>	<i>Transempirical descriptive language + prescriptive language</i>	<i>Creation of basis of understanding or meta-model</i>
<i>Hypothetical-stratum (hypotheses and model)</i>	<i>Theoretical (convergent) thinking</i>	<i>Descriptive language with transempirical terms</i>	<i>Systematisation of information (explanation and interpretation)</i>
<i>Data-stratum (data-theses)</i>	<i>Empirical research (perception)</i>	<i>Purely descriptive language</i>	<i>Presentation of data (information)</i>

Figure 5. 12 Classification Criteria (Madsen, 1988, p. 28)

As far as producing processes are concerned, the meta-stratum is a product of philosophical and divergent thinking; the hypothetical-stratum is a product of theoretical and convergent thinking; whereas the data-stratum is the product of empirical research. From a linguistic perspective, the meta-stratum can be described as consisting of philosophical statements that use transempirical-descriptive and prescriptive language; the hypothetical-stratum entails propositions that use transempirical language; and the data-stratum consists of statements that only use descriptive language. Lastly, the purpose of the meta-stratum is to create a conceptual framework wherein the hypothetical- and data-strata can be housed. The purpose of the hypothetical-strata is to organise empirical information through explanation or interpretation. The purpose of the data-stratum is to present the data or knowledge, either as descriptions of specific cases or generalised descriptions of phenomena (Madsen, 1988).

⁶⁹ As outlined under the heading 5.3. *Defining Theory*.

a.) The meta-stratum

As stated earlier, the meta-stratum encompasses the ontological (i.e., meta-theses about the world) and philosophical (in particular, the meta-theses about the philosophy of science) belief systems. Madsen (1988, p. 30) therefore, refers to it as the “overall, steering stratum”, which determines to a large degree what the two other stratum will involve. The ontological meta-these may pertain to the conception of man, psycho-physical theory and human freedom of action (Madsen, 1988). The conception of man classification may distinguish between meta-theses that have a.) a purely biological conception of man (i.e., the theses focus on humans as a product of biological processes); b.) a social conception of man (i.e., the theses focus on humans as a product of societal and social processes); and c.) a humanistic conception of man (i.e., the theses focus on humans as a product of the culture which they create for themselves).

The psycho-physical theory aspect of ontological meta-theses centres around the theses position regarding prominent ontological dualisms, such as mind-body (materialism versus spiritualism), consciousness and brain, and panpsychism and pluralism. A sliding scale can be used to place ontological meta-theses with regard to these dualist positions. The human freedom of action classification seeks to position meta-theses in relation to the degree to which they follow a deterministic or indeterministic view of human action (Madsen, 1988).

The philosophical meta-theses can be classified into three types: epistemological, meta-theoretical, and methodological. Epistemological theses are often implied and not explicitly stated, unless it involves a radically different approach than what is currently the mainstream position. Epistemological meta-theses can be categorised in terms of their position on the origin of cognition (i.e., whether they adhere to an empiricist, rationalist or intuitionism position) and how they understand the relationship between human cognition and reality (i.e., whether they follow a realist, idealist or instrumentalist belief system) (Madsen, 1988).

Meta-theoretical theses concern themselves with scientific theories' development, structure and purpose. To this end, meta-theoretical theses can be broadly categorised as following the nomothetic ideal (i.e., the position that the social sciences should follow the example of physics when conducting scientific activities); the hermeneutic ideal (i.e., the position that the social sciences should focus on understanding and understanding through interpretation instead of explanation); or the idiographic ideal (i.e., the position that the social sciences should focus their attention on the descriptive analysis of individual cases) (Madsen, 1988).

Methodological theses are often the most clearly stated theses in theory publications. Methodological theses focus on the research methodology (i.e., research design, approach, data collection and analysis methods) and the data language that is congruent with the theory's epistemological and meta-theoretical positions. Data language refers to the language that is used to describe the subject matter (including the research participants, observations, variables and research findings) and could entail a.) highly subjective and descriptive phenomenological language; b.) objective and physicalist behaviourist language; or c.) detailed and impersonal physiological language (Madsen, 1988).

b.) The hypothetical-stratum

The Hypothetical stratum can be subdivided into three parts, namely the hypothetical terms, the scientific hypotheses, and the hypothesis system. Hypothetical terms refer to the words that are used to refer to and describe unobservable phenomena (i.e., hypothetical constructs). Hypothetical terms are more abstract than empirical terms and descriptions. Hypothetical terms can be further delineated based on the position or purpose of the term, including whether a variable is dependent, independent, intervening, moderating or mediating. Moreover, hypothetical terms can be classified based on their ontological position, namely mentalistic (i.e., terms that refer to cognitive and mental processes), organismic (i.e., terms that refer to biological or physiological processes and systems), or constructive (i.e., terms that refer to thought constructs, unobservable, constructed processes). Hypothetical terms can also be organised according to their existential form, namely as process-terms (i.e., the terms are used within the context of an explanatory context to describe processes or changes in a system) and structure-terms (i.e., the terms are used within the context of an explanatory context refer to static structures). The function of hypothetical terms can also be used to distinguish between different terms. To this end, hypothetical terms could be dynamic (i.e., processes and structures that mobilise, activate or motivate, such as drives, motives and needs), directive (i.e., processes and structures that control, organise or regulate, such as perception and knowledge), or vector (i.e., processes and structures that are both activating and controlling, such as instincts) (Madsen, 1988).

The scientific hypotheses refer to the testable abstract statements or presuppositions of a theory. They are more concrete and testable than meta-theses, yet more abstract and generalisable than data-theses. Madsen (1988) distinguishes between scientific hypotheses based on their ontological positioning, namely functional hypotheses (i.e., hypotheses which propose an effect or function of a hypothetical structure, or the functional, causal or non-causal,

relationship between one or more hypothetical variables); historical hypotheses (i.e., hypotheses which describes or explains the historical development of a system or process); and existential hypotheses (i.e., hypotheses which propose the existence of a hypothetical structure or process which later assumes a functional of historical purpose in order to describe or explain an observable concept). Scientific hypotheses can also be categorised from a meta-theoretical perspective. To this end, scientific hypotheses can be classified as theoretical hypotheses (i.e., hypotheses that are only comprised of hypothetical terms) or empirical hypotheses (i.e., hypotheses which include at least one descriptive term that represents an independent or dependent variable) (Madsen, 1988).

The hypothesis-system functions as a way to organise the information that has been obtained through empirical research. Depending on a theory's meta-theoretical perspective, its hypothesis-system may lean towards a nomothetic explanation or hermeneutical explanation. A nomothetic explanation may take two forms: deductive explanatory systems or model explanations. Deductive explanatory systems explain an individual event, observation or case by viewing it through a general law or regularity. Hence this system follows deductive logic. Model explanation involves using analogies, metaphors, signs, formulas, diagrams or schema to explain a phenomenon or event that is unknown and typically also directly unobservable. Model explanations can be classified based on their degree of abstraction, namely material (i.e., a physical three-dimensional object), graphic (i.e., a two-dimensional diagram or map), simulation (i.e., a process or structure that is simulated by means of a software programme), and mathematical (i.e., mathematical symbolic systems). Model explanations can also be organised based on their purpose, namely descriptive models (i.e., the model offers a descriptive representation of the process or phenomena), explanatory models (i.e., the model offers an explanation for the process or phenomena with the use of hypothetical variables), and meta models (i.e., the model is rooted in the meta-stratum and provides a broad, overarching explanation of a process or structure) (Madsen, 1988). Madsen does not provide guidance on examining hermeneutic or idiographic explanation systems.

c.) The empiry-stratum

The empiry-stratum is centred around empirical data and is thus the most concrete of all the strata. Madsen (1988) distinguishes between two data sub-strata, namely the abstract data stratum and the concrete data stratum. The abstract data stratum entails the general descriptive, measurable and abstract data-theses and places emphasis on the empirical relationships between empirical variables. To this end, empirical relationships can be functional

relationships (i.e., relationships between independent and dependent variables) and correlations (i.e., relationships between two or more dependent variables).

The concrete data stratum consists of concrete (i.e., specific) data theses. Given the specificity of such data theses, it is typically used to describe specific cases or concrete data such as phenomenological, behavioural or physiological data (Madsen, 1988).

Madsen further proposes a way to calculate the theory's hypothesis quotient. The hypothesis quotient is meant to indicate the testability, and hence potential explanatory power, of a theory. The score is calculated based on the number of theoretical and empirical constructs a theory has. The formula for calculating the HQ score is as follows:

$$HQ = \frac{\Sigma(H - H)}{\Sigma(H - S) + \Sigma(H - R)}$$

H – H signifies the total number of theoretical constructs, whereas H – S and H – R signify the total number of stimulus and response constructs, respectively. The lower the hypothesis quotient score, the more testable a theory is deemed to be. This approach to assessing a criterion of theory is akin to Meehl's (1990) corroboration-verisimilitude theory appraisal index and the behaviourist' tradition of using equations and symbols to identify variables and demonstrate interactions between variables. While this technique may be useful for creating an objective basis from which to compare theories, it should be noted that testability is one of many criteria for a good theory⁷⁰ and that, especially in the case of theories which place a greater emphasis on understanding, rather than explanation and prediction, testability may not be an appropriate criterion as they may not be empirically verifiable. To this end, other criteria, such as pragmatic utility, coherence, clarity, and the production of novel insights, could serve as more appropriate criteria.

While the Systemology framework is described as a top-down process where meta-theses directly dictate what the hypothetical and empiry strata should entail, Madsen (1988) readily acknowledges that there is, in reality, an interactive relationship between the strata and that empirical facts can lead to the revision of hypotheses and the eventual adjustments of meta-theses.

⁷⁰ As discussed under the heading 5.6.1. *Criteria for Evaluating Theory*.

Madsen’s (1988) Systemology allows one to study theories individually by analysing the relationships between and within each abstraction level and comparing similar or competing theories within the meta-theoretical framework with each other.

5.8.1.2. Ladder of theoretical abstraction

Smith and Liehr’s (2014) ladder of theoretical abstraction (see Figure 5.13), which was initially developed out of the field of Nursing, provides a similar meta-theoretical approach to Madsen.

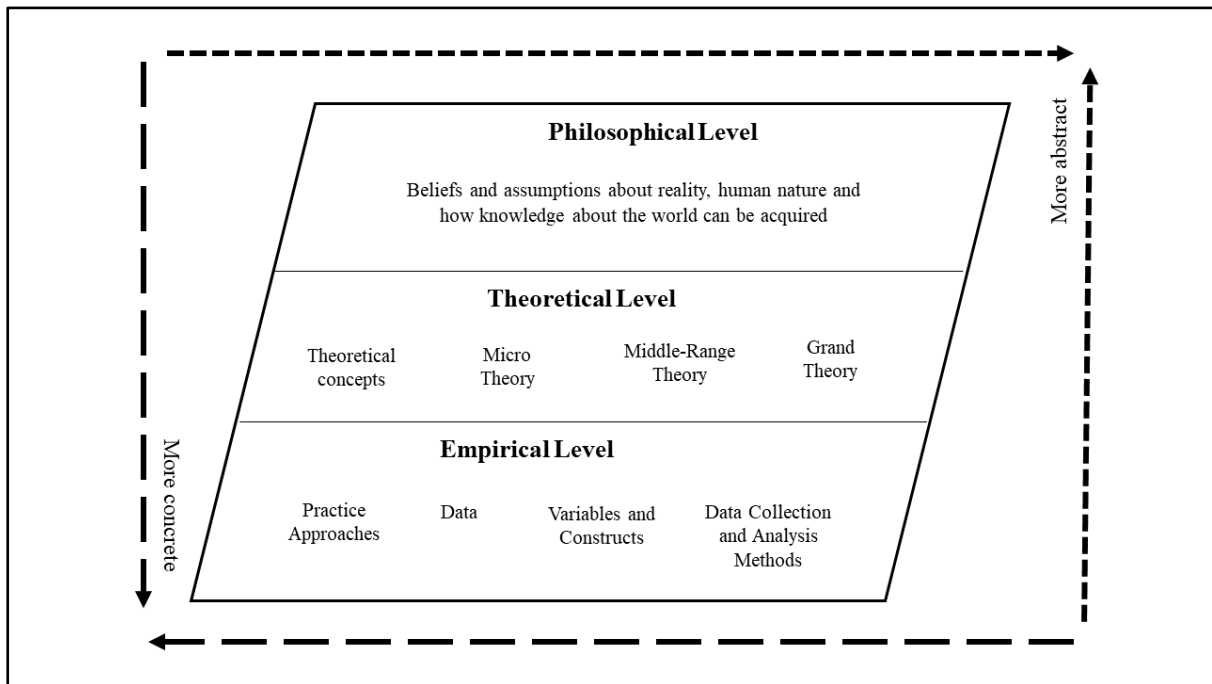


Figure 5. 13 Ladder of Theoretical Abstraction, attenuated from Smith and Liehr (2014, p. 16)

The Ladder of Theoretical Abstraction is comprised of three rungs, namely the philosophical, theoretical and empirical levels. Smith and Liehr (2014, p. 15) describe the rungs as representations of “distinct ways of describing ideas”. The philosophical level includes the fundamental underlying beliefs and assumptions and lays the foundation for reasoning within a theory’s theoretical and empirical levels. The theoretical level entails theories (of different levels of abstraction, theoretical constructs and statements. The empirical level is the most concrete of all the levels. It entails the methods that are used to observe and measure phenomena, the data that is collected from such efforts, as well as the approaches we use to apply the theory in practice. The framework can be used to conduct a meta-evaluation of individual theories and compare several theories with each other (Smith & Liehr, 2014).

5.8.1.3. Studying theory interconnectedness

Another approach that could also be viewed as a meta-theoretical study of theory is to analyse theories to determine how they are connected and may have contributed to each other's development. Michie et al. (2014) conducted an analysis of 82 behaviour change theories that were identified through a previous theory scoping review that was published by Davis et al. (2015). Michie et al. (2014) conducted a comprehensive literature study of those 82 theories to identify which theories may have contributed to the development of other theories. Network analysis was performed to integrate the literature study results, leading to the creation of a network map which depicts the linkages between all theories and network maps for individual theories. The investigators found that the theories which contributed the most to the development of other behaviour change theories included: The Self-Efficacy Theory (which contributed to 23 theories), the Theory of Planned Behaviour (which contributed to 17 theories), the Health Belief Model (which contributed to 13 theories), and the Social Cognitive Theory (which contributed to 12 theories) (Michie et al., 2014).

5.8.2. Meta-Analysis: Critiques, Challenges and Opportunities

Meta-theorising has been criticised for being too abstract, vague and philosophical, inevitably leading to lengthy unproductive discussions about long-standing and unresolvable issues. Moreover, meta-theorising has been criticised for its emphasis on commentary and critique while producing virtually no original work. The detractors, therefore, conclude that meta-theoretical analysis may be of limited practical use and may even be counterproductive in stimulating theory testing and development (e.g., Ritzer, 1988).

I would argue that while interest in meta-theorising was relatively high around the 1970s and 1980s (judging by the publication dates of seminal meta-theoretical work), it appears as if meta-theorising has not remained a consistent priority in the social science community. Given the limited and haphazard way meta-theorising takes place, progress in refining meta-theoretical analytical methods and linking them back to empirical research remains slow. The dispersed and ad hoc nature of meta-theoretical studies contributes to the impression that meta-theorising does not produce useful results and is a purely philosophical endeavour.

The critique also reflects a general opinion that theoretical work is too abstract and slow-moving to produce useful insights, whereas empirical research and a closer focus on data and novel data analysis techniques will yield actionable results more quickly. As discussed

earlier⁷¹, this belief is misguided as data and research without theory are likely to be less meaningful and do not provide a foundation on which to grow a discipline or the study of a particular subject matter (Danermark et al., 2019; Knapp, 2009). When the philosophical, methodological, and theoretical underpinnings of a discipline are underappreciated, social scientists may fail to realise how these implicit understandings and taken-for-granted practices influence how they perceive and interpret the phenomena which they are studying and how they conduct their research and how it influences their findings and their interpretations thereof (Ogden, 1995). In study fields where multiple paradigms are used, and especially where there appears to be a competition for dominance amongst paradigms, a meta-theoretical analysis could provide helpful clarification of the paradigms' philosophical positions, correct misunderstandings, encourage healthy scepticism of new (and old) approaches and promote greater awareness of the importance of theorising in a time when scientists may have become disillusioned with theory (Lukka, 2010; Proulx & Morey, 2021; Slife & Williams, 1997).

Meta-theoretical analysis, and in particular the Systemology framework of Madsen (1988), could be criticised for being more suited to theoretical frameworks that appear to stem from a behaviourist and cognitivist tradition (i.e., theories which handle empirical, observable data and consist of theoretical statements that are testable). Conversely, the Madsen framework may not be well suited for analysing theories that are more reliant on unobservable concepts, untestable statements and hermeneutical explanation systems.

Although the Systemology framework provides a very detailed and organised map for the analysis of theory, it may at times seem a bit reductionistic in the way it identifies and analyses each component of a theory. It may be useful to conduct such a fine-grain analysis of theories; however, depending on one's goal for the meta-theoretical analysis, it may be more productive to examine theories in a slightly less detailed, but still meaningful manner. Desirable criteria for theory, as well as subject matter-specific concerns, may be valuable components to add to such a meta-framework.

A preliminary review of the study literature indicates numerous theories that are not clearly articulated, even in their original source material, to allow for a clear delineation of their data, hypothesis and meta-levels. For example, some prominent theoretical concepts in Psychology are treated as theories, although they are essentially only a single construct and do not

⁷¹ As discussed earlier in this Chapter under the heading 5.5.1. *Monological versus Dialogical Theory-Research Relationships*, and in Chapter 1 under the headings 1.3. *Research Problem* and 1.4. *Justification*.

necessarily have a fully-fledged theory attached to them (e.g., locus of control). However, these constructs are typically housed within a grand theory or paradigm, which one can potentially draw upon for meta-theoretical analysis.

5.8.3. Conclusion

Meta-theorising offers scientists the opportunity to examine and review their study field's theories critically and to make the conceptual and philosophical assumptions that they have about phenomena and events explicit. Instead of unconsciously using a theory, scientists are challenged to reflect upon their use of it and be willing to question whether the theory is serving its purpose in their field of study. With this in mind, we now move the focus to theorising in the socio-behavioural study of HIV-AIDS.

5.9. Theorising in the Socio-Behavioural Study of HIV and AIDS

In 1977, George Engel published a landmark paper in which he challenged the dominant position of the biomedical model of disease in health care and proposed a new model to understand and treat illness (Engel, 1977). Instead of attributing illness to a single, biological cause, Engel proposed that a more appropriate approach would be to include the psychological, behavioural and social aspects of illness. Based on Systems theory and the hierarchical organisation of organisms, Engel (1977) constructed the Biopsychosocial Model, which proposes that, in order to better understand disease, scientists should consider, not only physiological factors, but also psychological and social factors. In response to the changing patterns of illness globally⁷², as well as this growing realisation of the important influence that behavioural and social factors can play in health and illness, interest in the behavioural study of health grew (Matarazzo, 1980).

Health Psychology emerged in the late 1970s to bring a more profound understanding of the “psychological influences on how people stay healthy, why they become ill, and how they respond when they do get ill” (Taylor, 2003, p. 3). A growing interest in the social and structural determinants of health in recent years has expanded the scope of health behaviour research to include community- and society-level phenomena that impact the individual's health (Nezu et al., 2003).

⁷² Most notably the rise in lifestyle-based diseases (e.g., heart disease) and other diseases driven by human behaviours as the leading causes of global mortality (Michie et al., 2014).

Prior to the development of the Health Psychology speciality, psychologists were interested in how unhealthy behaviours can be prevented and stopped as well as how healthy behaviours could be promoted. For example, Kurt Lewin (1943) conducted research on how to encourage people to eat more healthy food even though the food was considered unappetising. Research on health-related concerns has also contributed to knowledge generation and theory development in Psychology. For example, the initial research on fear appeals as a way to change undesirable behaviour was partly based on preventing the formation of unhealthy dental habits (Janis & Feshbach, 1953). Part of the motivation behind the development of the Cognitive Dissonance Theory (Festinger, 1957) was to understand how people continue to engage in unhealthy behaviour (e.g., smoking) when they know that it is harmful to their health (Klein et al., 2015).

The study of health behaviour has since expanded significantly to include a myriad of psychosocial health issues such as stress and coping, addiction, sexual and reproductive health, pain management, and lifestyle diseases, to name only a few (Nezu et al., 2003). The study of health behaviour is multi-disciplinary and diverse, both in research and in practice. Hence, the field draws upon various theoretical approaches (DiClemente et al., 2009).

The advent of HIV and AIDS in the early 1980s brought a new challenge for psychologists both from an applied and basic research perspective. Given the lack of effective medical treatment early on in the pandemic and the evident social complexity and infectious nature of the disease, it became clear early on that research into the socio-behavioural aspects of HIV would be crucial in order to curb the spread of the disease (Fisher & Fisher, 1992). The initial focus was mostly on HIV prevention by promoting healthy behaviours (i.e., non-risky behaviours) and educating the public and at-risk groups about HIV and AIDS. Over the years, as the epidemiology of the disease changed and bio-medical treatment options expanded, the focus started to include other concerns such as quality of life, coping, stigma, risk compensation and treatment adherence.

The study of HIV and AIDS has brought together a wide selection of disciplines, making the HIV field a highly multidisciplinary study area. A wealth of information has been gathered over the last 40 years about the individual, interpersonal, community, institutional and structural factors that play a role in HIV-related behaviour. Figure 5.14 summarises the factors influencing HIV-related behaviour and behaviour change at each socio-ecological level.

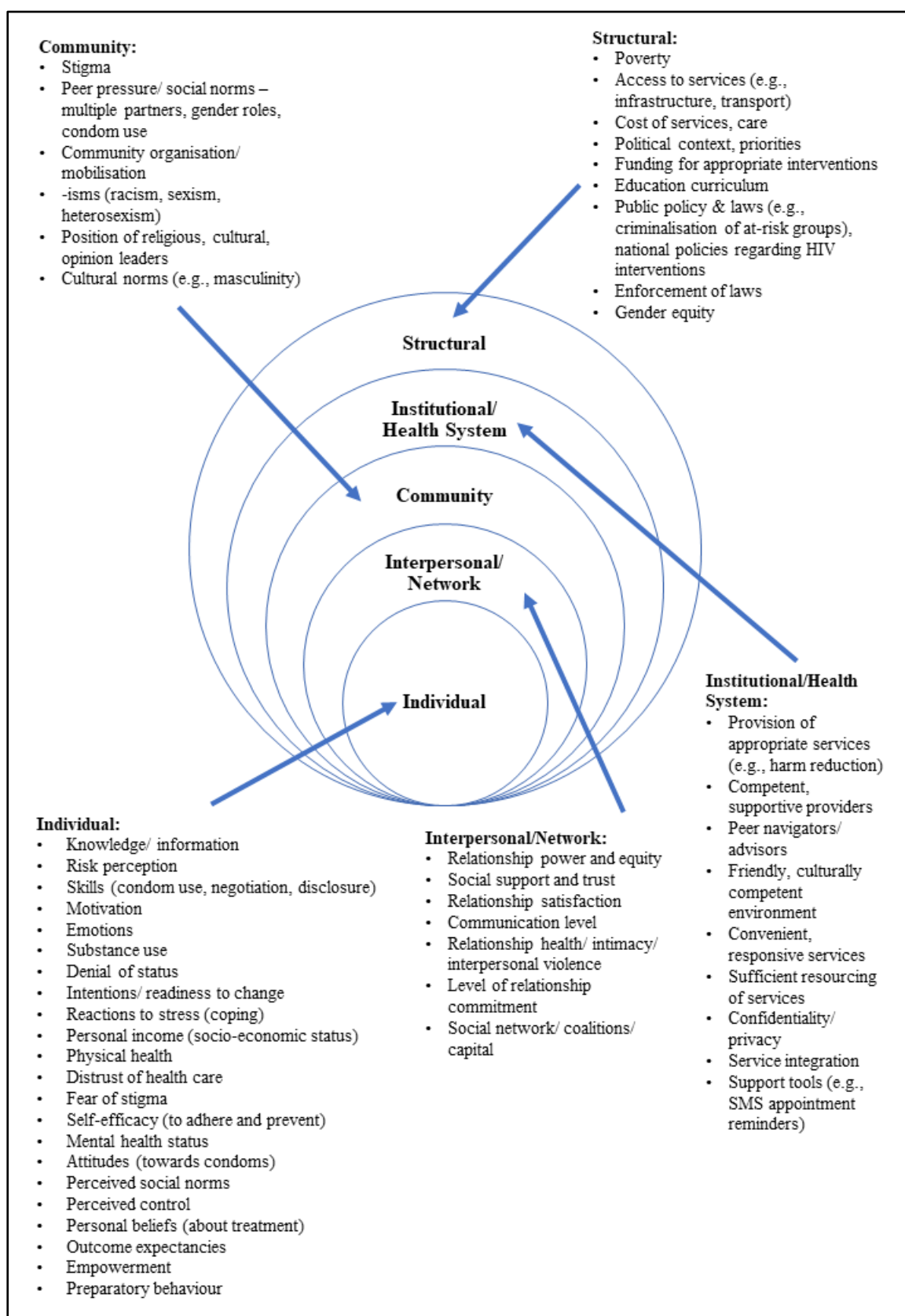


Figure 5. 14 Factors influencing HIV-related behaviour and/or behaviour change at each socio-ecological level (Kaufman et al., 2014, p. s251)

5.9.1. Initial Theorising Response

In 1992, the National Institute of Mental Health (NIMH) conducted a theorist workshop with five prominent psychologists who were either the creators or leading proponents of the five most important theories in the field of Psychology, in particular health behaviour. These experts included Albert Bandura (Social Cognitive Theory), Marshall H. Becker (Health Belief Model), Martin Fishbein (Theory of Reasoned Action), Frederick Kanfer (Theory of Self-Regulation and Self-Control) as well as Harry Triandis (Theory of Subjective Cultural and Interpersonal Relations). The purpose of the workshop was to review the leading theories that have been applied to the study of HIV and AIDS up to that point and to determine a finite list of variables (which cut across all or most of the five theories) that should be recommended for the inclusion in HIV behavioural analysis research and practice⁷³.

The theorists conclude that, despite the wide range of potentially applicable theories, three theories dominated the current study of HIV and AIDS, namely the Social Cognitive Theory, the Health Belief Model and the Theory of Reasoned Action⁷⁴. However, the theorists felt that the Theory of Subjective Cultural and Interpersonal Relations could serve as competition for the Theory of Reasoned Action and that the Theory of Self-Regulation and Self-Control could be competition for the Health Belief Model (Fishbein et al., 2001).

The theorists highlighted the important difference between theories which predict behaviour and theories that describe behaviour change. Whereas theories of behavioural prediction identify determinants which influence whether a behaviour is performed or not, theories of behavioural change specify the process by which behaviour is changed (e.g., the Transtheoretical Model). These two types of theories can be utilised in a synergistic manner to identify behaviour change factors, which could then serve as markers for particular points in the behavioural change process. Identifying these determinants of behaviour change can therefore serve as an essential first step in guiding further research on health behaviour change within the context of HIV and AIDS (Fishbein et al., 2001).

⁷³ The results of the workshop were compiled into the following report: Fishbein, M., Bandura, A., Triandis, H. C., Kanfer, F. H., Becker, M. H., & Middlestadt, S. E. (1992). Factors influencing behavior and behavior change (Report prepared for the National Institute of Mental Health). Bethesda, MD: National Institute of Mental Health. A slightly revised version of the report was subsequently published in Fishbein, M., Triandis, H. C., Kanfer, F. H., Becker, M., Middlestadt, S. E., & Eichler, A. (2001). Factors influencing behavior and behavior change. In A. Baum, T.A. Revenson, & J.E. Singer, (Eds.), *Handbook of Health Psychology* (pp.3-18). Psychology press.

⁷⁴ The Theory of Reasoned Action was later expanded into the Theory of Planned Behaviour and several years thereafter synthesised and refined into the Reasoned Action Approach (Fishbein & Ajzen, 2010)

The theorists identified eight variables that they considered to be the most important determinants of any behaviour, namely:

1. Intention – The individual must make a commitment or have a strong intention to perform the behaviour.
2. Environmental constraints – There must be no environmental constraints which hinder the individual from performing the behaviour.
3. Skills – The individual must possess the necessary skills to perform the behaviour.

Fishbein et al. (2001) consider the first three variables as necessary and sufficient for causing any behaviour. The remaining five variables can also influence behaviour directly; however, they are mostly considered to serve as determinants of the direction and strength of the intention to perform the behaviour.

4. Anticipated outcomes (or attitude) – The individual must be convinced that the benefits of performing the behaviour outweigh the potential costs of performing the behaviour. Essentially, the individual must have a positive attitude towards performing the behaviour.
5. Norms – There is more social pressure on the individual to perform the behaviour than not to perform the behaviour.
6. Self-standards – The individual believes that performing the behaviour is aligned with their personal standards and self-image and that performing the behaviour will in no way violate their standards or cause them to think negatively of themselves.
7. Emotion – Performing the behaviour elicits more positive than negative emotions from the individual.
8. Self-efficacy – The individual is confident in their ability to perform the behaviour successfully in various scenarios (Fishbein et al., 2001, p. 5).

While consensus was reached on these variables, the theorists could not agree on what the inter-relationships between these variables are, what mediating or moderating roles may be played by some of these variables or how they are causally ordered to produce behaviour (Fishbein et al., 2001).

5.9.2. Novel Theory Development

While the Social Cognitive Theory, Health Belief Model, and the Theory of Reasoned Action and Planned Behaviour remain dominant in the study of HIV and AIDS, other theories have

been developed or refined in response to the unique aspects of the epidemic. The AIDS Risk Reduction Model (Catania et al., 1990) and the Information-Motivation-Behavioural Skills Model (Fisher & Fisher, 1992) are two prominent examples of new theories that were developed with the specific purpose of explaining HIV prevention behaviours. The latter theory was later further refined to apply specifically to ART adherence and aptly named the Information-Motivation-Behavioral Skills Model of Antiretroviral Adherence (Fisher et al., 2008). Amico (2011) also built upon the Information-Motivation-Behavioral Skills Model to develop a theoretical framework which can be used to guide the development of interventions that support medical care use, namely the *Situated-Information Motivation Behavioral Skills Model of Care Initiation and Maintenance*.

Romer and Hornik (1992) developed the Social Consensus Model of Health Education based on their critique of the mainstream cognitive-behavioural theories in the study of HIV. Connell's (1987/2013) Theory of Gender and Power was adapted by Wingood and DiClemente (2000) to serve as an applicable theory for studying the factors that place women at risk for HIV. Balmer (1991) proposed a unified theory of HIV and AIDS counselling that is rooted in several behavioural, psychoanalytical and humanistic theories of counselling.

5.9.3. Reviews of Theory Use in the HIV Literature

Although numerous systematic reviews and meta-analyses have been conducted regarding the socio-behavioural study of HIV, few specifically examined theory visibility and utilisation, and even fewer systematically reviewed theory usage trends over time; instead, many typically aggregated their findings to summarise theory use over a long time period.

The following is a summary of the most notable reviews which remarked on the use of theory in the HIV literature, organised according to topic (including HIV prevention, adherence, well-being and stigma) and date of review. Reviews of international papers are discussed first, followed by a discussion of papers that focus exclusively on South Africa. All studies discussed in this section pertain to adults unless stated otherwise.

The majority of papers limited their reviews to the HIV prevention literature. Most studies found Socio-Behaviourist theories to be the most often used theories in the literature, in particular Social Cognitive Theory. Similar to the Health Psychology literature, the bulk of the socio-behavioural literature on HIV seems to draw upon Social Cognitive Theory and other theories in the Socio-Behaviourism paradigm (Painter et al., 2008; Rhodes et al., 2019).

While some review papers (e.g., Covey et al., 2016) found theory-based research and interventions to be more effective than non-theory-based programmes, the evidence was not always clear and not all studies specifically compared programme efficacy based on theory.

5.9.3.1. Theory use in the international HIV-prevention literature

Kalichman et al. (1996) performed the first meta-analysis of theory-based HIV prevention interventions. They found that social-cognitive-based theories mostly informed the interventions and that they have been applied across a broad spectrum of prevention programmes. The effectiveness of the theory-based interventions was found to be acceptable and indicative of a promising approach to changing behaviour. However, the investigators noted that the effect size of most of the programme's effectiveness was small and, at best moderate and were the most prominent if the outcomes were measured soon after (or during) the intervention. The investigators concluded that the low to moderate effect sizes are similar to the results obtained from comparable studies on other forms of health behaviour and that certain methodological issues should be addressed to ensure more accurate studies of theory-based HIV prevention programmes. These methodological issues included high participant attrition rates, low intervention dosages, outcome measures that are reliant on self-report and may carry inherently different meanings or perceptions of risk for different types of people, and a lack of long-term follow-up data (Kalichman et al., 1996).

Coleman and Ford (1996) reviewed the HIV prevention programme literature in order to, amongst other things, study theorising in the field. They found that although the literature clearly drew heavily upon Socio-Behaviourist theories, few studies explicitly mentioned the use of any theory. Moreover, the investigators could not find much evidence of theory refinement based on HIV prevention programme evaluation. They also noted that the authors of many of the reviewed programmes noted that the cognitive-behavioural and educational programmes appeared to be limiting. Consequently, Coleman and Ford (1996, p. 331) recommended that “there is much to be gained from collaboration between theoretically grounded researchers and those responsible for designing and evaluating programmes”.

Albarracín et al. (2005) conducted a meta-analysis of 354 HIV-prevention interventions that were conducted during or before 2003 in order to test the major theoretical assumptions of behaviour change. Half of the reviewed interventions were explicitly based on a theory. Moreover, interventions that were based on theory were more likely to yield positive behaviour change results. The investigators found that the most successful interventions emphasised

education, attitude change, behaviour skills development and training. Conversely, interventions that utilised fear appeals were found to be the least effective. The effectiveness of interventions was also found to be reliant on condom use and certain contextual and demographic characteristics of the participants (e.g., gender, age, ethnicity). Thus, demonstrating that other risk-group traits may mediate the extent to which certain behavioural and cognitive factors influence behaviour change.

Durantini et al. (2006) conducted a meta-analysis of the effectiveness of different types of HIV interventionists in condom-use promotion programmes. Out of the 98 papers that met the study's inclusion criteria, approximately half of the interventions explicitly reported the use of theory. Moreover, interventions offered by expert interventionists and theory-based interventions were found to be the most effective (Durantini et al., 2006).

Noar (2007) conducted a synthesis of meta-analyses of HIV prevention interventions that were published during or before 2007. Although the exact nature of "theory-based intervention" was not always clear, Noar (2007) found that the number of interventions that were based on theory increased over the years. Based on a comparison of efficacy between theory-based and non-theory-based interventions, Noar (2007) concluded that there is evidence to suggest that theory-based HIV prevention interventions are more effective than interventions that are not based on theory. Research regarding the effectiveness of specific theoretical components suggests that participants' self-efficacy may be more effective in facilitating behaviour change than their perceived risk. Moreover, skills training was found to be an important part of HIV prevention, thus indicating that beyond a change in knowledge, attitudes and motivation, people need to also have a sense of self-efficacy and skills in order to change their behaviour successfully.

Kirby et al. (2007) reviewed the international academic literature on the impact of HIV and sex education programs on the sexual behaviour of young people. The review included articles from 1990 to 2007. The investigators found that almost 83% of articles which met their inclusion criteria utilised at least one theory, either explicitly or implicitly. The Social Cognitive Theory was the most frequently reported theory, followed by the Theory of Reasoned Action, the Health Belief Model, the Theory of Planned Behavior, and the Information-Motivation-Behavioral Skills Model. Although the investigators did not specifically compare theory efficacy, they found that many of the reviewed articles reported improvements in psycho-social variables (such as knowledge, values, attitudes, perception of

risk, intentions, and self-efficacy), which are identified by the above-mentioned theories as important determinants of sexual behaviour.

Delissaint (2008) analysed the quality of theory used in the literature on prenatal HIV testing in the USA. The analysis focused on peer-reviewed articles that were published between 1981 and 2007. The researchers used a theory utilisation scoring scheme which allowed for papers to be labelled as: not having used theory, some evidence of theory use, inferred (i.e., unclear) use of theory (or theoretical constructs), and clear identification and/or operationalisation of theory (or theoretical constructs). Only five papers met Delissaint's inclusion criteria. Three out of the five papers did not appear to have used theory. One paper inferred the use of theory but failed to articulate the way that theory informed the research process explicitly. Only one paper clearly articulated and operationalised theory.

Napierala Mavedzenge et al. (2010) conducted a systematic review of the effectiveness of youth-focused HIV prevention interventions in sub-Saharan Africa that was published between January 2005 and December 2008. The systematic review focused on interventions that targeted young people between the ages of 10 and 24 and that had a sample size of at least 100 people. In addition, interventions had to be evaluated at least three months after the inception of the intervention; the evaluation had to include biological, sexual behaviour and health facility use outcomes; and had to utilise an experimental or quasi-experimental study design, or comparable cross-sectional design which included a concomitant comparison group or a pre- and post-analysis of an intervention group (Napierala Mavedzenge et al., 2010). A total of 11 interventions fit these criteria, including five interventions from South Africa, three from Kenya, and one each from Uganda, Zimbabwe and Tanzania. Although not specifically reviewing theory use, Napierala Mavedzenge et al. (2010) found that eight out of the 11 interventions explicitly reported using a theory. Social Cognitive Theory was the most often used theory, followed by the Theory of Reasoned Action, Socio-Ecological Theory, Diffusion of Innovations, the Health Belief Model, Adult Education Theory and Freirian Critical Pedagogy. Although few studies provided descriptions of the theoretical assumptions that their interventions were based upon, none explicitly tested these assumptions. Moreover, while nine out of the 11 interventions utilised peer-based education strategies, none of the studies explicitly linked the process through which peer education will contribute to behaviour change to the study's underlying theory (Napierala Mavedzenge et al., 2010).

Michielsen et al. (2012) reviewed peer-reviewed journal articles published between 1990 and 2012, describing interventions aimed at reducing sexual risk behaviour amongst the youth in sub-Saharan Africa. The investigators found 34 studies that met their inclusion criteria. Almost 75% of the reviewed studies reported the explicit or implicit use of at least one theory. A total of 19 theories were mentioned; the most often-mentioned theory was the Social Cognitive Theory (13 out of 34 studies). Other theories that were also utilised were the Health Belief Model, the Theory of Reasoned Action, the Theory of Planned Behaviour, as well as other unspecified behaviour change and stage theories (Michielsen et al., 2012). Articles which did not explicitly specify a theory were reviewed, and the investigators found that most of those articles appeared to be based on the cognitive-behavioural theoretical tradition, working from the assumption that cognitive processes, including knowledge, attitudes, beliefs and observational learning from role models, determine sexual behaviour. Hence, most interventions focused on the individual, although a small number of the articles did include some social- or community-level factors. The investigators note that while interventions based on the cognitive-behavioural theoretical tradition may help to change behavioural intentions, motivations, attitudes and perceptions, this does not directly lead to changed behaviour. Hence, theories based on cognitive-behavioural assumptions of behaviour change may miss a crucial aspect of behaviour change.

Most reviewed articles only reported using theory to inform the intervention content, while a smaller proportion reported using theory for both the intervention content and to structure the evaluation of the intervention. The Social Cognitive Theory was the most popular theory for informing intervention content, while the Health Belief Model, the Theory of Reasoned Action, and the Theory of Planned Behaviour were mostly used for evaluating interventions. The investigators were unable to ascertain whether there was any difference in the effectiveness of interventions from different theories, nor whether there was a difference in the effectiveness of theory-based versus non-theory-based interventions (Michielsen et al., 2012). Only three articles mentioned reasons for their choice in theory. The investigators could not find a significant pattern in the use of theories over time (Michielsen et al., 2012).

Hampanda (2013) examined the theoretical underpinnings of studies on the barriers to PMTCT in sub-Saharan Africa that were published between 2006 and 2012. Hampanda (2013) found that the majority of studies utilised theories and theoretical constructs that are situated on the individual- and inter-personal socio-ecological levels, in particular, the Health Belief Model, the Information Motivation Behavior model, the Theory of Planned Behavior, the Integrated

Behaviour Model, Empowerment Theory and the Social Network Theory. Hampanda (2013) also noted the predominance of health education and counselling as intervention strategies to promote PMTCT and, drawing upon the Health Impact Pyramid (Frieden, 2010), commented that education and counselling are both likely the least effective public health promotion strategies that social scientists could use. Instead, Hampanda (2012) argues that social scientists should use socio-ecological perspectives and Critical theories, such as the Theory of Gender and Power, that allows for more attention to be placed on societal, institutional, community and structural factors, as these factors may be more effective at causing behaviour change.

Protogerou and Johnson (2014) reviewed the literature on the underlying success factors of effective behavioural HIV-prevention interventions. The investigators found that theory-based interventions were markedly more effective than interventions that were not based on theory. The most commonly used theory in their reviewed literature was the Social Cognitive (Learning) Theory. Other popular theories included the theories of Reasoned Action and Planned Behaviour, the Health Belief Model, the Peer Influence Model, the Information-Motivation-Behavioral Skills Model, the Protection Motivation Theory, and Cognitive Dissonance Theory (Protogerou & Johnson, 2014).

Yin et al. (2014) conducted a meta-analytic review of randomised controlled trials of prevention interventions among people who are living with HIV that was published on or before February 2012. The investigators identified 13 relevant studies, all of which were conducted in the USA. Theories that were most prominent in the literature were the Information-Motivation-Behavioral Skills Model, the Social Cognitive (Learning) Theory, cognitive behavioural coping theory, and the theory of planned behaviour. Yin et al. (2014) did not provide any further information about the visibility or frequency trends of theories in their review.

Fonner et al. (2014) conducted a systematic review and meta-analysis of school-based HIV prevention interventions in low- and middle-income countries. A total of 64 publications from 1990 to mid-2010 met their inclusion criteria. The investigators noted that approximately half of the publications (33 publications) mentioned the use of a theory, either implicitly or explicitly. The most commonly used theories were found to be the Social Cognitive Theory, the Health Belief Model, and the Theory of Reasoned Action (Fonner et al., 2014). Similarly, Sani et al. (2016) conducted a systematic review and meta-analysis of school-based HIV prevention programmes that were conducted before or during March 2016 in sub-Saharan

Africa. Out of the 16 interventions that were reviewed, 14 reported the use of a theoretical framework. The investigators determined that successful interventions were more likely to be theory-based than ineffective programmes. The most commonly cited theory was Social Cognitive (and Learning) Theory followed by Theory of Planned Behaviour (Sani et al., 2016).

Auerbach and Smith (2015) reviewed the theoretical foundations of HIV prevention programmes which focused on at-risk women who abused substances. The investigators identified 32 intervention articles which fit their inclusion criteria – of which 19 explicitly mentioned theory. A total of 43 observational studies were also identified – of which ten explicitly mentioned a theory. The interventions were largely based on Social Cognitive Theory and related cognitive-behavioural theories. However, several interventions utilised Empowerment theory and the Theory of Gender and Power. Amongst the observational study publications, the utilised theories varied and included Social Cognitive and related theories, Social Norms Theory, Syndemics, Systems Theory and Stress and Coping Theory (Auerbach & Smith, 2015).

Garofalo et al. (2016) conducted a critical review of behavioural interventions that aimed to prevent HIV transmission and acquisition amongst transgender women. The investigators focused on studies that were performed in the USA and found a total of five publications which met their inclusion criteria. All five of the articles mentioned the use of theory implicitly and were based on the assumption that the provision of education and information will facilitate behaviour change. No theory specific to transgender or related issues was used in the reviewed studies.

Carrasco et al. (2015) conducted a systematic literature review of peer-reviewed articles which discussed HIV-alcohol risk reduction interventions in the Sub-Saharan Africa region. A total of 19 relevant papers that were published before 2015 were identified. The majority of papers (n = 16; 84.2%) utilised a theory. Socio-Behaviourist theories predominated. The most common theory was the Social Cognitive Theory, followed by the Theory of Planned Behaviour, the Theory of Social Inoculation, and the Information-Motivation-Behavioural Skills model. A total of four studies (21.1%) made use of gender, feminist and empowerment frameworks.

Schrivver et al. (2016) reviewed papers that were published between January 2000 and June 2013 that focused on gender-integrated health interventions in low- and middle-income countries. The majority (n = 67; 68%) of papers were about HIV-related interventions. Out of

the total 99 papers that were included in the review, 42% (n = 21) developed their own conceptual frameworks based on research, stakeholder participation and past experiences. These conceptual frameworks were mostly (n = 17) rooted in transformative approaches. A total of 58% (n = 29) of papers that described a theoretical point of departure used formal theories, most notably the Social Cognitive Theory, Social Behavioural Change Communication, Theory of Reasoned Action, and Information-Motivation-Behavioural Skills model. Rights-based theories, micro-credit and Freirian Critical Pedagogy were also noted (Schriver et al., 2016).

Latifi et al. (2017) conducted a review of theory-based HIV and STI prevention interventions in Iran that were published during or before 2016. The investigators found 13 articles which reported the use of a theory within the context of an HIV or STI prevention intervention. Most articles (8 out of 13) reported using the Health Belief Model, while the remaining articles used the Theory of Planned Behaviour (4 out of 13) and the Self-Efficacy Theory (1 out of 13). The investigators noted that many of the reviewed articles demonstrated methodological and intervention implementation concerns – including incomplete and unclear reporting about research methods and very short intervention time frames (Latifi et al., 2017).

Deuba et al. (2020) reported on a meta-analysis of Nepalese publications from 2001 to 2016, which described HIV prevention programmes that were targeted at key populations (such as sex workers, transgender people and MSM). They found that peer-based behavioural interventions and programmes aimed at promoting VCT services were the most frequently reported in the literature. The most commonly cited theories included the Social Cognitive Theory, the Theory of Reasoned Action, Diffusion of Innovation, the theory of Participatory Education and the Health Belief Model. While these interventions were found to be effective at reducing risky sexual practices, they did not reduce unsafe injection practices amongst those who engaged in injection drug use (Deuba et al., 2020).

5.9.3.2. Theory use in the international adherence literature

Only three studies were identified that explored the adherence literature and remarked on the use of theory. Similarly to the prevention literature, adherence studies that were theory-based were largely based upon Socio-Behaviourist theories.

Munro et al. (2007) reviewed theories that could be used to better understand and predict long-term HIV and TB medication adherence in South Africa and internationally. The investigators reviewed several databases (including MEDLINE, CINAHL, Pre-CINAHL, PsycInfo,

ScienceDirect and ERIC). They searched for meta-analyses and systematic reviews that described health and behaviour theories related to adherence. A total of eleven theories were identified and divided into five groups according to the perspective. The five perspectives included biomedical, behavioural, communication, cognitive, self-regulation and stage perspectives (Munro et al., 2007). The Biomedical Theory was listed under the biomedical perspective, and the Behavioural Learning Theory was listed under the behavioural perspective. The communication perspective did not include a specific theory, but several papers were reviewed that described the use of communication as a key part of behaviour change interventions. The cognitive perspective housed the most theories, including the Health Belief Model, Social Cognitive Theory, the Theory of Reasoned Action, the Theory of Planned Behaviour and the Protection Motivation Theory. The Self-Regulatory Theory was the only theory under the self-regulation perspective, and the Transtheoretical Model was the only theory under the stage perspective (Munro et al., 2007). The investigators assessed the empirical evidence of each theory, in particular, their ability to effectively predict behaviour change and conducted a general literature review of the theories to review each one's potential as a theory to inform adherence promotion in people who are living with HIV and TB. Munro et al. (2007) concluded that there was insufficient evidence to support any of the eleven theories for predicting medication adherence for HIV and TB.

Munro et al. (2007) noted some challenges that they encountered while conducting their review. The authors reported that it was difficult to compare theories due to a lack of empirical data for most of the theories and various methodological problems and inconsistencies in the original studies which tested the theories. The evidence that is available appears to be "fragmented and often contradictory" (Munro et al., 2007, p.115). Moreover, Munro et al. (2007) place a question mark on the applicability of these theories outside of Western and European contexts, given that most of the theories do not place emphasis on socio-cultural factors and may not be sensitive to context-specific issues. The investigators also highlight that health behaviour theories span a wide range of health behaviours and topics, but that this does not necessarily mean that all health behaviour theories will automatically be applied to any health behaviour. The unique aspects of diseases and the psycho-social experiences that are associated with them may mean that certain health behaviour theories are better suited to explaining the behaviour than others. This also means, from a theory evaluation perspective, that evidence of a particular theory's effectiveness in predicting one type of behaviour does not imply that it will be effective in predicting another type of health behaviour. Thus, making

theory comparison more difficult. (Munro et al., 2007). Munro et al. (2007) also highlighted that there is a lack of evidence about the long-term effectiveness of theory-based interventions, especially for TB. Given the relatively short time frames of most research projects, this finding is not surprising.

Adefolalu (2018) conducted a similar literature review of theories that are based on the cognitive perspective of health behaviour that is well-suited to the study of HIV treatment adherence. In particular, Adefolalu (2018) highlighted the Social Cognitive Theory, the Health Belief Model, the Beliefs about Medicine theory, the Trans-Theoretical Model, the Theory of Planned Behaviour, and the Precaution Adoption Process Model. Adefolalu (2018) did not provide further analysis or critique of the theories.

Pellowski et al. (2019) performed a systematic review and meta-analysis of the literature on ART adherence interventions targeted at women. Four of the 14 publications that satisfied the study's inclusion criteria reported the use of theory. The most often cited theories were the Social Cognitive Theory, the Information-Motivation-Behavioural Skills Model and the Self-Regulation Theory. The theories were primarily used to guide intervention content. The investigators noted that, despite the interventions' focus on women, none of the interventions used theories which expressly acknowledge gender differences (Pellowski et al., 2019).

5.9.3.3. The use of theory in the international literature on the mental well-being of people living with HIV

Similarly to literature reviews in the other research areas, studies which examined the literature on the mental well-being of people who are living with HIV primarily drew upon Socio-Behaviourism.

Moskowitz et al. (2009) conducted a meta-analysis of the HIV stress and coping literature, focusing specifically on studies that were conducted during or before 2005 in the USA, Canada, New Zealand, Australia and Europe. A total of 63 papers fit their inclusion criteria. They found that the theoretical literature on coping (Folkman & Lazarus, 1987) reliably predicted the relationship between adaptive (problem-focused) coping and positive outcomes.

Lennon et al. (2012) conducted a meta-analysis of HIV prevention programs which included depression as an outcome. A total of 10 publications published before or during 2010 met their inclusion criteria. Three studies combined the Social Cognitive Theory and the Theory of Gender and Power; one used the Information-Motivation Behavioral Skills Model and the Transtheoretical Model together; one study used the Culturally Congruent Care Model; one

study used the Comprehensive Health Seeking and Coping Paradigm; and another drew upon Culture-ecology and African-Centered Behavioral Change. The remaining three studies did not report any theoretical basis for their study, and the effectiveness of the various theories was not tested.

In a meta-analysis of 51 articles on the impact of parental HIV and AIDS on children's psychological well-being that was published on or before October 2011, Chi and Li (2013) found that only two studies explicitly mentioned a theory. These theories included a developmental psychopathology model (Li et al., 2008) and a theoretical framework which distinguishes between the forms, causes and consequences of psychosocial distress among children orphaned and made vulnerable by HIV and AIDS (Nyamukapa et al., 2008). Chi and Li (2013) recommended that future basic and applied studies on AIDS orphans and vulnerable children should utilise psychological or psycho-developmental theories such as stress and coping, psycho-developmental, and resilience frameworks. Chi and Li (2013) also noted various methodological problems in the literature, including a lack of longitudinal research designs, small sample sizes, inconsistent use of standardised data collection instruments, and limited use of appropriate comparison groups in experimental designs.

Covey et al. (2016) performed a systematic review and meta-analysis of internationally published interventions aiming to improve ART patients' quality of life. The investigators found that theory-based interventions were more likely to yield positive outcomes than non-theory-based outcomes. Despite the unclear results about the specific effects of a single theory, the investigators identified the Information-Motivation and Behavioral Skills model of HIV preventative behaviour as a particularly useful theory (Covey et al., 2016).

Scott-Sheldon et al. (2017) conducted a systematic review and meta-analysis on behavioural interventions to reduce alcohol usage in people living with HIV or AIDS. A total of 21 articles that were published in or before 2016 were included in the review. The investigators found that most (77%) of the articles which met their inclusion criteria were theory-based. The most frequently cited theory was the Transtheoretical Model (32% of theory-based interventions), followed by the Information-Motivation-Behavioural Skills Model (14% of theory-based interventions) and the Social Cognitive Theory (14% of theory-based interventions).

Van Luenen et al. (2017) performed a systematic review and meta-analysis of publications which described psycho-social interventions for people living with HIV or AIDS. Out of the 72 articles which met their criteria, the majority (44 out of 72) were based on theory. However,

the specific theories were not ascertained, and the degree to which the theory was incorporated into the intervention or its evaluation was not clearly stated. The investigators could not determine whether theory-based interventions were significantly better than non-theory-based interventions.

5.9.3.4. Theory use in the international stigma literature

Only one article could be identified that reviewed the HIV-related stigma literature and also remarked on the use of theory. Ma and Loke (2020) reviewed 45 articles which described HIV and AIDS-related stigma reduction interventions for healthcare professionals. They found that a wide variety of theoretical frameworks were utilised, including cognitive-behavioural theories as well as theories from the fields of Public Health, Education and Nursing. The most frequently reported theory was the Social Cognitive Theory, followed by the Theory of Planned Behaviour, the Diffusion of Innovation theory, the Intergroup Contact theory, Watson's Theory of Human Caring, the World Health Organization's Primary Health-Care Model, and Bloom's Taxonomy conceptual framework. The investigators found that the Social Cognitive Theory, the Intergroup Contact theory and the Theory of Planned Behaviour yielded the most beneficial results (Ma & Loke, 2020).

5.9.4. Reviews of Theory Use in the South African HIV Literature

Few studies have purposefully examined theory use in the South African HIV literature. Similar to international literature, South African literature was also primarily based upon Socio-Behaviourism. However, critique against the paradigm was highlighted, and other theories such as systems theories, post-modern theories, Critical Pedagogy, empowerment and gender theories were also noted in the literature.

The first review of the South African HIV and AIDS academic literature was published in 1996. Campbell and Williams (1996) reviewed HIV-related publications based upon South African research in the MEDLINE, SOCLIT and PSYCHLIT databases published before April 1995. The authors questioned the utility and effectiveness of the so-called "knowledge-attitude-practices" (KAP) model or the knowledge-leads-to-action model (i.e., referring to Socio-Behaviourism) for the purpose of studying HIV-related behaviour. Campbell and Williams (1996) argued that the evidence that supports such models is weak and does not provide a comprehensive understanding of the social and behavioural mechanisms that underlie the spread of and response to HIV. To this end, the authors highlighted the need for more attention to be given to the study of sexuality, culture and social norms in order to get a more

comprehensive understanding of the socio-behavioural aspects of HIV. The authors pointed to successful programmes in other African countries, including Zimbabwe, which mostly used participatory, skill-based, and community-focused strategies in their HIV prevention programmes. Campbell and Williams (1996) also called for greater collaboration between disciplines, including biomedical experts, economists, social psychologists and adult education specialists.

Harrison et al. (2010) conducted a systematic review of HIV prevention programmes aimed at the youth (aged 12 to 24) in South Africa. Out of the eight interventions which met their inclusion criteria, only one programme did not explicitly mention theory. The investigators found that most programmes were based on social cognitive behavioural change theories, but that several incorporated other theories, such as systems theory, Freire's Critical Pedagogy and empowerment theory, into their frameworks to make the programmes more contextually relevant (Harrison et al., 2010).

In a masters dissertation study, Shirley (2010) reviewed the theoretical and methodological trends in the community psychology HIV research literature in three international and one South African journal⁷⁵, published between 1990 to 2009. A total of 138 papers were included in the analysis. The review revealed that most of the articles were empirical in nature and that theoretically-focused articles made up only 8.6% of the total number of reviewed articles. Shirley (2010) also noted that individual-focus psychological theories predominated. Interestingly, South African studies were found to make markedly greater use of postmodern theories (11.4%) compared to international studies (3.9%). Although Shirley (2010) did not specifically analyse theory use trends over time, they noted that there appeared to be a shift towards the study of inequality and that South African Community Psychology literature, in particular, was becoming more critically oriented.

5.9.5. Limitations in Previous Theoretical Reviews of the Literature

Although numerous meta-analyses and systematic reviews have been conducted on the HIV and AIDS literature, few have paid attention to theory use in particular. Most of the studies that examined theory use did so as part of a more comprehensive review of the literature and thus

⁷⁵ These four journals included: the South African Journal of Psychology, the American Journal of Community Psychology, the Journal of Community Psychology, and the Journal of Community and Applied Social Psychology.

did not necessarily explore theory utilisation in sufficient depth. In other words, many of these studies did not:

1. Examine or comment on the way that theory is referred to in the literature, including whether it is named directly or in vague terms or whether it is used explicitly or implicitly.
2. Specifically study the extent to which the literature builds theory or tests theory (i.e., contributes to the theoretical and scientific development of the field).
3. Study the trends in theory use over time, including how the prominence of paradigms may shift over time.
4. Explore and critically discuss the philosophical assumptions underpinning the HIV literature and its implications for the study field.
5. Focus on content areas other than HIV prevention, such as living with HIV, caregiving and engagement with treatment.
6. Review all papers in the field, and instead only focus on a narrow group of (mostly high quality) articles that meet inclusion criteria which might exclude a large proportion of articles.
7. Report using (nor developing) a structured theoretical analysis framework (including the methods and criteria) that can be used for the systematic review of theory use.

5.10. Conclusion

A review of the history of Psychology reveals the enduring tension between theory and practice – between conducting research, testing and developing theory and making theory applicable for practical use in the real world. Uncritical and unreflective theorising places even greater pressure on this relationship, leading to the ineffective use of theory and the eventual stagnation of the discipline. Meta-theorising contributes to alleviating this problem by making the assumptions and unstated perceptions that scientists and practitioners have about their subject matter explicit and outlines the interrelated nature of ontology, theory and methodology. Central to meta-theorising is the critical engagement with theories which is encouraged within the Critical Realist position. Critical Realism emphasises the importance of ontology in shaping our research and theory and hence implores us to explore theories' ontological and related philosophical assumptions, viewing it as fundamental to theorising in the social sciences (Sayer, 2000). With a review of the current literature now complete, the discussion moves to a description of the present study's methods.

Chapter 6: Methodology

“All scientific work is incomplete - whether it be observational or experimental. All scientific work is liable to be upset or modified by advancing knowledge.” – Sir Austin Bradford Hill (1965, p.12)

6.1. Introduction

In chapters two and three, I discussed the global and South African HIV epidemics and the unique socio-behavioural dynamics that contribute to the spread of HIV and the responses to HIV and AIDS. The spread of HIV is socially and psychologically incredibly complex. It challenges us about what we think we know about sexual behaviour, disease infection and risk avoidance, behaviour change, medication adherence and illness stigma. After four decades of basic and applied research, it is clear that there is still much to learn about the social and behavioural aspects of HIV and AIDS.

The social sciences face various conceptual, methodological and theoretical challenges, many of which are reflected in the study of the socio-behavioural aspects of HIV and AIDS and other health behaviour research. Uncritical and unreflective theorising is one key contributor which underlies these challenges. By paying closer attention to the way theories are used in the HIV and AIDS social scientific literature, we may be able to gain a better understanding of where theorising needs to be improved – how we may be limited in our study of a subject area because of our theories (or our use thereof), and what may be needed to improve theory utilisation and produce novel, more useful and effective theories which promote knowledge generation and advancement.

Given the vital role that basic and applied socio-behavioural research plays in the study of HIV and AIDS, it is essential that scientific knowledge generation in this field is not impeded by inadequate theorising. Hence, a critical examination of theorising in the field is needed. South Africa has been the epicentre of the HIV pandemic for several years and remains the country with the highest number of people living with HIV. As a result, the country has been the site of numerous basic and applied HIV studies in the biomedical and psycho-social scientific domains. Critical examination of the use of theory within the South African literature base promises to provide novel insights regarding the state of theorising in the study of the country's

socio-behavioural aspects of HIV and AIDS. Moreover, it may hint at ways in which the global study of HIV and AIDS could also benefit from improved theorising.

In this chapter, I provide a detailed description of the methods that were used to conduct this critical examination of theory. A systematic literature review was used to structure the initial data collection and screening of publications. Thereafter, two structured review guides, informed by the theory visibility typology of Bradbury-Jones et al. (2014) and the theoretical contribution taxonomy for empirical articles by Colquitt and Zapata-Phelan (2007), were used to collect and synthesise important theory utilisation data. A meta-theoretical analysis framework which draws upon Madsen's (1988) Systemology approach, Smith and Liehr's (2014) ladder of theoretical abstraction and Bhaskar's (2010) omissive and explanatory critique was created to examine the philosophical, theoretical and data-level aspects of the most prominent paradigms in the South African literature.

6.2. Research Question

This study was led by the following research question: **How have theories been used in the study of the behavioural and social aspects of HIV and AIDS in South Africa from 1981 until 2020?**

6.3. Research Aims and Objectives

The overall aim of this study was to critically examine the use of theory in the study of the behavioural and social aspects of HIV and AIDS in South Africa. More specifically, this study had three aims which represented what the research project intended to accomplish and an objective for each aim which represented the practical outcome of each aim (i.e., what was done in order to achieve each aim).

Aim 1: Describe the historical development of research focus areas in the socio-behavioural study of HIV and AIDS

Objective 1: Identify and explore the thematic focus areas in the empirical study of the socio-behavioural study of HIV and AIDS in South Africa.

Aim 2: Identify and describe the use of theory in the academic literature related to the socio-behavioural study of HIV and AIDS

Objective 2: Identify the theories that are mentioned in journal articles regarding the socio-behavioural study of HIV and AIDS in South Africa and describe how these theories were utilised.

Aim 3: Conduct a meta-theoretical analysis of the most prominent paradigms that have been applied to the socio-behavioural study of HIV and AIDS

Objective 3: Explore and describe the most prominent paradigms used in the socio-behavioural study of HIV and AIDS by examining them on the philosophical, theoretical, and empirical levels.

The aims are built upon each other. The first aim was intended to cast the net purposefully wide to explore the thematic content areas that have enjoyed attention from the scientific community and thus provide a context where theorising is expected to occur. It also offers some insight into the way in which scientific ideas and research priorities have changed over the years. The second aim allows for an investigation into the extent of theorising in the socio-behavioural HIV literature. Particular attention is paid to the visibility of theory in the literature, the trends in the use of theories over time and the extent to which theory testing and theory building have taken place. The third aim permitted a critical and systematic examination of the theories themselves. The purpose of the meta-theoretical analysis was not to produce a unifying theory of the social and behavioural study of HIV and AIDS, nor was it aimed at unequivocally stating which theory should be used and which theories should not be used. Instead, this meta-theoretical analysis was meant to serve as an opportunity to critically reflect upon the most prominent paradigms that are being used in the South African context, the manner in which these theories are being used and what their underlying assumptions reveal about our implicit understanding of the socio-behavioural aspects of HIV and AIDS. Each aim is systematically addressed from a critical realist stance, using systematic review and meta-theoretical research methods.

6.4. Research Design

The study was divided into four phases, each addressing one of the study's three research aims (see Table 6.1). The first phase followed a systematic literature search approach⁷⁶. Data were collected by conducting an online literature search and screening the article records for relevance and eligibility. Articles that were relevant and eligible were taken into the study's

⁷⁶ The study was entirely based on a review of the literature. No human participants were involved in the study. This study's ethics reference number is: GW20180619HS. A copy of this study's ethics approval letter can be found in Appendix C.

second phase, which involved thematic analysis of the article’s titles and abstracts. The third phase involved an analysis of theory use, including a trend analysis of theory usage over time, an analysis of how theories were used to inform the study and which theories were used for different research themes. During the fourth phase of the study, a meta-theoretical analysis of the theories that were identified in the third phase was conducted.

Table 6. 1 Research Design Summary

Phase	Description	Thesis Chapter
Phase 1	Data collection <ol style="list-style-type: none"> 1. Database search 2. Screening for relevance 3. Eligibility assessment 	Chapter 7
Phase 2	Thematic analysis of included articles in order to ascertain the thematic research focus areas (satisfies Study Objective 1)	Chapter 7
Phase 3	Analysis of theory visibility, theoretical contribution and trends in theory use over time (satisfies Study Objective 2)	Chapter 8
Phase 4	Meta-theoretical analysis (satisfies Study Objective 3)	Chapter 9

6.5. Phase 1: Data Collection

An attenuated version of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was used to guide the planning and implementation of the article search as well as the reporting thereof (Liberati et al., 2009; Moher et al., 2009)⁷⁷. The data collection process involved three sequential steps: Firstly, by conducting a thorough keyword search and extracting all the records yielded from the keyword search; secondly, by screening all record titles and abstracts for relevance; and thirdly by assessing each relevant record for eligibility. Specific criteria for eligibility were used.

Records were included based on the following criteria:

1. The record must be a journal article⁷⁸.

⁷⁷ A completed PRISMA checklist form for this study can be found in Appendix D.

⁷⁸ Journal articles are the primary way through which scientists communicate their research findings and ideas with the rest of the scientific community. While not all scientific research is ultimately reported on in a journal, one would expect that well-designed and notable studies would be reported on in journal articles. Moreover, one

2. The research topic must be on HIV and/or AIDS and focus specifically on the behavioural and/or social aspects of HIV and AIDS.
 - a. This includes articles that describe HIV prevention, testing and treatment from a behavioural and/or social perspective (such as the factors that influence behaviour that place people at risk for HIV infection and the behavioural factors that influence medication adherence); the impact of HIV and AIDS had on people who are living with HIV, their caregivers, family, peers and community; the psychological and social factors that influence caregiving and the support of people who are living with HIV; as well as the experiences of people living with HIV and those impacted by HIV and AIDS.
 - b. Journal articles about the perceived usability, acceptability and accessibility of healthcare services and treatment were also included.
2. The journal article must be published in either English or Afrikaans.
3. The journal article must describe research that was conducted in South Africa.
4. The journal article must have been published between 1981 and 2020.

Records were excluded based on the following criteria:

1. Records that are not journal articles (such as books, book reviews, book chapters, letters to the editor, commentaries, study protocols and registered reports⁷⁹, conference proceedings⁸⁰, unpublished research reports⁸¹ or media articles) were excluded.
2. Records that described research that was not conducted in South Africa were excluded.

This included:

would expect, given the authoritative position that journal articles have in society, that ideas that have been put forth in a journal article would have a greater impact on similar future scientific work and practical applications than unpublished studies. Hence, by focussing on journal articles, this study focusses on articles that are most likely to have influenced the way in which social scientists think about and conduct research in the socio-behavioural field of HIV and AIDS. Another important reason for choosing to focus exclusively on journal articles was that they are typically used by scientists to report on new research findings, are relatively short in length and are written in a standard format which makes them easy to review. By contrast books tend to integrate existing information about a topic as opposed to reporting on new research findings (although in edited books this may not necessarily always be the case). Moreover, for the purposes of a review, books tend to be too cumbersome to review, especially if the review stretches over a long timeframe.

⁷⁹ It was decided to exclude study protocols and registered reports, as they represent planned (not completed or ongoing) research.

⁸⁰ Conference proceedings tend to consist of only a short abstract which does not provide enough information (e.g., about theory use) for the reviewer to conduct a proper assessment of the study and extract all the necessary information.

⁸¹ Although a wide spectrum of grey literature (e.g., governmental and civil society reports) on the social and behavioural aspects of HIV and AIDS in South Africa have been produced, these publications are not centrally archived and many may not be publicly available. Moreover, given their varying formats and lengths, they may be difficult to review within a feasible timeframe. Hence, it was decided not to include grey literature in this particular study.

- a. Systematic reviews and meta-analysis studies which did not focus on South Africa exclusively.
 - b. Journal articles that only delineated the study area as Southern Africa or Sub-Saharan Africa were excluded.
 - c. Journal articles that describe research that was conducted in multiple countries were only included if South Africa was one of the study sites and if the South Africa-specific results of the study were clearly demarcated.
3. Journal articles that were not about the behavioural and/or social aspects of HIV and/or AIDS were excluded.
- a. This includes articles that approached HIV and/or AIDS from medical or natural science perspectives, such as medicine, biomedicine, biology, virology, immunology and botany.
 - b. This also includes articles that approach HIV and/or AIDS from a related social science field that does not directly apply to the behavioural and social aspects of the disease. This includes articles on the organisational and managerial concerns in the workplace and healthcare facilities; training and workplace productivity and efficiency in healthcare facilities; the legal and human rights aspects of HIV; policymaking in the context of HIV and AIDS; the economic aspects of HIV and AIDS (including cost-effectiveness analysis); the scaling up of healthcare services; as well as HIV and AIDS activism and advocacy.
 - c. Journal articles that involved both HIV and TB were included; however, articles that focused exclusively on TB were excluded.

6.5.1. Step 1: Database Search

The Thomson Reuter Web of Science (all databases) scientific citation indexing platform was used to find relevant articles for this study. The Web of Science was chosen as it is the most comprehensive citation indexing platform with databases that span multiple disciplines, including the social sciences, humanities, public health and biomedicine⁸². Web of Science is, therefore, ideal for bibliometric research and has been used for this purpose in numerous similar studies (e.g., Fajardo-Ortiz et al., 2017).

The literature search entailed identifying journal article records which contained the following keywords in the article's titles:

⁸² The Web of Science can be accessed here: <https://clarivate.com/products/web-of-science/databases/>

1. "HIV"
2. "AIDS"
3. "Human Immunodeficiency Virus"
4. "Acquired Immunodeficiency Syndrome"
5. "Human T Cell Lymphotropic Virus"
6. "HTLV"
7. "Lymphadenopathy-Associated Virus"
8. "LAV"
9. "Gay-related immune deficiency"
10. "GRID"
11. "AIDS-associated retrovirus"
12. "Slim Disease"

The latter eight keywords were included as they were commonly used to refer to HIV and AIDS in the early years of the pandemic. The search was focused on identifying the keywords in article titles and was limited to articles that were published in English or Afrikaans between 1981 and 2020.

The titles, author names, publication details and abstracts of all search results were downloaded as text files (.txt)⁸³ from the Web of Science. The text files were then imported into Microsoft Excel (version 2016). Separate Excel files were created for each publication year. Back-up copies of the text and Excel files were stored on a secured cloud-based storage platform.

6.5.2. Step 2: Screening for Relevance

The screening for relevance comprised two stages: First, a screening for geographical relevance, and second, for topic relevance.

6.5.2.1. Screening for geographical relevance

A search within Excel was conducted to identify all articles that were conducted in (or about) South Africa. The search was done by searching for the keywords "South Africa" and related keywords "RSA"⁸⁴ and "Suid-Afrika"⁸⁵ in the titles and abstracts of all the articles. Articles published in South African journals were also scrutinised in order to ensure that no South African article was mistakenly overlooked. If an article contained the keyword "Southern

⁸³ The text files were downloaded in the tab-delimited (Win, UTF-8) format.

⁸⁴ Republic of South Africa (or in Afrikaans: "Republiek van Suid-Afrika").

⁸⁵ The Afrikaans language translation for "South Africa".

Africa”, it was provisionally included until it could be established during the assessment of eligibility whether it should remain in the database. Articles containing the keyword in their titles or abstracts and that were about HIV or AIDS⁸⁶ were copied to a separate “South Africa” database for further screening.

6.5.2.2. Screening for topic relevance

In order to find articles within the “South Africa” database that were related to the study of the behavioural and social aspects of HIV, a different keyword search was conducted. In order to do this, I first had to develop a list of unique keywords that would be able to identify articles in the database that were related to the study of the behavioural and social aspects of HIV.

a.) Development of the behavioural and social aspects of HIV keyword list

In order to find articles that involved the behavioural and social study of HIV and AIDS, I created a keyword list that would assist me in finding journal articles that pertain to this study area. Another data collection strategy I could have followed would have been to focus exclusively on articles published in HIV and AIDS journals that focused on the disease's behavioural and social science aspects. However, these journals only started to emerge around the mid-1990s to early 2000s, thus leaving a sizable proportion of the HIV and AIDS literature from the 1980s to early 1990s unexplored. Moreover, other strictly medical HIV and AIDS journals publish social science articles about the disease from time to time, and one can thus expect to find studies that involve the socio-behavioural aspects of HIV and AIDS in such journals. The behavioural and social science study of HIV and AIDS has a wider readership than only HIV-specific journals – journals in a wide range of disciplines, including journals in the fields of Psychology, Sociology, Political Science, Anthropology, Public Health, Nursing, Education, Law and Economics also publish articles that involve the behavioural and social aspects of HIV and AIDS. Lastly, I could have limited the journals with regard to country or region by only focussing on South African journals. However, articles describing research conducted in South Africa are not exclusively published in South African journals and are frequently found in regional and international journals. Conducting a more exhaustive search that included a broad time period and had no restrictions regarding discipline gave me a better chance to find the most relevant articles across a wide scope of literature.

⁸⁶ There were a few instances, especially in the earlier publication years, where the search term “AIDS” produced articles that were not about the disease, but about “aids” as something that supports and assists. Articles that were related to South Africa, but that used the term “aids” in to refer to something other than the disease was not included into the South Africa database.

I compiled the keyword list by conducting a keyword analysis of three prominent journals that only publish studies from the HIV behavioural and social science domain. These journals were: *AIDS and Behavior*, *SAHARA-J: Journal of Social Aspects of HIV/AIDS* and *African Journal of AIDS Research*. The first journal represents the HIV behavioural and social science literature globally, while the remaining two journals are the only journals that focus exclusively on the HIV behavioural and social science literature from the African continent. I chose to use these three journals, because an initial keyword search of their abstracts yielded a large number of keywords that overlapped and repeated each other. I, therefore, concluded that a saturation point was reached after extracting the keywords from these journals and that further keyword searches in similar journals would not produce additional novel keywords.

All the articles published in the three journals from their first year in press until May 2020 were extracted from the Web of Science as text files and imported into Excel. It was deemed necessary to include the titles and abstracts from their full publication timeframe, as keywords may change over time.

An analysis of the frequency of distinct keywords in those articles' titles and abstracts was conducted with the content analysis software tool KH Coder⁸⁷ (version 3). KH Coder is a quantitative content analysis and text mining software tool that scientists frequently use to extract keywords and phrases from journal articles for bibliographic research purposes (e.g., Fajardo-Ortiz et al., 2017; Goto et al., 2014). KH Coder's TermExtract function automatically identifies technical terms and technically significant phrases by analysing the structure of sentences and the relationships between words, and the importance of single words (Higuchi, 2016). The keywords that the TermExtract function identifies can be single words (e.g., "behaviour" or "behavior") but tend to be mostly short phrases (e.g., "condom use behaviour/behavior"). Once the TermExtract analysis was completed, KH Coder produced a list of keywords, arranged from most distinct and important to least distinct and important. A TermExtract score is generated for each keyword – the higher the score, the more distinct and important it is considered to be.

I exported the keyword lists into Excel and discarded keywords that were generic to HIV research in general (e.g., "ART", "HIV diagnosis", "further research", "HIV cases", "pilot study", "research objectives", "association", "caregiver", "HIV prevalence"). The initial keyword list contained 11 764 keywords and phrases). A total of 3 842 duplicates were

⁸⁷ The software tool can be found here: <http://kncoder.net/>

removed with Excel's duplicate removal function, bringing the total number of keywords to 9705. The remaining keywords and phrases consisted of numerous repetitive keywords, for example, "antiretroviral adherence", "art non-adherence", "adherence behaviours", "adherent behaviour", "adherence behaviour awareness", "adolescents' adherence", "aspects of adherence", "adherence challenges", "adherence self-efficacy", "adherence intervention" and "adherence-targeted cognitive behaviour intervention". The list thus needed to be refined further. I carefully reviewed the keyword list and highlighted the repetitive keywords within the phrases. This yielded a list of 132 keywords (see Appendix E). Provision was made for both the United Kingdom and USA spelling conventions.

b.) Using the social behavioural and social aspects of HIV keyword list

In order to find articles that were relevant to the study, I searched for each keyword in the title and abstract of all the records in the "South Africa" database. Article records were included in a "South African HIV Social Science database" if they contained at least one of the keywords in their title or abstract.

It should be noted that some of the keywords in the keyword list (such as "agency", "partner", "photo", "support", and "view") may also occur in journal articles from other disciplines, including medicine, biochemistry, botany, law, economics and public health. When searching for such a keyword that was likely to yield both relevant and irrelevant records, I carefully reviewed the record titles and abstracts of the search results to verify whether the articles were relevant to the study. Records that were deemed irrelevant were excluded.

Once the keyword search was completed, I conducted three additional searches on all records that were not included. This was done to ensure that articles that meet the inclusion criteria were not mistakenly left out. The first search focused on identifying social science journals and perusing the excluded articles from these journals to identify whether any of them may meet the inclusion criteria. The following wildcard search terms were used to identify the journals: psycho*, social*, socio*, femin*, gender*, psychia*, education*, anthrop*, sex research*.

The second search entailed looking for South African province names and the most prominent South African city names in the titles and abstracts of all excluded records. All records that mentioned South African place names were perused to check whether they fit the inclusion criteria. The third search entailed going through all the remaining excluded records, year-by-year, and perusing their titles to identify any articles that may fit the inclusion criteria.

Lastly, a search of all included record titles was conducted to identify and discard all included records that pertained to research outside of South Africa. The names of all African countries, as well as the names of other countries where research about HIV is often conducted (such as the United States of America, Canada, India, and Thailand), were used as search terms to identify such records.

c.) Additional literature search

During the relevance screening stage, it became clear that the initial Web of Science keyword search did not produce all the available relevant articles and that another follow-up literature search needed to be done to identify the remaining relevant articles. It became apparent that many articles which focussed on HIV and AIDS and the behavioural factors relating to it did not always mention HIV directly in the article's title. Instead, many such articles would refer to "sexual risk", "sexual behaviour", "sex education", "sexual and reproductive health", or similar terms in their titles, but HIV would be one of their article keywords and/or would be mentioned in the article's abstract. Hence, I felt it necessary to conduct a follow-up literature search, focussing on article keywords and abstracts.

This follow-up search was conducted on the Web of Science and entailed a search of all records that included the terms "South Africa*" and "HIV" in its topic. A topic search such as this looks for the keywords in the database's record titles, abstracts and keywords – hence a broader search. This type of search helped to identify relevant articles that may not have the specific terms HIV or AIDS in their title.

The titles, author names, publication details and abstracts of all search results from this follow-up search were downloaded as text files (.txt)⁸⁸ from the Web of Science and then subjected to the same screening for relevance as the records from the first literature search. All records that proved to be in line with the inclusion criteria were added to the South African HIV Social Science database.

6.5.3. Step 3: Eligibility assessment

The final step in the screening process involved an eligibility assessment. The abstracts of all articles in the South African HIV Social Science database were manually screened (from the oldest to the newest) to identify and remove all duplicates, as well as articles that were found upon closer inspection not to meet the inclusion criteria of the study. In other words, articles

⁸⁸ The text files were downloaded in the tab-delimited (Win, UTF-8) format.

that were not about HIV or AIDS; that did not entail behavioural and social science research; that were not based on research that was conducted in South Africa; as well as publications that were not journal articles (e.g., commentaries, book reviews, letters, conference proceedings or introductions to special issues) were removed for the study's database. During this screening process, a few additional pertinent articles were identified and added to the database. At this point, all screening had been completed, and the database was ready for data analysis.

6.6. Phase 2: Thematic Analysis

I created a structured review spreadsheet (see Appendix F) in order to collect key information about each article record. This information included the publication year, research methodology approach, theory visibility, overarching thematic category, and keywords. The research methodology was classified as follows:

1. Literature Reviews, Critical Reviews and Analyses: Articles that review the literature, such as meta-analyses and systematic reviews, as well as articles that provide critique, critical analysis or discussion.
2. Quantitative: Research articles that made use of only quantitative research methods.
3. Qualitative: Research articles that made use of only qualitative research methods.
4. Mixed Methods: Research articles that made use of a combination of quantitative and qualitative data collection and analysis methods.

The overarching thematic categories were *a priori* thematic categories I created based on a thorough reading of the socio-behavioural HIV and AIDS literature. The overarching thematic categories included:

1. Prevention – Articles that focus on the prevention of HIV, including articles that describe the psychological, structural, societal or socio-behavioural risk factors to HIV infection; knowledge, attitudes, perceptions and practices relating to HIV prevention; harm reduction; the socio-behavioural processes that promote or hinder HIV prevention; prevention programmes; and the decision-making processes and dynamics that drive HIV preventative behaviours, such as condom use and safe infant feeding practices.
2. Care and support – Articles that focus on the provision of care and support to people who are living with HIV, including articles that describe healthcare workers' knowledge, perceptions and attitudes towards HIV, AIDS, key populations and people who are living with HIV; caregiver and healthcare worker burnout; the experiences and

needs of caregivers; community-based care and support programmes; as well as the care and support needs of people who are living with HIV.

3. Impact of HIV and AIDS – Articles which emphasise HIV’s social and psychological impact on individuals, families and communities that have been affected by HIV and AIDS, including articles that describe relationships and the family; coping with AIDS-related loss and grief; HIV-related social norms and cultural beliefs; faith-based, cultural and community responses to HIV and AIDS; community perceptions and attitudes towards HIV and people who are living with HIV as well as HIV’s impact on the workplace.
4. Testing and treatment – Articles that focus on the socio-behavioural aspects of HIV testing and treatment, including articles that describe the psychological, structural, societal or socio-behavioural factors which influence HIV testing behaviour; the experience of taking an HIV test; HIV test promotion programmes; the psychological, structural, societal or socio-behavioural factors which influence accessing and adhering to ART; as well as the perceived accessibility, acceptability and user-friendliness of ART and HIV testing services.
5. Living with HIV – Articles that focus on people who are living with HIV, including those that describe the mental health of people who are living with HIV; stress and coping with an HIV-positive diagnosis; experiences with internalised and perceived stigma and discrimination; as well as the factors that influence HIV-status disclosure.

Braun and Clarke’s (2006; 2019) framework for thematic analysis was used as a general guide to creating codes, and eventual subthemes, within each overarching thematic category. The thematic analysis process was structured as follows (Braun & Clarke, 2006, p. 87):

1. Familiarising myself with my data – I read each record’s title and abstract to familiarise myself with the article’s topic and key findings. If the abstract was unavailable or did not offer enough information, I would peruse the full text.
2. Generating initial codes – Based on my reading of the abstract, I classified the article into one of the overarching thematic categories. Then I created a few keywords (i.e., codes) that summarised that particular abstract’s content. I assigned roughly two to four keywords per article.
3. Searching for themes – I collated the codes into suitable, initial sub-themes.
4. Reviewing themes – Once initial sub-themes were established, I created summaries of each sub-theme and adjusted some of the themes as necessary.

5. Defining and naming themes – I reviewed each sub-theme to ensure that they are accurate, internally consistent, clear and insightful.
6. Producing the report – The results of the thematic analysis are presented in Chapter 7.

In order to explore the development and pervasiveness of research themes over time, I used the publication year and thematic data to plot trends over time within overarching themes as well as across themes⁸⁹. I created nested cross-tabulations to organise the thematic data (i.e., the number of articles per theme) according to year and performed descriptive statistical analysis on the tabulated data to ascertain frequencies over time. The statistical analysis was conducted in Microsoft Excel.

6.7. Phase 3: Theory Analysis

6.7.1. Theory Visibility

During Phase 2, part of reviewing each article record with the structured review spreadsheet (see Appendix F) also entailed classifying each article based on the visibility of theory in the article. An attenuated⁹⁰ version of Bradbury-Jones and colleagues' (2014) theory visibility typology was used to classify publications based on how consistently theory is referred to in the publication. The Bradbury-Jones et al. (2014) typology provides a clearly defined set of descriptions for each level, which helped to ensure that the theory visibility classification was conducted consistently throughout the entire data set. The entire article (i.e., the abstract, full text and references) was reviewed in order to classify each article's theory visibility. The levels include:

1. Level 1: Seemingly absent – No mention of theory is made whatsoever, and there is no clear indication that a particular theory or theoretical framework may have been used implicitly⁹¹.

⁸⁹ It is important to keep in mind that the trends will reflect publication dates and may therefore reflect a slight delay in the emergence of the actual research priorities. Given the time it takes to apply for funding, conceptualise and implement a study, write the results, complete the peer-review process, and ultimately publish one's paper, it is conceivable that the actual point in time when a new research focus area emerged within the scientific community may be slightly earlier than what the publication date reflects. However, ultimately, the publication date is still an important marker of when the topic became visible in the peer-reviewed academic literature.

⁹⁰ In my adjusted version of the Bradbury-Jones et al. (2014) theory visibility taxonomy, I changed Level 1 to clearly reflect that no theory was mentioned at all, nor should it seem like a theory was used to inform the study. Level 2 was adjusted so that it states that theory should only be implied, but not explicitly stated. Levels 3, 4 and 5 were slightly adjusted in order to emphasise that theory should be explicitly mentioned.

⁹¹ While conducting the review, I remained cognisant of the fact that research is typically conducted from a particular conceptual approach, belief system or perspective, even when such approaches or perspectives are not immediately apparent. Hence, if it was not clear whether a specific theory was used in a study, I attempted to take a closer look at the study's methodology and reference list in order to determine whether a theory implicitly guided

2. Level 2: Implied – No explicit mention of theory is made, however, based on a review of the article (i.e., the constructs that are discussed or measured, the line of argument that is used to support a certain perspective) and the article’s references, it appears as if a specific theory, set of distinct constructs or school of thought may have influenced the researchers to some degree.
3. Level 3: Partially applied – A specific theory is highlighted (i.e., explicitly mentioned) and partially used in some, but not consistently, through all aspects of the study.
4. Level 4: Retrospectively applied – A theory is explicitly applied to explain the research findings (but not anywhere else in the article).
5. Level 5: Consistently applied – A theory is explicitly and consistently used in all aspects of the study (or applied setting). Theory plays an essential role in directing the research (and implementation) process.

For data analysis purposes, I ultimately combined the partial, retrospective and consistent use of theory into one category, namely explicit theory use, in order to compare it with implicit theory use and articles that did not use theory. While conducting the review of theory visibility, I noticed that when authors write about a theory that influenced their work, they would often mention the theory directly by name; however, there were instances where authors would only refer to a general group of theories, or a paradigm, discipline or overarching meta-theory as guiding their research. In order to incorporate this vague and unclear use of theory in further theory analysis, I marked such articles as using theory explicitly, but in a vague manner. Hence, articles were labelled as:

1. Not using theory (i.e., **seemingly absent**),
2. using theory **implicitly**,
3. using theory **explicitly but vaguely**, or
4. using theory **explicitly and naming theories directly**.

Described in this way, classifying articles according to theory visibility allows one to determine whether theory was used in a study and, if so, how directly and clearly it was referred to in the literature. A descriptive statistical analysis of theory visibility was conducted to explore theory visibility trends over time and in relation to thematic research focus areas and other relevant publication characteristics.

the research process. If there were no clear indication of any particular theory, the theory visibility of the article was classified as “seemingly absent”.

6.7.2. Theoretical Contribution

Articles that described empirical research were subjected to a further analysis of their level of theoretical contribution. In other words, articles that described guidelines for practice, a review or a critique of the literature were excluded from further analysis. Colquitt and Zapata-Phelan's (2007) taxonomy of theoretical contribution for empirical articles was slightly attenuated and applied to the current study in order to serve as a framework through which empirical articles could be rated on the extent to which they demonstrated theory testing and in theory building. I chose this taxonomy as it has shown to be a reliable classification (.51 inter-rater reliability for theory building and .59 for theory testing), allows for a detailed description of empirical articles' theoretical contribution and can easily be used to explore historical theorising trends (Colquitt & Zapata-Phelan, 2007; Ghobadi & Robey, 2017).

I rated each article by giving it two ratings, one for theory testing and one for theory building. The ratings were based on the Likert-scale (1-5) of Colquitt and Zapata-Phelan (2007), which is discussed in more detail in Table 6.2.

Table 6.2 The Classification of Theories Based on Theoretical Contribution (Colquitt & Zapata-Phelan, 2007, p. 1283)

Classification	Description
Theory Testing⁹²	
1. Inductive or Grounds Predictions, Research Questions or Arguments with Logical Speculation (Low Theory Testing Level)	The article describes an explorative study which is not directly based upon a specific theory.
2. Grounds Predictions, Research Questions or Arguments with References to Past Findings (Low Theory Testing Level)	The article describes research that is only based upon the findings of previous research.
3. Grounds Predictions, Research Questions or Arguments with Existing Conceptual Arguments (Moderate Theory Testing Level)	The article describes research that is based upon the findings of previous research, and the authors provide an argument to substantiate why a certain relationship or process should exist (based on past research).
4. Grounds Predictions, Research Questions or Arguments with Existing Theories, Constructs, Models or Frameworks (High Theory Testing Level)	The article describes research that is based upon one or more theories, models, or frameworks.
5. Explicitly Tests an Existing Theory, Construct, Model or Framework (High Theory Testing Level)	The article explicitly states that it describes the testing of a specific theory.

⁹² The theory testing categories were slightly reworded to convey a clearer meaning and to be more applicable across different research approaches. To this end, I added research questions and arguments alongside prediction to all four categories in order to allow for the classification of articles that did not specifically make predictions (e.g., interpretive papers). Categories 4 and 5 of theory testing were adjusted to more explicitly emphasise that category 4 refers to articles which based their predictions or research question to some extent on existing theory, but does not explicitly test the theory. Category 5 was attenuated to emphasise that it refers to the explicit testing of a theory.

Theory Building⁹³	
1. Attempts to Replicate Previously Demonstrated Effects (Low Theory Building Level)	The article explicitly or implicitly attempts to replicate results from a previous study (or studies) – either through the exact methods of the previous study or through an improved (stricter) methodology.
2. Examines Effects That Have Been the Subject of Prior Theorising (Low Theory Building Level)	The article explicitly or implicitly attempts to assess and explore phenomena that were observed in previous studies.
3. Introduces a New Mediator or Moderator of an Existing Relationship or Process (Moderate Theory Building Level)	The article clarifies or supplements existing theory (e.g., through the introduction of a new mediating or moderating variable or a meaningful new insight) in a way that does not radically alter our understanding of the theory. It may also entail articles which provide new variables or processes to our existing understanding of a phenomenon (without being a radically new approach or unexamined aspect of the phenomena).
4. Examines a Previously Unexplored Relationship or Process (High Theory Building Level)	The article describes a new, previously unexamined relationship or process in a manner which builds upon an existing theory and may lay the foundation for a new theory to develop.
5. Introduces a New Construct, Theory, or Framework (or Significantly Reconceptualises an Existing One) (High Theory Building Level)	The article describes a new theory, construct or framework or radically reconceptualises an existing theory, or construct of a framework in such a way that it opens up new research directions and a novel way of understanding and/or explaining phenomena.

⁹³ The theory building categories were slightly reworded to ensure clarity. Specifically, category 5 of theory building was slightly adjusted in order to make it clear that a radically new conceptualisation was produced.

According to Colquitt and Zapata-Phelan's (2007) taxonomy of theoretical contribution, an article's theory testing score essentially demonstrates the extent to which research is based upon existing theory, either by testing theory explicitly or through using theory directly to support the study's research question, predictions or arguments. The theory building score reflects the extent to which the research is novel, either through the development of new a theory or construct, or through studying previously unexplored phenomena. Hence the two scores can be used as a way to quantify (i.e., numerically summarise) the extent to which the research is conceptually meaningful and even whether the field is growing or stagnating theoretically.

A study's novelty was considered within the context of South Africa. If a topic, specific research approach or theory was used for the first time (or was one of the first studies), it was considered as having contributed new knowledge. Based on the theory testing and theory building scores, each article will be placed into one of five theoretical contribution categories, namely:

- a. Reporters – articles with virtually no trace of theory building or testing,
- b. Testers – articles which report primarily on theory testing, with no theory building,
- c. Qualifiers – articles which display an intermediate level of both theory testing and building,
- d. Builders – articles which primarily report on theory building, with no theory testing),
- e. Expanders – articles which display a high degree of both theory testing and building) (Colquitt & Zapata-Phelan, 2007).

6.7.3. The Identification of Theories and Paradigms

The structured theory usage review spreadsheet (see Appendix G) was created in order to collect additional data from the articles which used theories either implicitly or explicitly. This data included the name of the theory (or theories) that were mentioned or implied, the discipline-specific and/or cross-cutting paradigm to which the theory belonged (as applicable), as well as the reason the authors provided for choosing that particular theory (or theories). In order to verify the accuracy of the data that I collected from each article, I conducted a thorough inspection of a selection of articles a few days after I classified them and made corrections as needed.

Grouping theories according to paradigm helped to simplify the further meta-theoretical analysis, avoided repetition and allowed for a more productive discussion of the theories⁹⁴. In order to prepare for this theory classification and analysis, I read extensively about meta-theories and paradigms in the social and health behaviour sciences. This reading is, to some extent, reflected in the earlier literature review chapters as well as in the interpretation of the findings in chapters 7, 8 and 9.

Descriptive statistical analysis was conducted to examine the frequency and trends of the use of specific theories and overarching paradigms over time and in relation to other relevant criteria. Based on this trend analysis, paradigms were classified into one of five categories based on the recentness and frequency of their use in the literature. These categories⁹⁵ included:

- a. Dominant – theories that maintain a prominent position in the literature over a consistent time period,
- b. Emerging – relatively new theories making inroads in the literature,
- c. Growing – more established theories that are being cited increasingly over the years,
- d. Stable – theories that have enjoyed relatively stable use over time,
- e. Shrinking – theories that are cited increasingly less often,
- f. Exiting – theories which received attention in prior years but have become virtually absent from the literature in recent years.

6.8. Phase 4: Meta-Theoretical Analysis

The final phase of this study entailed conducting a meta-theoretical analysis of the most prominent (i.e., frequently used) paradigms that were identified in the literature. These paradigms were Socio-Behaviourism, Critical Theory and the Socio-Ecological and Systems paradigm.

I developed a meta-theoretical analysis framework that is based upon aspects of Madsen's (1988) Systemology approach, Smith and Liehr's (2014) ladder of theoretical abstraction and Bhaskar's (2010) omissive and explanatory critique. This meta-theoretical analysis framework

⁹⁴ For the purposes of this study, I regard a paradigm as an overarching conceptual framework which includes a group of theories that are all similar in terms of their underlying assumptions and the thematic areas on which they tend to focus. For a more detailed discussion of the distinctions between theory, conceptual framework, model, school of thought and paradigm, please refer to Chapter 5 (under the heading 5.3. *Defining Theory*).

⁹⁵ A similar categorisation was done on science and technology research fronts by Upham and Small (2010).

is outlined in Figure 6.1. The framework allows for the meta-theoretical analysis to start on the philosophical level and proceed “downward” to the theoretical and then data levels.

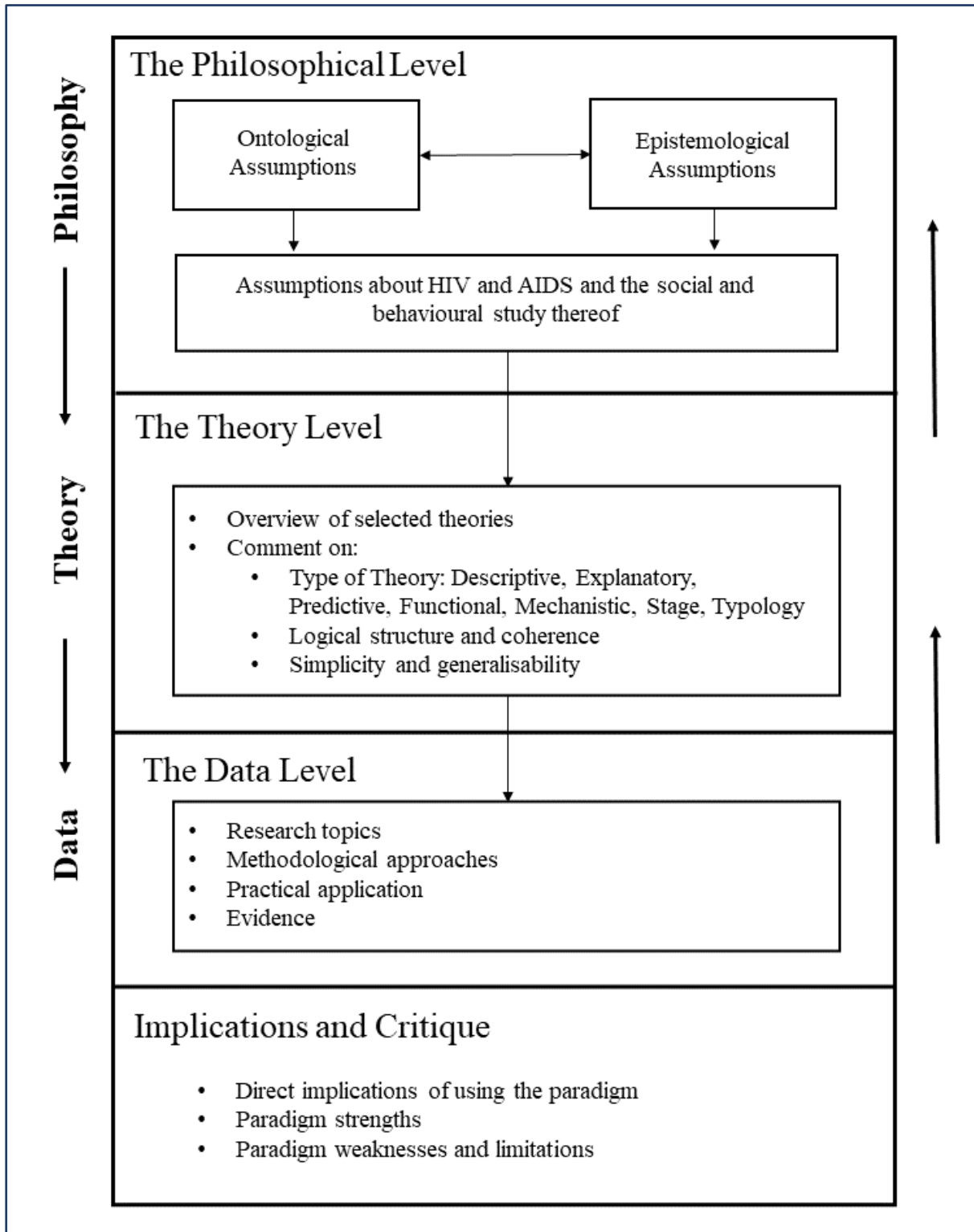


Figure 6. 1 The Meta-Theoretical Analysis Framework of the Current Study

Information about theories was sourced from the original theory material (i.e., the original publications where the theory was first introduced and subsequent publications by the theorists who further discussed or refined the theory). Other information sources included other reviews of the specific theory, including narrative reviews, critiques, high-quality meta-analyses and systematic reviews of the theory, the South African HIV literature regarding the theory, as well as philosophy of science and meta-theoretical publications which discuss the theory (e.g., Hagger et al., 2020; Lincoln et al., 2018; Madsen, 1988; Michie et al., 2014).

The **philosophical level** of the meta-theoretical framework entailed an analysis of the paradigm's ontological assumptions as well as its epistemological point of departure. This level corresponds with Madsen's (1988) meta-stratum. A further set of assumptions were created for each paradigm which attempted to capture their unique approaches to the social and behavioural study of HIV.

The **theoretical level** involved producing a short outline of the theories within each paradigm that was the most frequently used in the South African HIV literature. Thereafter, three of the most prominent theories within each paradigm were discussed in greater detail.

The **data level** involved remarking on the research topics, methodological approaches and practical applications that were typically associated with each paradigm in the South African HIV literature. Thereafter, a review was presented of the tests of theories and/or the evaluation results of interventions that were based on each paradigm.

Lastly, based on this meta-theoretical analysis, remarks were made regarding the direct implications of using each paradigm, as well as their strengths and limitations.

6.9. Conclusion

This study draws upon a systematic literature review and meta-theoretical research methods, approached from a critical realist perspective, to gain a deeper understanding of the way theory is utilised within the socio-behavioural study of HIV and AIDS in South Africa. The results of the article search and analysis of the research themes are reported in the next chapter. The analysis of theory is reported on in Chapter 8. The meta-theoretical analysis is presented in Chapter 9. A summary of the study's main findings, the implications thereof and closing remarks will be provided in Chapter 10.

Chapter 7: The Historical Development of Research Focus Areas in the Social and Behavioural Study of HIV and AIDS in South Africa

“AIDS, like all epidemic disease, constitutes a natural experiment in the ability of social institutions to respond effectively and humanely to a biological crisis.” – Allan Brandt (1988b, p. 380)

7.1. Introduction

This chapter describes the results of the thematic analysis of research focus areas in the literature, thereby fulfilling the first aim of this study. This exploration of the literature is meant to provide a historical and contextual background for the subsequent analysis of the theories and paradigms that were used in the literature. The thematic analysis does not necessarily detail specific research findings; however, it provides an overview of the general trends in research priorities, approaches and perspectives from 1985 to 2020.

This chapter is divided into four sections. The first two sections report the literature search results and notable publication trends. The third section reports on the thematic analysis of the literature, structured around the five predetermined overarching themes: *prevention, testing and treatment, care and support, living with HIV* and the *impact of HIV and AIDS*. The fourth section includes a discussion of the various intervention techniques and approaches identified in the literature.

7.2. Literature Search Results

Figure 7.1 provides a summary of the search strategy returns. A total of 454 380 article records were identified from the initial title search, and 23 397 article records were identified from the topic search. After preliminary screenings for geographical and topic relevance, a total of 14 349 articles remained. During the eligibility screening, 5 966 article records were excluded as they did not meet the study’s inclusion criteria and a further 4 558 duplicate article records were also excluded. During the review of the articles, a total of 24 relevant and eligible papers

were identified that were not already part of this study's data set. The total number of articles that were thus included in the study was 3 848⁹⁶. A structured review spreadsheet (Appendix F) was used to collect information about each article and conduct a thematic analysis of the research topics described in each article.

The full texts of two per cent (n = 76) of the articles that were included in the study were not locatable. Most of these papers were published in the 1980s or 1990s in journals that were not digitised and/or discontinued. These papers were reviewed and analysed based on their titles and abstracts and any other details that could be found about them via other papers that cited them. The information gained from this review was used for the thematic research focus analysis. If there were clear indications that the unlocatable paper used a theory (based on its title and abstract), it was also included in the theory analysis phase of the study.

A total of 1 949 articles were identified that either seemingly did not use theory (n = 1 908) or for which a full-text could not be found, and there were no indications based on a reading of its title or abstract whether it involved the use of a theory (n = 41). These articles were excluded from further analysis. A total of 1 899 articles, which utilised theory, either implicitly or explicitly, remained and were included in the theory and meta-theoretical analysis phases of the study that is discussed in chapters 8 and 9.

⁹⁶ This was calculated by adding the total number of records identified after screening (n = 14 349) with the eligible articles found via reference lists (n = 24) and then subtracting that number from the sum of the total number of papers that were excluded because they did not meet this study's inclusion criteria (n = 5 966) and the total number of duplicates (n = 4 559) i.e., $(14\,349 + 24) - (5\,966 + 4\,559) = 3\,848$

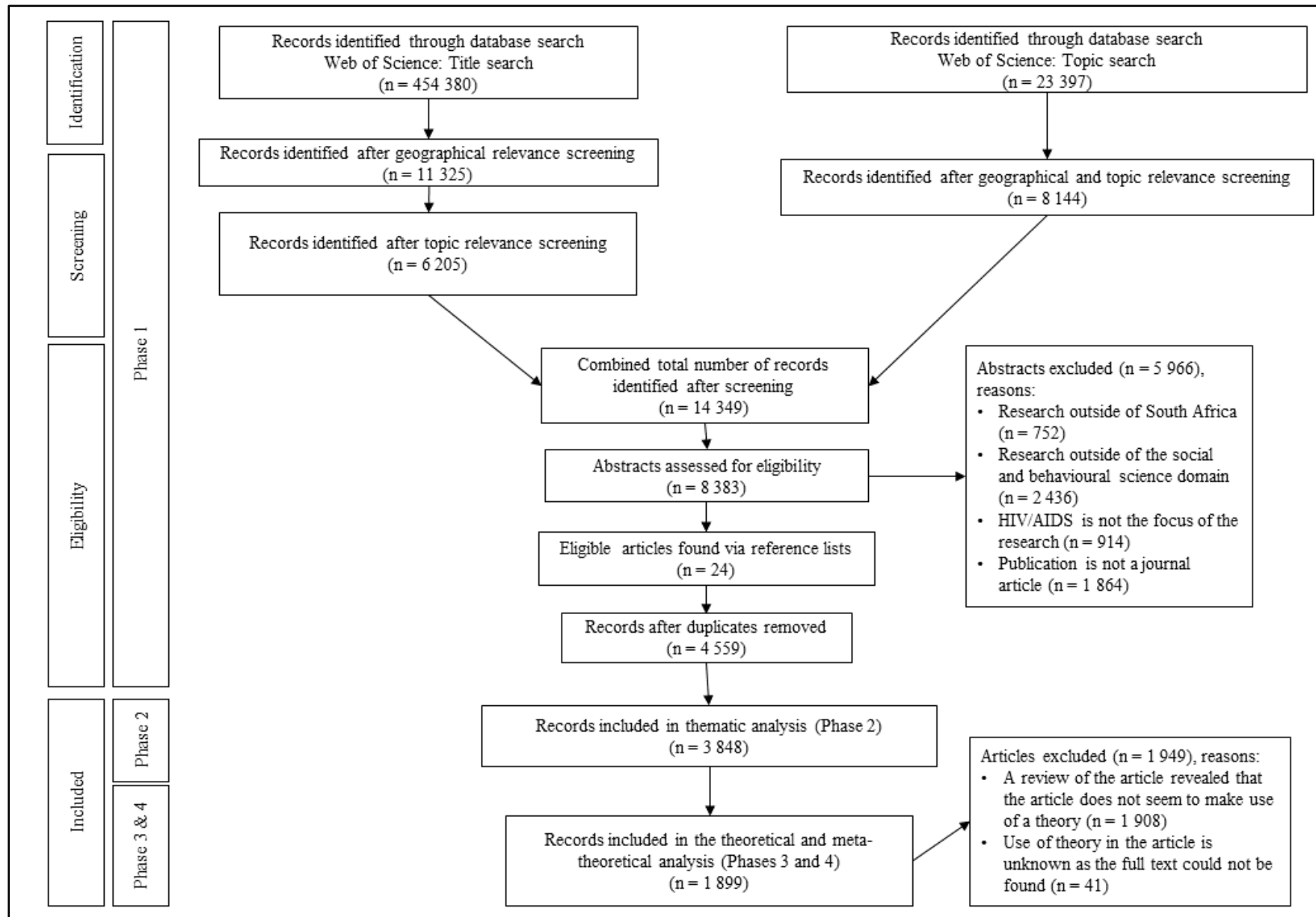


Figure 7. 1 Search Strategy Results

7.3. Publication Trends and Research Methods

Figure 7.2 is a column chart that illustrates the total number of articles that were included in the study, arranged by year. The first peer-reviewed journal article, which pertained to the social and behavioural aspects of HIV and AIDS in South Africa, was published in 1985. While only a few peer-reviewed journal articles regarding this topic were published in the 1980s, there were many letters to the editor and opinion pieces about HIV and AIDS, especially in the *South African Medical Journal*⁹⁷. In total, 116 articles were published between 1985 and 1999. The number of articles about the social and behavioural aspects of HIV and AIDS in South Africa started to increase in the early 2000s and reached a peak in 2015. Subsequently, it appears that the number of articles have stabilised at around 275 per year. In their behavioural and social sciences bibliometric review of the global HIV literature, Lakeh and Ghaffarzadegan (2017) found a similar rapid increase in publications from the early 2000s onwards, particularly for papers from the sub-Saharan Africa region. These publication trends mirror the so-called “silent” nature of the South African HIV epidemic in the 1980s and 1990s. It was only towards the early 2000s, as the full extent of the epidemic became apparent through the sharp rise in mortality, that HIV and AIDS started to gain more widespread attention.

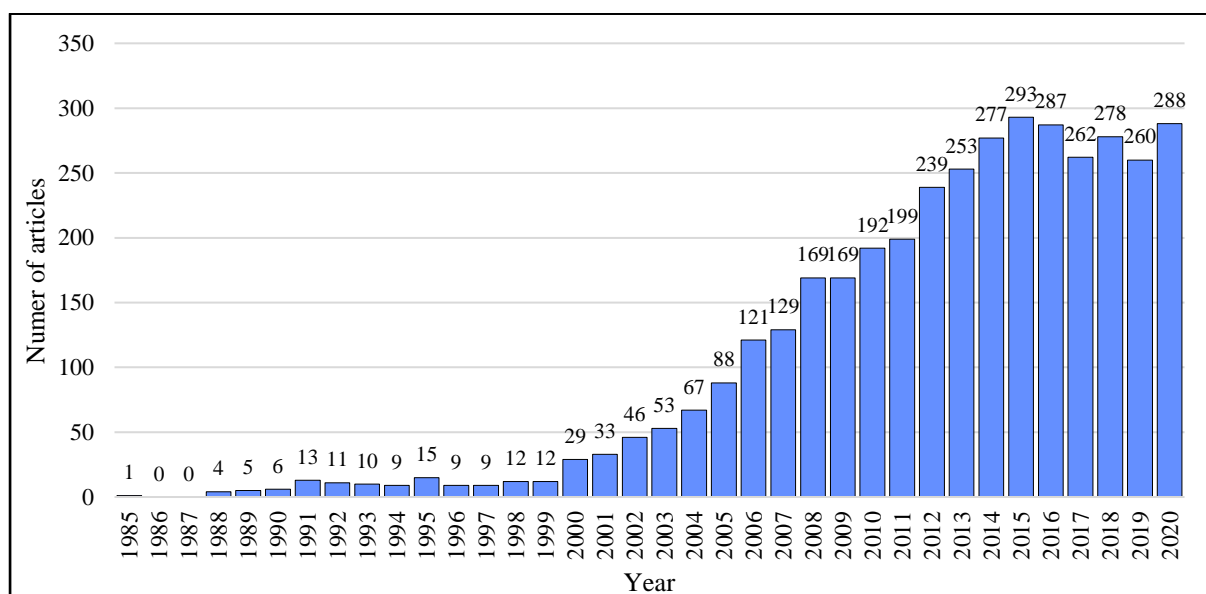


Figure 7.2 Total Number of Articles Regarding the Social and Behavioural Aspects of HIV and AIDS in South Africa (n = 3 848), 1985-2020⁹⁸

⁹⁷ Dr. Carla Tsampiras (2015) offers an insightful analysis of the publications (and in particular the correspondence and opinion articles) regarding HIV and AIDS, that were published in the *South African Medical Journal* between 1980 and 1995.

⁹⁸ The colour scheme for most of the charts and graphs in this thesis were chosen based on the colours in IBM’s Colour Blind Safe Palette.

Table 7.1 presents the overall number of articles for each research method. Overall, most papers utilised quantitative research methods (50.5%; n = 1 938). Figure 7.3 demonstrates the proportion of each methodological approach per year from 1988 to 2020. While quantitative methods remained the most commonly used research method throughout the entire study period, the average proportion of papers that utilised qualitative research methods increased markedly from 19.0% in the 1985 to 1999 time period to 31.2% in 2000 to 2009 and 35.7% in the 2010 to 2020 time periods.

Table 7.1 Research Methodology – Proportion of All Articles Published Between 1985 and 2020

Research methodology	n	%
Quantitative	1938	50.5%
Qualitative	1340	34.9%
Mixed methods	303	7.9%
Literature review/critical analysis	258	6.7%
Total*:	3839	100.0%

*Nine articles were not included here, as full-text copies were not locatable and it was not possible to ascertain what research methodology was used based on reading their abstracts.

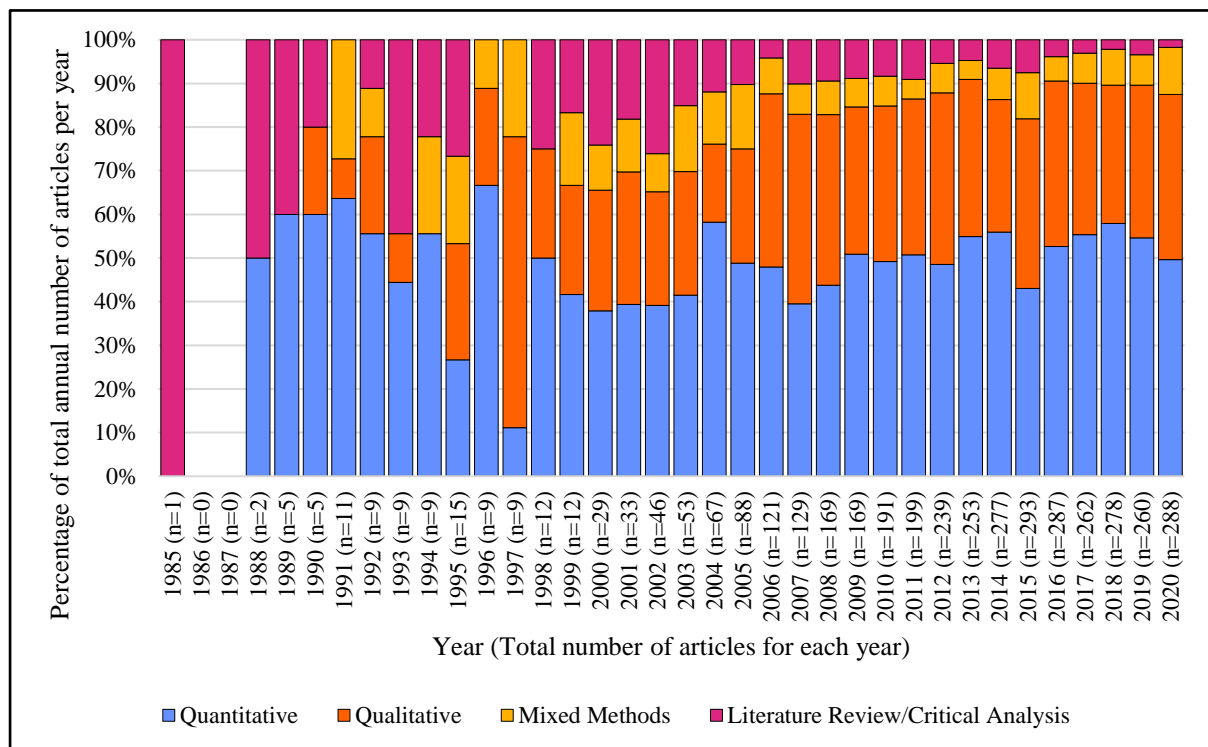


Figure 7.3 The Proportion of Methodological Approaches in the Literature, from 1985 to 2020

Table 7.2 is a cross-tabulation of the use of research methods across the five overarching research themes. While quantitative methods were most dominant in the *Testing and Treatment* (56.9%; n = 346), *Living with HIV* (58.7%; n = 385), *Prevention* (51.5%; n = 1 019) themes, qualitative methods were more prominent in the *Impact of HIV and AIDS* (54.1%; n = 144) and *Care and Support* (48.6%; n= 161) themes. In addition, literature reviews and critical analyses were more visible in the *Impact of HIV and AIDS* literature (14.3%; n = 38). Mixed research methods were more prevalent amongst articles in the *Care and Support* theme (11.5%; n = 38).

Table 7. 2 Research Methods Disaggregated by Overarching Research Theme

	Prevention		Testing and Treatment		Care and Support		Living with HIV		Impact of HIV and AIDS	
	n	%	n	%	n	%	n	%	n	%
Literature and/or Critical Review and Analysis	144	7.3%	28	4.6%	15	4.5%	33	5.0%	38	14.3%
Mixed methods	165	8.3%	53	8.7%	38	11.5%	34	5.2%	13	4.9%
Qualitative	650	32.9%	181	29.8%	161	48.6%	204	31.1%	144	54.1%
Quantitative	1019	51.5%	346	56.9%	117	35.3%	385	58.7%	71	26.7%
Grand total	1978	100.0%	608	100.0%	331	100.0%	656	100.0%	266	100.0%

7.4. Research Themes

7.4.1. General Overview

Based on a review of each article’s title and abstract, papers were placed in *a priori* overarching themes, namely *prevention*, *testing and treatment*, *care and support*, *living with HIV*, and *impact of HIV and AIDS*. Table 7.3 lists the total number of articles within each theme, and Figure 7.4 is a 100% stacked column chart that illustrates the trends in research themes over time.

Table 7.3 Research Themes in the South African Literature About the Socio-Behavioural Aspects of HIV and AIDS, 1985-2020

Overarching theme	n	%
Prevention	1983	51.5%
Living with HIV	657	17.1%
Testing and treatment	608	15.8%
Care and support	332	8.6%
Impact of HIV and AIDS	268	7.0%
Total	3848	100.0%

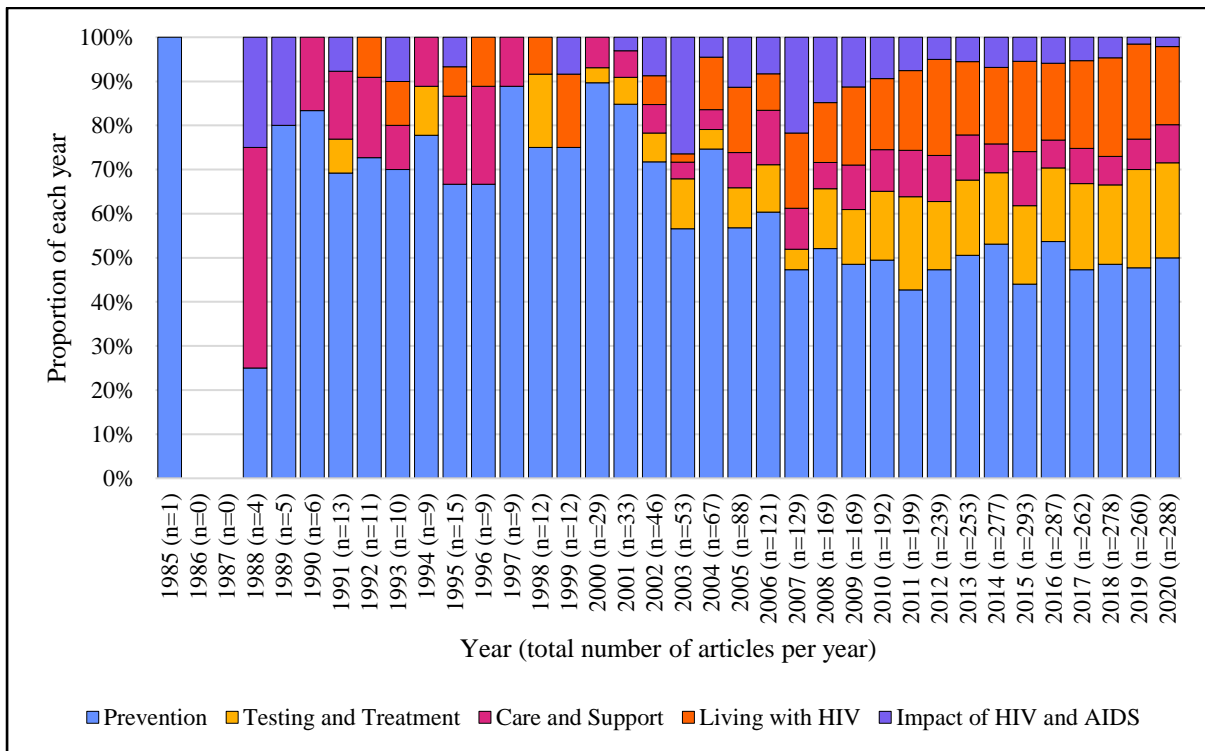


Figure 7.4 Research Theme Trends Over Time, 1985-2020

The first peer-reviewed journal article about HIV and AIDS in South Africa was published in 1983. The article described the first two documented cases of HIV and AIDS in the country that was identified in 1982 (Ras et al., 1983). All subsequent South African publications regarding HIV and AIDS during this period focused exclusively on the medical and diagnostic aspects of the disease; however, a few discussed the possible implications of HIV for medical professionals such as dentists and nurses (e.g., Herbst, 1985; Terblanche & van der Merwe, 1988).

The first article, which dealt with the psycho-social aspects of HIV in South Africa, was published in 1985. The authors encouraged medical professionals to view AIDS from a “holistic point of view, incorporating medical, psychological and social factors” (Isaacs & Miller, 1985, p. 327). The authors also provided guidelines on how medical professionals can obtain a comprehensive psychosexual history from their gay male patients and how they can use this information to provide appropriate HIV prevention education, counselling and referral.

As Figure 7.2 illustrates, publication numbers were particularly low during the 1980s and 1990s, suggesting that little attention was paid to the social and behavioural aspects of HIV and AIDS in the South African research community. The number of articles on this topic only started to increase from the year 2000 onwards. These publication trends reflect the HIV morbidity and mortality trends of South Africa to a large extent, as well as the increase in access to international funding that became more available in the early 2000s as the Global Funded and PEPFAR launched in 2002 and 2003. The increase in funding platforms provided more incentives and offered more opportunities for social scientists to conduct research on the social and behavioural aspects of HIV and AIDS and to incorporate HIV research into their existing research programmes. As academic interest in the topic grew, two specialised journals were launched, the *African Journal of AIDS Research* and the *Journal of Social Aspects of HIV/AIDS Research Alliance (SAHARA Journal)*, which provided a space for the publication of papers in this field and, to some extent it, encouraged the publication of papers on the social and behavioural aspects of HIV and AIDS. Moreover, the establishment of South African and international professional networks for HIV practitioners and researchers, as well as the creation of scientific conferences especially focused on HIV and AIDS, may have also contributed to the promotion of greater HIV-related academic scholarship by encouraging knowledge sharing and dissemination.

Throughout the 35 years, articles about *prevention* remained the most common theme in the academic literature (51.5%; n = 1 983). However, by the early 2000s, the number of articles published on the social and behavioural aspects of HIV and AIDS in South Africa increased, and the topics that these articles covered also became more varied. The high HIV mortality rates of the early 2000s prompted numerous studies on the care and support needs of people living with HIV and those who care for them as well as the impact that HIV and AIDS have on affected communities and families.

South Africa's so-called "age of treatment" commenced at the end of 2003 with the launch of the National Operational Plan on Comprehensive Care and Treatment for HIV, which allowed for the national roll-out of ART and PMTCT (NDoH, 2003). In anticipation and in response to this, research that pertained to testing and treatment increased steadily from the early 2000s. As Treatment as Prevention and Universal Testing and Treatment became a national public health priority in 2016 (Medicines Information Centre, 2016), so too did research on testing and treatment become more prominent in the literature in the late 2010s.

The 2010s have been characterised by some as the beginning of the end of the pandemic (the so-called "End of AIDS"). While this may not necessarily mean a complete eradication of the disease, it signifies the dawn of a new era (Mojola et al., 2022). Improved access to ART, as well as the increasing early initiation thereof, have transformed HIV from once being a dreaded, fatal disease, to a treatable and chronic condition, much like diabetes. As the destructive effects of HIV and AIDS seemed to diminish over the years, fewer research papers focused on the impact of HIV and caregiving and instead, the focus shifted more towards the social and psychological well-being of people who are living with HIV, disclosure, experiences with stigma, adherence to ART and the management of co-morbidities.

Although the AIDS mortality rate has been greatly reduced, HIV incidence rates remain unnecessarily high. To find more effective ways to prevent the spread of HIV, research focusing on biomedical HIV prevention methods such as microbicides, PrEP, and male circumcision advanced rapidly from the late 2000s and predominated the South African prevention literature in the 2010s.

The following section explores each overarching theme and its sub-themes in greater detail. Please note that the quantitative description of sub-themes only includes articles that were published from 1985 to 2015. It was decided to stop the sub-theme review at 2015 as the most prominent subtheme patterns were already clearly established by 2015, and an in-depth analysis of the remaining five years was not practically feasible for the purposes of this present study. An analysis of the research themes and their sub-themes in all papers published between 1985 and 2020 will be completed and published in an upcoming peer-reviewed journal article. Table 7.4 provides a summary of the frequency of articles per sub-theme. Note that articles were allocated to more than one relevant sub-theme in some instances, and the total number of articles in the table does not correspond with the total number of articles reviewed in the 1985 to 2015 time period. The majority of socio-behavioural articles focused on sexual risk

behaviours (e.g., condom use, multiple concurrent partners) (n = 769; 31.1%) and HIV prevention aimed at young people (n = 661; 26.7%). Research on knowledge, attitudes and beliefs about HIV, sex, relationships and health (n = 408; 16.5%), as well as the research about the socio-behavioural dynamics behind the uptake, use and adherence to biomedical HIV prevention methods (n = 362; 14.6%) were also prominent topics in the literature.

Table 7.4 Ordered List of the Frequency of Subthemes Identified from the Literature, 1985-2015

Subthemes	n	%
Sexual risk behaviour	769	31.1%
HIV Prevention focused on the youth	661	26.7%
Knowledge, attitudes, and beliefs about HIV, sex, relationships and health	408	16.5%
The socio-behavioural aspects of biomedical HIV prevention	362	14.6%
The gendered aspects of HIV and the role of sexual violence in HIV risk	235	9.5%
Psychological health and well-being of people living with HIV	231	9.3%
The social and behavioural aspects of ART	222	9.0%
Vulnerable communities and structural drivers of HIV	209	8.5%
Living with HIV	147	5.9%
The socio-behavioural aspects of HIV Testing	126	5.1%
The social and psychological impact of HIV on individuals, families and communities	112	4.5%
Orphans and children made vulnerable by HIV and AIDS	103	4.2%
Cultural and societal beliefs in relation to HIV and AIDS	88	3.6%
Healthcare workers	69	2.8%
Counsellors, volunteers, peer mentors and informal caregivers	60	2.4%
HIV prevention focused on other vulnerable and minority groups	55	2.2%
Risk behaviour post-diagnosis	18	0.7%

7.4.2. Prevention

Table 7.5 presents the subthemes that were identified within the *prevention* theme. The table presents the frequencies of each subtheme within the larger theme and across all the themes from 1985 to 2015. Note that some articles were allocated to more than one subtheme, as they applied to multiple subthemes. Figures 7.13 – 7.22 summarises the frequency of sub-themes over time. Sexual risk behaviour was the largest subtheme (59.1%; n = 769) and was also the

most common topic across all the socio-behavioural articles that were published between 1985 and 2015 (31.1%).

Table 7.5 Prevention Subthemes, 1985-2015

	In theme		Overall
	n	%	%
Subtheme 1: Sexual risk behaviour			
Risk behaviours in general	379	29.1%	15.3%
Multiple concurrent partnership focus	135	10.4%	5.5%
Substance abuse focus	94	7.2%	3.8%
Early sexual debut focus	64	4.9%	2.6%
Transactional sex focus	58	4.5%	2.3%
Sex industry focus	28	2.2%	1.1%
Intergenerational relationship focus	11	0.8%	0.4%
Total	769	59.1%	31.1%
Subtheme 2: HIV prevention focused on the youth			
HIV prevention in schools and the role of teachers	267	20.5%	10.8%
Youth HIV prevention	199	15.3%	8.0%
Risk behaviour amongst the youth	171	13.1%	6.9%
Information sources and communication about HIV and sex	24	1.8%	1.0%
Total	661	50.8%	26.7%
Subtheme 3: The socio-behavioural aspects of biomedical HIV prevention			
Male Condoms	143	11.0%	5.8%
PMTCT	68	5.2%	2.7%
Microbicide	55	4.2%	2.2%
Male circumcision	42	3.2%	1.7%
Risk compensation	22	1.7%	0.9%
PrEP	14	1.1%	0.6%
Female condoms	13	1.0%	0.5%
PEP	5	0.4%	0.2%

Total	362	27.8%	14.6%
Subtheme 4: Knowledge, attitudes, beliefs about HIV, sex, relationships and health			
Sexuality and beliefs about sex, relationships and health	271	20.8%	11.0%
Knowledge, attitudes, perceptions and sexual behaviour	137	10.5%	5.5%
Total	408	31.3%	16.5%
Subtheme 5: The gendered aspects of HIV and the role of sexual violence in HIV risk			
The gender aspects of HIV prevention	164	12.6%	6.6%
Sexual violence	71	5.5%	2.9%
Total	235	18,0%	9,5%
Subtheme 6: Focus on communities and structural drivers of the pandemic			
Structural drivers of the pandemic	125	9.6%	5.1%
HIV prevention focused on communities	84	6.5%	3.4%
Total	209	16,1%	8,5%
Subtheme 7: HIV prevention focused on other vulnerable and minority groups			
MSM vulnerability	27	2.1%	1.1%
People living with disabilities	19	1.5%	0.8%
Psychiatric patients	5	0.4%	0.2%
Refugees, migrants and immigrants	4	0.3%	0.2%
Total	55	4.2%	2.2%
Grand Total	1 302		2 473

7.4.2.1. Sexual risk behaviour

Figure 7.5 illustrates the number of articles per year that were published on each subcomponent of the sexual risk behaviour subtheme.

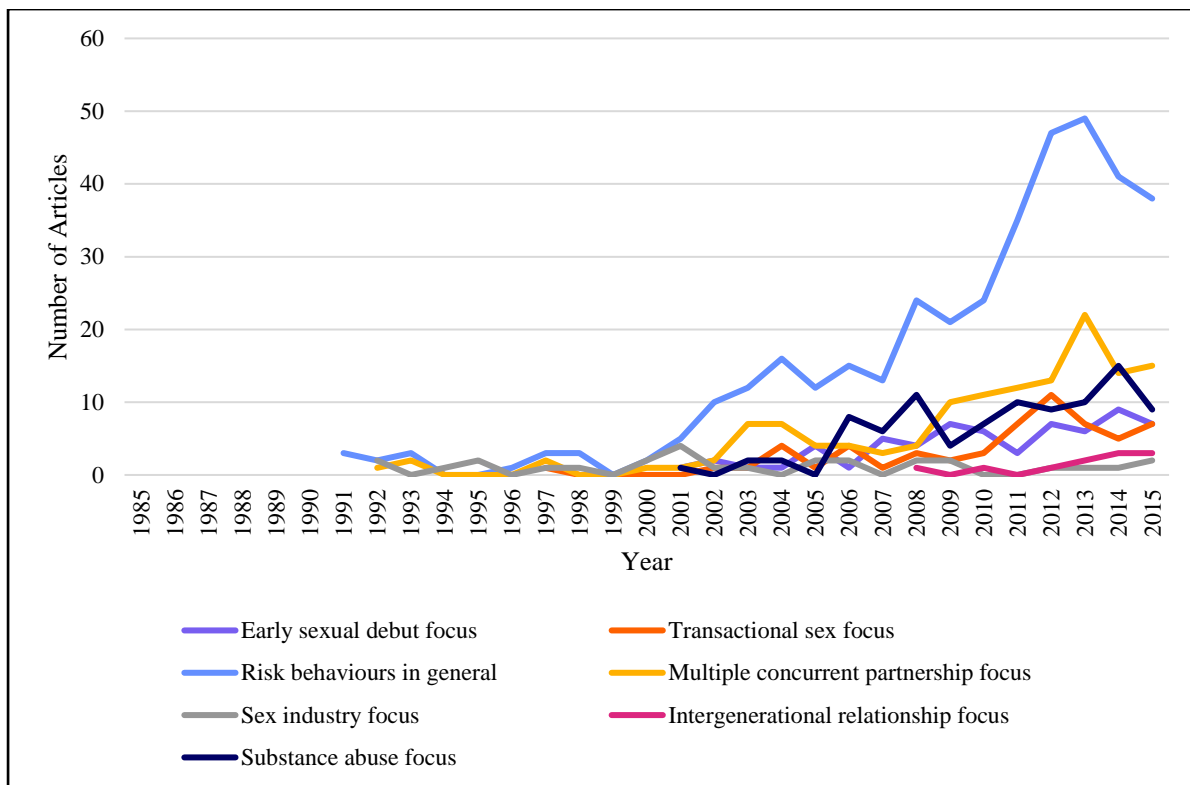


Figure 7.5 The Annual Number of Articles in the Sexual Risk Behaviour Subtheme, 1985-2015

Research on sexual risk behaviour comprised the largest portion of the prevention literature overall. In the early years of the pandemic, most articles discussed risky sexual behaviour in general, mostly focussing on condom use and the number of partners (e.g., Eaton et al., 2003; O’Farrell et al., 1992). By the early 2000s, other risk behaviours started to attract research attention. Substance abuse’s role in enhancing HIV infection risk started to receive increased attention in the early 2000s and became particularly prevalent in the literature from 2008 onwards (e.g., Lane et al., 2008a). Research that focused specifically on multiple concurrent partnerships became particularly prominent in the literature towards the late 2000s and early 2010s, as epidemiological research started to indicate that multiple concurrencies represent the most significant factor in the spread of HIV in South Africa (Kenyon et al., 2010). Intergenerational sex as a driver of the spread of HIV, particularly from adult men to AGYW, started to receive attention in the literature in 2008 (e.g., Harrison et al., 2008). Likewise, while research on transactional sex had been visible in the literature since the late 1990s, it started to gain more attention in the early 2010s (e.g., Hunter, 2015) as the so-called “sugar daddy” and “blesser” phenomena became more prominent. Research on risk behaviour continued to receive

a high degree of attention in the literature in the 2010s and is expected to remain a primary topic of inquiry in the HIV field (e.g., Govender et al., 2020).

7.4.2.2. HIV prevention focused on the youth

Figure 7.6 illustrates the number of articles per year that were published on each subcomponent of the HIV prevention focused on the youth subtheme.

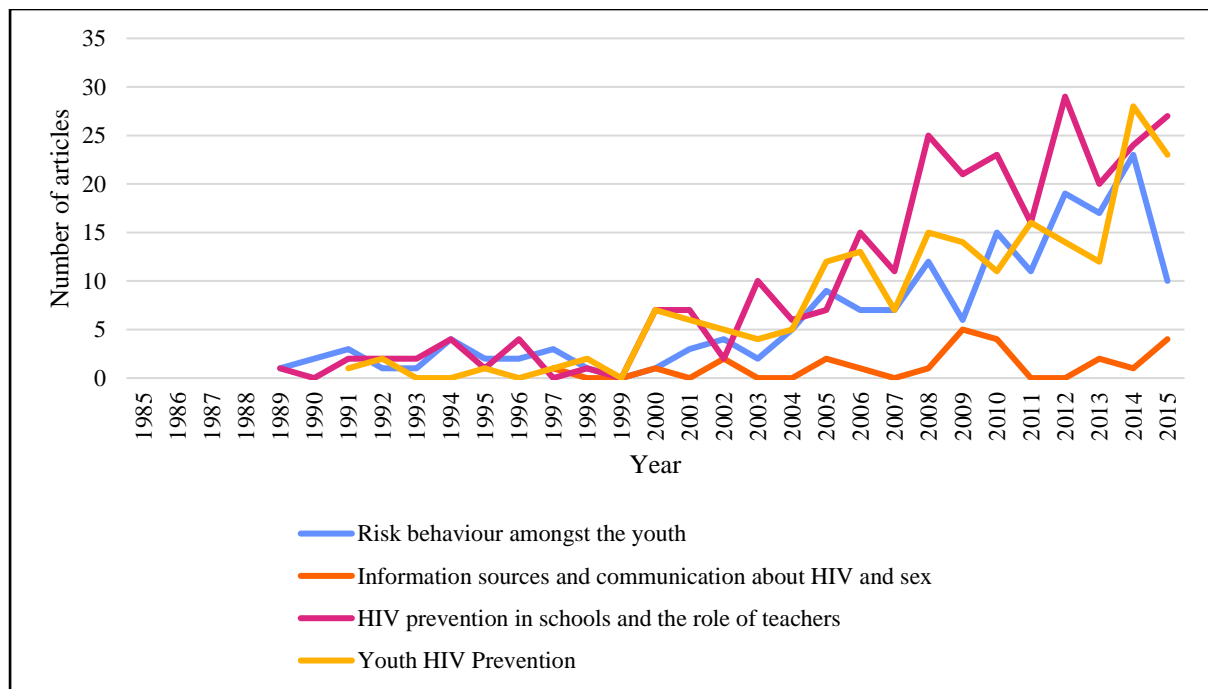


Figure 7.6 The Number of Articles, per year, in the HIV Prevention Focused on the youth Subtheme, 1985-2015

Early papers emphasised the belief that, for HIV prevention to be truly effective and sustainable over the long term, the focus should be on the youth (i.e., school-going children, adolescents, and young adults). Hence, many basic and applied research projects during the late 1980s and early 1990s centred around studying the risk behaviours, knowledge and attitudes of young people and explored ways in which schools and universities could be sites for HIV prevention programming (e.g., Cilliers, 1989; Frame et al., 1991; Mathews et al., 1990). The youth as a key focus area for HIV prevention has remained a constant throughout the study period.

Of particular interest to the scientific community has been the prevalence of sexual risk behaviour amongst the youth (e.g., Peltzer et al., 2000); young people’s knowledge of and attitudes towards HIV prevention (e.g., Kaya & Kau, 1994); the sexual and reproductive health needs of the youth (e.g., Vujovic et al., 2014); the sources of information that young people draw upon to learn more about HIV prevention as well as sexual and reproductive health in

general (e.g., Lebesse et al., 2010); the heightened vulnerability of AIDS-orphans to earlier sexual debut, sexual exploitation and HIV infection (e.g., Thurman et al., 2006); as well as the role that schools and teachers can play in promoting HIV prevention amongst the youth (e.g., Holderness, 2012). HIV prevention amongst the youth remains a critical priority as new HIV infections continue to be the highest amongst the youth (Simbayi et al., 2019).

7.4.2.3. Socio-behavioural aspects of biomedical HIV prevention

Figure 7.7 illustrates the number of articles per year that were published on each subcomponent of the socio-behavioural aspects of biomedical HIV prevention subtheme. Interest in the social and behavioural aspects of ART and biomedical HIV prevention methods, such as PMTCT, microbicides, male circumcision and PrEP, started to develop in the early 1990s, but became more visible in the literature towards the late 2000s and early 2010s as research on biomedical prevention intensified.

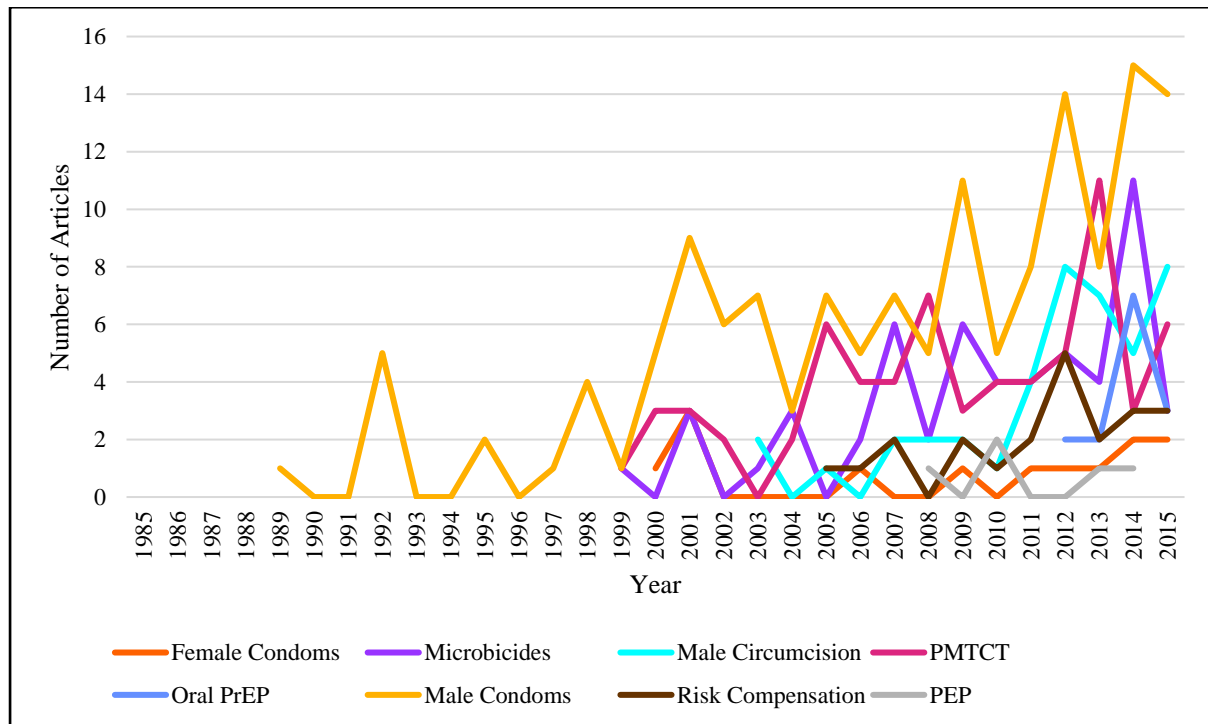


Figure 7.7 The Number of Articles, per year, in the Socio-Behavioural Aspects of Biomedical HIV Prevention Subtheme, 1985-2015

The earliest socio-behavioural research on biomedical HIV prevention focussed primarily on the use of the male condom and people’s perceptions of it (e.g., Frame et al., 1991; Mokhobo, 1989). Research about condom use has, and continues to include, how consistently people use condoms, their attitudes towards condoms, their knowledge of how to use condoms, their intentions to use condoms, and the factors that influence condom use (e.g., Heeren et al., 2009).

As condoms remain one of the simplest and most common ways to prevent HIV transmission, research about people's knowledge, attitudes and use of condoms has persisted throughout the 2000s and 2010s (e.g., De Wet-Billings & Billings, 2020).

From the early 1990s, interest in the development of female-controlled HIV prevention methods (e.g., the female condom and the microbicide gel and diaphragm) started to gain ground internationally, based on the assumption that men are more often in control of whether condoms will be used in a sexual encounter, and that women are not always in a position to negotiate condom use with their male partners successfully. Hence, it was argued that female-controlled HIV prevention methods might empower women to protect themselves against HIV (and pregnancy in the case of the female condom) (Elias & Coggins, 1996; Stein, 1990). Towards the late 1990s and early 2000s, more South African research interest started to focus on female-controlled HIV prevention methods, including the acceptability of these methods (e.g., Naidu, 2013; Ramjee et al., 1999); male partner's opinions about these methods (e.g., Masvawure et al., 2014); couple's communication about the use of these methods (e.g., Gafos et al., 2015); and the factors that may promote or discourage the use of these methods (e.g., Mahlalela & Maharaj, 2015). Further socio-behavioural research on microbicides sought to explore women's understanding of microbicide efficacy (e.g., Mantell et al., 2006a); microbicide adherence (e.g., Marrazzo et al., 2015); as well as the possibility of covertly using microbicides and the implications thereof (e.g., Kelly et al., 2015; MacPhail et al., 2009; Mngadi et al., 2014).

Research in South Africa and globally revealed that although women and men have fairly positive attitudes about the female condom, its limited availability and familiarity, as well as its size, serve as significant barriers to the broader acceptance and use of the female condom (Kanda & Mash, 2018; Mahlalela & Maharaj, 2015; Naidu, 2013). While there were some studies on female condom-related knowledge, attitudes, and use in the mid- to late-2010s (e.g., Mantell et al., 2020; Smit et al., 2006a), interest in the topic declined.

While microbicide research initially held a great deal of promise (Abdool Karim et al., 2010), low adherence amongst research participants in some randomised controlled trials delayed progress in the study of microbicides (e.g., Marrazzo et al., 2015). Consequently, it highlighted the need for more research on the acceptability of microbicide products. Subsequent research in the mid- to late 2010s focused on studying women's preferences for different microbicide products (Weinrib et al., 2020).

The socio-behavioural study of oral PrEP in South Africa emerged in 2012, focusing on the acceptability of and attitudes towards PrEP (e.g., Eisingerich et al., 2012) and the development of counselling systems to support PrEP adherence (e.g., Amico et al., 2012). Most of the research since then has focused on PrEP adherence, including adherence patterns and the factors that support or impede PrEP adherence (e.g., Corneli et al., 2014) and the socio-behavioural dynamics behind adherence reporting (e.g., Corneli et al., 2015a). Other research on PrEP included studies on the factors that influence retention in PrEP clinical trials (e.g., Magazi et al., 2014), male partner influence on women's willingness to participate in PrEP studies (e.g., Montgomery et al., 2015), and women's perceptions of HIV risk and anxiety about contracting HIV while participating in a PrEP study (e.g., Corneli et al., 2014). Globally, PrEP is viewed as an important alternative HIV prevention option, especially for high-risk individuals (UNAIDS, 2022a). However, progress towards the widespread dissemination of PrEP has been slow in Sub-Saharan Africa, including South Africa. Consequently, research about the acceptability of and community readiness for PrEP (e.g., Nakasone et al., 2020); the factors that may influence PrEP uptake, disclosure and adherence (e.g., Velloza et al., 2020) remain high-priority research topics.

Research regarding the socio-behavioural aspects of PMTCT started to emerge in 1999 in the South African literature and became more prevalent by the mid-2000s as the government started to provide PMTCT in public healthcare facilities. Socio-behavioural PMTCT research focused largely on HIV-positive mothers' child-feeding practices and the factors that influence their decisions around child-feeding (e.g., Kuhn et al., 1999; Seidel, 2004; Yako & Nzama, 2013); but also included articles on the acceptability of PMTCT-related VCT (e.g., Wilkinson & Wilkinson, 2001); the social, economic, cultural and related factors that support and/or hinder partaking in PMTCT (e.g., Thairu et al., 2005; Varga & Brookes, 2008) as well as male involvement in PMTCT programmes (e.g., Maman et al., 2014a; Yende et al., 2017). Although the final vertical HIV transmission rate⁹⁹ in South Africa has declined from 15.3% in 2010 to 3.9% in 2020 (UNAIDS, 2022a), concerns remain about inconsistent PMTCT adherence and high drop-out rates amongst women in PMTCT and antenatal care programmes (Psaros et al., 2020). Hence, research about PMTCT adherence, including strategies to improve PMTCT retention and adherence, remained visible in the literature in the late 2010s (e.g., Hamilton et al., 2020).

⁹⁹ The final rate of mother-to-child HIV transmission includes transmission during pregnancy, delivery and breastfeeding (UNAIDS, 2022a).

Social and behavioural research on male circumcision emerged in 2003, primarily to explore its acceptability amongst men in high-risk communities (e.g., Lagarde et al., 2003; Scott et al., 2005). After the ANRS 1265 Trial demonstrated the protective benefits of male circumcision (Auvert et al., 2005), more research started to focus on male circumcision, exploring topics such as the attitudes and beliefs of medical professionals, traditional healers and the general population regarding male circumcision (e.g., Phili, 2014); women's perceptions of male circumcision (e.g., Ikwegbue et al., 2015); the factors that promote willingness amongst men to undergo voluntary medical male circumcision (e.g., George et al., 2014); and traditional male circumcision and HIV prevention (e.g., Greely et al., 2013). Voluntary medical male circumcision remains a key HIV prevention strategy in South Africa. Research pertaining to men's experiences with circumcision and their attitudes towards it (e.g., Nxumalo & Mchunu, 2020), as well as women's role in encouraging their male partners to undergo the procedure (e.g., Chetty-Makkan et al., 2019), remain prominent in the socio-behavioural HIV literature in the late 2010s.

Compensatory risk behaviour first started to receive research attention in the South African literature in the mid-2000s in the context of vaccine trial participation (e.g., Andersson et al., 2007; Smit et al., 2006b; Smit et al., 2006c; Swartz et al., 2005); microbicide use (e.g., Guest et al., 2007), circumcision (e.g., Maughan-Brown & Venkataramani, 2012) and PrEP use (e.g., Corneli et al., 2015b). Compensatory risk behaviour continues to be an important research topic in the 2010s and beyond, with more recent articles focussing mainly on circumcised men and their partners (e.g., Govender et al., 2018; Greevy et al., 2018).

7.4.2.4. Knowledge, attitudes, beliefs about HIV, sex, relationships and health

Figure 7.8 illustrates the number of articles per year that were published on each subcomponent of the knowledge, attitudes, and beliefs about HIV, sex, relationships and health subtheme.

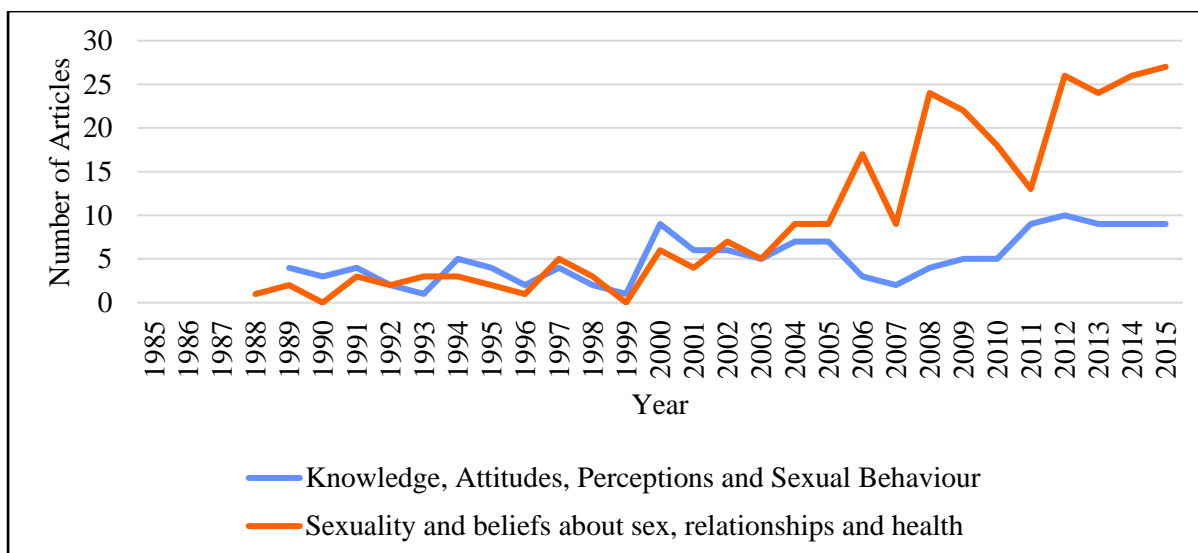


Figure 7. 8 The Annual Number of Articles in Knowledge, Attitudes, Beliefs About HIV, Sex, Relationships and Health Subtheme, 1985-2015

Articles which reported on the study of knowledge, attitudes, and beliefs about HIV, sex, relationships and health were common in the prevention literature. Initially, most research explicitly focussed on the so-called Knowledge-Attitudes-Practices (KAP) approach¹⁰⁰, which entailed using surveys or structured questionnaires to study people’s knowledge about HIV and HIV transmission modes, their attitudes towards people who are living with HIV and HIV prevention and their sexual practices (in general and based on the last time that they had sex) and that people do not always act within their own interest (e.g., Ijsselmuiden et al., 1990; Leclerc-Madlala, 1997; Mathews et al., 1990; O’Farrell & Will, 1989; Sherr et al., 1989). The KAP approach primarily lends itself to quantitative research methods, in particular research surveys, to determine the prevalence of risk behaviours in a particular community or sub-population and evaluate the success of educational HIV prevention programmes.

However, it was already fairly clear from the late 1980s and the early 1990s that education and awareness-raising programmes might not be sufficient to promote behaviour change (Lachenicht, 1993). Short-term studies (e.g., pre- and post-tests after an HIV awareness-raising workshop) showed marked increases in participants’ knowledge, improvements in their attitudes towards HIV prevention strategies and towards people who are living with HIV when these variables were measured shortly after the intervention (e.g., Kuhn et al., 1994). However,

¹⁰⁰ The KAP survey research design became popular amongst HIV social scientists from the mid-1980s onwards in response to the World Health Organizations’ Global Programme on AIDS’s KAP survey prototype which was released in 1987 (Global Program on AIDS, 1990). Subsequently, for the sake of consistency and ease of future comparison (and perhaps also the increased possibility of receiving funding), many researchers incorporated the prototype, or similar, KAP survey into their research (Joffe, 1996a).

despite this observed increase in knowledge, longer-term follow-up studies tended to reveal fewer positive results, often demonstrating that people still engaged in high-risk sexual activity, despite knowing of its dangers (e.g., Williams & Campbell, 1996; Williams et al., 2003). This disjuncture between knowledge and behaviour became known in the family planning field as the so-called “KAP gap” (Bongaarts, 1991).

By the mid-2000s, many social scientists, including the HSRC, started to conclude that HIV knowledge had reached a point of saturation in South Africa, i.e., HIV awareness programmes have reached the vast majority, if not the entire, South African population (Liddell et al., 2008; Shisana et al., 2005). Yet the HIV incidence rate remained relatively high, and although it was declining, the reduction in the number of new infections was slow (Stats SA, 2020). Community and national surveys indicated that, despite having moderate levels of HIV-related knowledge, including awareness about modes of HIV transmission, sexual risk behaviour, such as having unprotected sex, engaging in multiple concurrent sexual partnerships, early sexual debut and being inebriated while engaging in sexual activity, persisted, especially amongst the youth (Katz & Low-Beer, 2008; Makiwane & Mokomane, 2010; Onyensoh et al., 2013). Subsequent national HSRC surveillance studies in 2012 and 2017 highlighted this issue as well, finding that sexual risk behaviour, especially amongst men and youth aged 15 to 24 years, increased between 2008 and 2017 (Simbayi et al., 2019; Zuma et al., 2016).

Moreover, it became apparent that there was often a lack of agreement between research participants’ self-reported risk behaviour and their perception of risk (e.g., Adefuye et al., 2011). In other words, while a research participant would engage in risky sexual activity (e.g., not using condoms regularly, having multiple concurrent partners), they would still deem their risk of contracting HIV to be relatively low. This suggests that the psychological and social dynamics behind risk perception and behaviour are more complex than a simple linear causal relationship between perceptions and behaviour. This underestimation of risk might be because people: a.) may consider their level of exposure to HIV to be low, based on their choice of sexual partners and their perceptions about the partner’s sexual behaviour; b.) because they generally consider the risk of contracting HIV to be a distant (i.e., long-tail) probability that is unlikely to happen to them; c.) or because they engage in protective and/or compensatory behaviours that they consider to be effective at managing their risk exposure (e.g., such as taking frequent HIV tests) (Adefuye et al., 2011; Maharaj, 2004; Maughan-Brown & Venkataramani, 2012). The extent to which people consider themselves at risk of contracting HIV may also depend on whether they have close family members who are living with HIV,

their level of self-efficacy in using HIV protective methods and their psychological and social well-being (Macintyre et al., 2004).

Several cross-sectional studies and evaluations of HIV awareness-raising programmes seemed to concur that imparting knowledge tends to lead to increased awareness of HIV, but does not translate to changed attitudes and behaviours (e.g., Cherian & Maphoso, 2009; Orisakwe et al., 2012; Ruthven, 2016). This suggests that knowledge alone is not enough to change attitudes and behaviour. Moreover, it also suggests that what is typically considered as HIV-knowledge (i.e., that which is tested in KAP surveys) may not encapsulate all people's knowledge regarding HIV, sexuality, sexual practices and health behaviour. To this end, so-called "competing knowledge", such as cultural and religious beliefs and folk theories, may influence how people ultimately behave. Moreover, a distinction can also be made between knowledge that is imparted (i.e., transferred) and knowledge that is endorsed (i.e., internalised). The evidence of a high HIV knowledge rate, yet little evidence of behaviour change, suggests that knowledge may have been imparted, but not fully endorsed by many individuals in the population (Liddell et al., 2008).

Moreover, criticism against quantitative research, particularly the KAP survey-style approach, has been on the increase in the literature since the 1990s. Specifically, the critique centred around the unidimensional nature of such surveys and how they limit a nuanced description of sexuality beyond the rigid biomedical descriptions that most studies had to offer (e.g., Bolton, 1999; Pelto & Pelto, 1997).

As a result, the KAP approach (both the use of the KAP survey and the KAP research focus) became less visible around the mid-2000s. Qualitative and mixed methods research on sexuality, sexual relationship dynamics, and beliefs about sex, relationships and health started to become more visible in the literature (e.g., Harrison, 2008; LeClerc-Madlala, 2009; Liddell et al., 2006). Although a minority of studies still use the KAP approach (e.g., Khamisa et al., 2020), this trend towards the study of sexuality and sexual behaviour and the various cultural and social factors that influence sexual behaviours and beliefs have persisted and grown in the 2010s (e.g., Hodes & Gittings, 2019; Govender et al., 2020).

While the exclusive use of KAP surveys steadily declined over the years, it did not disappear entirely. It remained in the literature to study specific key population groups' knowledge, attitudes and sexual risk practices, in particular, students and school-going youth (e.g., Fennie & Laas, 2014). The influence of KAP surveys also remained through programme outcome

indicators. Starting from the mid-2000s, major HIV research funders, such as PEPFAR and USAID, established HIV behavioural programme outcome indicators that drew upon some of the key questions in these surveys. For example, “Percent of women and men aged 15–49 who say they used a condom the last time they had sex” (PEPFAR, 2009, p. 26). Given that many research projects are funded by PEPFAR or USAID and thus need to use these indicators as part of their funding agreement, this KAP-based way of studying and especially evaluating HIV prevention programmes continued.

The so-called “audit-driven” or “evidence-based” culture that became particularly prominent in the 2010s as a result of the proliferation of donor-funded programmes further promoted the shared understanding amongst social scientists that the use of such indicators is a way to measure programme outcomes transparently and consistently and that it also contributes to the consistent, evidence-based building of knowledge on HIV and AIDS. Using consistent indicators such as this has its benefits, as it helps to strengthen accountability between the funder and the funding recipient and that it contributes to the systematic collection of data on some of the core behaviours that need to be assessed over time as indicators of a programme’s success. However, these indicators and survey items are too closed-ended and restrictive to allow for the collection of deeper, more descriptive and explanatory data. Thus, when they are used on their own to study social phenomena, they may produce a shallow and oversimplified account of the social and behavioural dynamics that underly HIV-related phenomena. Moreover, the audit-driven culture can lead HIV scientists and practitioners to “chase the numbers” and fall into the habit of placing quantity and quick (quantifiable) results before quality and deeper insight (Owczarzak et al., 2016, p. 330).

7.4.2.5. The gendered aspects of HIV and the role of sexual violence in HIV risk

Figure 7.9 illustrates the number of articles per year that were published on the gendered aspects of HIV and the role that sexual violence plays in HIV risk amongst women.

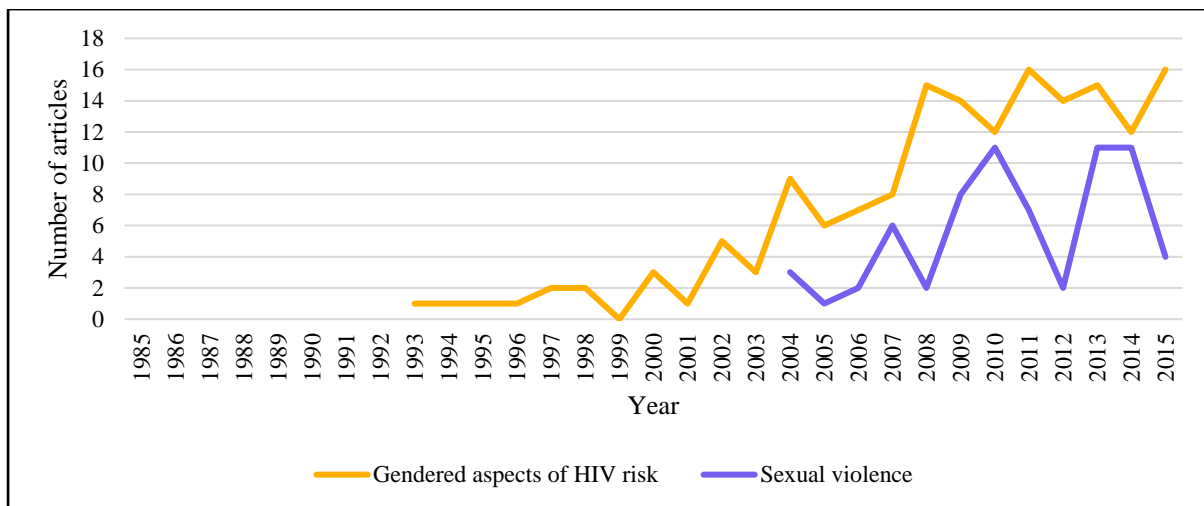


Figure 7.9 The Annual Number of Articles in the Gendered Aspects of HIV and the Role of Sexual Violence in HIV Risk Subtheme, 1985-2015

The study of the gendered nature of HIV prevention, which is largely based on the assumption that biological sex, but also the social constructions of gender, should play a pivotal role in HIV prevention, was first visible in the literature in the early 1990s, but became more pertinent from the late-2000s onwards. This entailed research that explored gender inequality and gender power imbalances (e.g., Boer et al., 2007), attitudes about gender and gender norms (e.g., Psaki et al., 2013), gender dynamics in sexual relationships (e.g., O’Sullivan et al., 2006), gender identities and sexuality (e.g., Jewkes & Morrell, 2012), as well as masculinity (e.g., MacPhail, 2003). As epidemiological research emerged which showed that women, especially AGYW in sub-Saharan Africa, were particularly vulnerable to HIV infection (Pettifor et al., 2004a), more researchers started to focus their attention on studying the unique experiences and HIV prevention needs of women (e.g., Waxman et al., 2016) and developing HIV prevention programmes specifically aimed at women (e.g., Pettifor et al., 2016a). The gendered nature of HIV risk remains a prominent topic in the socio-behavioural study of HIV and has increased in visibility in the literature in the late 2010s (e.g., Closson et al., 2019).

Related to the increased focus on the gendered aspects of HIV, researchers also became more interested in the link between sexual violence and HIV infection risk. Research on the role sexual and gender-based violence, sexual coercion, fear of violence and relationship power inequity play in promoting the spread of HIV and increasing the vulnerability of women started to receive research interest in the mid-2000s (e.g., Maharaj & Munthree, 2006) and became particularly prevalent in the literature towards the early 2010s (e.g., Jewkes et al., 2010).

Intimate partner violence and gender-based violence remain common research topics within the study of women’s HIV risk (e.g., Lince-Deroche et al., 2018).

7.4.2.6. Vulnerable communities and structural drivers of HIV

Figure 7.10 illustrates the number of articles per year that were published within communities and the structural drivers of the pandemic subtheme.

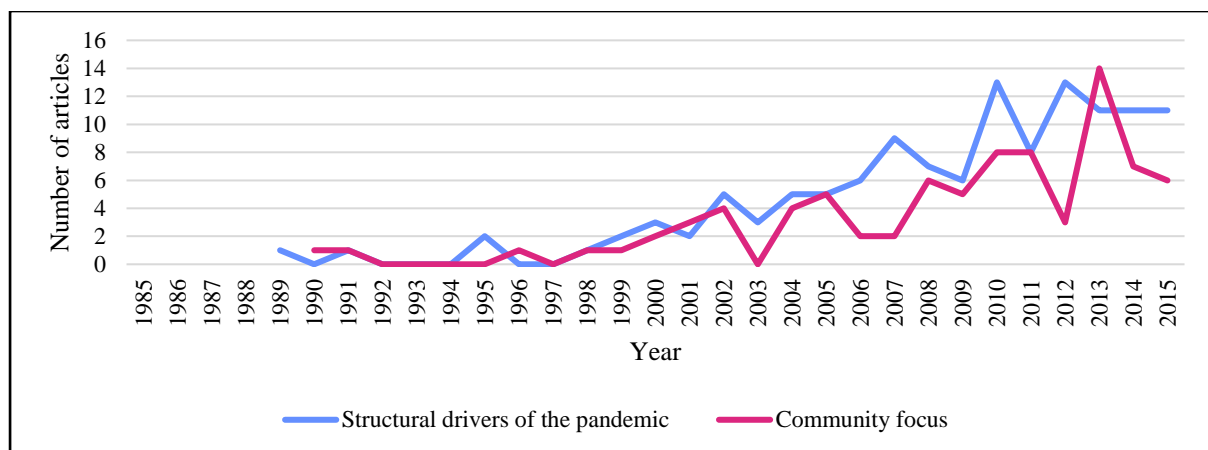


Figure 7. 10 The Annual Number of Articles in the Structural Drivers and Community Focus Subtheme, 1985-2015

Research on the structural factors that promote the spread of HIV, first gained interest in the late 1980s, becoming increasingly more prevalent in the literature from the 2000s onwards. This included research on HIV and poverty (e.g., Selesho, 2012), migration (e.g., McGrath et al., 2015), food insecurity (e.g., Fielding-Miller et al., 2015), as well as social and gender inequality (e.g., Zembe et al., 2013).

Figure 7.10 also illustrates the number of articles published per year within the community-level focus subtheme. Research interest in communities as the focal point for HIV prevention has been visible in the literature as early as the 1990s. However, it became more prominent from the early- to mid-2000s. Community-focused articles included reports on community-based awareness-raising and educational programmes (e.g., Skinner et al., 1991), community-mobilisation and empowerment programmes (e.g., Campbell & MacPhail, 2002), community participation (e.g., Breslin, 1999), peer support and education (e.g., Naidoo et al., 2013), factors that make communities vulnerable and susceptible to HIV (e.g., Kalichman et al., 2005a), community perspectives on HIV prevention and research (e.g., Medeossi et al., 2014), community-level awareness of HIV and sexual risk behaviour (e.g., Hartung et al., 2002), and the role of community leaders in HIV prevention (e.g., Campbell, 2010).

7.4.2.7. HIV prevention focused on other vulnerable groups

Figure 7.11 illustrates the number of articles published per year on each subcomponent of the *HIV prevention focused on other vulnerable groups* subtheme.

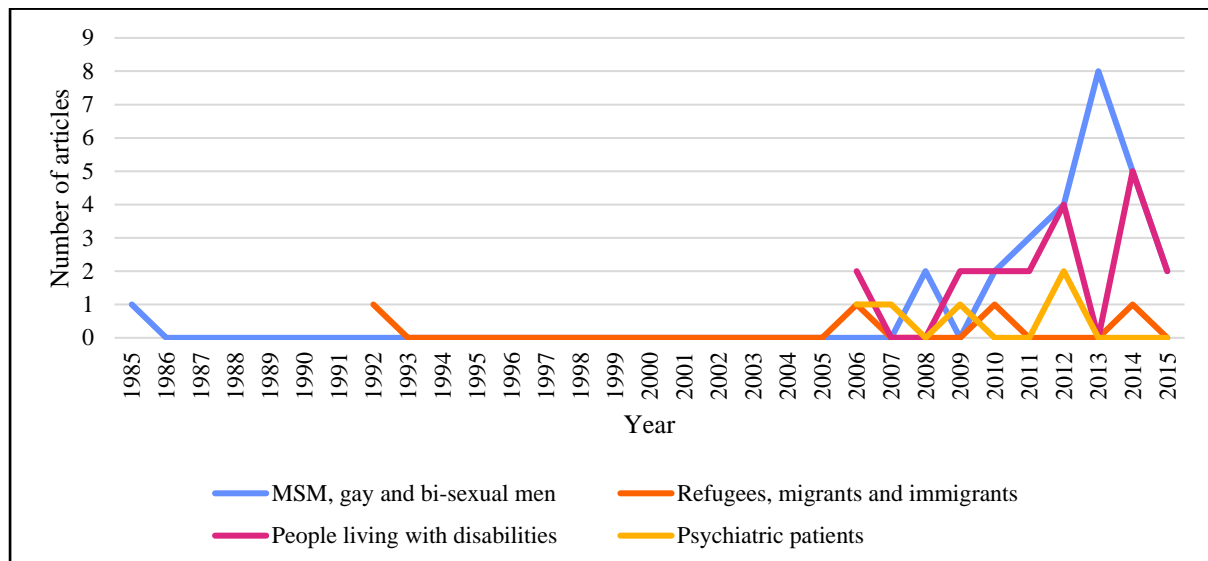


Figure 7. 11 The Annual Number of Articles in HIV Prevention Focused on other Vulnerable Groups, 1985-2015

MSM, gay and bisexual men were the focus of initial HIV prevention publications as the first few cases of HIV and AIDS in South Africa were identified amongst this key population group. However, by 1991, the heterosexual transmission of HIV surpassed homosexual transmission of HIV and became the most common mode of HIV transmission in the country (McNeil, 2012). The HIV prevention focus thus shifted from the gay population to the general heterosexual population and, in particular, the core HIV transmission groups, such as sex workers and their partners, as well as migrant workers such as miners and truck drivers (e.g., Evian et al., 1990; Ijsselmuiden et al., 1990; O'Farrell & Will, 1989).

However, by the late 2000s, evidence started to emerge that the number of gay, bisexual and MSM persons in Africa may be higher than previously thought, that this population group are at a high risk of HIV infection and that they face significant challenges as far as accessing HIV-related prevention services (e.g., Stephenson et al., 2011). Consequently, the South African National AIDS Council started to prioritise programming aimed at MSM, gay and bisexual men, and more research and funding started to focus on the unique HIV prevention, testing and care needs of MSM, gay and bisexual men (SANAC, 2007). Hence, a resurgence of HIV prevention literature on MSM, gay and bisexual men started in 2008, focussing primarily on sexual risk behaviour (e.g., Lane et al., 2008a) and the challenges they encounter due to stigma

and discrimination (e.g., Lane et al., 2008b). Research on MSM, gay and bisexual men, has gained increased attention in the 2010s. Recent South African studies have started including transgender persons in this key population group (e.g., Evans et al., 2016; De Wet-Billings & Billings, 2020; Luvuno et al., 2019).

Research on the vulnerability of people who are living with disabilities emerged in 2006, concentrating primarily on the knowledge and beliefs of people with disability about HIV and AIDS (e.g., Dawood et al., 2006), their unique HIV prevention needs and challenges (e.g., Philander & Swartz, 2006), their understanding of love and relationships (e.g., Chappell, 2014), sexual risk behaviours (e.g., Maart & Jelsma, 2010), and their ability to access appropriate sexual and reproductive health services (e.g., Mavuso & Maharaj, 2015). Research about the HIV prevention amongst people who are living with disabilities remains present in the literature, especially in relation to the youth (e.g., Hanass-Hancock et al., 2018).

Studies focusing on refugees, migrants and immigrants have represented a small part of the HIV prevention literature, initially in the early 1990s, but later more consistently since the mid-2000s (e.g., Essuon et al., 2009; Nkwinika et al., 2014). Similarly, research on the unique challenges of HIV prevention amongst psychiatric patients has also received attention in the literature, starting from around the mid-2000s to the early 2010s (e.g., Mamabolo et al., 2012). While the focus on the vulnerability of psychiatric patients has waned, research on refugees, migrants and immigrants continues to maintain some visibility in the 2010s (e.g., Steenberg, 2020).

7.4.3. Testing and Treatment

Table 7.6 presents the themes and subthemes that were identified within the *testing and treatment* theme. The table presents the frequencies of each subtheme within the testing and treatment theme and across all the themes from 1985 to 2015. Figures 7.12 and 7.13 illustrates the number of articles per year within each subtheme. Out of the total of 339 papers on the testing and treatment theme (from 1985 to 2015), the majority (65.5%; $n = 222$) pertained to treatment. Articles about treatment comprised 9% of all socio-behavioural papers that were published between 1985 and 2015.

Table 7. 6 Testing and Treatment Themes, 1985-2015

	In theme		Overall
	n	%	%
Subtheme 1: Testing			
Factors that are associated with HIV testing	87	25,7%	3,5%
Willingness to test	24	7,1%	1,0%
Testing experiences and practices	10	2,9%	0,4%
Ethics of testing	5	1,5%	0,2%
Total	126	37.2%	5.1%
Subtheme 2: Treatment			
Traditional medicine and ART	12	3,5%	0,5%
ART and risk behaviour	6	1,8%	0,2%
Adherence	102	30,1%	4,1%
Factors relating to ART usage and experiences with ART	71	20,9%	2,9%
Accessibility, uptake and retention	31	9,1%	1,3%
Total	222	65.5%	9.0%
Grand Total	339		2 473

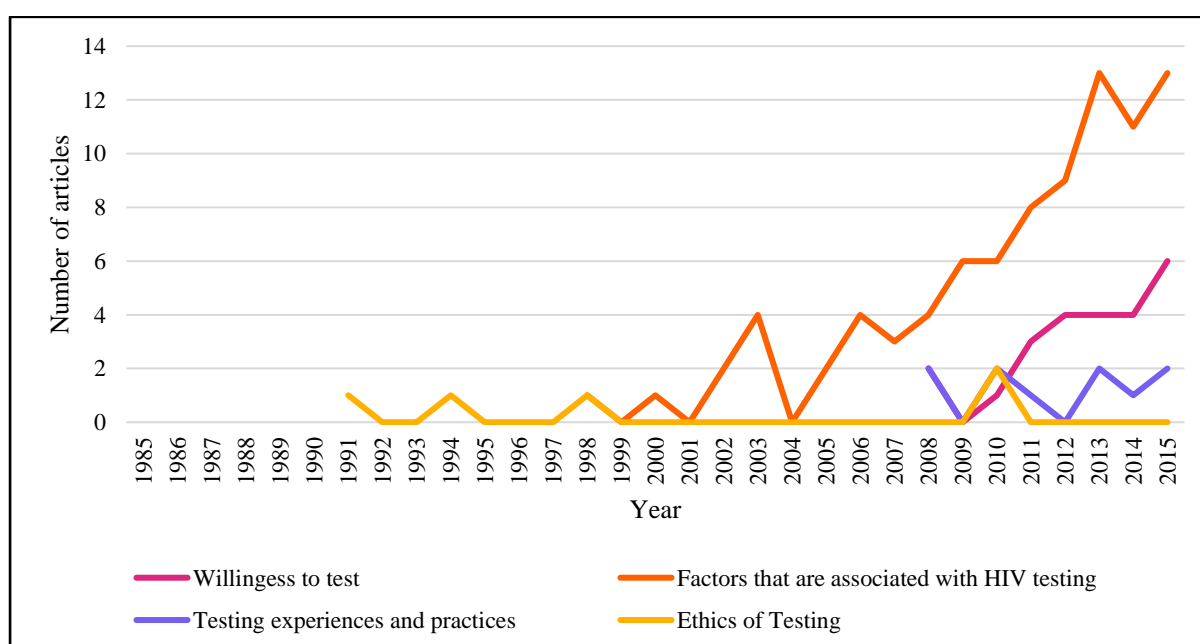


Figure 7. 12 Number of Articles in the Testing Subtheme, 1985-2015

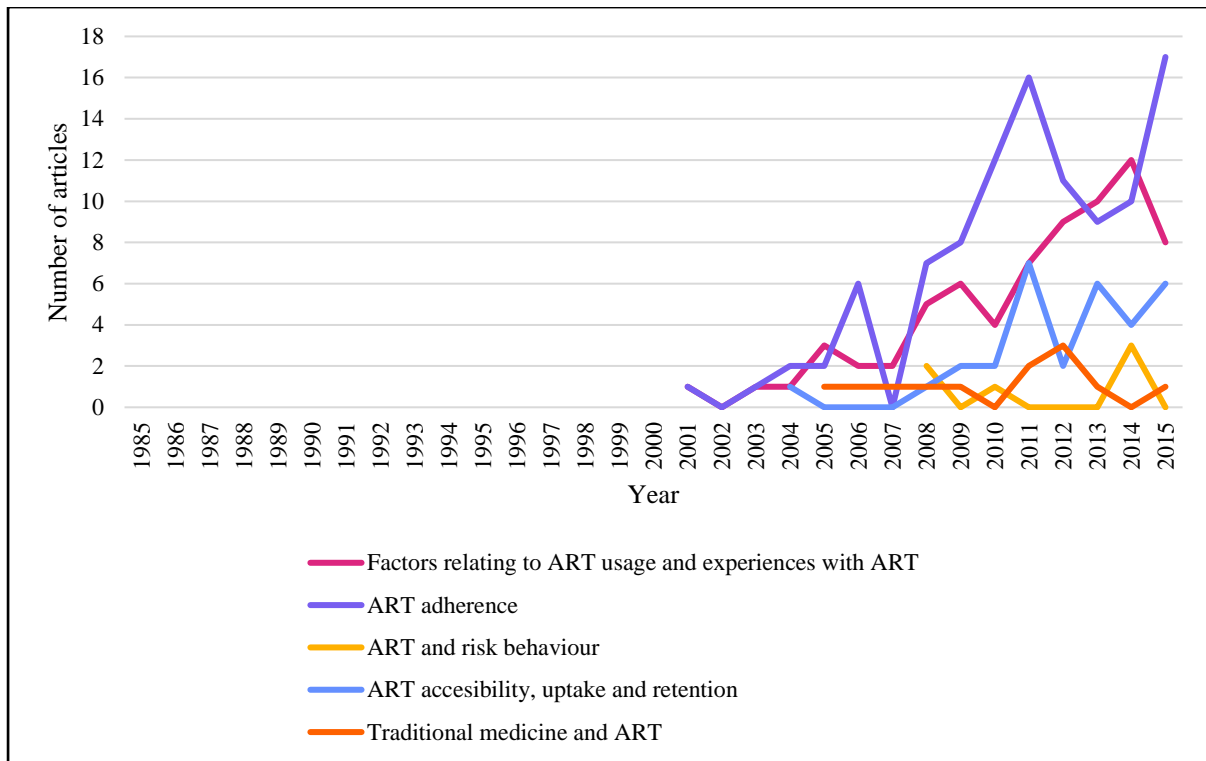


Figure 7. 13 Number of Articles in the Treatment Subtheme, 1985-2015

Although prevention was the primary focus in the literature, the early 1990s saw several publications regarding the ethics of testing, treating and caring for people who are living with HIV and the unique ethical challenges which the disease posed to the medical profession (e.g., Friedland, 1991; Schlebusch et al., 1991). In later years, towards the late 1990s and early 2000s, as scientists were starting to prepare to conduct vaccine, microbicide and other clinical HIV prevention and treatment trials, research focused on the ethical and psychological considerations of such clinical trials became more prominent. This included research pertaining to the ethics and psychological considerations of recruiting adolescents into vaccine trials (e.g., Kafaar et al., 2007); the willingness of members of the public to partake in a hypothetical vaccine trial (e.g., Smit et al., 2006b); the factors that promote or hinder voluntary participation in vaccine trials (e.g., Fincham et al., 2010; Lesch et al., 2006); the behavioural differences between people who volunteer for vaccine trials and the rest of the population (e.g., Smit et al., 2006c); how knowledge, attitudes and experiences of vaccination may impact future participation in vaccine trails and vaccine uptake (e.g., Lindegger et al., 2007); the ethical considerations related to medical and psycho-social risk in microbicide trials (e.g., Moodley, 2007); the extent to which clinical research participants provide genuine informed consent (e.g., Abdool Karim et al., 1998); the accuracy of clinical trial participants’ understanding of

their participation in the trial and drug efficacy (e.g., Mantell et al., 2006a); as well as the ways in which informed consent is obtained and how it can be improved (e.g., Penn & Evans, 2009; Rautenbach et al., 2015).

By the early 2000s, papers about the factors that may play important roles in encouraging and discouraging HIV testing started to gain more research attention (e.g., Kalichman & Simbayi, 2003; Peltzer & Mpofo, 2002; Van Dyk & Van Dyk, 2003). As HIV testing became a greater HIV prevention strategic priority in the wake of TasP, so also did the number of socio-behavioural studies about HIV testing started to increase in the 2010s, especially with regard to the factors that are associated with HIV testing (e.g., Snow et al., 2010), people's willingness to try various modes of HIV testing such as home-based rapid testing and self-testing (e.g., Pant Pai et al., 2013).

Socio-behavioural research on ART emerged in the early 2000s in response to the National Operational Plan on Comprehensive Care and Treatment for HIV's launch, which allowed for the national roll-out of ART and PMTCT (NDoH, 2003). The majority of the research on treatment focused on the social and psychological factors associated with ART uptake, retention and especially adherence (e.g., Nachega et al., 2005; Skhosana et al., 2006; Van Dyk, 2010). Adherence research increased over time as TasP became an international and national public health priority. In this regard, researchers studied the role of alcohol use on adherence (e.g., Kalichman et al., 2020a), behavioural disinhibition as a result of ART use (e.g., McGrath & Grapsa, 2017), how the use of traditional medicine may influence ART adherence (e.g., Peltzer et al., 2010), ART patient's understanding of HIV, illness and treatment (e.g., Niehaus, 2014), the impact stigma may have on adherence (e.g., Kalichman et al., 2019) and the impact of food insecurity on adherence (e.g., Knight et al., 2020). ART adherence remains a major focus area in the socio-behavioural study of HIV and AIDS.

7.4.4. Care and Support

Table 7.7 presents the themes and subthemes that were identified within the overarching *care and support* theme. The table offers the frequencies of each subtheme within the care and support theme and then across all the themes from 1985 to 2015. Figures 7.14 to 7.16 presents the trends over time for each subtheme. Articles about orphans and vulnerable children were the most common within this theme (44.4%; n = 103) and represented 4.2% of all the socio-behaviour literature from 1985 to 2015.

Table 7.7 Care and Support Subthemes, 1985-2015

	In theme		Overall
	n	%	%
Subtheme 1: Healthcare workers			
Attitudes toward people living with HIV, occupational risk of contracting HIV, and willingness to care for people living with HIV	35	15.1%	1.4%
Experiences caring for people living with HIV, mental health, burnout and associated stigma	28	12.1%	1.1%
The ethics of caring	6	2.6%	0.2%
Total	69	29.7%	2.8%
Subtheme 2: Orphans and children made vulnerable by HIV and AIDS			
Psychological well-being	49	21.1%	2.0%
Caring for orphans	34	14.7%	1.4%
General research on orphans	14	6.0%	0.6%
Child headed households	6	2.6%	0.2%
Total	103	44.4%	4.2%
Subtheme 3: Counsellors, volunteers, peer mentors and informal caregivers			
Caregiver mental health impact and caregiving experiences	38	16.4%	1.5%
Counsellor and volunteer well-being, preparedness and skills development	22	9.5%	0.9%
Total	60	25.9%	2.4%
Grand Total			
	232		2 473

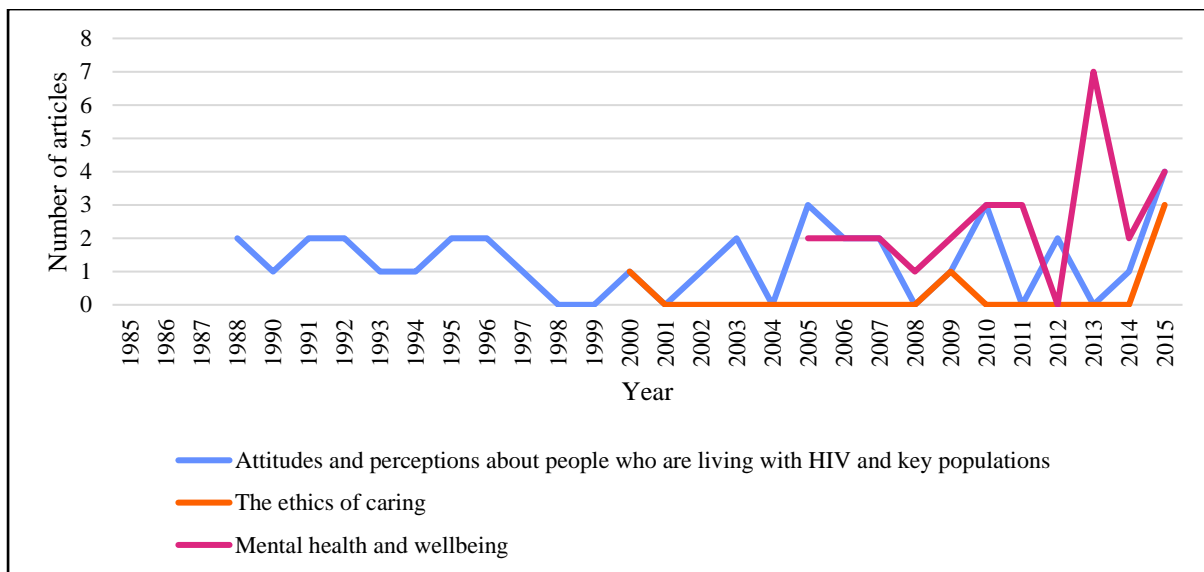


Figure 7. 14 Number of Articles in the Healthcare Worker Subtheme, 1985-2015

Among the first socio-behavioural studies that were conducted about HIV and AIDS in South Africa centred around healthcare workers (mostly nurses, but also doctors, occupational therapists, physiotherapists, speech therapists, dentists, as well as students who were studying towards a health sciences degree). Of particular interest to researchers were healthcare workers’ HIV-related knowledge and beliefs, their attitudes regarding people living with HIV and their willingness to treat them (e.g., Johnston & Ross, 1991; Schlebusch et al., 1991; Terblanche & van der Merwe, 1988). The ethical beliefs of healthcare workers, in particular how they consider the ethical issues related to HIV status disclosure, have received some interest since the early and late 2000s (e.g., Relf et al., 2009; Uys, 2000), but have become a more prominent research topic towards the mid-2010s as nurses started to receive more training in behavioural counselling (e.g., Mntlangula et al., 2017; Watermeyer, 2015). The mental well-being of healthcare workers (e.g., Davhana-Maselesele & Igumbor, 2008) and their experiences in providing care to people who are living with HIV (e.g., Stein et al., 2007) started to receive research attention in the mid-2000s, and has remained a popular research topic throughout the 2010s (e.g., Naidoo et al., 2020). Research concerning healthcare workers remains prominent in the literature, especially regarding healthcare workers’ experiences with stigma (e.g., Wouters et al., 2020).

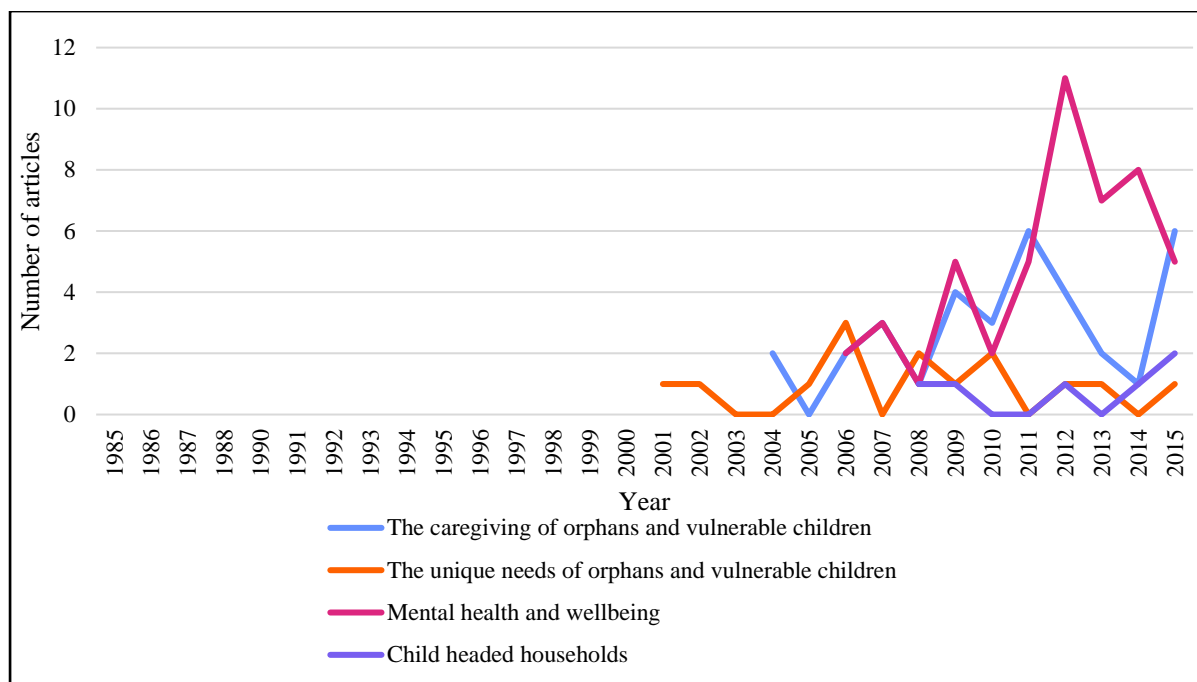


Figure 7. 15 Number of Articles in the Orphans and Vulnerable Children Subtheme, 1985-2015

The majority of research within the *care and support* theme focused on the psychological well-being and caregiving of orphans and vulnerable children. Research focusing specifically on orphans and vulnerable children started to become visible in the literature in 2001, as the AIDS-related mortality rate, and consequently the number of AIDS orphans and vulnerable children, also started to rise. Initially, the focus was primarily on the prevalence of AIDS-related orphanhood and the unique needs of orphans and vulnerable children (e.g., Booysen & Arntz, 2002; De Witt & Lessing, 2005). The caregiving of orphans and, in particular, the factors that encourage family members to take care of orphans and the support needs of AIDS orphan caregivers became topics of interest soon after that, around the mid- to late-2000s (e.g., Freeman & Nkomo, 2006a; Freeman & Nkomo, 2006b). The phenomenon of child-headed households and the increased demands on orphans as they assume more adult responsibilities emerged in the literature in 2008 (e.g., Dlungwana & Sathiparsad, 2008).

Since the late 2000s, a large proportion of research in this subtheme has shifted to focus on the psychological well-being of orphans and vulnerable children, including the prevalence of post-traumatic stress amongst AIDS orphans and the extent to which caregiver factors mediated the relationship between psychological well-being and orphanhood (e.g., Cluver et al., 2009; Cluver & Gardner, 2006). Despite the decline in AIDS-related mortality in recent years, orphans and vulnerable children continue to require mental healthcare and support as the

psychological impact of parental bereavement is far-reaching and long during, especially within the context of poverty, HIV-related stigma and limited community support (Ntuli et al., 2020).

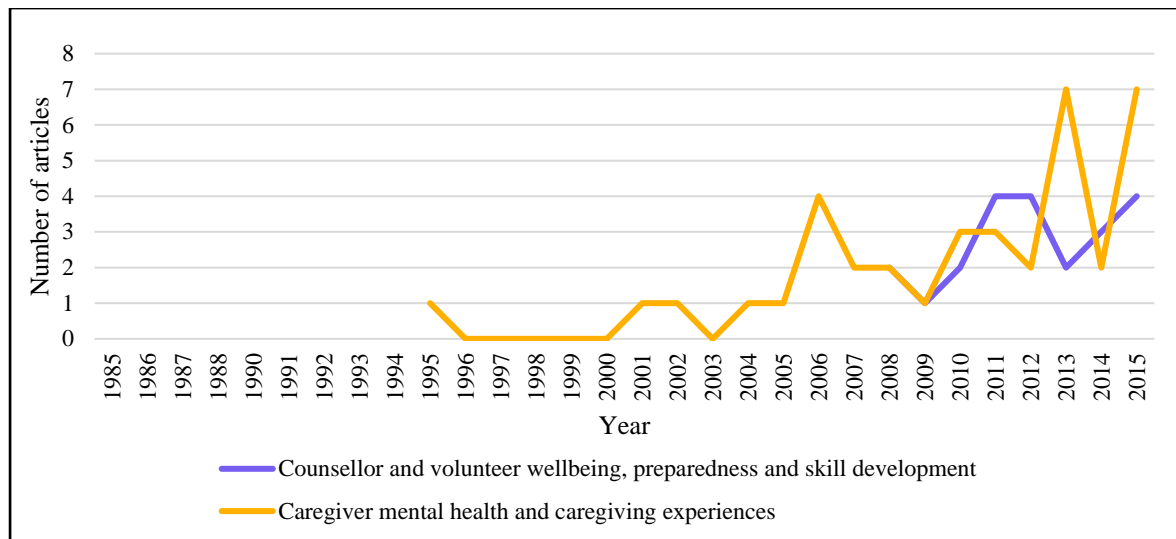


Figure 7. 16 Number of Articles in the Counsellors, Volunteers, Peer Mentors and Informal Caregivers Subtheme, 1985-2015

Research on non-professional caregivers (i.e., informal caregivers such as family members and volunteers) emerged in the mid-1990s and became particularly prominent towards the mid- to late-2000s as the AIDS mortality rate rose and the need for palliative care became crucial. The research in this regard included studying caregivers’ knowledge and preparedness to take care of people who are living with HIV (e.g., Van Graan et al., 2007), how AIDS-related stigma affects caregivers and their ability to seek support (e.g., Demmer, 2006), as well as stress and burnout amongst caregivers (e.g., Van Dyk, 2007).

Task shifting in the public healthcare sector has led to more paraprofessionals performing essential HIV and AIDS caregiving and supportive tasks. In response to this, research about counsellors, volunteers and peer mentors started to emerge in the literature towards the end of the 2000s, including topics such as occupational stress, secondary trauma and burnout amongst counsellors and volunteers (e.g., Dickinson & Kgatea, 2008) as well as their perceptions of their roles and work environments (e.g., Nkonki & Daniels, 2010). Although people living with HIV are living longer lives with higher quality physical and mental health, caregivers and counsellors still play an essential role in HIV treatment, care and support in South Africa. Hence, interest in caregivers’ experiences, the challenges they face and the factors that motivate them remain visible in the literature (e.g., Lekganyane, 2020).

7.4.5. Living with HIV

Table 7.8 presents the themes and subthemes that were identified within the *living with HIV* theme. The table presents the frequencies of each subtheme within the theme and across all the themes from 1985 to 2015. Note that some articles were allocated to more than one subtheme, as they applied to multiple subthemes. Figures 7.17 to 7.19 demonstrate trends in the subthemes' visibility over time. The psychological and mental well-being of people living with HIV were the most prominent subtheme (59.8%; n = 231) and represented 9.3% of the socio-behaviour literature between 1985 and 2015.

Table 7. 8 Living with HIV, 1985-2015

	In theme		Overall
	n	%	%
Subtheme 1: Living with HIV			
Disclosure of status	54	14.0%	2.2%
Reproductive intentions	31	8.0%	1.3%
The care and support needs of people who are living with HIV	24	6.2%	1.0%
Structural constraints and how it impacts daily life	19	4.9%	0.8%
Growing up and ageing with HIV	14	3.6%	0.6%
Serodiscordant relationships	5	1.3%	0.2%
Total	147	38.1%	5.9%
Subtheme 2: Psychological Health and Well-Being			
Mental health and well-being	94	24.4%	3.8%
Stigma	39	10.1%	1.6%
Quality of life	33	8.5%	1.3%
Stress and coping	27	7.0%	1.1%
Neuropsychological impacts	20	5.2%	0.8%
Lived experiences, perceptions and identity	13	3.4%	0.5%
Disease progression and mental health	5	1.3%	0.2%
Total	231	59.8%	9.3%

Subtheme 3: Risk Behaviour Post-Diagnosis			
Sexual risk behaviour post-diagnosis	12	3.1%	0.5%
Substance abuse post-diagnosis	6	1.6%	0.2%
Total	18	4.7%	0.7%
Grand Total	386		2473

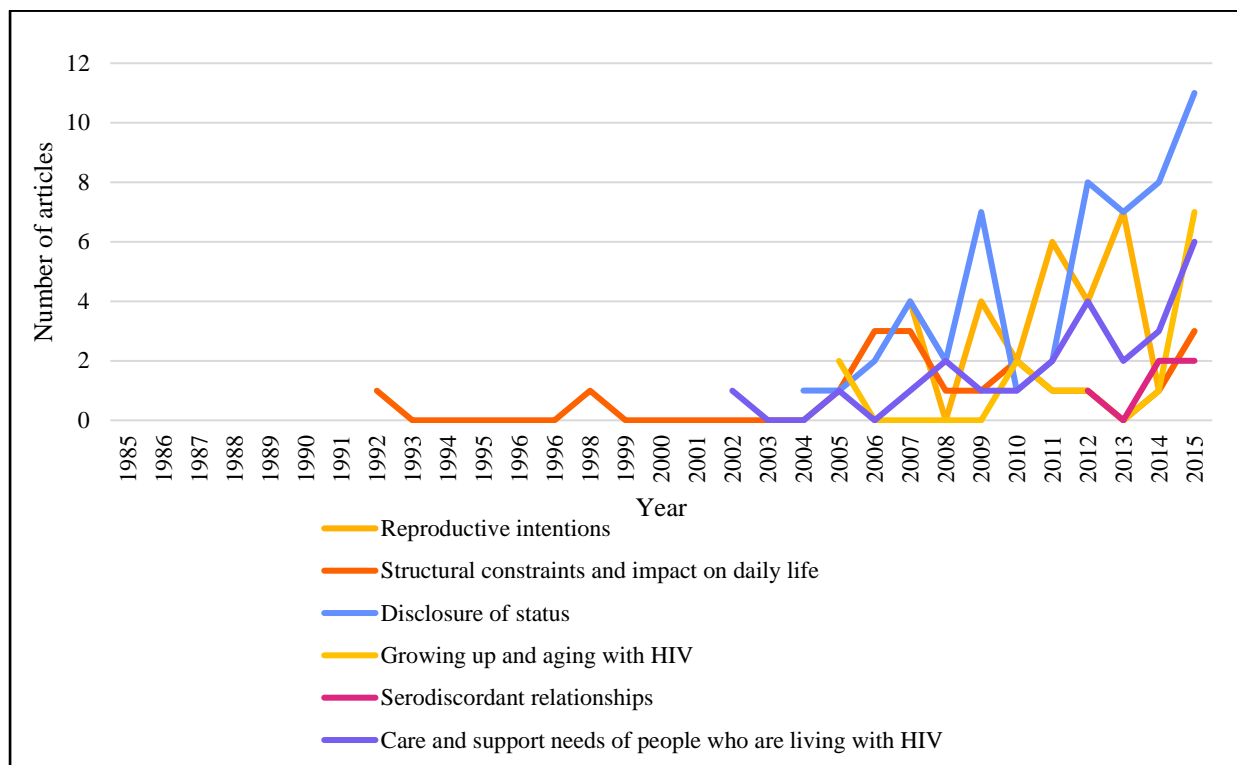


Figure 7.17 Number of Articles in the Living with HIV Subtheme, 1985-2015

Approximately 6% (n = 147) of socio-behavioural articles published between 1985 and 2015 sought to describe and explore the lived experiences and needs of people living with HIV. The complex ways in which structural factors, such as poverty and migration, influence people who are living with HIV and their ability to access services have been of interest to researchers since the early 1990s (e.g., Strelbel, 1992), but have become more prevalent in the literature towards the mid- to late-2000s (e.g., Feitsma et al., 2007). As the temporary disability grant for people who are living with HIV became available, so also did research exploring how it supports the livelihoods of already vulnerable HIV-affected households (e.g., Leclerc-Madlala, 2006; Phaswana-Mafuya et al., 2009) and how it may encourage ART non-adherence (e.g., Hardy & Richter, 2006).

Research that focused more generally on the daily life experiences of people who are living with HIV, including their experiences of status disclosure (e.g., Wong et al., 2009), decision-making around having children (e.g., Laher et al., 2009), how HIV affects transitioning into adolescence (e.g., Petersen et al., 2010) started to gain more research interest towards the late 2000s. Research on disclosure became particularly prominent in the literature from the mid- to late-2000s as the importance of disclosure to facilitate the uptake of and adherence to ART and PMTCT became more apparent (Nachega et al., 2012). Moreover, as children who had been infected with HIV as infants grew older, it also became important to explore appropriate ways to tell children and adolescents about their own HIV status. Consequently, research about disclosing to children, caregivers' experiences of disclosing as well as barriers that discourage caregivers from disclosing to children became more visible in the literature from the early 2010s (e.g., Heeren et al., 2012; Madiba & Mokwena, 2012) and remains pertinent (e.g., Van Elstrand et al., 2019; Visser & Hlungwani, 2020). The topic of disclosure continues to remain a particularly relevant topic in recent years, especially as youth with perinatally-acquired HIV grow older and become sexually active (e.g., Kidman & Violari, 2020) and in terms of how disclosure helps to prevent HIV transmission and facilitate access to support and treatment services (e.g., Kalichman et al., 2020b).

Socio-behavioural research about serodiscordant relationships became prominent in the South African literature in the early 2010s. While biomedical research on HIV-serodiscordance was already common in the HIV and AIDS literature before 2010, research about how serodiscordant couples experience HIV, including how they communicate about sex and HIV (e.g., Rispel et al., 2012), how they cope with stigma (e.g., Rispel et al., 2015) and their knowledge of serodiscordance (e.g., Mavhandu-Mudzusi & Sandy, 2015). Research on the behavioural and social complexities of HIV-serodiscordance persists as an important research topic, particularly within the context of disclosure (e.g., Bhatia et al., 2017) and the provision of safer conception services (e.g., Khidir et al., 2020).

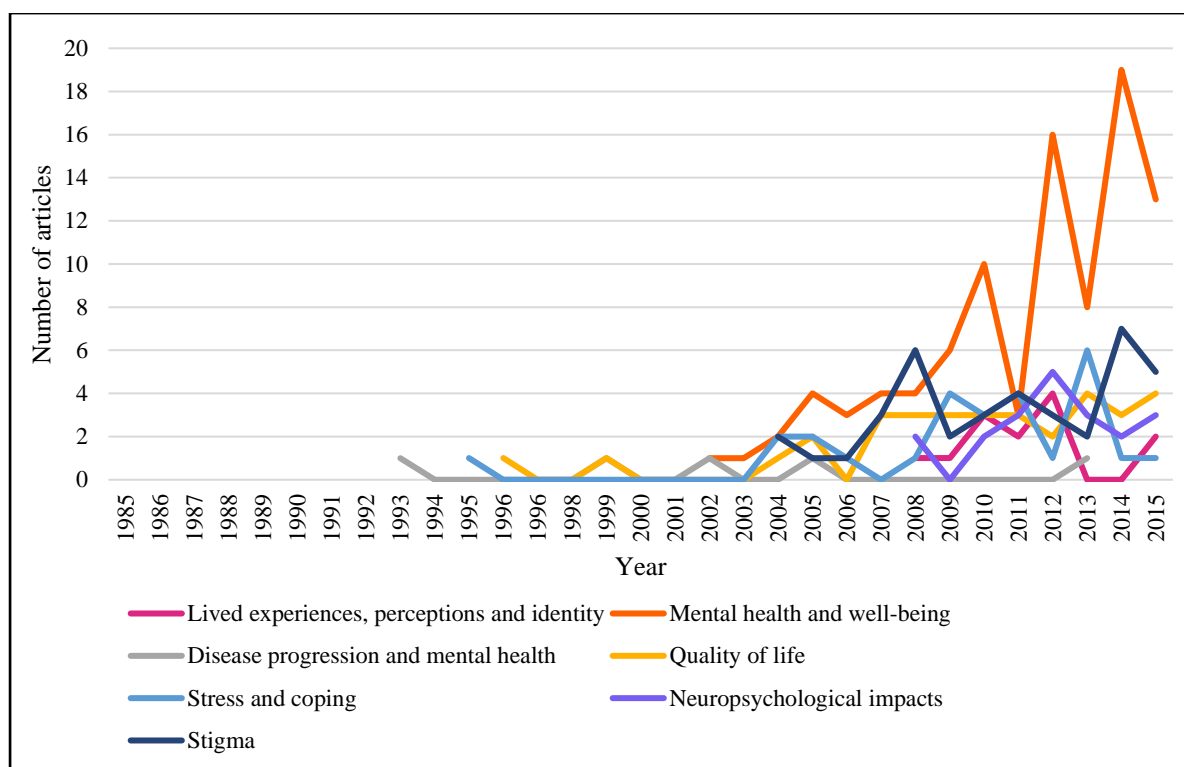


Figure 7. 18 Number of Articles in the Psychological Health and Well-Being Subtheme, 1985-2015

Research on the psychological well-being of people living with HIV first emerged in 1993 with a specific focus on the inter-relationships between HIV disease progression and mental well-being (e.g., Cassidy & Schlebusch, 1993). Soon thereafter, research about how people who are living with HIV experience stress (Schlebusch & Cassidy, 1995) and how it impacts their quality of life (O’Keefe & Wood, 1996) also started to emerge. Subsequent research on quality of life started to highlight the improvements in the well-being of people who are living with HIV once they have commenced their ARV treatment (e.g., Wouters et al., 2007) and substantiated that HAART is associated with higher health-related quality of life in people who are living with HIV (e.g., Louwagie et al., 2007).

Research on the mental health and well-being of people who are living with HIV started to become particularly prominent in the literature towards the late 2000s and early 2010s as more studies sought to understand how people cope with being newly diagnosed as HIV-positive (e.g., Kotzé et al., 2013), the prevalence of psychological distress symptoms in people who are living with HIV (e.g., Andersen et al., 2015), experiences with stigma amongst people who are living with HIV (e.g., Jugeo & Moalusi, 2014) and the cognitive and neuropsychological consequences of HIV (e.g., Witten et al., 2015). The mental health of people who are living

with HIV remains important, especially within the context of substance abuse (e.g., Earnshaw et al., 2018b), stigma and its impact on HIV treatment and care (e.g., Hargreaves et al., 2020), the identification and treatment of mental health distress (e.g., Zani et al., 2020), and intimate partner violence (e.g., Rodriguez et al., 2020).

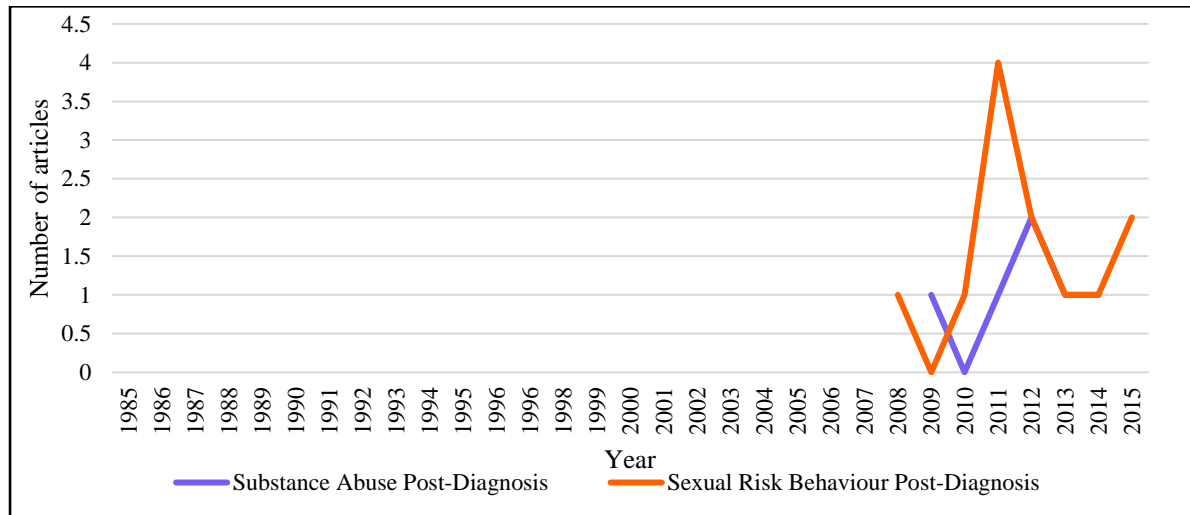


Figure 7. 19 Number of Articles in the Risk Behaviour Subtheme, 1985-2015

Concerns about sexual risk behaviour amongst people who are living with HIV started to emerge in 2008. Research about risk behaviour became a priority based on concerns that unprotected sex and other risky behaviour, such as substance abuse during sexual encounters, may undermine the treatment and TasP benefits of ART and lead to superinfections¹⁰¹ amongst people who are living with HIV. To explore these behaviours, researchers started studying sexual risk behaviour amongst people who are living with HIV (e.g., Lurie et al., 2008), the prevalence of substance abuse amongst people who are living with HIV (e.g., Kader et al., 2014), and the ways in which knowledge and attitudes about ART influence risk-taking behaviour (e.g., Kiene et al., 2013). As the HIV prevalence rate increases and campaigns to prevent the spread of HIV continue, the topic remains important, especially amongst HIV-positive women (Jones et al., 2019) and serodiscordant couples (Khidir et al., 2020).

Several studies under the *living with HIV* theme recruited their participants from antenatal clinics (e.g., Dube & Nkosi, 2008; Maman et al., 2014a). Pregnant women undergoing antenatal care, particularly those diagnosed HIV-positive during that period, represent a conceptually meaningful participant group for research. Women diagnosed as HIV-positive during their pregnancy face what Stinson and Myer (2012, p. 69) refer to as the “triple burden

¹⁰¹ A superinfection refers to the re-infection of an HIV-infected person with another HIV strain (Redd et al., 2011).

of transitioning into pregnancy, accepting their HIV diagnosis, and understanding the urgent requirement to start lifelong ART before delivery.” Furthermore, women are concerned about their unborn child’s well-being and the possibility that they might transmit the virus to their child. Viewed from a Transtheoretical Model of Change perspective, Maman et al. (2014a) argue that pregnancy and the post-partum period are important transitional periods in a woman’s life. As a result, she may be more receptive to behaviour change interventions and be more motivated to change her behaviour and adopt healthier lifestyle practices during this time in her life. Moreover, receiving a potentially life-altering medical diagnosis (such as being HIV-positive) can also serve as a critical point in a person’s life as the diagnosis prompts them to re-evaluate their lifestyle, priorities and future life goals.

7.4.6. The Impact of HIV and AIDS

Table 7.9 presents the themes that were identified within the overarching *impact of HIV and AIDS* theme. Each subtheme’s frequency is presented within the impact of HIV and AIDS theme and across all the themes from 1985 to 2015. Figures 7.20 and 7.21 summarises the frequency with which these subthemes appeared in the literature between 1985 and 2015.

Table 7.9 The Impact of HIV and AIDS Theme, 1985-2015

	In theme		Overall
	n	%	%
Subtheme 1: Impact of HIV			
Impact of HIV on places of work, places of study, the broader community and society	48	22.4%	1.9%
Impact of HIV on children, families and households	64	29.9%	2.6%
Total	112	52.3%	4.5%
Subtheme 2: Cultural and societal beliefs in relation to HIV and AIDS			
Community stigma and silence	53	24.8%	2.1%
Beliefs about HIV and people living with HIV	22	10.3%	0.9%
Denialism	7	3.3%	0.3%
Media portrayal of HIV and people living with HIV	6	2.8%	0.2%
Total	88	41.1%	3.6%
Grand Total	214		2 473

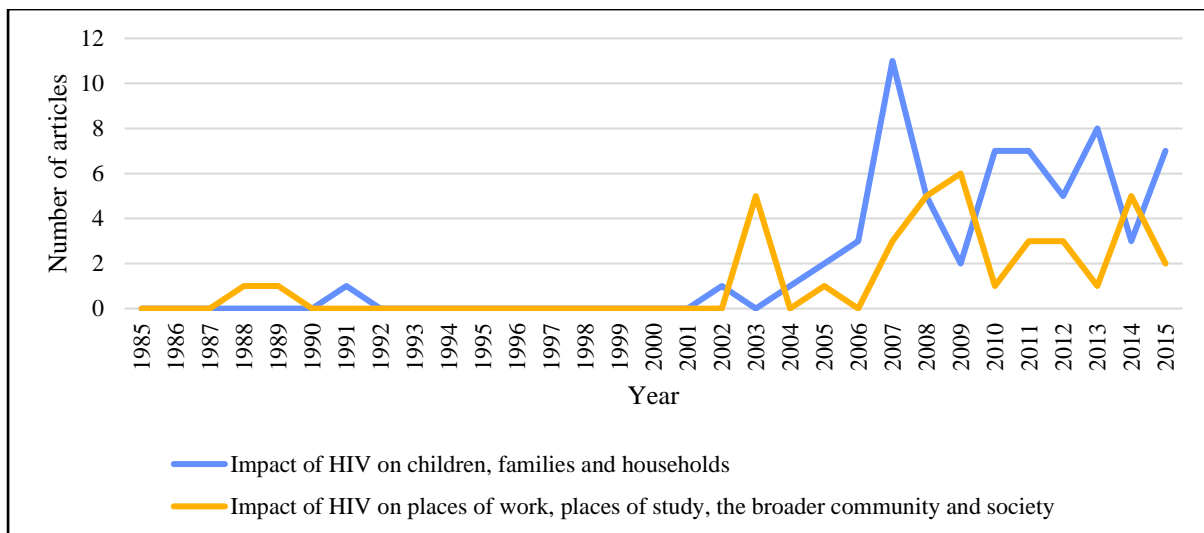


Figure 7. 20 Number of Articles in the Impact of HIV Subtheme, 1985-2015

HIV and AIDS have had a tremendous impact on families and households, especially before widespread access to ART. While research on the impact of HIV and AIDS was visible in the literature since the late 1980s, it was only later, towards the early and mid-2000s, as the impact of HIV and AIDS became more visible, that research on this subject started to attract more attention. This has included: research on how families are impacted by the illness and caring for a family member (e.g., Hosegood et al., 2007); AIDS-related bereavement and grief (e.g., Demmer, 2007); the impact that the HIV and AIDS-related illness of a caregiver have on children (e.g., Boyes & Cluver, 2015); the impact of HIV and AIDS on marriages and relationships (e.g., Mindry et al., 2011); the impact of the pandemic on older men and women and the role of grandparents, especially grandmothers, in caring for people who are living with HIV (e.g., Chazan, 2014).

The initial deadly nature of the disease, as well as widespread uncertainty over what the impact of HIV and AIDS might be on society, gave rise to research that explored the ethical, social and psychological impact that HIV and AIDS have had on various social institutions, including schools (e.g., Louw et al., 2009), workplaces (e.g., Botes & Otto, 2003), vulnerable communities (e.g., Wood & Lambert, 2008) and the broader South African society (e.g., Myer et al., 2009). The role of community- and faith-based organisations in addressing the impact of HIV and AIDS on communities also received attention (e.g., Krakauer & Newbery, 2007). However, as HIV became less threatening with the advent of widespread ART access and early ART initiation, the number of studies on the impact of HIV and AIDS on families, communities and the broader society started to decrease.

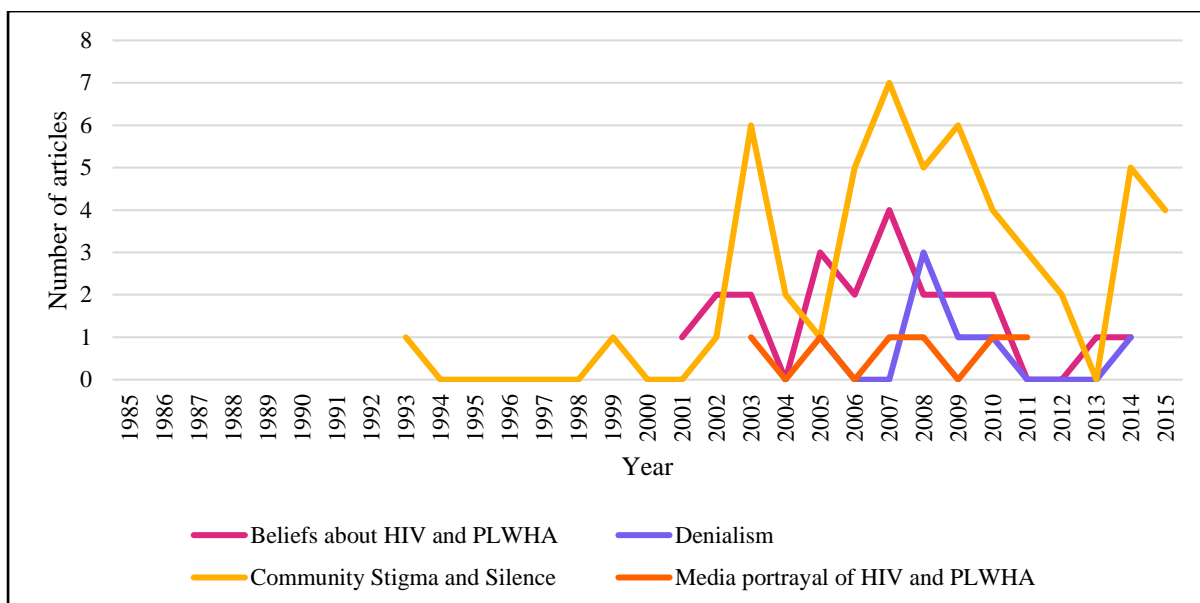


Figure 7. 21 Number of Articles in the Cultural and Societal Beliefs in Relation to HIV and AIDS Subtheme, 1985-2015

Research on the cultural and societal beliefs associated with HIV and AIDS (i.e., the ideas that shape how people interpret HIV and AIDS and its impact on their communities) became visible in the literature during the early 2000s. The research that attracted the most attention focused on how people make sense of HIV and AIDS (e.g., Dickinson, 2013) and people’s perceptions about people living with HIV (e.g., Finchilescu, 2002). AIDS-related denialism became a topic of interest in response to the denialism of then-president Thabo Mbeki and the general observation that denialism and the belief in conspiracy theories played an important part in the government and society’s response to HIV prevention, treatment and care initiatives (e.g., McNeill, 2009). Given the prominence of AIDS activism, the controversial handling of HIV by the government and legal disputes surrounding ART access during the early to mid-2000s (see Appendix B, years 2000 to 2006), some social scientists utilised this as an opportunity to study how media portrays HIV, ART and people who are living with HIV (e.g., Connelly & Macleod, 2003; Gibbs & Jobson, 2011).

While community members’ attitudes toward people living with HIV received some attention in the 1990s (e.g., Kaplan & Van Den Worm, 1993), it was only in the early 2000s that stigma became a more prominent topic of interest within the research community. Stigma became a particularly important research topic as it became evident that silence and denial about the impact and extent of the disease are common amongst South Africans (Riffe & Fouche, 2007) and that stigmatising views may actively undermine HIV prevention and treatment efforts

(Kalichman & Simbayi, 2003). Research on stigma included developing measurement instruments to assess different types of stigma (e.g., Kalichman et al., 2005b; Visser et al., 2008), assessing the prevalence of stigma in South African communities (e.g., Ndinda et al., 2007; Visser et al., 2006) and exploring the social and psychological dynamics behind AIDS-related stigma in South Africa (e.g., Campbell et al., 2007; Cooper & Foster, 2009). Stigma research remains a prominent topic in the literature as it remains a major stumbling block to HIV prevention, care and treatment (Mojola et al., 2022).

7.5. Intervention Techniques and Approaches

A summary of intervention techniques and approaches that were identified in the literature is presented to provide further context regarding the context in which theories were used. Table 7.10 summarises the frequency by which various intervention techniques and strategies were reported in the literature that was published between 1985 and 2015¹⁰². Figure 7.22 illustrates the prevalence of these techniques and strategies over time. Articles that reported on education and awareness-raising interventions were the most common across the 30-year period (n = 144; 41.1%), although the popularity of such interventions gradually started to recede from the mid-2000s in favour of other intervention approaches.

Table 7. 10 Intervention Techniques and Strategies, 1985-2015

	n	%
Education and awareness raising	144	41.1%
Capacity building and skills development	60	17.1%
Community engagement, mobilisation and participatory approaches	40	11.4%
Peer Education and Support	33	9.4%
Gender transformative strategies	24	6.9%
Psychotherapy and counselling	18	5.1%
Support groups and group counselling	11	3.1%
Microfinancing, cash transfers and material/financial incentivisation	10	2.9%
Sport and physical activity	6	1.7%
mHealth technology	4	1.1%
Total	350	100.0%

¹⁰² The figures in Table 7.10 reflects the number of time techniques were reported on, either on their own or in concert with other strategies.

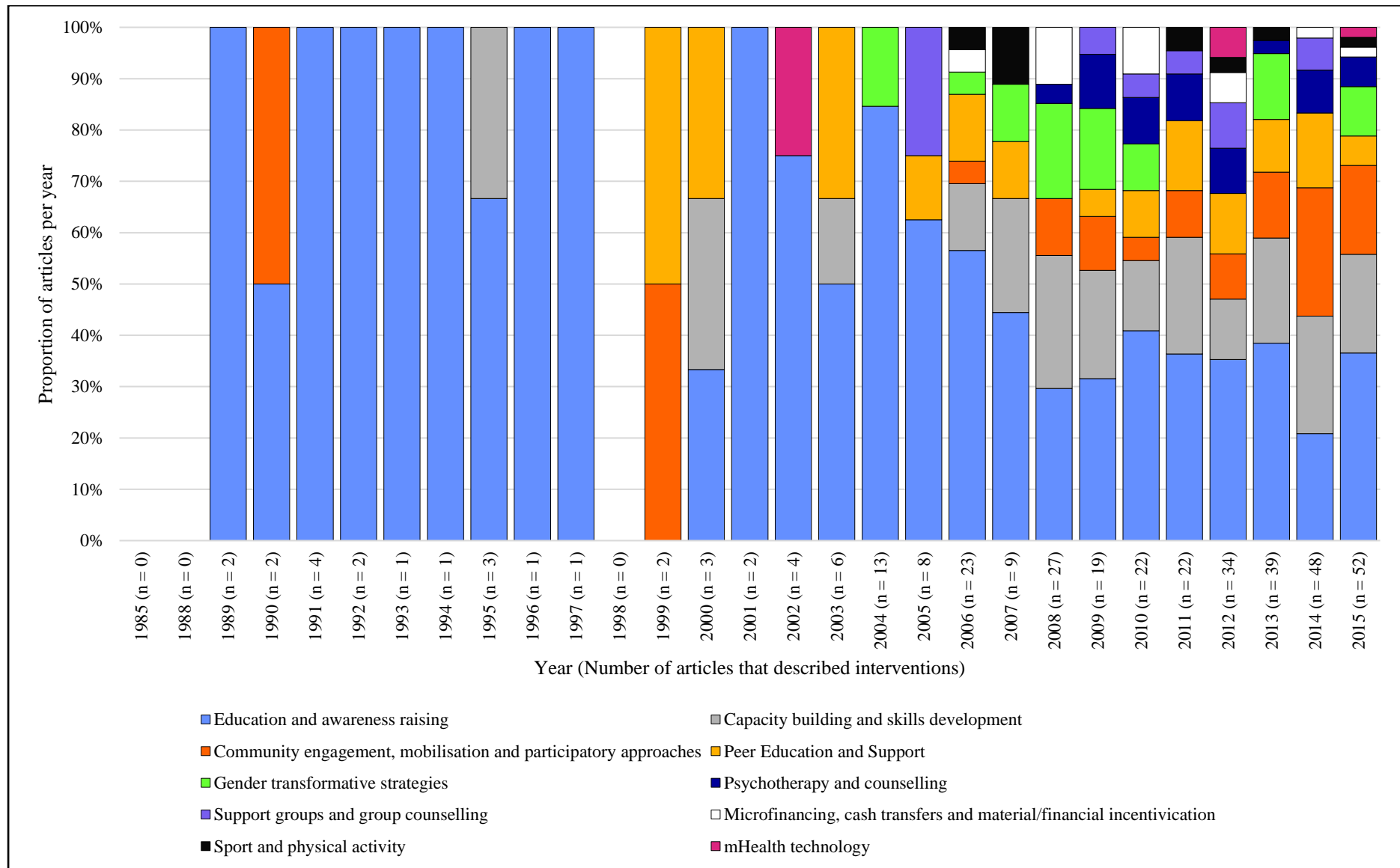


Figure 7. 22 Trends of Intervention Techniques and Strategies Over Time, 1985 – 2015

7.5.1. HIV Prevention Programmes

In the absence of effective medical treatment and prevention strategies, behaviour modification was seen as the only way to prevent the spread of HIV. As Sherr et al. (1989, p. 358) stated: “AIDS is considered to be the major health threat of the 20th century. The only way to contain the spread of AIDS is by preventing it in the first place. This task is essentially one of education”. Hence the early prevention efforts focused primarily on educating the public about HIV and its transmission routes. This included mass media AIDS awareness campaigns using city buses (Evian et al., 1991), edutainment methods such as street theatre and puppetry (Skinner et al., 1991), information sessions (Sherr et al., 1989), school-based HIV education programmes (Kuhn et al., 1994), and health education posters (Evian et al., 1990).

Given the shortcomings of education and awareness-raising programmes (as discussed earlier¹⁰³), these intervention techniques were gradually supplemented in the 1990s and 2000s with additional intervention components that promoted protective intra- and interpersonal life skills development, practical risk reduction strategies and greater peer group and community participation. This included school-based HIV education and life skills programmes such as the *First AIDS Kit* (e.g., Visser, 1996), the *SATZ* programme¹⁰⁴ (Mathews et al., 2012) and the *Let Us Protect Our Future* intervention (Jemmott et al., 2014a); peer-facilitated awareness campaigns such as the *Sex and Risk* programme for tertiary students (Petersen et al., 2004) and the *Carletonville-Mothusimpilo Project* (Williams et al., 2000); interactive, peer-guided, edutainment programmes such as the *Soul City/De Beers HIV and AIDS Community Training Partnership Program* (e.g., Rispel et al., 2010); and community-based and participatory programmes in vulnerable communities such as the *Participatory Hygiene and Sanitation Transformation HIV and AIDS workshop* (Breslin, 1999), as well as the *Let's Talk!* worksite-based HIV prevention parenting program (Bogart et al., 2013), and the *Collaborative HIV/AIDS Prevention and Adolescent Mental Health Project (CHAMP)* (Baptiste et al., 2006) and later iterations of it named *CHAMP+ SA* (Bhana et al., 2010) and *Vuka* (Bhana et al., 2014).

Toward the late 2000s, critics of the skills-development approach to HIV prevention noted that the approach still focuses largely on imparting information (i.e., it remains a form of education) and that the behavioural change focus continues to be on the individual while neglecting the upstream, cultural and structural determinants and mediators of HIV vulnerability and

¹⁰³ See the discussion on improved HIV-related knowledge not translating into changed behaviour under the heading 7.4.2.4. *Knowledge, attitudes, beliefs and HIV, sex, relationships and health.*

¹⁰⁴ SATZ is an acronym for South Africa and Tanzania. The programme was implemented in these two countries.

susceptibility (e.g., Hoosen & Collins, 2004; Kelly & Ntlabati, 2002). Increasingly, the possibility of true personal agency and voluntary, independent, rational, value-free decision-making came under scrutiny. In this regard, some social scientists argued that structural factors, such as gender inequality, societal norms and values, poverty, as well as political and economic systems, play a significant role in allowing people access to resources and giving people the freedom to engage in certain behaviours and make healthier or safer lifestyle choices. Hence, people who are part of communities that are socially, economically or politically marginalised may be less able to take full advantage of HIV prevention initiatives (Campbell & Williams, 2001). Moreover, the positive effects of an intervention are less likely to be sustained in vulnerable communities that have to contend with adverse living conditions and environments that do not promote mental and physical safety, health and well-being (Johnson & Michie, 2015).

Consequently, an increasing number of structural and combination HIV prevention programmes emerged in the late 2000s and 2010s. These interventions integrated educational, capacity building, peer learning, and gender transformative strategies. Examples of these programmes include the *Intervention with Microfinance for AIDS and Gender Equity (IMAGE)* study (Pronyk et al., 2006), *Stepping Stones* (Jewkes et al., 2008), the *One Man Can* programme (Van Den Berg et al., 2013), as well as the *Women's Health CoOp*, *Men's Health CoOp* and *Couples Health CoOp* (Minnis et al., 2015; Wechsberg et al., 2017).

The visibility of HIV prevention interventions that drew upon multiple behavioural and structural strategies, including cash transfers and other socio-economic approaches, increased throughout the 2010s. Most notably, these programmes included the *Determined, Resilient, Empowered, AIDS-free, Mentored and Safe (DREAMS)* project (Saul et al., 2018), the *HIV Prevention Trials Network (HPTN) 068 study* (Pettifor et al., 2016a) and the *Promoting Sexual and Reproductive Health Among Adolescents in Southern and Eastern Africa (PREPARE)* trial (Mathews et al., 2016).

While the majority of interventions in the literature focused on HIV prevention, there were also a variety of programmes aimed at encouraging HIV testing, treatment uptake and adherence, the improved care of people who are living with HIV, and promoting the psychological well-being of people who are living with HIV and others who have been affected by HIV and AIDS.

7.5.2. HIV testing promotion and treatment uptake and adherence programmes

Socio-behavioural HIV testing interventions have mostly centred around encouraging uptake of HIV testing services through education and awareness raising, such as edutainment projects (e.g., Middelkoop et al., 2006); community mobilisation, such as the *NIMH Project Accept (HPTN 043)* study (Khumalo-Sakutukwa et al., 2008; Maman et al., 2014b); workplace support programmes (e.g., Houdmont et al., 2013); and through incentivisation programmes (e.g., McGovern et al., 2016; Nglazi et al., 2012).

Treatment programmes focus on the psychological, social and structural factors that promote ART uptake and adherence. This included education and awareness-raising programmes to promote ART patients' knowledge of their ART regimen and the importance of ARVs, such as educational videos (Wong et al., 2006); visual imagery on medication leaflets (e.g., Dowse et al., 2010); peer support programmes (e.g., Gross et al., 2015; Igumbor et al., 2011); as well as adherence counselling programmes such as *Options for Health* (e.g., Dewing et al., 2012), *Masivukeni* (Remien et al., 2013), and the *Ziphamandla* study (Andersen et al., 2016).

7.5.3. Care and support programmes for orphans, people who are living with HIV and care workers

Interventions that are aimed at supporting the care and mental health needs of children and adolescents who have been affected by HIV and AIDS, including orphans, were first reported in the academic literature in 2006 (e.g., Du Toit & Van der Merwe, 2006), and became more common from the mid-2010s onwards with the launch of community-based programmes such as *Isibindi* (Visser et al., 2015), play therapy such as *Masekitlana Indigenous Play Therapy* (John et al., 2016), group psychotherapy (e.g., Thurman et al., 2017) and the *Memory Book* intervention (Braband et al., 2018).

Other interventions set out to promote the well-being of people living with HIV as well as families, households and communities affected by HIV and AIDS. This included capacity building initiatives, such as the *Kudu Support Group* (Dageid & Duckert, 2007); combination interventions that integrated various elements of community mobilisation, education and skills development (e.g., French et al., 2015); support groups and group counselling methods, such as the *Serithi Project* (e.g., Mundell et al., 2012) and *Kgolo Mmogo* (Eloff et al., 2011); family-centred, interactive training and counselling sessions, such as the *Amagugu* intervention (Rochat et al., 2015); and social protection interventions, such as the *Child Community Care* project (Sherr et al., 2017).

Given skills shortages and the overwhelming need to serve a growing number of people who have been affected by HIV and AIDS, several interventions have focused on ways in which caregivers, healthcare workers, teachers, counsellors and lay volunteers can be supported in their HIV care and support roles, by means of capacity building such as the *KidzAlive* training programme that equips healthcare workers to provide HIV care to children (Mutambo et al., 2020) and behaviour change counselling (Evangeli et al., 2009). Psycho-education programmes to promote mental well-being amongst care workers were also prominent in the care and support literature (e.g., Hatzipapas et al., 2017; Johnson & Naidoo, 2016; Kupa & Geyer, 2020; Makola, 2015). Stigma reduction programmes and sensitisation training aimed at reducing healthcare workers' stigma and discrimination towards key populations and people living with HIV were also noted in the literature. These programmes included training sessions (Scheibe et al., 2017), educational workshops, and social marketing campaigns (e.g., Sommerland et al., 2020).

7.6. Conclusion

This chapter outlined and described the results of the research focus area thematic analysis. This analysis aimed to explore the thematic content areas that were prominent in the South African literature, thereby outlining the context wherein theory use can be studied in further detail. This thematic analysis also offers some insight into the ways in which research priorities, interests and perspectives changed over time. The next chapter offers a detailed description and discussion of the theoretical analysis results.

Chapter 8: The Use of Theories Within the Social and Behavioural Study of HIV and AIDS in South Africa

“The newness of a new idea can only be appreciated if one is aware of the scope and quality of the old ideas that prevailed before the new idea was introduced” - Paul Davidson Reynolds (1971/2007, p. 19-20).

8.1. Introduction

The previous chapter described the notable research publication trends in the South African socio-behavioural HIV and AIDS literature. This chapter fulfils the second aim of this study by identifying the theories mentioned in the literature and describing how these theories were utilised over the 35-year study period.

8.2. Theory Visibility

Table 8.1 summarises the results of the analysis of the visibility of theory in the studied literature. The extent to which theory was visible in the literature was evenly split between 50.1% (n = 1 908) of papers that did not appear to be using any theory and 49.9% (n = 1 899) of papers that used a theory, either explicitly naming it or using it implicitly. Viewed through the theory visibility typology of Bradbury-Jones et al. (2014), 30.4% (n = 1 156) of papers demonstrated the consistent use of a theory (or theories), while the remaining 13.0% (n = 494) drew upon theory implicitly and 6.5% (n = 249) either used theory partially or retrospectively. Out of all the papers that used theory, 74.0% (n = 1 405) mentioned theory explicitly, while 26.0% (n = 494) used theory implicitly (i.e., without naming it directly). Out of all the papers that utilised theory explicitly, 61.8% did so by directly stating the name of the theory and explaining it clearly, whereas 12.2% (n = 231) mentioned the theory, but described it vaguely.

Table 8.1 Theory Visibility, 1985-2020

Theory Usage	n	%
Theory Seemingly Absent	1 908	50.1%
Theory Used (either implicitly or explicitly)	1 899	49.9%
Total	3 848	100.0%
Bradbury-Jones et al. (2014) theory visibility typology		
Seemingly Absent	1 908	50.1%
Implied	494	13.0%
Partially Applied	160	4.2%
Retrospectively Applied	89	2.3%
Consistently Applied	1 156	30.4%
Total	3 807	100.0%
Implicit and Explicit Theory Use		
Implicit	494	26.0%
Explicit	1 405	74.0%
Explicit Vague	231	12.2%
Explicit Direct	1 174	61.8%
Total	1 899	100.0%

8.2.1. Theory Visibility Over Time

Figure 8.1 is a 100% stacked column chart which illustrates the proportion of articles in each visibility category per year, and Figure 8.2 is a line chart which illustrates the percentage of each theory visibility category over time from 2000 to 2020. In both figures, the total number of articles that were assessed for theory visibility is noted with the year in order to give context to the results and the seemingly dramatic surges in frequencies in the 1980s and 1990s.

Explicit use of theory was absent from the literature until 1991. While explicit theory use was fairly high amongst the small number of papers published in the mid-1990s, it declined in the late 1990s when most of the few articles that were published reported no use of theory. A slight increase in explicit theory use can be observed from 2000 (25.0%; n = 9) to 2020 (29.2%; n = 119). From the early 2000s to the 2010s, implied use of theory has been declining steadily (except for 2008) from 11.1% (n = 4) in 2000 to 5.2% (n = 21) in 2020. The number of articles that seemingly do not use theory has remained fairly constant from 2000 (38.9%; n = 14) to 2020 (36.4%; n = 148).

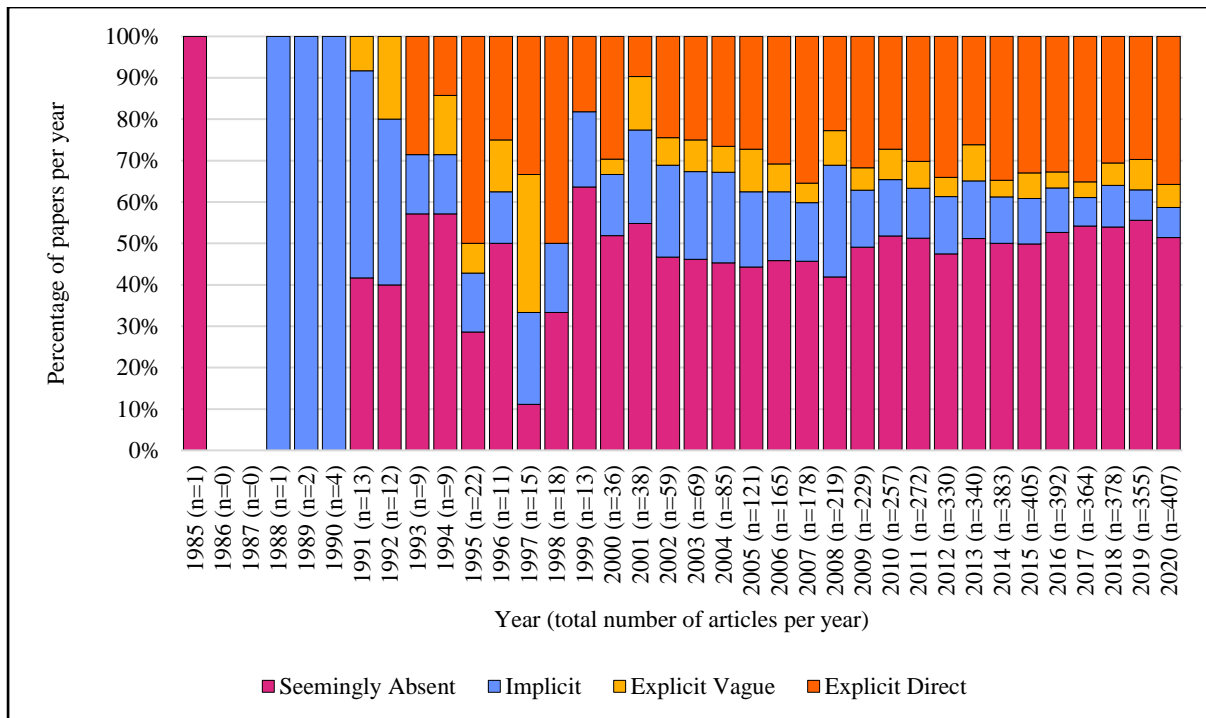


Figure 8. 1 Theory Visibility – Stacked Column Chart, 1985 – 2020

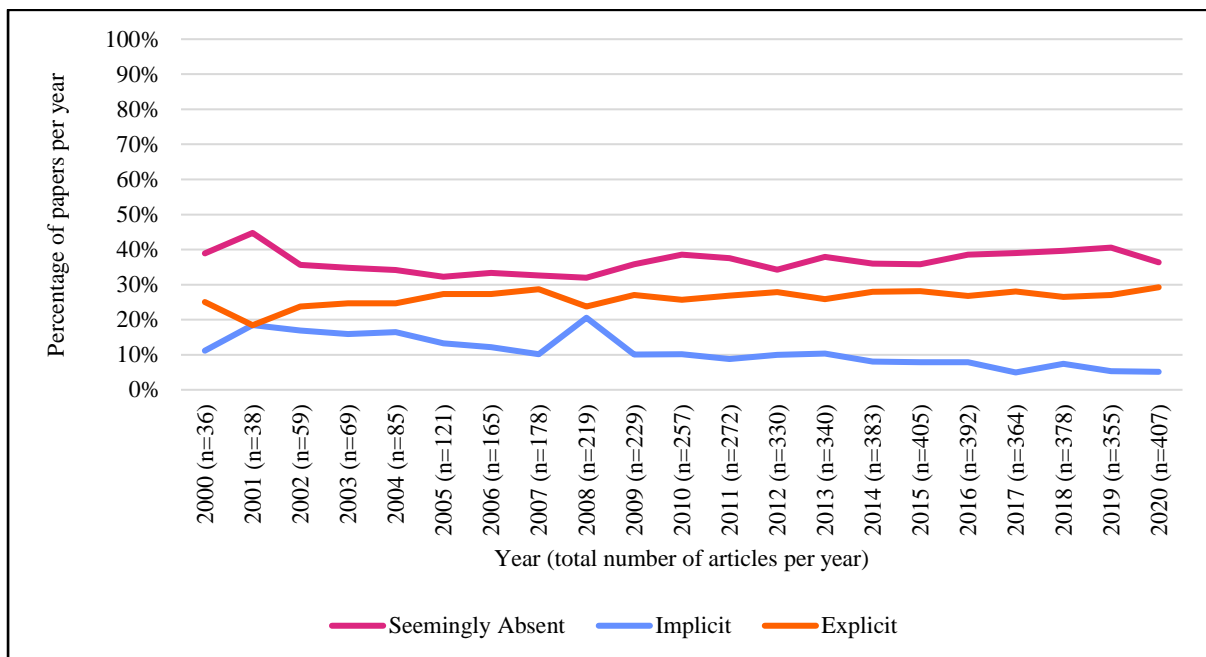


Figure 8. 2 Theory Visibility – Line Chart, 2000 - 2020

8.2.2. Reasons for Using Theory

Articles which demonstrated explicit theory use were reviewed to determine whether authors provided reasons for their choice in theory. Figure 8.3 summarises these reasons.

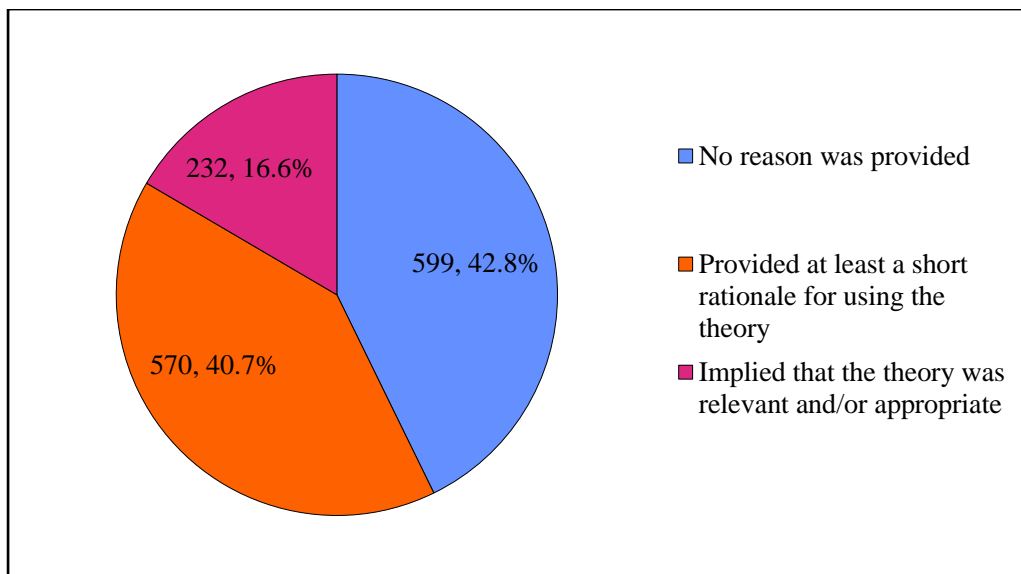


Figure 8. 3 Summarised Reasons for Using Theory, 1985-2020

A total of 42.8% (n = 599) of papers provided no reason for their choice in theory. A further 16.6% (n = 232) implied that the theory they are using is appropriate without explicitly stating why. A total of 40.7% (n = 570) papers offered at least a short rationale or discussion to support their theory choice.

When considered together with the finding that a large number of articles were written with implicit theoretical assumptions, this may suggest that many social scientists implicitly adhere to, agree with, or prefer a specific theory or school of thought and may apply it to their research without necessarily consciously considering its exact utility and the reasoning behind the choice of theory each time they use it.

8.2.3. Theory Visibility by Research Method

Table 8.2 presents the theory visibility of articles, grouped according to research method. Just over half of the mixed methods papers (53.5%; n = 161) utilised theory, either implicitly or explicitly. Over two-thirds of qualitative research papers (65.0%; n = 866) and just under half of quantitative papers (41.0%; n = 787) reported the use of implicit or explicit theory. Mixed methods papers were almost evenly divided between 53.5% (n = 161) of papers that used theory and 46.5% (n = 140) of papers that were absent of theory.

Table 8. 2 Theory Visibility Disaggregated by Research Method, 1985-2020

	Explicit Direct		Explicit Vague		Implicit		Explicit and Implicit		Seemingly Absent		Total
	n	%	n	%	n	%	n	%	n	%	N
Mixed Methods	104	34.6%	14	4.7%	43	14.3%	161	53.5%	140	46.5%	301
Qualitative	519	39.0%	141	10.6%	206	15.5%	866	65.0%	466	35.0%	1332
Quantitative	490	25.5%	66	3.4%	231	12.0%	787	41.0%	1132	59.0%	1919
Total	1113	31.3%	221	6.2%	480	13.5%	1814	51.1%	1738	48.9%	3552

Figure 8.4 is a doughnut chart that compares research methods usage between articles that did not use theory (outer ring of doughnut chart) and articles that used theory (inner ring of doughnut chart). Articles absent of theory were more likely to report on quantitative research studies, whereas articles that drew upon theory were more inclined to report on qualitative research studies.

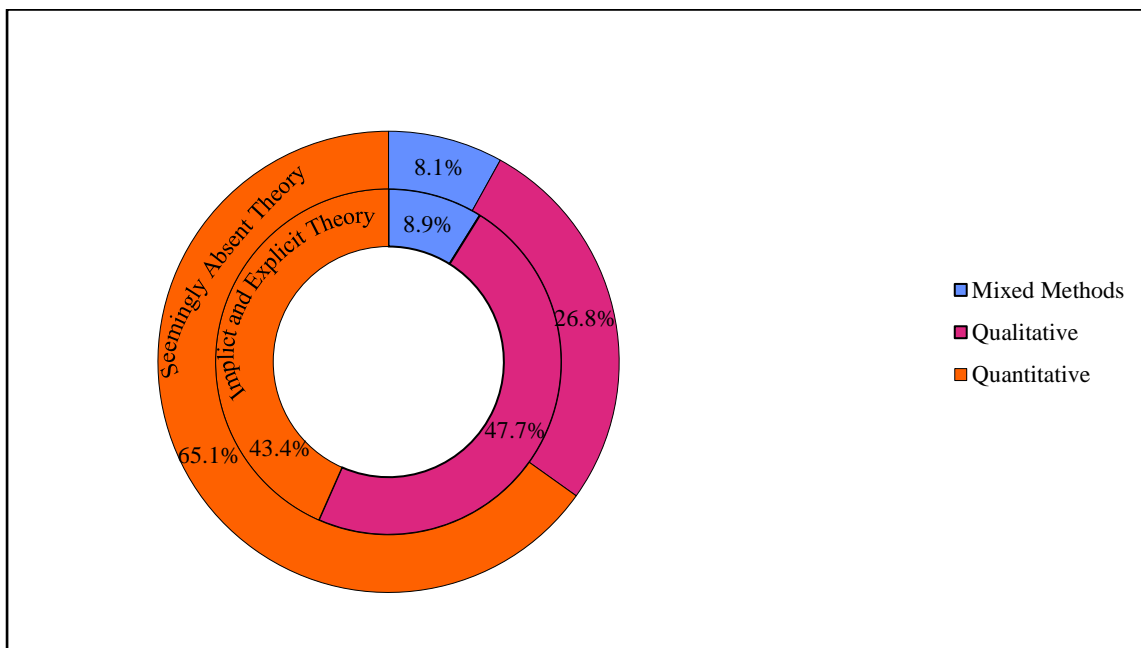


Figure 8. 4 A Comparison of Research Methods Usage Between Articles That Used Theory and Those That Did Not, 1985-2020

8.2.4. Theory Visibility by Research Themes

Table 8.3 summarises theory visibility across the five research themes. Table 8.4 provides a deeper view of theory visibility in the research themes by summarising the theory visibility on the sub-themes level. The analysis of theory visibility across research themes includes data from 1985 to 2020, whereas the analysis of sub-themes only includes data from 1985 to 2016.

Table 8.3 Theory Visibility Disaggregated Across Research Themes, 1985-2020

	Explicit Direct		Explicit Vague		Implicit		Explicit and Implicit		Seemingly Absent		Total N
	n	%	n	%	n	%	n	%	n	%	
Prevention	631	32.2%	108	5.5%	311	15.9%	1050	53.6%	908	46.4%	1958
Care and Support	128	39.4%	19	5.8%	35	10.8%	182	56.0%	143	44.0%	325
Testing and Treatment	142	23.4%	20	3.3%	50	8.3%	212	35.0%	394	65.0%	606
Living with HIV	180	27.5%	47	7.2%	54	8.3%	281	43.0%	373	57.0%	654
Impact of HIV and AIDS	93	35.2%	37	14.0%	44	16.7%	174	65.9%	90	34.1%	264
Total	1174	30.8%	231	6.1%	494	13.0%	1899	49.9%	1908	50.1%	3807

Theory usage was most visible in the *Impact of HIV and AIDS* (65.9%; n = 174) and *Care and Support* (56.0%; n = 182) themes and least visible in the *Treatment and Testing* (35.0%; n = 212) theme. The *Prevention* literature was almost evenly split between theory (53.6%; n = 1050) and non-theory (46.4%; n = 908) articles.

Within the *Impact of HIV and AIDS* theme, theory was the most visible in papers that underscored the cultural and societal views, including the stigmatising beliefs that people hold towards HIV and AIDS and people who are affected by it. Amongst papers in the *Care and Support* theme, theory was especially prominent (as well as directly and clearly discussed) within articles that discussed the well-being and experiences of caregivers and other support workers such as counsellors and volunteers. Papers that pertained to the well-being of orphans and vulnerable children were also more frequently underscored by theory. Research about the well-being and experiences of healthcare workers was roughly evenly split between papers that utilised theory and those that did not.

The testing and treatment sub-themes in the *Testing and Treatment* theme were both equally lacking in visible theory. Theory visibility was slightly lower in *prevention* papers discussing sexual risk behaviour, the socio-behavioural aspects of biomedical HIV prevention, and papers highlighting HIV prevention for other vulnerable and minority groups. In contrast, *prevention* articles that focused on the gendered nature of HIV risk and articles that discussed sexuality and beliefs about sex, relationships and health were amongst the sub-themes with the highest rates of visible theory.

Table 8. 4 Theory Visibility Disaggregated Across Research Sub-Themes, 1985-2016

	Explicit Direct		Explicit Vague		Implicit		Explicit and Implicit		Seemingly Absent		Grand Total
	n	%	n	%	n	%	n	%	n	%	N
Prevention											
Subtheme 1: Sexual risk behaviour	208	26.7%	19	2%	124	15.9%	351	45.1%	428	54.9%	779
Subtheme 2: HIV Prevention focused on the youth	275	39.8%	43	6%	95	13.7%	413	59.8%	278	40.2%	691
Subtheme 3: The socio-behavioural aspects of biomedical HIV prevention	119	25.8%	21	5%	75	16.2%	215	46.5%	247	53.5%	462
Subtheme 4: Knowledge, attitudes, beliefs about HIV, sex, relationships and health	149	35.6%	31	7%	101	24.1%	281	67.1%	138	32.9%	419
Knowledge, Attitudes, Perceptions and Sexual Behaviour	31	23.0%	4	3%	46	34.1%	81	60.0%	54	40.0%	135
Sexuality and beliefs about sex, relationships and health	118	41.5%	27	10%	55	19.4%	200	70.4%	84	29.6%	284
Subtheme 5: The gendered aspects of HIV and the role of sexual violence in HIV risk	104	34.3%	36	12%	76	25.1%	216	71.3%	87	28.7%	303
Subtheme 6: Focus on communities and structural drivers of the pandemic	78	33.8%	22	10%	40	17.3%	140	60.6%	91	39.4%	231
Subtheme 7: HIV prevention focused on other Vulnerable and Minority Groups	17	25.8%	1	2%	10	15.2%	28	42.4%	38	57.6%	66
Testing and Treatment											
Subtheme 1: Testing	33	22.6%	4	3%	14	9.6%	51	34.9%	95	65.1%	146
Subtheme 2: Treatment	52	20.7%	9	4%	27	10.8%	88	35.1%	163	64.9%	251

Care and Support											
Subtheme 1: Healthcare workers	19	27.9%	5	7%	4	5.9%	28	41.2%	40	58.8%	68
Subtheme 2: Orphans and children made vulnerable by HIV and AIDS	35	31.5%	9	8%	15	13.5%	59	53.2%	52	46.8%	111
Subtheme 3: Counsellors, volunteers, peer mentors and informal caregivers	36	52.2%	3	4%	9	13.0%	48	69.6%	21	30.4%	69
Living with HIV											
Subtheme 1: Living with HIV	53	29.8%	12	7%	15	8.4%	80	44.9%	98	55.1%	178
Subtheme 2: Psychological Health and Well-Being	78	28.5%	22	8%	29	10.6%	129	47.1%	145	52.9%	274
Subtheme 3: Risk Behaviour Post-Diagnosis	6	26.1%	1	4%	1	4.3%	8	34.8%	15	65.2%	23
Impact of HIV											
Subtheme 1: Impact of HIV	29	27.6%	11	10%	21	20.0%	61	58.1%	44	41.9%	105
Subtheme 2: Cultural and societal beliefs in relation to HIV and AIDS	39	40.6%	17	18%	16	16.7%	72	75.0%	24	25.0%	96

8.3. Theoretical Contribution

Empirical articles (i.e., articles which reported a study and were not literature reviews, guidelines for practice or methodological papers) and theoretical discussion papers were assessed based on their level of theoretical contribution, as per Colquitt and Zapata-Phelan's (2007) taxonomy of theoretical contribution for empirical articles. Theoretical contribution refers to the extent to which research is novel, as well as the extent to which it is based upon and tests theories. Colquitt and Zapata-Phelan's (2007) taxonomy of theoretical contribution allows one to quantify the extent to which articles in a study field are making conceptual contributions to the literature.

Articles were assessed on a 5-point scale based on the extent to which the study demonstrated elements of theory testing and theory building. Note that the theoretical contribution analysis only included articles published between 1985 and 2015, as the analysis yielded relatively stable trends in theory testing and building. It was deemed more appropriate to produce a comprehensive analysis of the theoretical contribution of the literature up until 2020 for publication in a peer-reviewed journal and to report on the initial results here in this thesis. Figures 8.5 and 8.6 are column charts that present the results of the examination of theoretical contribution in the literature from 1985 to 2015. Table 8.5 summarises the theoretical contribution data into three categories, namely high, moderate and low. Out of a total score of 5 for theory building and theory testing, a high score would be a score of 4 or 5, a score of 3 would be considered moderate, and 1 and 2 would be considered low scores. Table 8.4 also notes the mean theory building and theory testing scores.

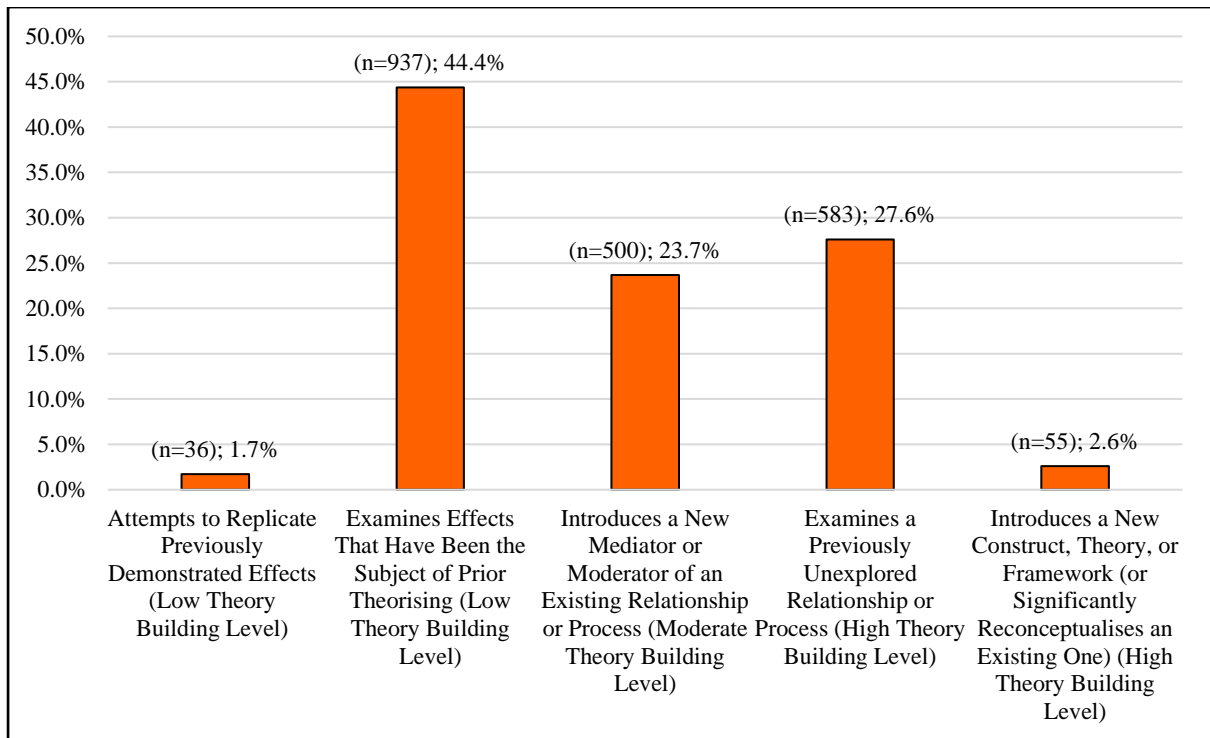


Figure 8. 5 The Extent to Which Theory Building Took Place in the Literature, 1985-2015

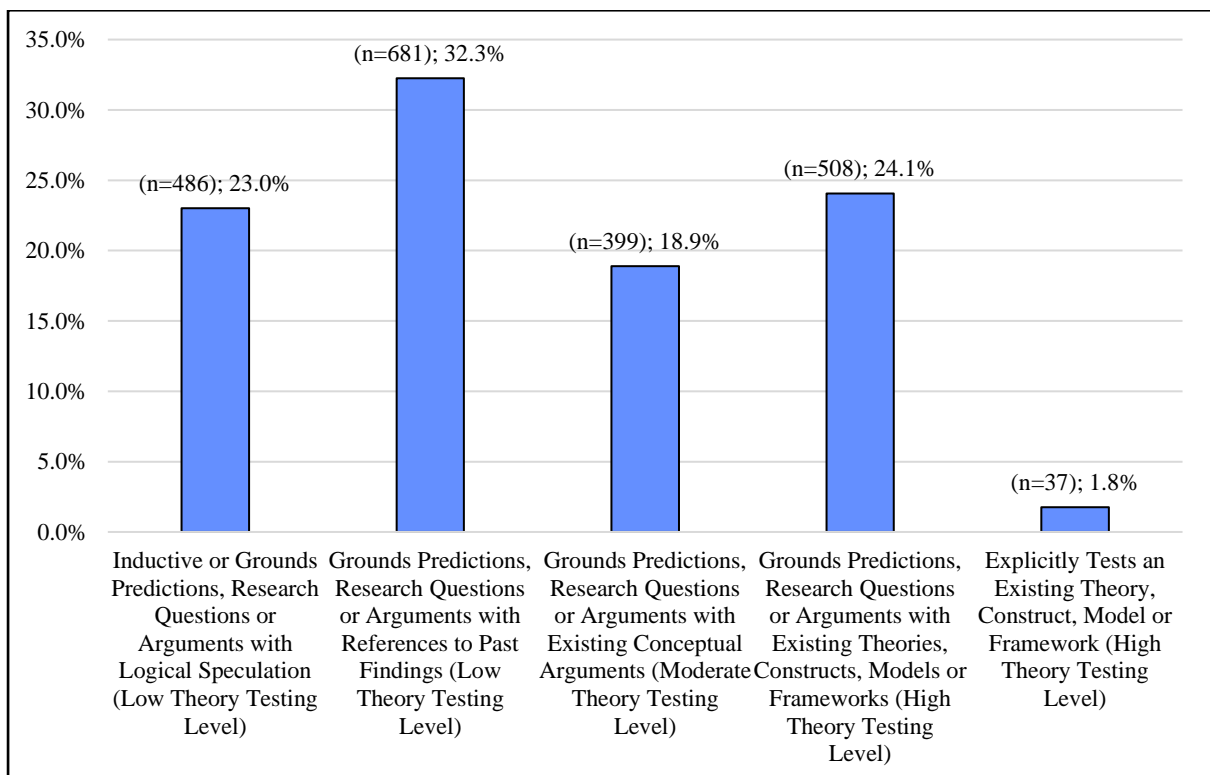


Figure 8. 6 The Extent to Which Theory Testing Took Place in the Literature, 1985-2015

Table 8. 5 High, Moderate and Low Theoretical Contribution

	Theory Building		Theory Testing	
	n	%	n	%
High	637	30,2%	544	25,8%
Moderate	499	23,7%	398	18,9%
Low	972	46,1%	1 166	55,3%
Total	2 108	100,0%	2 108	100,0%
Mean	2.86		2.34	

Most articles demonstrated both low theory building (46.1%; n = 972) and theory testing (55.3%; n = 1 166). Theory building was limited to examining previously identified observations (44.4%; n = 937). However, there was a segment of the literature that purposefully examined new (previously unexplored) phenomena, relationships and processes within the South African HIV and AIDS context (27.6%; n = 583). A small proportion of the literature offered new theories, constructs, models or frameworks (2.6%; n = 55).

Theory testing was particularly lacking in the literature. Most articles (32.3%; n = 681) based their research questions, predictions or arguments on past research findings rather than formal theory. While only 24.1% (n = 508) of articles directly based their research questions, prediction or arguments on an existing theory, only 1.8% (n = 37) of articles explicitly tested a theory.

Figure 8.7 illustrates the mean testing and building scores (out of a maximum of 5) per year from 1989 to 2015. When interpreting the trends during the 1980s, 1990s and early 2000s, it is worth considering that the number of papers per year during this period was quite low – hence the data for those periods were combined in the graph. Theory building remained slightly more prevalent in the literature than theory testing throughout the entire 30-year period. The mean scores for both theory testing and building were relatively stable throughout the time period.

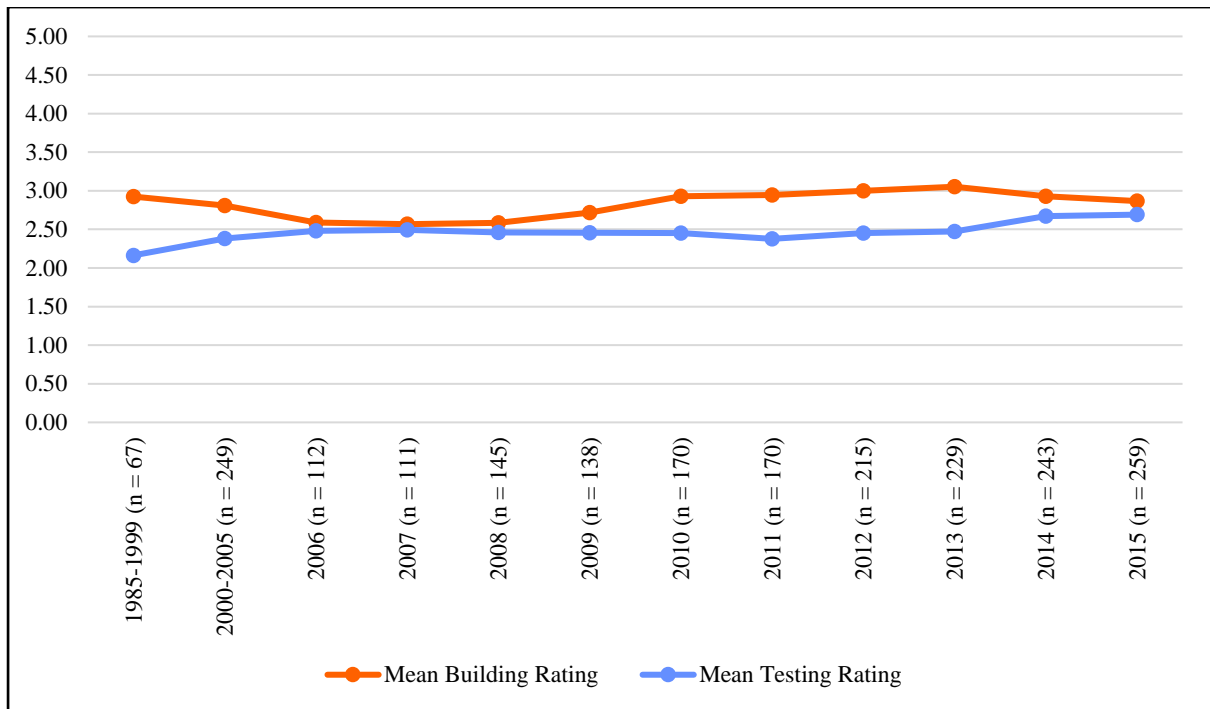


Figure 8. 7 Mean Ratings for Theory Testing and Theory Building 1989-2015

In accordance with Colquitt and Zapata-Phelan’s (2007) taxonomy, each article was classified based on the extent to which it tested and/or developed theory. These theoretical contribution classes are listed in Table 8.6 and Figure 8.8 is a line graph which illustrates the proportion of each theoretical contribution class for each year during the study period.

Table 8. 6 Theoretical Contribution Classes

Class	Description	n	%
Tester	Articles which reported primarily on theory testing, with no theory building	180	8,5%
Reporter	Articles with virtually no trace of theory building or testing	626	29,7%
Qualifier	Articles which displayed an intermediate level of both theory testing and building	755	35,8%
Builder	Articles which primarily reported on theory building, with no theory testing	353	16,8%
Expander	Articles which displayed a high degree of both theory testing and building	194	9,2%
Total		2108	

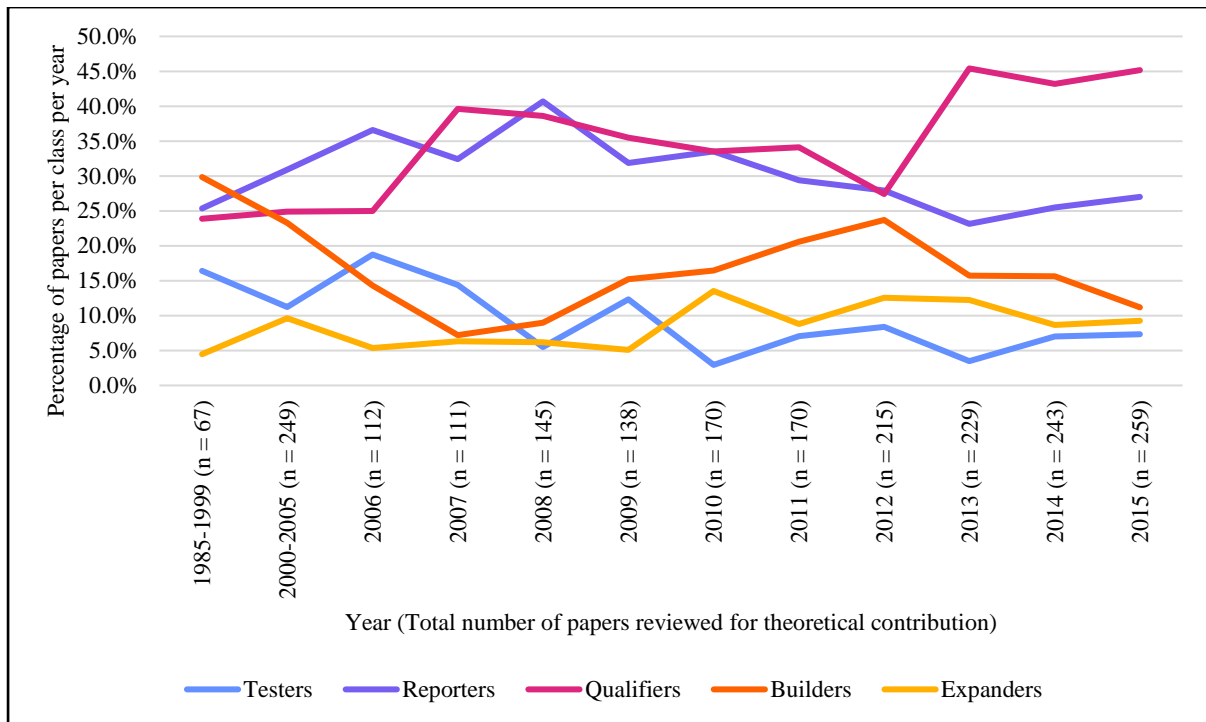


Figure 8. 8 Trends in Theoretical Contribution Classes, 1985-2015

Overall, most articles fell either into the *qualifier* (35.8%; n = 755) or *reporter* (29.6%; n = 626) classes. While the percentage of *qualifier* papers increased in the 2010s, there was a slight decline in *builder* and *tester* papers. The earlier years of the pandemic saw a greater proportion of *builder* papers, likely because the field was still new and novel conceptualisations of social phenomena were required. However, *builder* articles became less prominent in the literature in the 2000s in favour of *reporter* and *qualifier* articles. *Tester* papers were the least common, comprising 8.5% (n = 180) of the entire empirical literature base. While *tester* papers were slightly more common in the earlier years of the pandemic, *testers* have remained relatively rare throughout the 30-year study period. *Expander* papers represented 9.2% (n = 194) of the literature. *Expanders* have consistently been rare; however, a slight increase has been observed over the years.

8.3.1. Theoretical Contribution and Theory Visibility

Table 8.7 cross-tabulates theory building and theory testing against theory visibility. Journal articles that were absent in theory and those that used theory implicitly were particularly likely to exhibit low theoretical contribution. As expected, theory testing tended to be more prominent amongst papers that explicitly utilised theory. Explicit but vague theory use made a discernible difference in theoretical contribution. Articles that articulated their choice in theory vaguely

yielded slightly lower theory building and testing scores compared to articles that clearly stated their theory choice.

Table 8.7 Theoretical Contribution and Theory Visibility

	High		Moderate		Low		Total
	n	%	n	%	n	%	N
Theory Building							
Seemingly Absent	257	27,3%	160	17,0%	523	55,6%	940
Implicit	89	25,8%	81	23,5%	175	50,7%	345
Explicit	291	35,4%	258	31,3%	274	33,3%	823
Explicit Direct	248	36,7%	206	30,5%	222	32,8%	676
Explicit Vague	43	29,3%	52	35,4%	52	35,4%	147
Explicit and Implicit	380	32,5%	339	29,0%	449	38,4%	1168
Total	637	30,2%	499	23,7%	972	46,1%	2108
Theory Testing							
Seemingly Absent	7	0,7%	60	6,4%	873	92,9%	940
Implicit	20	5,8%	155	44,9%	170	49,3%	345
Explicit	517	62,8%	183	22,2%	123	14,9%	823
Explicit Direct	457	67,6%	126	18,6%	93	13,8%	676
Explicit Vague	60	40,8%	57	38,8%	30	20,4%	147
Explicit and Implicit	537	46,0%	338	28,9%	293	25,1%	1168
Total	544	25,8%	398	18,9%	1 166	55,3%	2108

8.3.2. Theoretical Contribution and Research Method and Theme

Table 8.8 presents the extent to which theory building and theory testing were demonstrated in articles that used different research methodologies. The small number of papers that were *literature reviews and critical analyses* scored high on both theory testing and theory building. It is worth noting that most of these papers were specifically focused on discussing theory or conceptual issues, hence the high levels of observed theoretical contribution. *Mixed methods* papers were not particularly high or low in terms of theory building; however, just over half of all mixed methods papers (53.6%; n = 96) scored low scores on theory testing. Not surprisingly, *qualitative* papers demonstrated higher theory building than papers that utilised other research methods. This may be because the articles that utilised *mixed methods*, especially qualitative research methods, tended to have higher rates of theory visibility (implicit and explicit theory use). Authors of qualitative and mixed methods papers are often encouraged to clearly demonstrate how their conceptual framework or assumptions are connected to their research methodology and their interpretation of the findings, perhaps even more so than authors of quantitative papers, where the expectation is that the reader is familiar with positivist and/or

post-positivist research approaches (Poucher et al., 2020). By contrast, most quantitative papers presented the results as they were, without adding any theoretical interpretation.

Table 8. 8 Theoretical Contribution Disaggregated by Research Method

	High		Moderate		Low		Total
	n	%	n	%	n	%	N
Theory Building							
Literature and/or Critical Review and Analysis	15	75,0%	2	10,0%	3	15,0%	20
Mixed Methods	60	33,5%	54	30,2%	65	36,3%	179
Qualitative	297	37,0%	196	24,4%	310	38,6%	803
Quantitative	265	24,0%	247	22,3%	594	53,7%	1106
Total	637	30,2%	499	23,7%	972	46,1%	2108
Theory Testing							
Literature and/or Critical Review and Analysis	15	75,0%	5	25,0%	0	0,0%	20
Mixed Methods	52	29,1%	31	17,3%	96	53,6%	179
Qualitative	237	29,5%	174	21,7%	392	48,8%	803
Quantitative	240	21,7%	188	17,0%	678	61,3%	1106
Total	544	25,8%	398	18,9%	1166	55,3%	2108

Table 8.9 summarises the theory building and theory testing scores across the research themes. Articles in the *Impact of HIV and AIDS* theme stood out as having higher theory building and higher theory testing scores than articles from the other themes. This might be to some degree due to the fact that this theme was more heavily based on qualitative research, which demonstrated slightly higher theory building results in this study. Low theory testing was particularly common in the *Testing and Treatment* theme. Given that this theme had the lowest theory visibility of all the themes (65%), it is not surprising that papers in this theme would demonstrate low theoretical contribution.

Table 8. 9 Theoretical Contribution Disaggregated by Research Theme

	Theory Building						Theory Testing						Total N
	High		Moderate		Low		High		Moderate		Low		
	n	%	n	%	n	%	n	%	n	%	n	%	
Prevention	311	28,4%	246	22,5%	538	49,1%	322	29,4%	192	17,5%	581	53,1%	1095
Treatment and Testing	99	32,0%	74	23,9%	136	44,0%	48	15,5%	40	12,9%	221	71,5%	309
Care and Support	63	29,0%	52	24,0%	102	47,0%	46	21,2%	52	24,0%	119	54,8%	217
Living with HIV	89	28,2%	85	26,9%	142	44,9%	74	23,4%	56	17,7%	186	58,9%	316
Impact of HIV and AIDS	75	43,9%	42	24,6%	54	31,6%	54	31,6%	58	33,9%	59	34,5%	171
Total	637	30,2%	499	23,7%	972	46,1%	544	25,8%	398	18,9%	1166	55,3%	2108

8.4. Prominent Paradigms and Trends Over Time

A total of 1899 articles demonstrated the explicit or implicit use of one or more theories between 1988 and 2020. Table 8.10 lists the most prominent paradigms¹⁰⁵ that were identified. The paradigm that was drawn upon the most was Socio-Behaviourism (32.5%; n = 617), followed by theories within the Socio-Ecological and Systems Paradigm (23.9%; n = 453) and the Critical Theory paradigm (23.8%; n = 452). This aligns with conclusions that other authors have made that the theoretical perspectives that underpin the socio-epidemiological and psychological literature about HIV and AIDS can be clustered into roughly three groups, namely the psychological-social theoretical approaches (e.g., Socio-Behaviourism, Humanist Theory, Psychodynamic Theory), the social, socio-economic and political approaches (e.g., Critical Theory, Feminist theories, Social Constructivism) and multi-level, eco-social and systemic approaches (e.g., Bronfenbrenner’s Socio-Ecological Framework) (e.g., Gubrium, 2000; Howard-Payne & Kiguwa, 2008; Krieger, 2001; Macintyre et al., 2004).

Table 8. 10 The Most Prominent Paradigms in the Socio-Behavioural Study of HIV and AIDS in South Africa, 1988-2020

	n	%
Socio-Behaviourism	617	32.5%
Socio-Ecological and Systems Paradigm	453	23.9%
Critical Theory	452	23.8%
Interpretive Paradigm	349	18.4%
Humanist Theory	134	7.1%
Communication and Media Studies Theories	78	4.1%
Neuro-Cognitive Psychology and Behavioural Economics	66	3.5%
Other	96	5.1%

A short description of each paradigm is provided below:

- a. Socio-Behaviourism: This paradigm refers to the school of thought in Psychology that was pioneered by Albert Bandura and Julian Rotter. Theories within this paradigm emphasise the cognitive processes that shape behaviour and the ways in which human development and behaviour are produced out of an interplay between personal, environmental and behavioural factors (Schultz & Schultz, 2011).

¹⁰⁵ Paradigms are defined as overarching conceptual frameworks which include a group of theories that are all similar in terms of their underlying assumptions and the thematic areas on which they tend to focus. For a more detailed discussion of the distinctions between theory, conceptual framework, model, school of thought and paradigm, please refer to Chapter 5 (under the heading 5.3. *Defining Theory*).

- b. Socio-Ecological and Systems Paradigm: This paradigm represents theories which view the world as comprising multiple socio-ecological levels and emphasises a systemic and multi-level approach to understanding and studying human behaviour.
- c. Critical Theory: This paradigm serves as an overarching framework for theories that are rooted in the Frankfurt School and the work of Michel Foucault. This includes Post-Colonial theories, Feminist theories, Queer theories and Critical Pedagogy.
- d. The Interpretive Paradigm: This category serves as an overarching title for theories that fall within the interpretive and hermeneutic tradition, including Social Constructionism, Social Constructivism, Interpretivism, Symbolic Interactionism and Phenomenology. While these theories are distinct in meaningful ways, they share the same underlying focus on the premise that social reality is largely socially constructed and that human behaviour should be understood through interpretation, in-depth description and empathic understanding (Neuman, 2006).
- e. Humanist Theory: This paradigm represents theories that are rooted in the Humanistic Psychology school of thought, which promotes the holistic study of human nature. This also includes asset-based approaches, quality of life frameworks, resilience theories and Positive Psychology concepts (Schultz & Schultz, 2011).
- f. Communication and Media Studies Theories: This category includes all theories that fall within the scope of Communication and Media Studies, which includes conceptual frameworks that describe and explain how people communicate, how opinions are shaped and changed, how ideas are spread through communication and how mass media can serve to educate the public.
- g. Neuro-Cognitive Psychology and Behavioural Economics: This category includes conceptual approaches which focus on the cognitive and neurological aspects of human development, behaviour and decision-making.
- h. Other: This category includes a wide variety of theories that were used less often in the literature. African Cosmology and Psychodynamic Theory were the most prominent conceptual frameworks within this category. An assortment of theories from fields such as Public Health, Nursing, Education and Business and Organisational Management are also included under this category.

Figure 8.9 is a stacked column chart that provides a breakdown of each year, illustrating the proportion of articles from each paradigm. The chart is meant to offer a view of the trends of different paradigms over the 35-year study period. Note that while some articles drew upon

only one paradigm, some articles combined theories from more than one paradigm. Hence, the percentages in the chart do not always add up to 100% every year.

For a deeper look into each paradigm, Table 8.11 provides a summary of each paradigm with the theories that were most common in the literature within each paradigm. The number of articles that reported the use of each particular theory is provided, alongside its relative size in the paradigm and its prominence across the entire group of articles that utilised theory (n = 1899). The note “non-specific theory” means that the authors would state that the study was based on a general theoretical approach (e.g., “resilience theory”) without specifying the exact theory or theories that were used (e.g., “Rutter’s theory of resilience”). The chart underneath each paradigm illustrates the proportion of papers that utilised theories from the paradigm every year from 1988 to 2020.

The Most Dominant Paradigms and Meta-Theories Over Time

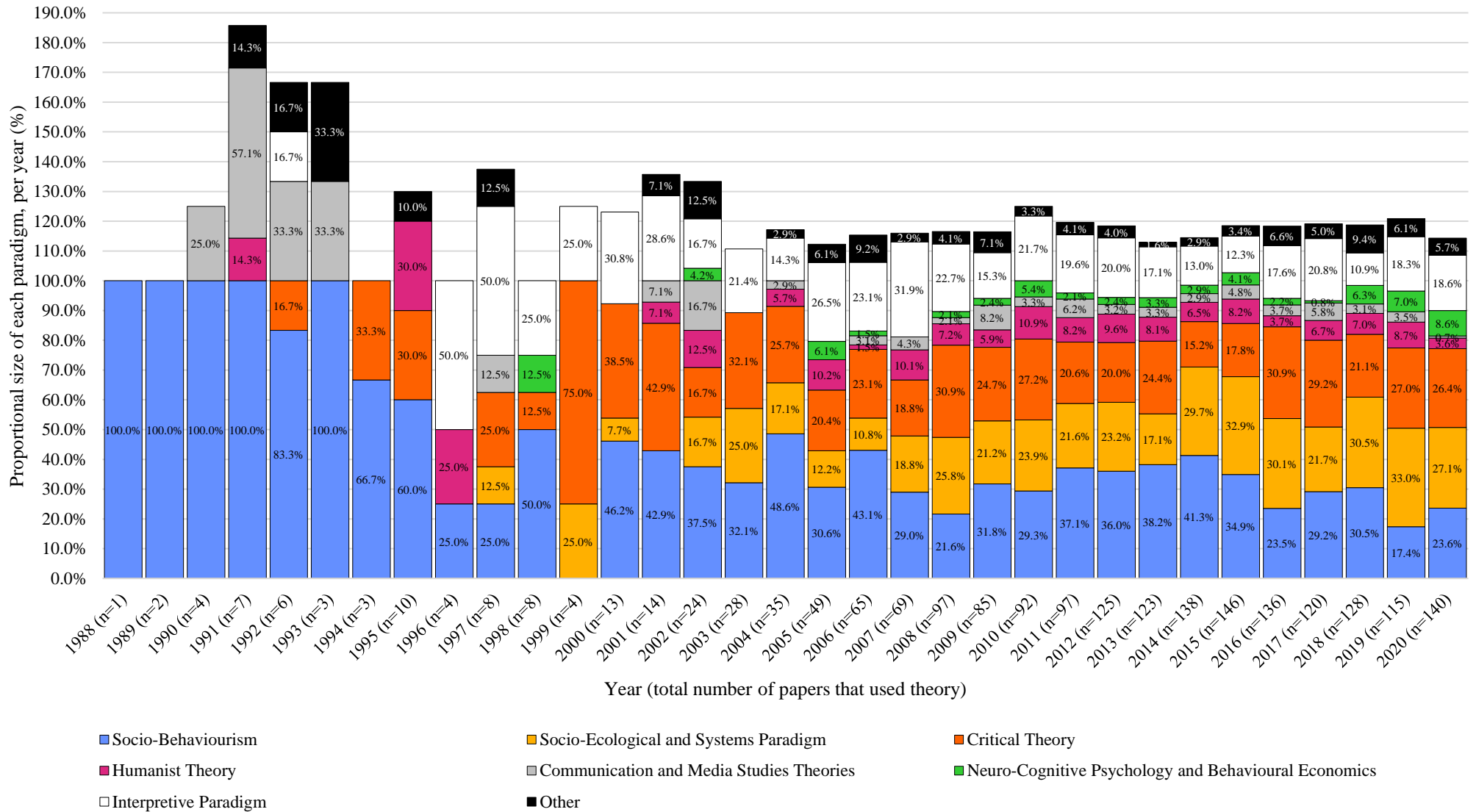
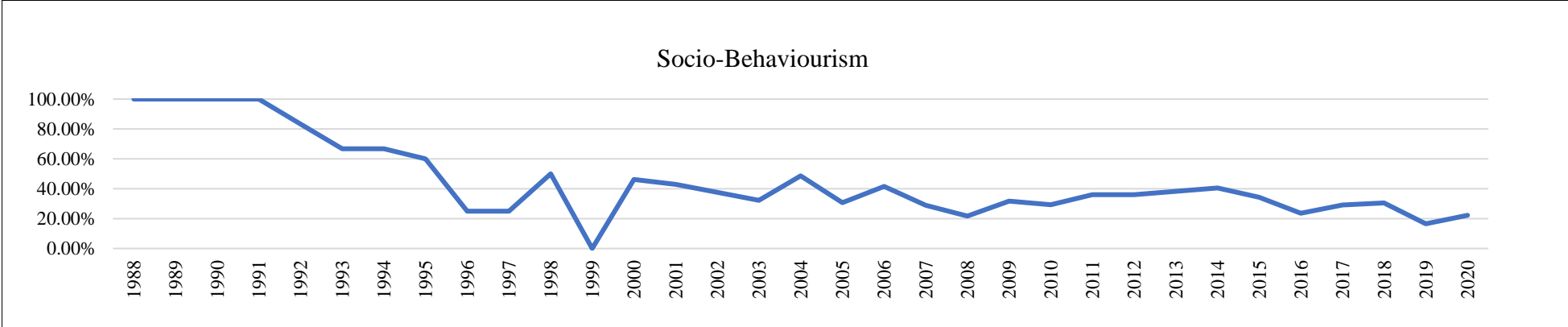


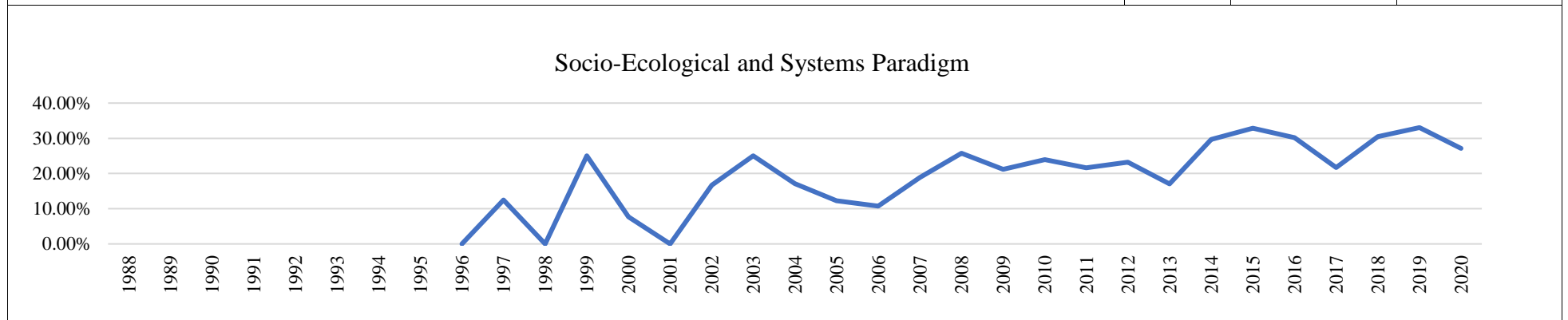
Figure 8.9 The Proportion of Paradigms in the Socio-Behavioural Study of HIV and AIDS in South Africa Per Year, 1988-2020

Table 8. 11 Most Frequently Used Theories in Each Paradigm

Most frequently used theories	n	% In paradigm	% Across all papers that used theory
Socio-Behaviourism			
Reasoned Action Approach	131	21.2%	6.9%
<i>Theory of Planned Behaviour (Ajzen, 1991)</i>	80	13.0%	4.2%
<i>Theory of Reasoned Action (Fishbein & Ajzen, 1975)</i>	35	5.7%	1.8%
<i>Integrated Model of Behaviour Prediction (Fishbein, 2000)</i>	3	0.5%	0.2%
<i>Reasoned Action Model (Fishbein & Ajzen, 2010)</i>	13	2.1%	0.7%
Social Cognitive Theory (Bandura, 1977a; 1986)	102	16.5%	5.4%
Socio-Behaviourist Theories (non-specific theory)	87	14.1%	4.6%
Information-Motivation-Behavioural Skills Model	58	9.4%	3.1%
<i>Information-Motivation-Behavioural Skills Model (Fisher & Fisher 1992)</i>	50	8.1%	2.6%
<i>Information-Motivation-Behavioural Skills Model for ART Adherence (Fisher et al., 2006)</i>	7	1.1%	0.4%
<i>The situated-Information Motivation Behavioural Skills Model of Care Initiation and Maintenance (Amico, 2011)</i>	1	0.2%	0.1%
Health Belief Model (Rosenstock, 1974; Rosenstock et al., 1994)	54	8.8%	2.8%
Self-Efficacy Theory (Bandura, 1977b, 1982)	38	6.2%	2.0%
Transactional Model of Stress and Coping (Lazarus & Folkman, 1987)	29	4.7%	1.5%
Social Action Theory (Ewart, 1991)	15	2.4%	0.8%



Socio-Ecological and Systems Paradigm			
Socio-ecological theories (non-specific theory)	93	20.5%	4.9%
The Socio-Ecological Framework of Bronfenbrenner	44	9.7%	2.3%
<i>The Ecology of Human Development (Bronfenbrenner, 1977; 1979)</i>	29	6.4%	1.5%
<i>Socio-ecological framework (Bronfenbrenner, 1986; 1989/1992; 1995)</i>	10	2.2%	0.5%
<i>Socio-ecological framework (Bronfenbrenner – unspecific source)</i>	4	0.9%	0.2%
<i>The bioecological theory (Bronfenbrenner, 2005)</i>	1	0.2%	0.1%
Model of the dynamics of HIV/AIDS stigma in five African Countries (Holzemer et al., 2007)	24	5.3%	1.3%
Social Capital (studied from a Socio-Ecological perspective)	24	5.3%	1.3%
Syndemics Theory (Singer, 1996)	16	3.5%	0.8%
PEN-3 Model (Airhihenbuwa, 1999)	14	3.1%	0.7%
Systems theory (non-specific theory)	12	2.6%	0.6%
Social Identity Theory and the Self-Categorisation Theory (Tajfel, 1974; 1982; Turner, 1982)	10	2.2%	0.5%
Theory of the Social Ecology of Resilience (Ungar, 2012)	10	2.2%	0.5%
Theory of Triadic Influence (Flay & Petraitis, 1994)	9	2.0%	0.5%



Critical Theory			
Feminist Theory	187	41.4%	9.8%
<i>Feminist and gender theories (non-specific theory)</i>	71	15.7%	3.7%
<i>Theory of gender and power (Connell, 1987)</i>	60	13.3%	3.2%
<i>Gender and Power (Wingood & DiClemente, 2000)</i>	16	3.5%	0.8%
<i>Theory of gender and health (Courtenay, 2000)</i>	12	2.7%	0.6%
<i>Other feminist theories</i>	28	6.2%	1.5%
Critical theories of empowerment and participation	70	15.5%	3.7%
<i>Participatory theory (non-specific theory)</i>	30	6.6%	1.6%
<i>Empowerment Theory (non-specific theory)</i>	20	4.4%	1.1%
<i>Campbell's (2003) account of six factors that facilitate participatory peer education programmes</i>	4	0.9%	0.2%
<i>Empowerment as conceptualised by Wallerstein (1992; 1993)</i>	3	0.7%	0.2%
<i>Arnstein's (1969) typology of participation</i>	2	0.4%	0.1%
<i>Empowerment as conceptualised by Perkins and Zimmerman (1995)</i>	2	0.4%	0.1%
<i>Learned Helplessness and empowerment (Prilleltensky et al., 2001)</i>	2	0.4%	0.1%
<i>Other conceptualisations of empowerment and participation</i>	7	1.5%	0.4%
Critical theories of stigma	52	11.5%	2.7%
<i>Parker and Aggleton (2003)</i>	21	4.6%	1.1%
<i>Link and Phelan (2001)</i>	19	4.2%	1.0%
<i>Deacon (2006)</i>	9	2.0%	0.5%
Freire's Critical Pedagogy (1968/1996; 1985)	44	9.7%	2.3%
Foucault's theories of power and discourse (Foucault, 1961/2005; 1975/2007; 1976/1990)	36	8.0%	1.9%
Critical Theory (non-specific theory)	29	6.4%	1.5%

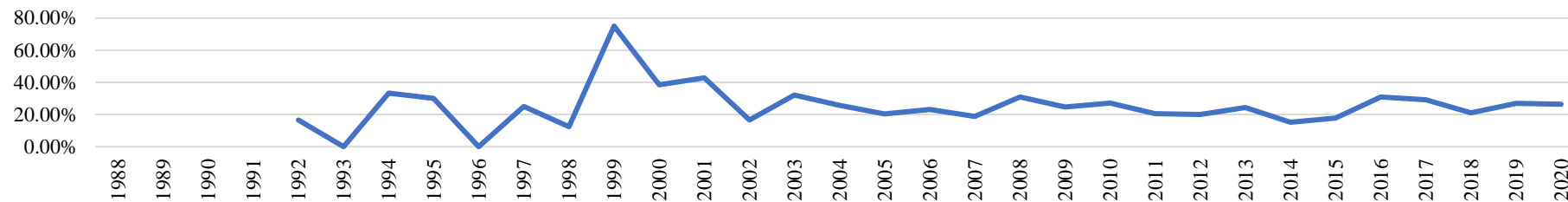
Social Capital (studied from a Critical Theory perspective)

23

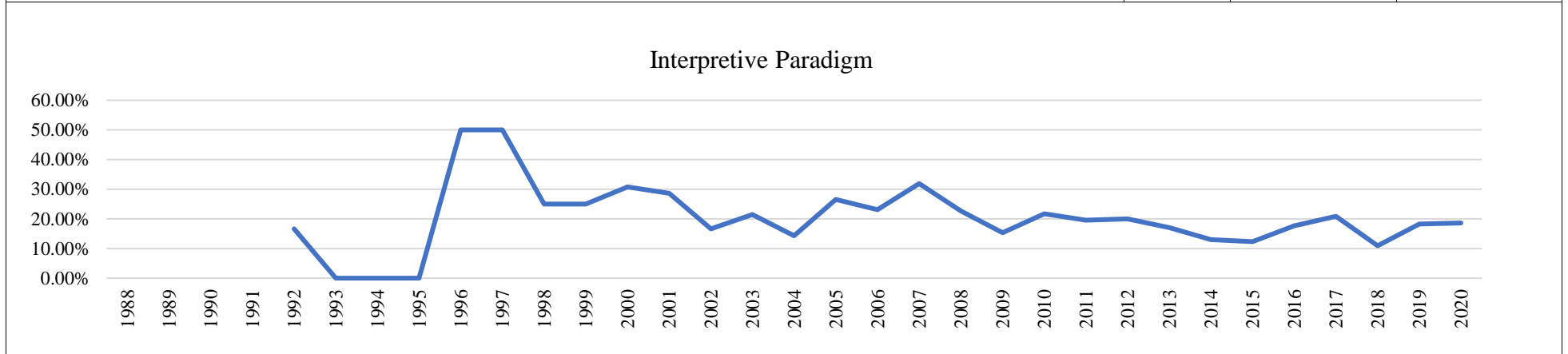
5.1%

1.2%

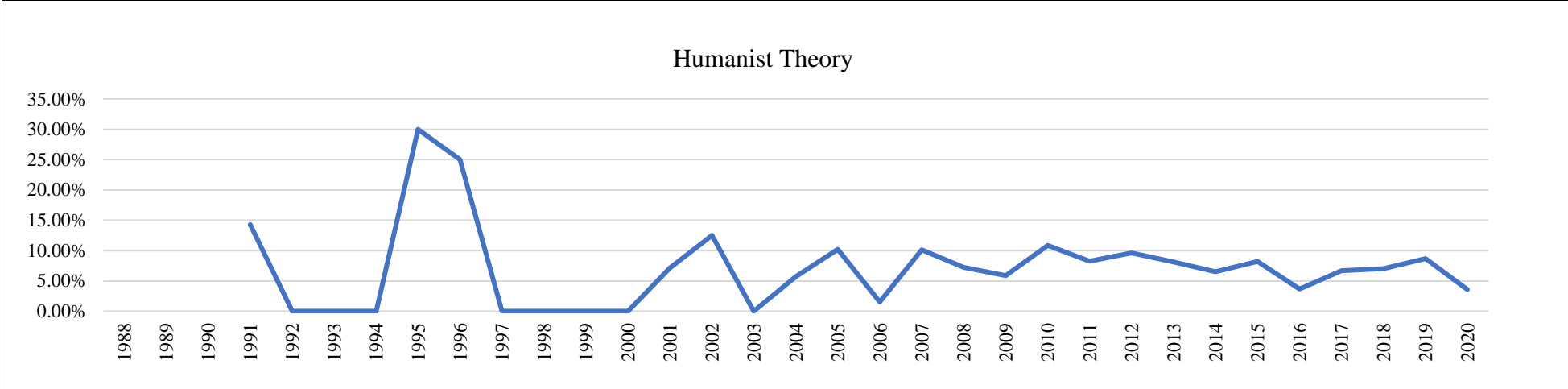
Critical Theory



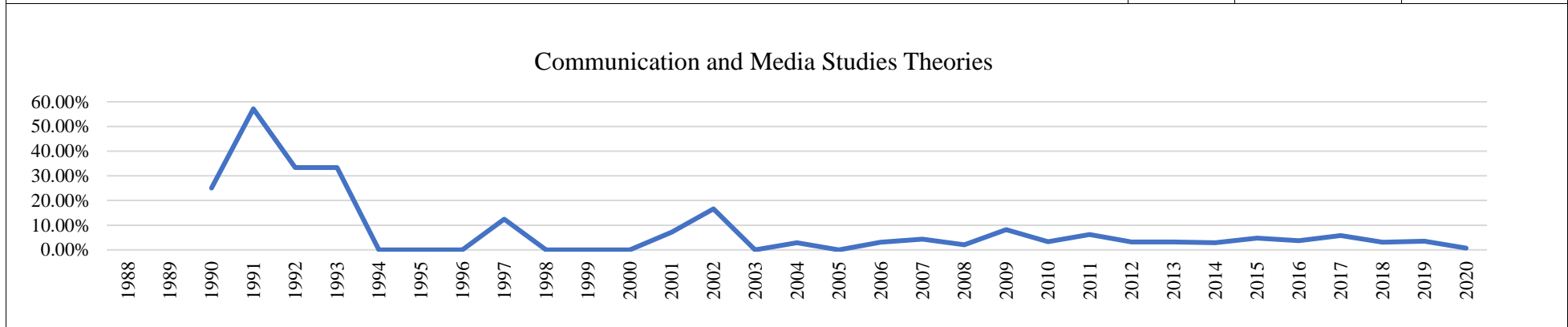
Interpretive Paradigm			
Social Constructivism and Interpretivism	128	36.7%	6.7%
Social Constructionism	69	19.8%	3.6%
Phenomenology	50	14.3%	2.6%
Symbolic Interactionism	40	11.5%	2.1%



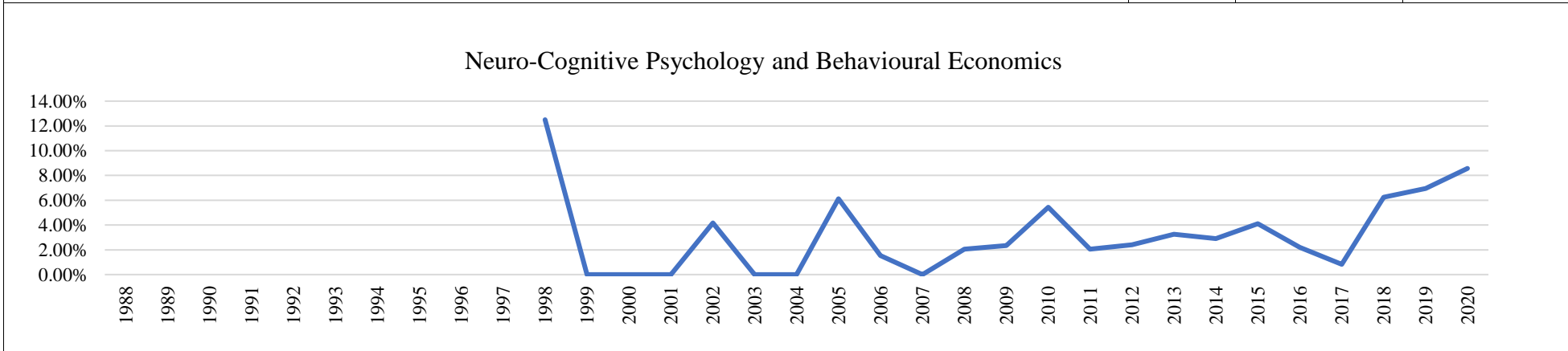
Humanist Theory			
Resilience	37	27.6%	1.9%
<i>Resilience (non-specific theory)</i>	13	9.7%	0.7%
<i>Theory of the social ecology of resilience (Ungar, 2012)</i>	10	7.5%	0.5%
<i>Resiliency theory (Rutter, 1990)</i>	7	5.2%	0.4%
<i>Resiliency theory (Zimmerman, 2013)</i>	3	2.2%	0.2%
<i>Resiliency theory (Masten & Obradovic, 2006)</i>	3	2.2%	0.2%
<i>Kumpfer's model of resilience (Kumpfer, 1999)</i>	1	0.7%	0.1%
Quality of Life	26	19.4%	1.4%
<i>Quality of Life (non-specific theory)</i>	21	15.7%	1.1%
<i>A theoretical model of response shift and quality of life (QOL) (Sprangers & Schwartz, 1999)</i>	2	1.5%	0.1%
<i>Other quality of life theories</i>	3	2.2%	0.2%
Hierarchy of needs (Maslow, 1970)	13	9.7%	0.7%
Erik Erikson's theory of stages of development (Erikson, 1963; 1968)	9	6.7%	0.5%
Humanist Theory (non-specific theory)	9	6.7%	0.5%
Theories of psychological well-being	7	5.2%	0.4%
<i>Subjective well-being theory (Diener & Ryan, 2009)</i>	1	0.7%	0.1%
<i>Psychological well-being (Ryff, 1989)</i>	3	2.2%	0.2%
<i>The Mental Health Continuum Model (Keyes, 2002)</i>	3	2.2%	0.2%
Asset-based approaches (non-specific theory)	6	4.5%	0.3%
Stages of Grieving (Kübler-Ross & Kessler, 2005)	4	3.0%	0.2%



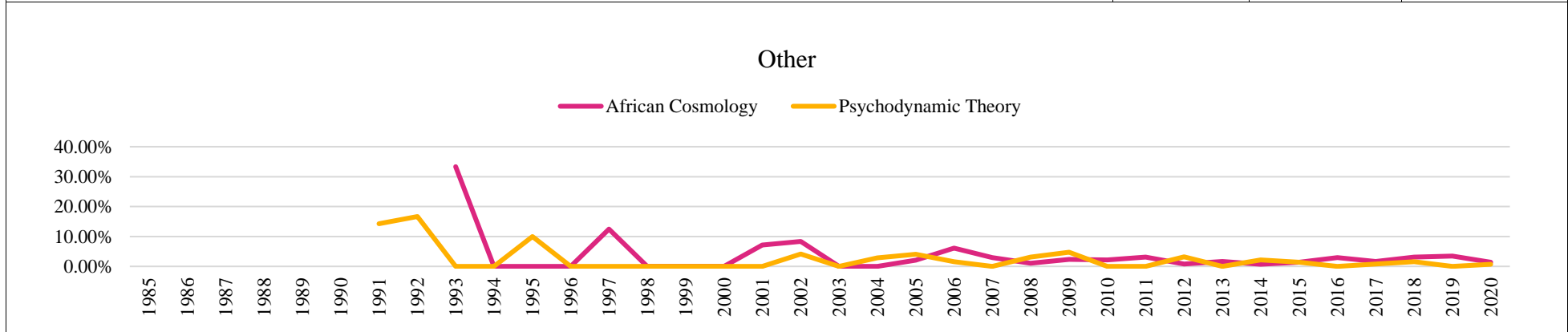
Communication and Media Studies			
Diffusion of Innovation (Rogers, 2010)	22	28.2%	1.2%
Mass media to inform and educate (non-specific theory)	16	20.5%	0.8%
Convergence Theory (Kincaid, 2002)	5	6.4%	0.3%
Two-step Flow of Communication (Katz & Lazarsfeld, 1955)	4	5.1%	0.2%
Interpersonal communication theory (non-specific theory)	3	3.8%	0.2%
Theory of Public Opinion (Noelle-Neumann, 1974)	3	3.8%	0.2%
Frame Theory (Goffman, 1974/1986)	3	3.8%	0.2%



Neuro Cognitive Psychology and Behavioural Economics			
Behavioural economics (non-specific theory)	12	18.2%	0.6%
Social Exchange Theory	8	12.1%	0.4%
<i>Social Exchange Theory (Thibaut & Kelley, 1959)</i>	6	9.1%	0.3%
<i>Social Exchange Theory (Emerson, 1976)</i>	1	1.5%	0.1%
<i>Social Exchange Theory (Homans, 1958)</i>	1	1.5%	0.1%
Neuro Cognitive Psychology (non-specific theory)	7	10.6%	0.4%
Microeconomic theory	6	9.1%	0.3%
Prospect Theory (Kahneman & Tversky, 1979)	3	4.5%	0.2%



Other			
African Cosmology	42	43.8%	2.2%
Psychodynamic Theory	28	29.2%	1.5%



8.4.1. 1982 to 1999

Given the lack of effective medical treatment for AIDS and early indications that sexual behaviour plays an important part in the spread of HIV, prevention by raising awareness and education quickly gained momentum (e.g., Knobel, 1986). Following the example of HIV prevention programmes and applied research projects in the USA, HIV prevention in South Africa during this period focused mainly on determining people's HIV-related knowledge, attitudes and risk practices and conducting large-scale HIV education and awareness raising initiatives through the use of mass media, entertainment and educational vehicles.

This emphasis on education drew implicitly on the assumption that cognitions control behaviour and that changing knowledge, perceptions, attitudes and behavioural intentions would lead to a change in behaviour. Hence, social scientists who were working on HIV prevention reasoned that by improving people's knowledge about HIV and its modes of transmission, they could sensitise people to the risk of HIV infection and that this knowledge would compel people to change their risky sexual behaviour and adopt safer lifestyle choices and sexual practices. This assumption is rooted in the socio-behaviourist perception of behaviour which emphasises the role cognitive processes play in producing behaviour. In particular, several well-known health behaviour conceptual frameworks laid the foundation for this course of action, including the Health Belief Model that was developed by psychologists at the United States Public Health Service in the 1950s (Rosenstock, 1974), the Theory of Reasoned Action that Martin Fishbein initially developed and Icek Ajzen in the late 1960s (Fishbein, 1967; Fishbein & Ajzen, 1975) and the Social Learning Theory (later revised and renamed the Social Cognitive Theory), that was initially developed by Albert Bandura in the late 1970s (Bandura, 1977b; 1986).

Hence, we see in Figure 8.11 that Socio-Behaviourism was the dominant (and almost exclusive) theoretical perspective visible within the small number of papers that were published in the late 1980s and early 1990s. Theories of Communication, such as Diffusion of Innovation, were often used in combination with Socio-Behaviourist theories to facilitate the development of mass media and edutainment interventions.

Although educational HIV prevention programmes and the use of Socio-Behaviourist theories that supported such programmes were standard protocol globally, critique against these approaches started to surface in international academic papers from the late 1980s. It persisted

throughout the 1990s and 2000s to the present day. The key points behind this critique include the following:

- a. Lack of compelling evidence: Given the continued spread of HIV, the absence of thorough evaluation studies on communication, education and awareness-raising programmes and initially mixed results about the effectiveness of such programmes¹⁰⁶, some international social scientists and public health experts started to become sceptical of the utility of KAP survey research and education-focused intervention approaches as the only pathways to HIV prevention (e.g., Cates Jr & Bowen, 1989).
- b. Overemphasis on behaviour change: Social scientists started to question the programmatic emphasis on behaviour change as the only way to prevent the spread of HIV, given that it may not be comprehensive enough to address all the factors that contribute to HIV vulnerability and susceptibility, especially in world regions that have been the hardest hit by HIV, such as sub-Saharan Africa.
- c. Overemphasis on the individual and a neglect of the social nature of disease: There were social scientists who deemed the HIV prevention programmes of the time to be too narrowly focused on the individual and that this could inadvertently promote victim-blaming, stigma and discrimination (Dam, 1989; Decosas, 1992). By concentrating mostly on preventative actions at the individual level, Fee and Krieger (1993) argued that social scientists essentially ignore the socially constructed nature of disease vulnerability and implicitly accept (i.e., leave unchallenged) the health and socio-economic inequalities in society. Fee and Krieger (1993) describe the mainstream approach to HIV prevention as being based upon individualist values and biomedical assumptions of behaviour. Instead, social scientists should endeavour toward a more collective, social and historical understanding of HIV and AIDS.
- d. Inappropriate research methods: At the same time, social scientists increasingly started to question the dominance of positivist research methods (including experimental and quasi-experimental research) in the social sciences, and some argued that they are inappropriate for the study of health behaviour and behaviour change in general (e.g., Buchanan, 1998; Green & Tones, 1999).

¹⁰⁶ While initial evaluations provided useful insights, many of them had had major shortcomings, including small sample sizes, short intervention and evaluation periods, no control group, lack of baseline data, lack of randomisation and no long-term follow-up.

While the target of the critique was often levelled at research methods or intervention approaches, at the centre of the issue were the so-called “bio-medical” and the psychological conceptual frameworks that underpinned these strategies. Increasingly, Socio-Behaviourism (sometimes cheekily referred to as the “KAP paradigm”¹⁰⁷) was on the receiving end of harsh criticism from local and international scholars regarding its lack of appropriateness and usefulness as a theoretical framework for the study of HIV and AIDS.

The first South African peer-reviewed publication to do so was Wilson and Lavelle’s (1993) critical analysis of HIV prevention in South Africa. Wilson and Lavelle (1993) emphasised similar concerns as their international peers. They argued that the view that education is the only way to prevent HIV reflects a superficial understanding of the HIV epidemic and that it “...diverts attention from other important approaches, including policy revision socioeconomic reform, STD control, condom promotion and perhaps male circumcision...” (p. 668). Lachenicht (1993) echoed Wilson and Lavelle’s (1993) sentiments and argued that the assumption that informing people of the risk of unsafe sex will prevent the spread of HIV is unrealistic. In the place of behavioural interventions, Lachenicht (1993) argued for structural interventions (such as improving schooling opportunities for girls and decriminalising sex work) as they seemed to be more likely to address the core structural drivers (i.e., policy, socio-economic, political) that place people in vulnerable positions.

In their paper about street children’s perceived risk of HIV infection and their HIV-related knowledge, attitudes and beliefs, Richter and Swart-Kruger (1995) noted that the Health Belief Model has successfully been used to predict health behaviours. However, the Health Belief Model had two major shortcomings in the context of HIV and AIDS and especially when considering vulnerable populations, such as street children and sex workers. Firstly, the Health Belief Model assumes that people have complete personal control over their interactions with others, including the behaviours of their sexual partners, and implies that all health-related behaviour is driven by conscious decision-making. Richter and Swart-Kruger (1995) argued

¹⁰⁷ While some authors in the South African literature (e.g., Swart-Kruger & Kruger, 1997) identified the specific theories that they considered to be inappropriate, several papers failed to mention a specific theory or instead specifically mentioned and critiqued what they referred to as the “KAP model” or the “KAP paradigm” (e.g., Campbell & Williams, 1996; Joffe, 1996a; Macheke & Campbell, 1998; Marcus, 1997). KAP represents the survey research approach of studying knowledge, attitude and practices, but also refers to the socio-behaviourist theories that, considered in their most simplistic form, rely on the causal connections between knowledge, attitudes and behaviours, in particular the Health Belief Model and the Theory of Reasoned Action (although the names of the specific, individual theories are rarely explicitly stated). While grouping theories together behind the KAP label serves to brand all of them as being insufficient for the same reasons, it may also subtly diminish the value and unique characteristics of each individual theory, perpetuate an oversimplistic analysis of these theories, and implicitly discourage other scientists from using any of these theories.

that physical, social, economic and political power imbalances and social and economic dependences render many vulnerable groups without the agency to exert full control over their daily lives. Secondly, the Health Belief Model places a high value on cognitive processes (such as a person's perceptions of possible threat or their ability to perform a task) and neglects the moral and emotional aspects that also play a significant role in shaping behaviour, especially within the context of sexuality and sexual behaviour. Ultimately, Richter and Swart-Kruger (1995) concluded that the Social Cognitive Theory and the AIDS Risk Reduction Model offer more suitable conceptual perspectives for HIV and AIDS research. In another paper that was published two years later, Swart-Kruger and Richter (1997) continued their critique of the Health Belief Model and included the Theory of Reasoned Action as "rational choice models of sexual behaviour" (p. 962) that are inappropriate for doing a meaningful study of the social and behavioural aspects of HIV and AIDS, especially with vulnerable communities. Moreover, they emphasised that the "biomedical hegemony" in HIV research and interventions and the "the unquestioning acceptance of individually oriented educational and behaviour modification programmes as the paramount form of AIDS prevention" should be challenged (Swart-Kruger & Richter, 1997, p. 963).

Joffe (1996a) assumed a social representation theoretical approach (Moscovici, 1980) to her critique of the so-called "KAP paradigm". Joffe (1996a) highlighted three core assumptions of the KAP paradigm (in particular, the Health Belief Model and the Theory of Reasoned Action) which made it inappropriate for socio-behavioural HIV research. Firstly, Joffe (1996a) argued that the KAP paradigm assumes that thoughts lead directly to action. Yet, the causal linkage between cognition and behaviour is not linear and that, underlying representations of sexuality and illness influence people's actions more so than knowledge *per se*. Secondly, the KAP paradigm assumed a micro-social focus on behaviour by focusing almost exclusively on the individual as the decision-maker of their behaviour and behavioural intentions. External social, cultural and societal factors are largely ignored as major drives in determining behavioural intentions. Thirdly, the KAP paradigm emphasises individual motivation, agency and self-efficacy while neglecting the social, structural and environmental factors that lie outside of the individual's control but that ultimately have an important role to play in shaping their behavioural intentions and available options (Joffe, 1996a). Joffe (1996a) maintained that HIV research should embrace alternative approaches that allow for a study of identity, emotion and the socio-cultural symbolism that underscores society's perception of HIV and AIDS.

Campbell (1997) argued that sexuality is determined by a complex interplay of various psychosocial and cultural factors and that social identity (including identities of masculinity and femininity) played a far more significant role in determining behaviour than what the KAP paradigm makes allowances for. Campbell (1997) added that one could not disconnect high-risk sexual behaviour from the contexts in which these social identities which drive the behaviour were formed. Hence, any research on the social and behavioural aspects of HIV prevention needs to approach the topic from a perspective that allows for a deeper understanding of the behaviour and the contextual factors that drive it.

As mentioned earlier¹⁰⁸, Campbell and Williams (1996) reviewed HIV-related publications based on South African research and critiqued the continuous use of the so-called KAP approach. The authors deemed the educational programmes that were primarily based upon the KAP approach to be too restrictive and that socio-behavioural research on HIV and AIDS should explore sexuality and the cultural and societal aspects of HIV and AIDS more broadly. Moreover, they recommended that South African social scientists should incorporate more participatory, skill-based, and community-focused strategies into their HIV prevention programmes. Similarly, Macheke and Campbell (1998) argued for the replacement of communication, education and awareness-raising HIV prevention programmes and proposed that peer-based prevention programmes should rather be considered. They described peer-based methods as an alternative approach that would subvert the overemphasis on the individual by framing behaviour as a product of social norms and practices, not individual decisions. By this reasoning, the only way people's behaviour could be changed would be to address maladaptive and harmful social norms and practices, which, given the social nature of the behaviour, would necessitate shifting the focus from the individual toward strategies that allow for collective (i.e., peer-group, communal) action and the renegotiation of norms (Macheke & Campbell, 1998).

The persistent critique of bio-medical and Socio-Behaviourist theories over the course of the late 1980s and 1990s in the HIV literature mirrors similar critiques of mainstream psychological theory in the general South African and international health and critical psychology literature. The influence of Marxist, Foucauldian, Post-Colonial and Social Constructionist thought became increasingly apparent in the literature as psychologists started to embrace alternative conceptual frameworks and methodological approaches that were more

¹⁰⁸ In Chapter 5, under the heading 5.9.4. *Reviews of Theory Use in the South African HIV Literature*.

critical of the positivist and biomedical status quo, and that seemed to be more appropriate for the South African context (Yen 2016; Yen & Vaccarino, 2018). In order to develop Psychology into a discipline that is more inclusive and in touch with public health priorities, psychologists were faced with the challenge of “...abandoning, or at the very least, reconceptualizing, entrenched assumptions about the nature of psychological care and of psychological inquiry” (Yen, 2016, p. 83).

Consequently, psychologists, particularly those who found themselves in social and health psychology, increasingly started to draw upon alternative methods and conceptual frameworks that did not fall within mainstream Psychology. This included a shift toward community psychology (and especially participatory approaches and action research methods), ethnography and concepts from medical anthropology and sociology, as well as concepts and models from public health and epidemiology (Yen, 2016; Yen & Vaccarino, 2018). These shifts in research methodology, practice and conceptual underpinning also became apparent in the social and behavioural study of HIV and AIDS in South Africa.

This growing discontent with mainstream psychology that intensified in the early to mid-1990s laid the foundation for the gradual shift in the socio-behavioural study of HIV and AIDS in South Africa, from Socio-Behaviourism towards Critical Theory, Interpretive conceptual approaches and the Socio-Ecological and Systems paradigm. This shift is clearly evident in the results of this study. Figures 8.11 and 8.12 shows that, already by the late 1990s, the number of papers that used Socio-Behaviourism (and theories in the Communication and Media Studies field) was receding, whereas Critical Theory started to make an inroad into the literature. The range of theories expanded over time as researchers from more disciplines became involved in studying HIV and as researchers turned to various alternative theories that they deemed to be more appropriate for their research.

8.4.2. 2000 to 2020

Critiques of the bio-medical and individual-centred study of HIV and AIDS persisted. Socio-Behaviourism and related theories (such as communication theories) continued to receive Critical analysis and criticism throughout the 2000s and 2010s in the South African HIV and AIDS literature. The critique continued to highlight concerns about the validity and appropriateness of mainstream health behaviour theories (in particular Socio-Behaviourist and communication theories) for research and practice in South Africa. Critique continued to centre around the almost exclusive focus on the proximal determinants of behaviour (such as

psychological and individual-level factors such as behavioural intentions and attitudes) while disregarding (or at least offering limited attention to) the manner in which distal determinants (such as poverty and culture) may produce or contribute to proximate determinants of behaviour. Not only does this limit the view we have of the social phenomena we are attempting to study, but it also implies that the behaviours are largely volitional and the product of rational decision-making when contextual factors may have played a significant role in shaping a person's behaviour and epidemiological feedback systems may play a major role in shaping people's HIV risk (Cassels et al., 2014; Hlabangane, 2014; Tomlinson et al., 2010).

Theories of health communication and health behaviour received criticism for being based on Western worldviews, particularly individualism, which starkly contrasts with the African worldview, which is inherently collectivistic. Moreover, culturally-based understandings of sexuality, health and disease may profoundly impact people's behaviour and how they perceive their HIV risk. These unique beliefs and norms may go unnoticed in research that does not incorporate socially and culturally embedded belief systems into their conceptual frameworks (Tenkorang, 2014). Hence, some argued that this rendered theories of health communication and health behaviour inappropriate for non-Western, and particularly for research on African populations (Airhihenbuwa & Obregon, 2000; Uwah, 2014; 2015).

Furthermore, the decolonial turn in Psychology in South Africa and other Western countries further amplified the need for reflection upon mainstream psychological research and practice and the appropriateness of psychological theory in non-Western societies. Instead of viewing the individual as the main unit of analysis, decolonised psychological research intends to shift the focus toward a more contextualised understanding of human behaviour (Ratele, 2017).

As a result, calls for the use of conceptual frameworks and research approaches that allow for a better understanding of socio-historical, cultural, gendered and economic situatedness of sexuality and HIV-related behaviours persisted. To this end, many authors argued for the use of Social Constructionism as well as Critical and Constructivist Theories (in particular theories of participation, empowerment, gender and sexuality), as well as for the increased use of ecosystemic theories that appreciate the multi-level and socially-constructed nature of HIV and AIDS (e.g., Campbell et al., 2007; Coetzee et al., 2022; Hanass-Hancock, 2014; Lesch & Kruger, 2004; Ley et al., 2015). This also meant shifting the focus from the *individual* to the *individual-in-context*, thereby studying groups, dyads and communities.

While Socio-Behaviourism was able to maintain its dominant status for a short while during the 2000s, it was briefly surpassed by Critical Theory and the Socio-Ecological and Systems paradigm in 2008. It made a brief reappearance as the most prominent theory from 2009 to 2015. However, from 2016, the number of papers utilising Socio-Behaviourism started declining visibly. In its place, Critical Theory and the Socio-Ecological and Systems paradigm emerged as the new preeminent paradigms in the literature. By 2020, Socio-Behaviourism was used in 23.6% of theory-based papers, while Critical Theory represented 27.1% and the Socio-Ecological and Systems paradigm 26.4% of the literature.

Although theories in the Communication and Media Studies field were frequently used in the 1990s, mostly to support edutainment and other persuasive communication prevention campaigns, their popularity appeared to have declined from the late 1990s onwards. This might be due to the criticism against education-based interventions (as discussed earlier), and the ensuing growth in the use of theories and methods from Critical Theory and the Socio-Ecological and Systems paradigm. Despite this decline, theories in the Communication and Media Studies field remain in the literature in at least a few articles each year. Persuasive communication interventions remain popular behaviour change strategies, both locally and globally. Communication theories, coupled with Socio-Behaviourist theories, are thus likely to continue to be relevant (Hamilton & Johnson, 2020).

Conceptual approaches in the Interpretive paradigm may have lost some traction in the literature in the 2000s as Critical Theory became more popular. However, it has remained relatively stable over the 2010s. In total, the articles that drew upon the Interpretive paradigm represented 18.4% of the literature.

Humanist theories represented 7.1% of the total number of papers that used theory. The utilisation of Humanist theories has remained relatively stable over time.

The number of papers that utilised theories that are located in the Neuro-Cognitive Psychology and Behavioural Economics fields has slowly been on the increase. Interest in Behavioural Economics has risen in the last two decades, partially due to the popularisation of the discipline through the success of best-selling books such as *Nudge* by Richard Thaler and Cass Sunstein (2009), the rise of behavioural economic consulting agencies (e.g., Irrational Labs), and through the development of so-called “behavioural nudge units” in governments such as the United Kingdom (Puce, 2017). Consequently, Behavioural Economics has increasingly found its way into public behaviour change campaigns, government policies, online platforms and

marketing campaigns worldwide. Therefore, it is not surprising that Behavioural Economics has also become more visible in the HIV and AIDS literature.

African Cosmology has been visible in the literature since 1993, however, it has always remained on the periphery. This is somewhat unexpected, given the calls for decolonisation and using more contextual and culture-sensitive conceptual approaches. Most papers that reported drawing upon principles of African Cosmology used the concept of *ubuntu* and many incorporated indigenous understandings of illness into their research.

Albeit one of the most important paradigms in Psychology, the presence of Psychodynamic theory in the South African HIV literature has been fairly scant. It was first reported in the literature in 1991 and continues to emerge every now and then. Psychodynamic theory mostly presented itself in the literature through the use of Psychodynamic Attachment Theories; the use of psychodynamic concepts such as repression; and through the influential work of Joffe (1996b) who fused Social Representation Theory and Psychodynamic Theory in order to explain how so-called “othering” which takes place within the context of AIDS-related stigma.

8.4.3. Prominent Conceptual Frameworks and Trends within Research Themes

Table 8.12 summarises the theory data as it pertains to each research theme. The most prominent paradigms and their related theories are listed, alongside their relative size across all papers in each theme that used theory either implicitly or explicitly. Stacked column charts underneath each theme illustrate the trends in paradigms over time. The next few paragraphs summarise the theory results of each theme.

8.4.3.1. Prevention

Socio-Behaviourist theories, in particular the Reasoned Action Approach and the Social Cognitive Theory, were the most common theories in the prevention literature for most of the 1990s and 2000s. Communication and Media Studies theories that were typically combined with Socio-Behaviourist theories and Humanist theories were also fairly common in the 1990s.

The steady increase of Critical Theories throughout the 2000s and 2010s mostly involved the rising use of Feminist theories (especially Connell’s Theory of Gender and Power) and Critical Theories of Participation and Empowerment. The increase in the use of Feminist Theories coincided with the increase in research about the gendered nature of HIV, particularly the increased focus on AGYW and women-focused HIV prevention in general.

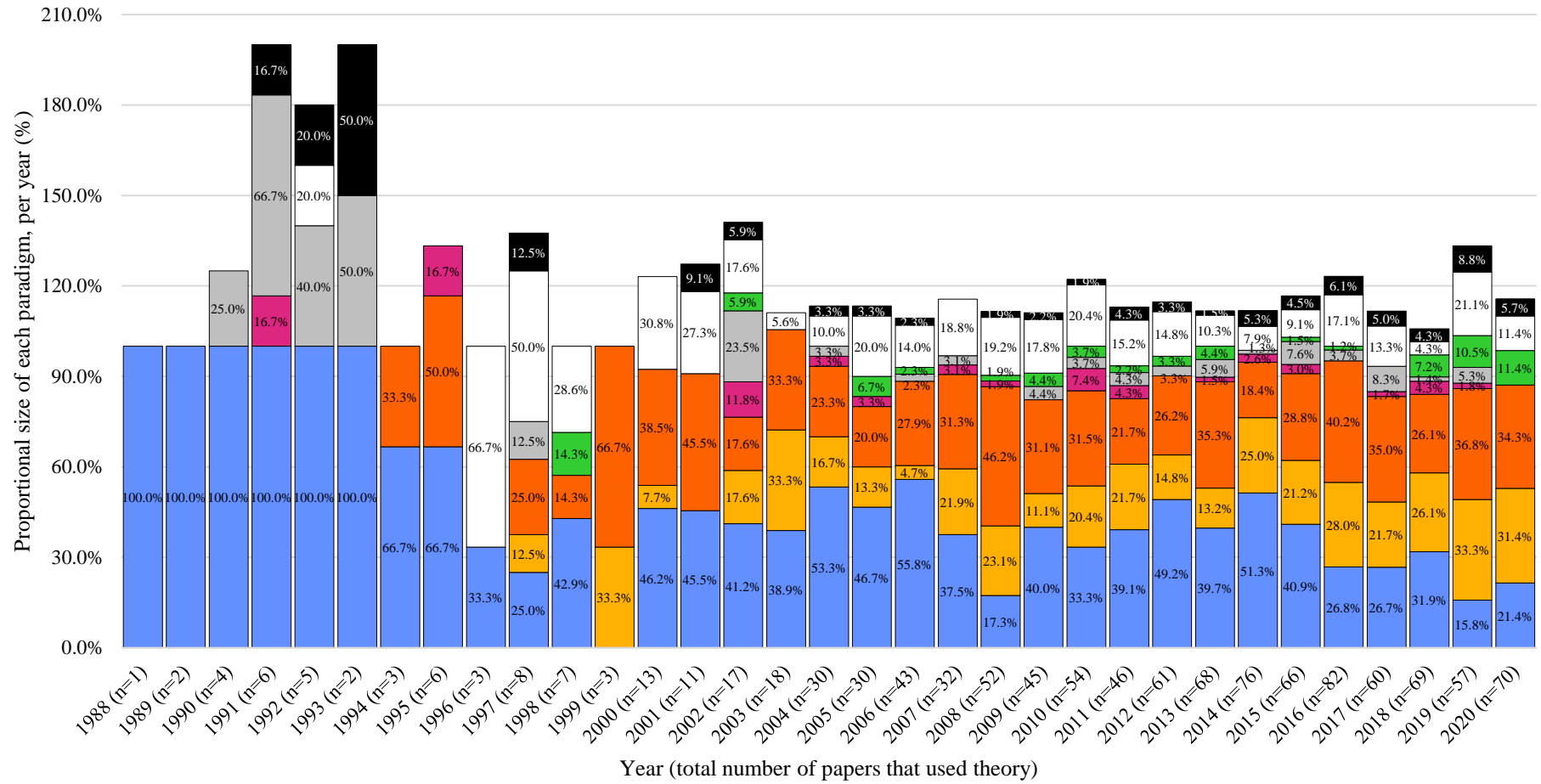
Similarly, Socio-Ecological and Systems theories were introduced to the *prevention* literature in 1997 and have steadily grown in prominence. By 2020, the most salient paradigms in the prevention literature were Critical Theory and the Socio-Ecological and Systems paradigm.

Theories from Neuro-Cognitive Psychology and Behavioural Economics are slowly emerging in the *prevention* literature and have mainly been used to study biomedical prevention method decision-making and preferences, risk perception, incentivisation and people's conceptual understanding of HIV and AIDS. Given the current impetus behind promoting PrEP, TasP and ART adherence, it is likely that Neuro-Cognitive Psychology and Behavioural Economics will continue to gain attention.

Table 8. 12 Most Prominent Paradigms and Theories in Each Research Theme

Prevention			
Most Prominent Paradigms	Most Commonly Used Theories	n	Proportion within the total number of papers that used theory in this theme %
Socio-Behaviourism (37.4%; n = 393)	Reasoned Action Approach	109	10.4%
	Social Cognitive Theory	75	7.1%
	Socio-Behaviourist Theories (non-specific)	71	6.8%
	Health Belief Model	35	3.3%
	Information-Motivation-Behavioural Skills Model	31	3.0%
	Self-Efficacy Theory	26	2.5%
Critical Theory (30.3%; n = 318)	Feminist theories	153	14.6%
	Critical participation and empowerment theories	53	5.0%
	Freire Critical Pedagogy	33	3.1%
	Critical Theory (non-specific)	23	2.2%
	Foucault's theories of power and discourse	22	2.1%
Socio-Ecological and Systems (20.4%; n = 214)	Socio-ecological theories (non-specific)	55	5.2%
	Bronfenbrenner's Socio-ecological framework	24	2.3%
	Syndemics Theory	12	1.1%
	Social Identity Theory/ Self-Categorisation Theory	6	0.6%
Interpretive Paradigm (14.3%; n = 150)	Social Constructionism	32	3.0%
	Social Constructivism	14	1.3%

Prevention

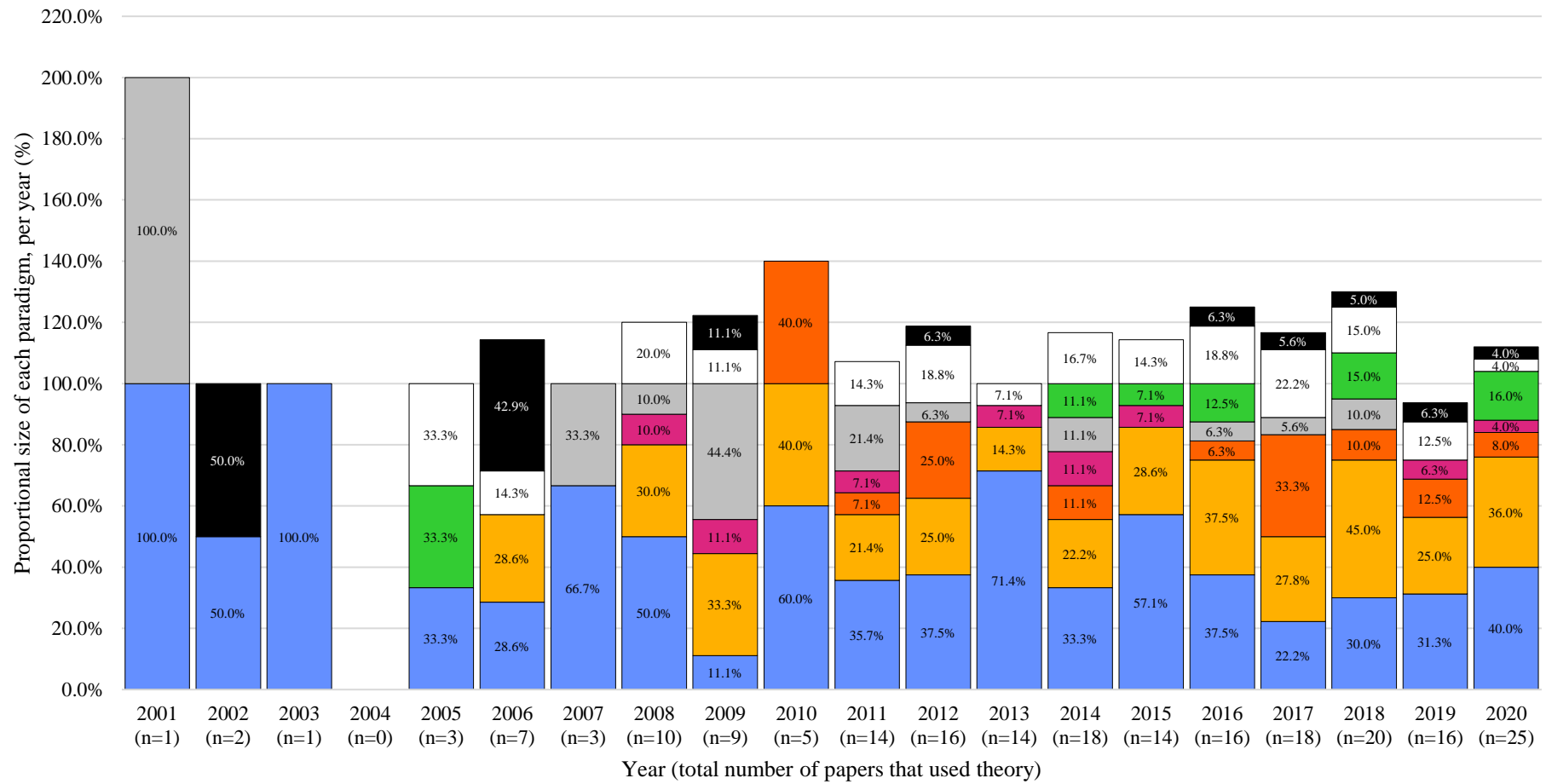


- Socio-Behaviourism
- Socio-Ecological and Systems Paradigm
- Critical Theory
- Humanist Theory
- Communication and Media Studies Theories
- Neuro-Cognitive Psychology and Behavioural Economics
- Interpretive Paradigm
- Other

Testing and Treatment			
Socio-Behaviourism (39.2%; n = 83)	Information-Motivation-Behavioural Skills Model	17	8.0%
	Reasoned Action Approach	16	7.5%
	Health Belief Model	14	6.6%
	Social Cognitive Theory	13	6.1%
	Socio-Behaviourist Theories (non-specific)	6	2.8%
Socio-Ecological and Systems (28.3%; n = 60)	Socio-ecological theories (non-specific)	13	6.1%
	Bronfenbrenner's Socio-ecological framework	6	2.8%
	Model of the dynamics of HIV/AIDS stigma in five African Countries	4	1.9%
	The Individual-Family-Community Model	4	1.9%
	Theory of Triadic Influence	3	1.4%
Interpretive Paradigm (13.7%; n = 29)	Phenomenology	4	1.9%
	Social Constructionism	3	1.4%
	Social Constructivism	3	1.4%
Critical Theory (10.4%; n = 22)	Critical theories of stigma	7	3.3%
	Feminist theories	5	2.4%
	Therapeutic citizenship	3	1.4%
Communication and Media Studies Theories (8.0%; n = 17)	Diffusion of Innovation	7	3.3%
	Mass media to inform and educate (non-specific)	5	2.4%
	Theory of public opinion	3	1.4%
	Convergence Theory	2	0.9%
	Interpersonal communication theory	2	0.9%

	Two-step flow of communication theory	2	0.9%
Neuro-Cognitive Psychology and Behavioural Economics (6.1%; n = 13)	Behavioural economics (non-specific)	2	0.9%
	Prospect Theory	2	0.9%
	McFadden's Random utility theory	2	0.9%
	Lancaster's theory of consumer choice	2	0.9%

Testing and Treatment

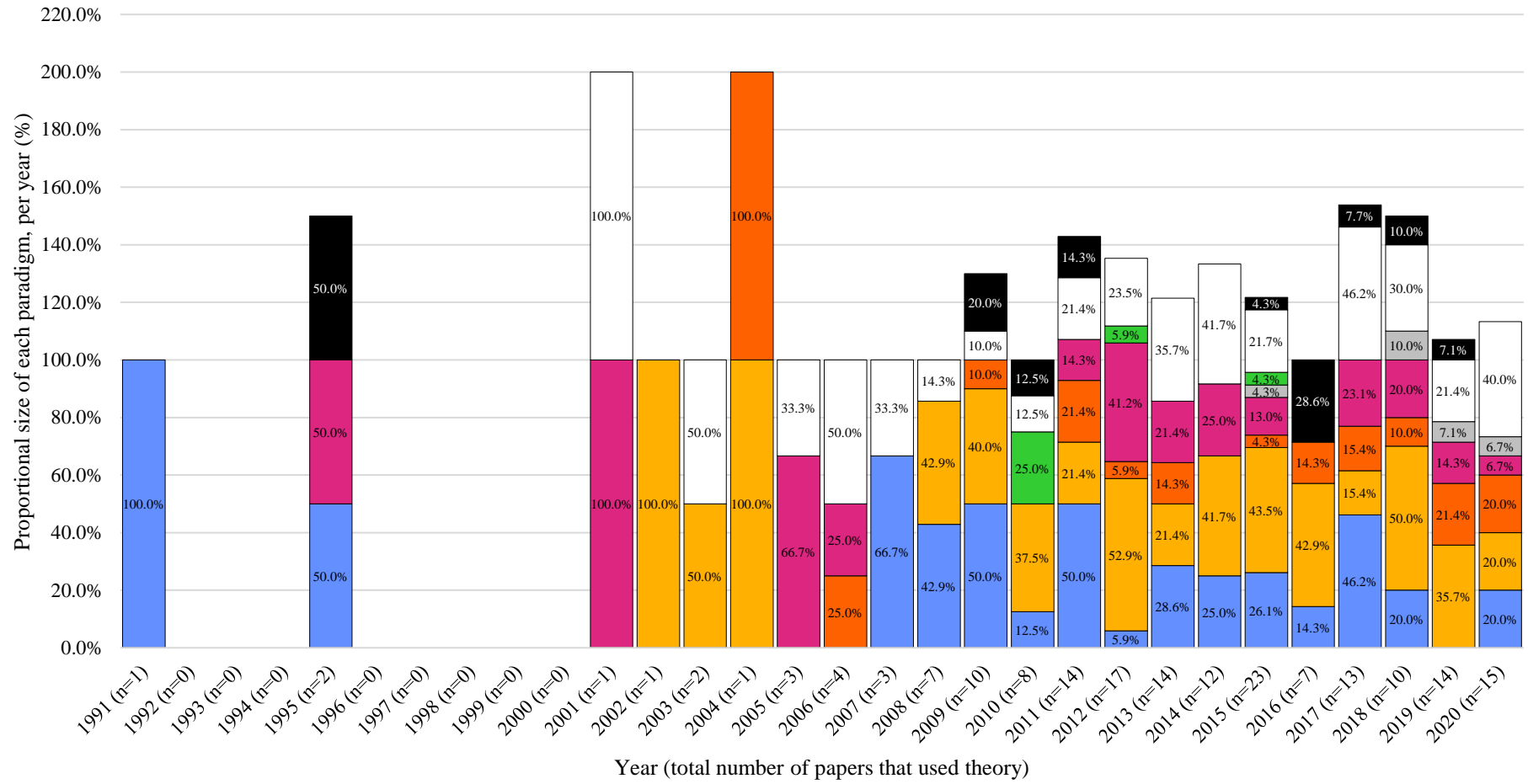


- Socio-Behaviourism
- Critical Theory
- Communication and Media Studies Theories
- Interpretive Paradigm
- Socio-Ecological and Systems Paradigm
- Humanist Theory
- Neuro-Cognitive Psychology and Behavioural Economics
- Other

Care and Support			
Socio-Ecological and Systems Paradigm (33.5%; n = 61)	Socio-ecological theories (non-specific)	10	5.5%
	Bronfenbrenner's Socio-ecological framework	9	4.9%
	Theory of the social ecology of resilience	7	3.8%
	Systems theory approach (non-specific)	5	2.7%
	Model of the dynamics of HIV/AIDS stigma in five African Countries	4	2.2%
	Social Capital	3	1.6%
Interpretive Paradigm (26.9%; n = 49)	Phenomenology	19	10.4%
	Symbolic Interactionism	6	3.3%
	Interpretivism	5	2.7%
	Social Constructivism	5	2.7%
	Social Constructionism	4	2.2%
Socio-Behaviourism (25.3%; n = 46)	Burnout (Maslach & Leiter, 2016)	9	4.9%
	Transactional Model of Stress and Coping	7	3.8%
	Stress-buffering Hypothesis and related theories of social support	6	3.3%
	Health Belief Model	4	2.2%
	Self-Efficacy Theory	4	2.2%
	Social Cognitive Theory	4	2.2%
	Social Action Theory	3	1.6%
	Socio-Behaviourist Theories (non-specific)	3	1.6%
	Reasoned Action Approach	3	1.6%
Humanist Theory	Resilience theories	14	7.7%

(17.0%; n = 31)	Humanist Theory (non-specific)	4	2.2%
	Hierarchy of needs	4	2.2%
	Erik Erikson's theory of stages of development	4	2.2%
Critical Theory (11.0%; n = 20)	Critical theories of stigma	7	3.8%
	Freire Critical Pedagogy	4	2.2%
	Feminist theories	4	2.2%
	Critical theories of participation and empowerment	3	1.6%

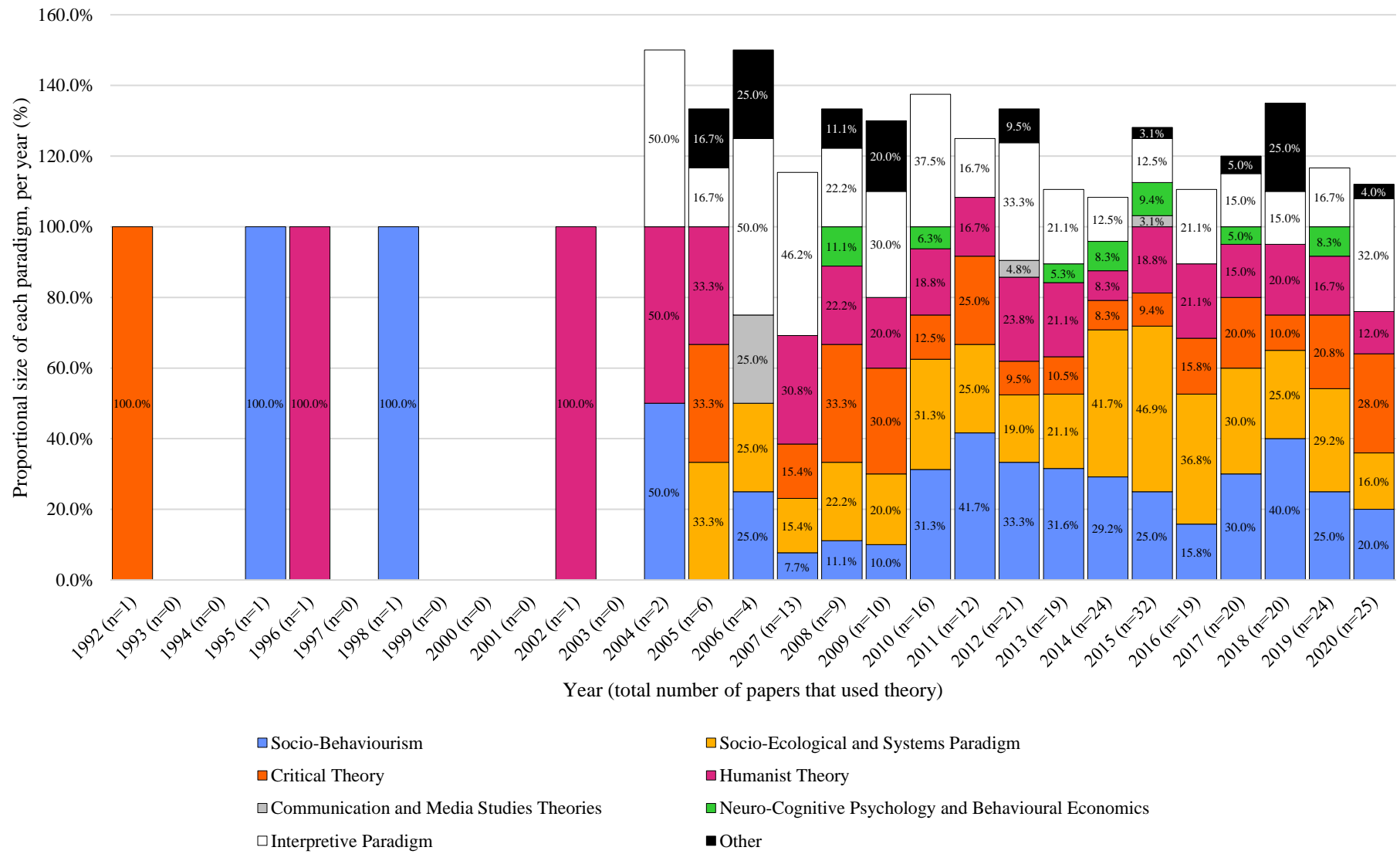
Care and Support



- Socio-Behaviourism
- Critical Theory
- Communication and Media Studies Theories
- Interpretive Paradigm
- Socio-Ecological and Systems Paradigm
- Humanist Theory
- Neuro-Cognitive Psychology and Behavioural Economics
- Other

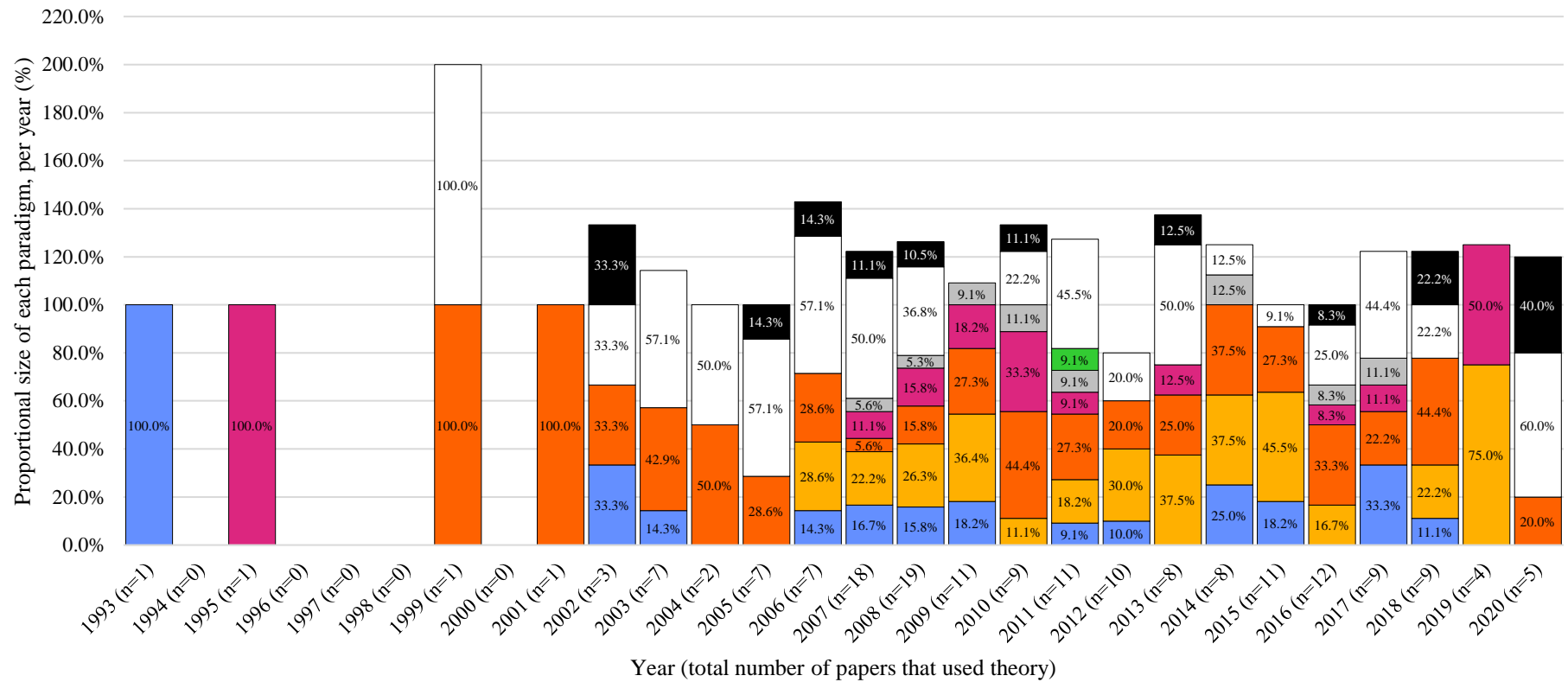
Living with HIV			
Socio-Ecological and Systems Paradigm (28.1%; n = 79)	Model of the dynamics of HIV/AIDS stigma in five African Countries	11	3.9%
	Socio-ecological theories (non-specific)	7	2.5%
	Social Capital	6	2.1%
	PEN-3 Model	5	1.8%
Socio-Behaviourism (26.0%; n = 73)	Transactional Model of Stress and Coping	13	4.6%
	Social Cognitive Theory	7	2.5%
	Cognitive Theory of Depression (Beck, 1964)	5	1.8%
	Serovich's (2001) Consequence Theory of HIV Disclosure	5	1.8%
	Information-Motivation-Behavioural Skills Model	5	1.8%
	Self-Efficacy Theory	4	1.4%
Interpretive Paradigm (22.4%; n = 63)	Symbolic Interactionism	13	4.6%
	Phenomenology	11	3.9%
	Social Constructionism	8	2.8%
Humanist Theory (18.9%; n = 53)	Quality of life theories	21	7.5%
	Resilience theories	9	3.2%
	Theories of psychological well-being	7	2.5%
	Hierarchy of needs	5	1.8%
Critical Theory (16.4%; n = 46)	Feminist theories	19	6.8%
	Critical theories of stigma	19	6.8%
	Foucault's theories of power and discourse	5	1.8%
	Critical theories of empowerment and participation	4	1.4%

Living with HIV



Impact of HIV			
Interpretive (33.3%; n = 58)	Symbolic Interpretivism	12	6.9%
	Social Constructionism	10	5.7%
	Social Representations Theory (Moscovici, 1988)	4	2.3%
Critical Theory (26.4%; n = 46)	Critical theories of stigma	19	10.9%
	Foucault's theories of	8	4.6%
	Feminist theory (non-specific)	6	3.4%
	Critical theories of empowerment and participation	4	2.3%
Socio-Ecological and Systems Paradigm (22.4%; n = 39)	Socio-ecological theories (non-specific)	8	4.6%
	PEN-3 Model	6	3.4%
Socio-Behaviourism (12.6%; n = 22)	Socio-Behaviourist Theories (non-specific)	6	3.4%
	Social Cognitive Theory	3	1.7%
Humanist Theory (9.8%; n = 17)	Resilience theories	12	6.9%
Other (8.0%; n = 14)	African Cosmology	9	5.2%
	Psychodynamic Theories	5	2.9%

Impact of HIV and AIDS



- Socio-Behaviourism
- Critical Theory
- Communication and Media Studies Theories
- Interpretive Paradigm
- Socio-Ecological and Systems Paradigm
- Humanist Theory
- Neuro-Cognitive Psychology and Behavioural Economics
- Other

8.4.3.2. Testing and treatment

Theory-based socio-behavioural research on *testing and treatment* emerged in 2001. Socio-Behaviourism, in particular the Information-Motivation-Behaviour Model, the Reasoned Action Approach, the Health Belief Model and the Social Cognitive Model, have laid the conceptual foundation for most of this research throughout the two decades. Socio-Ecological and Systems theories were introduced into the literature in 2006 and have since grown in prominence throughout the 2010s.

Theories in the Communication and Media Studies field, especially Diffusion of Innovation, have remained in the testing and treatment literature despite declining in the general HIV literature.

Theories in the Neuro-Cognitive Psychology and Behavioural Economics fields have been particularly visible in the testing and treatment literature from the mid-2010s onwards. This mostly involved applying Behavioural Economics theories to the study of the incentivisation of HIV testing and ART initiation.

In contrast to the other themes, the *testing and treatment* literature had a fairly low number of papers that drew upon Critical Theory, especially in the late 2010s. By the end of the 2010s, Socio-Behaviourism and Socio-Ecological and Systems theories remained the most established paradigms in the literature, with Neuro-Cognitive Psychology and Behavioural Economics gradually increasing in prominence.

8.4.3.3. Care and support

A wide range of theories has been used to study healthcare workers, caregivers and others who provide support to people who are living with HIV. Phenomenology, Socio-Ecological and Systems theories and Humanist theories (especially resilience theories) have been particularly favoured by researchers. Socio-Behaviourist theories pertaining to burnout (Maslach & Leiter, 2016) and stress and coping (Lazarus & Folkman, 1987) have been utilised as well. Theories of stigma, especially Goffman's (1963/2009) theory of stigma and Critical theories of stigma, as well as the model of the dynamics of HIV/AIDS stigma in five African Countries (Holzemer et al., 2007) and have also been prominent in the *care and support* literature.

By 2020, the interpretive paradigm appeared to be the most prominent paradigm in the *care and support* literature, followed by Critical Theory, the Socio-Ecological and Systems paradigm, and Socio-Behaviourism.

8.4.3.4. Living with HIV

The literature pertaining to *living with HIV* was studied from a variety of theoretical perspectives, most notably the Socio-Ecological and Systems paradigm, Socio-Behaviourism and the Interpretive paradigm. The early study of the lives of people who are living with HIV (i.e., the 1990s and early 2000s) was primarily conducted from Socio-Behaviourist, Critical and Humanist perspectives. This included research using the Transactional Model of Stress and Coping (Lazarus & Folkman, 1987) (Socio-Behaviourist), Feminist theories (Critical), and theories of quality of life and resilience (Humanist). Stigma research was based upon a variety of theories, especially the Holzemer et al. (2007) African HIV stigma model, Critical theories of stigma and Goffman's (1963/2009) theory of stigma. In the mid-2000s, Interpretive and Socio-Ecological theories emerged. By the late 2010s, the most prominent theories in this theme were Interpretive, followed by Critical, Socio-Ecological and Systems theories and Socio-Behaviourist theories.

8.4.3.5. Impact of HIV

Interpretive Theories, Critical Theories (especially Critical Theories of stigma) and Socio-Ecological and Systems theories were this theme's most common theoretical frameworks. Theories in the Socio-Ecological and Systems Paradigm became visible in the literature in 2006 and had since then become more common. Although Humanist Theories did not necessarily comprise a large part of this theme's literature, resilience theories were frequently and consistently used across the three-decade period.

Given that the emphasis of this theme lies on the psycho-social effects of HIV and AIDS on individuals, groups and communities, it is to be expected that researchers would draw upon theoretical frameworks that allow for the in-depth study of the personal descriptions of experiences and the study of those effects across different societal levels. While Socio-Behaviourism is a prominent paradigm in the HIV literature overall, it was fairly scarce in this theme.

The number of papers that explore the impact of HIV and AIDS has declined noticeably in the late 2010s. Of the few papers that explored this topic, most continue to draw upon the Interpretive paradigm, Socio-Ecological and Systems theories, Critical Theories and Humanism.

8.5. Discussion

The final section of this chapter summarises the results presented above and offers some observations and insights that could be gleaned from this theory analysis.

8.5.1. Theoretical Contribution and Visibility

Out of the 3 848 papers that reported on the social and behavioural study of HIV and AIDS in South Africa between 1985 and 2020, 49.9% (n = 1899) demonstrated the explicit or implicit use of one or more theories. This finding is similar to the results of reviews of the international socio-behavioural HIV literature (e.g., Albarracín et al., 2005; Durantini et al., 2006; Fonner et al., 2014). Of the papers that used theory, 61.8% (n = 1174) utilised theory explicitly and named the theories they used directly, while 38.2% (n = 1636) either named the theory they used implicitly or explicitly but in vague terms.

The theoretical contribution in the literature was found to be quite low. Theory testing was particularly scarce in the literature. The literature was slightly more partial to theory building, which could be a reflection of the academic sentiment towards pursuing novelty. Unfortunately, this may come at the cost of theory testing.

In their analysis of the theoretical contribution of papers published in the *Academy of Management Journal* between 1963 and 2007, Colquitt and Zapata-Phelan (2007) found that the literature initially comprised mostly of *reporters*. Over the course of the 50-year review period, Colquitt and Zapata-Phelan (2007) found that *reporters* decreased while *qualifiers* increased. *Expanders* were rare but increased over the last 20 years of the review period. The frequency *builders* did not seem to follow a clear trend; however, the number of builder papers did seem to follow a wave pattern where it would go through higher and lower phases every couple of years. *Testers* appeared to decline towards the end of the study period. The literature that Colquitt and Zapata-Phelan (2007) reviewed obtained an average score of 2.52 out of 5 for theory building and 3.10 for theory testing.

This study found similar results. In this study's analysis of theoretical contribution, which spanned over 30 years (1985-2015), qualifiers also increased over time, while *reporters* and *testers* were seemingly on the decline. The frequency of *builders* also seemed to ebb and flow over the course of the study period. However, in contrast to Colquitt and Zapata-Phelan (2007), this study found *expanders* to remain fairly low throughout the 30-year review period. This study found the average theory building score to be 2.86 out of 5 and 2.34 for theory testing.

Therefore, theory testing in the South African HIV and AIDS literature appears to be markedly lower than that of the management studies papers that Colquitt and Zapata-Phelan reviewed. This serves to further highlight the particular dearth of theory testing in the HIV and AIDS literature.

An important finding of this study is that theoretical contribution was highest amongst papers that used theory explicitly and especially amongst papers that directly stated the name of the theory and explained it clearly. In comparison, the theoretical contribution was markedly lower in papers that made explicit but vague use of theory and, in particular, papers that made implicit use of theory. Articles that seemingly did not use theory demonstrated the lowest theoretical contribution.

This finding supports the argument that theory-based research tends to contribute more productively to the development of social science research programmes. Moreover, it emphasises that, for theory to make a meaningful contribution to the conceptual development of a field, it must be used explicitly and referred to directly.

Most studies that review theory use in the literature tend to only focus on whether a theory was named without making the deeper distinction between implicit and explicit theory use. This study highlights the importance of making this distinction when analysing the literature and suggests to researchers who may be considering embarking on a similar theoretical analysis of the literature to ensure that they make this distinction as well.

8.5.2. Conceptual Gaps in the Literature

A few conceptual limitations related to the way that theory was used and how theoretical constructs were studied should be noted. Although there were numerous examples of such limitations, I focus on the most striking ones here, namely the gaps in the theoretical literature that pertains to risk perception and risk compensation, incentive-based interventions, and peer-based intervention strategies.

8.5.2.1. Risk perception and risk compensation

Theory was the least visible in articles that pertained to HIV testing, treatment and risk behaviour post-diagnosis. The latter largely involves an attempt to better understand risk perception as well as behavioural (risk) compensation.

Studying how at-risk populations assess their risk for HIV infection has received substantial attention in the academic literature (Ndugwa Kabwama & Berg-Beckhoff, 2015). Moreover,

many HIV prevention programmes have attempted to influence risk perception. Several theories that have been applied to HIV and AIDS incorporate the perception of risk into their understanding of health behaviours, particularly its influence on health behaviour decision-making (e.g., the Health Belief Model, Protection Motivation Theory and the AIDS Risk Reduction Model).

However, concerns have been raised about whether the factors that play a role in risk perception are properly understood and whether the conceptualisation of the term is valid (Ndugwa Kabwama & Berg-Beckhoff, 2015). To this end, Kowalewski et al. (1997) identified numerous methodological and theoretical points of concern, including that the empirical research about perceived risk is largely correlational. Yet, the conclusions drawn from the research interpret the findings as being causal drivers of perceived risk. Moreover, disagreement exists about whether the perception of risk is a behavioural outcome (of a decision-making process) or whether it is a predictor of future behaviour (i.e., if a person views themselves as being at high risk for HIV infection, they will adjust their behaviour). While it is certainly possible that perception of risk may be positioned across various stages, conflicting results about the efficacy of perception of risk as an indicator for risky sexual behaviour (and conversely, the adoption of health-protective behaviours) (Belcher et al., 2005), casts doubt on the methodological rigour that is used to study the construct as well as the theoretical limitations that may restrict and undermine our understanding of the construct (Kowalewski et al., 1997). In this regard, perception of risk is often conflated with other terms such as “susceptibility” and “risk optimism”, and studies about risk perception tend to vary markedly in how they measure the construct by making use of inconsistent and often oversimplified measurement strategies (Kowalewski et al., 1997). In their review of perception of HIV infection risk literature that was published between 1990 and 2013, Ndugwa Kabwama and Berg-Beckhoff (2015) found that psychometrically sound measures of perception of risk are absent and that many studies are designed in such a way that they are vulnerable to optimism bias, psychological distancing, anchoring bias and overconfidence. Furthermore, studying the perception of risk as a unidimensional construct and global construct has been described as one of the most critical methodological errors that undermine our study and understanding of the perception of risk (Belcher et al., 2005).

Although some theoretical development regarding risk compensation within the context of HIV has been done by Eaton and Kalichman (2007), this particular theory was only used seven times in the literature. Wilde’s (1982; 1998) Risk Homeostasis Theory was never utilised. Socio-

Behaviourist theories, in particular, the Social Cognitive Theory, the Theory of Planned Behaviour and the Protection Motivation Theory, were the most common theories used to study risk compensation within the context of PrEP and male circumcision.

Research on risk compensation will likely become an even more important research priority as PrEP becomes more accessible and vaccines eventually become available. Given that current risk compensation theory appears to be under-appreciated in the HIV risk compensation field, more theory development is needed to enhance the study of this important topic. Risk compensation research and theorising may not only enhance the study of HIV and AIDS, but also deepen our understanding of risk compensation as it appears in other contexts.

8.5.2.2. Incentivisation

Recent HIV testing, treatment adherence and HIV prevention programmes have started to focus on incentivisation as an intervention strategy¹⁰⁹. Incentivisation falls within the broader spectrum of economic health behaviour change interventions. In this regard, Gibbs et al. (2017) distinguish between three approaches:

1. The first approach targets poverty as a distal cause of HIV vulnerability by using a social protection framework and offering direct resource transfers. Beneficiaries receive the resources (e.g., cash, vouchers, groceries) either conditionally based upon their use of a service (e.g., taking an HIV test or going to school) or unconditionally.
2. The second approach is rooted in Behavioural Economics theory and assumes that behaviour is contingent on people making cost-benefit analysis decisions and that economic incentives are attractive enough to persuade people to change their behaviour. Hence, under this approach, people are offered economic incentives to incentivise healthy behaviours (i.e., to nudge people towards making healthier life choices).
3. The third approach draws somewhat on Empowerment theory by offering training or economic incentives to at-risk individuals to start or grow their own businesses (such as microfinancing and matched saving programmes) (Gibbs et al., 2017).

However, important questions about the use of incentivisation remain. Certainly, one of the most important issues in this regard is that incentivisation lacks a clearly articulated theoretical basis that allows for a deeper understanding of the underlying mechanisms whereby incentives

¹⁰⁹ Examples of such interventions include the iSAY – incentives for South African youth project (Galárraga et al., 2020); the HPTN-068 Swa Koteka (“It is Possible”) conditional cash transfer for HIV prevention randomised controlled trial (Pettifor et al., 2016a; Pettifor et al., 2016b); and the IMAGE study (Pronyk et al., 2006).

influence behaviour (Galárraga et al., 2013; Heise et al., 2013). This was also evident from the literature in this study. Most papers about incentivisation made generic references to behavioural economics and micro-economics theory, but the specific pathways through which behaviour would be changed and how specifically incentivisation will affect this was typically only explored superficially.

Other issues around the use of incentivisation that continue to burden researchers include determining:

- a. the long-term impact and cost-effectiveness of incentivisation programmes;
- b. the potential of perverse consequences that might arise;
- c. how incentivisation (and different types of incentivisation) may influence intrinsic motivation and the habituation of behaviours; and
- d. the financial and practical sustainability of incentivisation programmes (Galárraga et al., 2020; Heise et al., 2013; Tsai, 2012).

In addition, a comprehensive systematic review of the literature has found limited evidence to support incentivisation as an effective strategy to reduce HIV incidence rates and sexual risk behaviour (Stoner et al., 2021). While more research should indeed be conducted to help gain a deeper understanding of how incentivisation influences HIV-related health behaviours, it is essential that this research should engage with theory in order to uncover underlying causal mechanisms.

8.5.2.3. Peer strategies

Numerous interventions aimed at HIV prevention, HIV testing promotion and ART adherence have drawn upon peer-based strategies, including peer education (Mahat & Scoloveno, 2018), peer support (Thupayagale-Tshweneagae, 2011) and peer mentoring (e.g., Hamilton et al., 2020). However, peer-based interventions have been criticised for being largely based upon “lay principles and assumptions” and that it is “...a method in search of a theory rather than the application of theory to practice” (Turner & Shepherd, 1999, p. 235). In their review of the literature, Turner and Shepherd (1999) found that, although peer-based methods did not originate out of a specific theory, a wide variety of theories, especially Socio-Behaviourist and Communication theories, have been used to explain how peer-based methods work. These theories include Social Cognitive Theory, Social Inoculation Theory, Role Theory, Differential Association Theory, Diffusion of Innovations and Subculture theories (Turner & Shepherd, 1999).

In this study, similar observations about the theoretical basis of peer methods were made. However, while Socio-Behaviourist and Communication theories were used, the theoretical basis for peer-based interventions in the South African literature tended to be more often based upon Critical Theories. The Critical Theories linked to peer-based intervention strategies were mostly Critical Theories of Empowerment and Participation (e.g., Mantell et al., 2006b), as well as Social Capital (e.g., Mash & Mash, 2012) and Freire's critical consciousness theory (e.g., Campbell & MacPhail, 2002).

Social Cognitive Theory and Diffusion of Innovation were often used together (e.g., Taylor et al., 2010). In their tavern-based, peer-support sexual risk reduction intervention, Morojele et al. (2014) utilised the Popular Opinion Leaders model, which draws upon the Diffusion of Innovation communication theory.

8.5.3. Unreflective Theory Use

Implicit and explicit but vague use of theory constituted 38.2% (n = 725) of the literature. There are four issues related to the implicit, vague and otherwise improper use of theory that should be noted. These four issues are:

- a. Using unspecific names for a theory and terms that vaguely point to a general school of thought.
- b. Citing (and using) older versions of a theory when a more recent version of the theory has been available for several years.
- c. Citing original theoretical source material incorrectly.
- d. Using theoretical constructs in a manner that is meta-theoretically unreflective and out of context.

Each point will be discussed briefly.

8.5.3.1. Naming theories in vague, generic terms

There were several instances in the literature where authors would only refer to a school of thought or a wide range of scholars in a particular field without specifically identifying the relevant specific theories on which the study is based. This was especially noticeable within articles that used the Socio-Ecological and Systems paradigm. A total of 20.0% (n = 93) of the papers in that paradigm made vague references to their choice in theory. In their review of 50 randomly selected journal articles on social-ecological systems, Colding and Barthel (2019) made a similar discovery. They found that vague use of the "socio-ecological system" term

was exceedingly common, with approximately 61% of the articles not even stating a clear definition of what they mean by the term.

In this study, the generic and unspecific use of Behavioural Economics theories (18.2%; n = 12), Feminist theories (15.8%; n = 71), Quality of Life theories (15.7%; n = 21) and Socio-Behaviourist Theories (14.4%; n = 87) were also frequently observed. In such instances, the theoretical point of departure is described so vaguely or spans over a wide range of conceptualisations and sub-theories, that the reader has to already be an expert in the discipline or paradigm to recognise the underlying theory and meta-theoretical linkages in the paper. In other words, students or readers from other disciplines may read and even cite such papers without appreciating the theoretical underpinnings and the implications thereof.

The vague and indirect naming of theories is also problematic as it lumps all of the theories in the paradigm together, erasing each theory's unique traits and approaches. Typically, theories within the same paradigm represent different iterations of an older theory or provide contrasting perspectives that build upon existing theoretical concepts and processes in the paradigm. Hence, the lack of specificity in referring to theories seems scientifically unproductive and may even betray a lack of appreciation for the subtle but meaningful differences between theories within the same paradigm.

Within the Socio-Ecological and Systems-based paradigm, this is especially problematic. The theories in this paradigm are technically not from a single school of thought, but are instead based upon a wide array of multi-disciplinary work that has been grouped together because of the theories' similar approach to structuring society into various comparable levels. While psychologists are familiar with Bronfenbrenner's (1979) *Ecological Model of Human Development*, and the systems theories of Bateson (1972/2000), Keeney (1983), Hanson (1995) and Capra (Capra & Luisi, 2018), there are a variety of other socio-ecological conceptual frameworks that could technically also be implied when the terms "socio-ecological" and "systems theory" are used, such as the Theory of Triadic Influence (Flay & Petraitis, 1994) and the Theory of the Social Ecology of Resilience (Ungar, 2012). These theories vary in many ways, including the processes and inter-relationships between ecological levels and systems, as well as in the way that they conceptualise the role of external, macro-level, or structural factors on the individual and the extent to which individuals can make an impact on their external environment and other socio-ecological levels. Hence, unclear writing and vague descriptions of theory obscure the actual theoretical and philosophical underpinning of the

article, dilute its original meaning and make it difficult to test the study's findings or the ideas that are discussed in the article. The consistently vague and generic naming of theories and theoretical concepts may ultimately contribute to the weaker use of the theory and degrade our collective understanding of what the theory entails.

8.5.3.2. Using an older version of a theory

It was striking how many articles would cite an older version of a theory, even when one or more developments had already been published. This was especially noticeable within the articles that used the Reasoned Action Approach. A total of 35 articles (26.9% of papers in this group) cited the Theory of Reasoned Action (Fishbein & Ajzen, 1975), even though the Theory of Planned Behaviour (Ajzen, 1985) and more recent iterations, such as the Integrative Model of Behavioural Prediction (Fishbein, 2000) and the Reasoned Action Model (Fishbein & Ajzen, 2010) already existed. Since 2010 (the year that the Reasoned Action Model was formally published), it was only cited 13 times in the literature, while the Theory of Planned Behaviour and the Theory of Reasoned Action were cited 62 times. Some papers continued to use the name Theory of Planned Behaviour while they were, in reality, using the Reasoned Action Model (e.g., Jemmott et al., 2014b).

The theoretical work of Urie Bronfenbrenner was also often miscited in a similar way. Bronfenbrenner first published the *Ecology of Human Development* model in 1979. However, Bronfenbrenner continued to work on his theory throughout his career and published refinements of the theory in the 1980s (Bronfenbrenner, 1989; Bronfenbrenner & Crouter, 1983), 1990s (Bronfenbrenner, 1999; Bronfenbrenner & Morris, 1998) and in the early 2000s (Bronfenbrenner, 2005; Bronfenbrenner & Evans, 2000). By the 1990s, Bronfenbrenner had gradually refined his theory and referred to it as the *Bio-Ecological Model of Human Development*, which paid more attention to the underlying interrelationships between systems which regulated human development. He also developed the *Process-Person-Context-Time model* as a research framework to use in bioecological research.

A total of 29 out of 44 papers (65.9%) that cited Bronfenbrenner cited the first iteration of his theory, which was first published in 1979. Even though 14 papers cited his later works of the 1980s and 1990s, they evidently also drew upon the original version of the theory and did not seem to have incorporated proximal processes into their research. Only one paper used the most recent iteration of the theory.

Theoretical reviews of the literature by Tudge et al. (2009; 2016) demonstrated similar findings, noting that the majority of papers in the fields of family and developmental studies claimed to be using Bronfenbrenner's theory, and used the older iterations of his socio-ecological model. The original socio-ecological model made such a significant impact on the social sciences that its prominence may have overshadowed all subsequent developments by Bronfenbrenner. The model influenced the development of several socio-ecological frameworks by other theorists (e.g., McLeroy et al., 1988) and remains a familiar sight in many psychology and child development textbooks.

While it is not necessarily incorrect to use older versions of a theory, it is considered better practice to at least explicitly state that one is deliberately choosing to use a specific version of the theory as well as one's reasons for doing so. This misuse of theory source materials, as well as the misapplication of theories in the HIV and AIDS literature, seem to reflect an uncritical and possibly also uninformed use of theoretical frameworks.

8.5.3.3. Imprecise citation

Another observation concerning the visibility of theory is how authors would cite theoretical papers or papers that described the development or testing of a new theory without acknowledging this novel theoretical contribution of the paper. For example, a few papers cited Nyamukapa et al. (2008), focusing on the empirical results of their study, without mentioning that the study proposed and tested a conceptual framework for psychosocial distress among children orphaned and made vulnerable by HIV and AIDS (e.g., Asikhia & Mohangi, 2015). Two other papers that were also cited for their empirical results but not their theoretical contribution were the paper in which Wingood and DiClemente (2000) proposed their adaptation of the Theory of Gender and Power for HIV and the paper in which Serovich (2001) proposes her theory of HIV status disclosure.

A related observation is the frequent misuse and inaccurate citation of theoretical papers. This took several forms. Firstly, some papers would mention a specific theory, but instead of citing that theory's original source publication, the authors would cite another article that used the theory. For example, Frank et al. (2008) discuss gender role theory in relation to their findings, but instead of citing the original theory publications, they cited another empirical article that did not even use the gender identity theory (at least not explicitly). Similarly, Howard-Payne (2017) reports drawing upon Social Cognitive Theory for their study; however, instead of citing Albert Bandura, the paper only mentions recent literature about Social Cognitive Theory.

While the reason for this practice is unclear; it could be because the authors did not want to cite old materials; would prefer to cite the papers that used the theory within the same context as what they were using it; an editorial error could have caused the mistake; or the authors did not consult the original source materials of the theory and, instead, cited the more recent secondary sources from which they studied the theory.

8.5.3.4. Using theoretical concepts in a meta-theoretically unreflective manner

Another way in which the poor theorising manifested in the South African HIV and AIDS literature was through the inappropriate and out-of-context use of certain theoretical concepts. As discussed earlier¹¹⁰, construct confusion continues to plague the social sciences. A concept that has become increasingly popular in the social sciences, as well as in the South African study of HIV and AIDS, is *social capital*. The concept emerged in the South African HIV and AIDS literature in the early 2000s, largely due to its extensive use and application to HIV prevention in communities by Campbell and colleagues (e.g., Campbell et al., 2002; Campbell & Cornish, 2010; Campbell & Mzaidume, 2001; Campbell & Williams, 1998; Gibbs et al., 2015) and others (e.g., MacPhail, 2006; Pronyk et al., 2008; Tucker et al., 2013). Social capital has its roots in Marxist Theory, in particular from the work of Pierre Bourdieu (1986/2018) and later popularised through the work of Robert Putnam (2000).

At its essence, social capital recognises the role of macro-social power inequalities as major drivers in health disparities and the marginalisation of communities through the unequal distribution of resources. Social capital is considered to be an emergent potential in society and within individual communities to mobilise themselves by challenging power holders. Within the context of health promotion, it ultimately aims toward the development of an environment which promotes and enables health-enhancing practices (Campbell, 2020). Social capital essentially connects critical consciousness with social connectedness and political action. Hence it has been recommended as a theoretical basis for community mobilisation and other participatory HIV prevention interventions (Campbell et al., 2002).

A distinction can be made among three types of social capital, namely bonding social capital (the establishment of networks that promote solidarity amongst members of a marginalised community), bridging social capital (which seeks to unite marginalised communities) and

¹¹⁰ In Chapter 5, under the heading 5.7.3.2. *Construct Confusion and the Lack of Intersubjective Measurement Strategies for Abstract Concepts*.

linking social capital (which aims to connect marginalised communities with those in power) (Szreter & Woolcock, 2004).

Given this description, it is quite clear that social capital falls within the meta-theoretical domain of Critical Theory. Although many social scientists use the social capital concept in a way that remains true to its Critical Theory foundation, a review of the literature demonstrates that there are also numerous social scientists who choose to use the social capital concept, but without its Critical Theory undertones (Campbell, 2020). Instead, they would conceptualise social capital in Socio-Ecological, even Socio-Behaviourist, ways whereby the social capital concept is watered down to mean something akin to social support, social networks, cohesion or connectedness. For example, in their study on the mental well-being of people who are living with HIV, Odek (2014) offers a short review of the social capital literature, whereafter he explicitly states that “For the present study, social capital is conceptualised from a social networks point of view and is defined as networks of social relations and their associated resources” (Odek, 2014, p. 1043). In other words, the author is aware of the philosophical background of the term, but chooses to use it from a socio-ecological perspective.

In this study, a total of 47 papers used social capital. Half of the papers used social capital as a Critical Theory concept (48.9%; n = 23), while the other half used it in a Socio-Ecological manner (51.1%; n = 24).

Campbell and Murray (2004) call the latter the “accommodationist” approach to social capital, whereby marginalised communities are encouraged to improve their circumstances by working *with* power-holders instead of *challenging* power-holders (Campbell & Murray, 2004, p. 187). The Critical and emancipatory elements of social capital are therefore diluted.

Choosing to use a theoretical concept in a way that is meaningfully different from its original philosophical point of departure signals an interesting dynamic amongst those who utilise social capital in their research. It might be that some researchers use social capital without fully comprehending the philosophical assumptions of the concept. Alternatively, it might be possible that many scientists choose to water social capital down to a Socio-Ecological and/or Socio-Behaviourist concept, reflecting the implicit rejection of the critical connotations of the term but a need for a term that represents the emergent potential of social networking and community mobilisation that social capital provides.

Social capital (like many other psychological hypothetical constructs) is undoubtedly a multi-faceted and abstract concept that is difficult to measure and easy to define in vague and

ambiguous ways. However, using social capital in a manner that is different to its meta-theoretical origin and essentially altering its meaning to fit a different meta-theoretical point of departure contributes to construct ambiguity. As mentioned earlier, construct confusion leads to inconsistent measurement and application, which ultimately impedes knowledge development (McHugh Power et al., 2018). This will delay efforts to study social capital and, from a practice perspective, how social capital might be utilised for HIV prevention efforts. This is also likely to lead to the continued uncritical acceptance of the term's vagueness and its reification.

Lastly, the misuse of the term encourages the use of concepts in ways that neglect to provide an honest reflection of what the term really means. The “accommodationist” (and anyone who uses the social capital concept out of its original Critical context) runs the risk of furthering a philosophical position that they may not support (or were not intending to support) through their research.

8.5.4. Researcher Productivity and its Influence on the Shaping Thematic and Conceptual Trends in the Literature

Highly productive researchers and research teams can make a noticeable impact on the literature by publishing articles on a regular basis. Not only does regular publishing contribute to the prominence of researchers and research teams in the field, but it can also make a meaningful impact on what ideas, thematic focus areas, and theories are more visible in the literature. This was noticeable in the reviewed literature in at least two ways.

Firstly, some authors were particularly productive, publishing numerous papers, yet they would typically omit an explicit reference to the use of theory. Given that these researchers published a large number of articles, they disproportionately contributed to the number of implicit theory and absent theory papers in this study.

The most noticeable example of this was the work of Karl Peltzer. Peltzer was the first author of 86 papers and a co-author of 67 papers that were published between 1998 and 2020. That adds up to 153 papers, representing 4.1% of all papers published in that period ($n = 3\,756$). Out of the total of 153 papers, 93 (60.8%) did not demonstrate any use of theory, 29 (19.0%) involved the implicit use of theory, and only 31 (20.3%) involved the explicit use of theory.

Secondly, during times when publication numbers were particularly low (e.g., during the 1980s, 1990s and early 2000s), the influence of a single researcher, research team, or group of

like-minded researchers was more visible in the literature as there were not many other researchers or publications that “competed” with each other in the literature. Hence, if a researcher or group favoured a particular theory or research approach, it would naturally be used more by them and, consequently, be written about more in research papers. This would create the impression that this theory or research approach is dominant in the research field simply because it is the only theory and approach discussed and used in the literature. A single researcher or group of researchers can shift the study field’s methodological and conceptual approach towards their predilections quite easily if they publish very often and especially if there are not many other researchers working in the same field.

One example of this is the work of Catherine Campbell alongside Brian Williams, Catherine MacPhail and Zodwa Mzaidume between 1997 and 1999. Only 33 papers that dealt with the social and behavioural aspects of HIV and AIDS in South Africa were published during this time period. Campbell and colleagues authored 24.2% ($n = 8$) of the articles in those three years. A critical tone characterised their work towards mainstream psychological theories and related methodological approaches. They mostly used and promoted the use of Critical Theories and methods (such as Social Capital and participatory methods) as well as Social Constructionism, Constructivism and Socio-Ecological conceptual approaches. Consequently, their papers are at least partly responsible for the sharp decrease in Socio-Behaviourism and the apparent sudden uptick in Critical Theory, Social Constructionism, Constructivism and the Socio-Ecological and Systems paradigm during the 1997 to 1999 period (see Figure 8.11).

Similarly, research teams who conducted a large-scale research programme and then published numerous papers about that study (which often cross-cited each other) can also tilt the research trends in a particular direction, especially if their research topic is relatively new and/or not studied by many other researchers. By publishing several papers in a field where limited papers have been published, it creates the impression that a lot of research is seemingly using the same approach or theory. While this may be true, the usage of that theory or approach may be located mostly within that cluster of articles about that particular large research project and the work of that particular research team and may, therefore, not reflect the work of the entire research community. This demonstrates how large publication numbers can influence publication trends in a particular field and lead the way in knowledge development in a small or emerging field.

An example of this is the apparent increase in research on alcohol as a major HIV risk factor in the literature from 2006 to 2008 (see Figure 7.5). A total of 25 papers covered the topic

during that time (11.3% of the total prevention research literature). Most of this research was produced by two research programmes, one was led by Seth Kalichman and researchers of the HSRC, and the other was conducted by Neo Morojele and colleagues from the SAMRC.

8.5.5. Theory Trends

The majority of previous reviews of the socio-behavioural HIV and AIDS literature found Socio-Behaviourism (in particular Social Cognitive Theory) to be the most often used paradigm in the literature, both internationally and locally (e.g., Deuba et al., 2020; Harrison et al., 2010; Ma & Loke, 2020; Pellowski et al., 2019; Schriver et al., 2016). Although this study also found the literature to comprise mostly Socio-Behaviourism-based papers (n = 609; 32.1%), the fact that this study analysed the use of theory over time (a 35-year period from 1985 to 2020) and distinguished between different thematic focus areas in the literature, allowing for a more nuanced picture of theory use in the socio-behavioural HIV and AIDS study field to unfold.

Table 8.13 summarises the general paradigmatic trends in the literature. Socio-Behaviourism, Critical Theory and the Socio-Ecological and Systems paradigm were found to be the dominant paradigms, consistently maintaining prominent positions in the literature.

Neuro-Cognitive Psychology and Behavioural Economics are emerging as relatively new theoretical perspectives that is gaining popularity in the HIV and AIDS field. The Socio-Ecological and Systems paradigm has established itself and grown substantially in the last 20 years (2000 to 2020). Both paradigms are likely to continue to expand their presence in the literature in the future.

Although Humanist Theory and Communication and Media Studies Theories experienced a decline from the 1990s, both have enjoyed relatively stable and regular use over the 2000 to 2020 time period. Similarly, Critical Theory experienced a decline in the mid-2000s but has remained stable since then. Despite some fluctuations over the years, the Interpretive paradigm appears to have remained relatively stable in the last decade.

Although Socio-Behaviourism remains one of the most prominent paradigms in the field, it is cited increasingly less often, especially in the last five years of this review period (2016 to 2020).

No paradigm showed any signs of exiting the literature. While the visibility of some paradigms might have declined over the years, none have wholly disappeared.

Table 8. 13 Paradigm Trend Summary

Trend	Paradigms
Dominant	Socio-Behaviourism Socio-Ecological and Systems Critical Theory
Emerging	Neuro-Cognitive Psychology and Behavioural Economics
Growing	Socio-Ecological and Systems
Stable	Humanist Theory Critical Theory Communication and Media Studies Theories Interpretive Paradigm
Shrinking	Socio-Behaviourism
Exiting	None

The most discernible trends in the research theme can be summarised as follows:

- a. Neuro-Cognitive Psychology and Behavioural Economics are particularly increasing in the *Prevention* and *Testing and Treatment* themes.
- b. Socio-Behaviourism is increasing in visibility in the *Testing and Treatment* theme, but declining markedly in all the other themes.
- c. Critical Theory is growing in prominence in the *Prevention* and *Care and Support* themes while declining in the *Testing and Treatment* theme.
- d. The Socio-Ecological and Systems-based paradigm is growing, especially in the *Prevention* theme, but declining noticeably in the *Living with HIV* theme.
- e. The Interpretive paradigm is declining in the *Testing and Treatment* theme, increasing in the *Impact on HIV and AIDS* theme and remains relatively stable in the other themes.
- f. The Humanist paradigm is on a sharp decline in *Prevention*, but stable in the *Living with HIV* and *Care and Support* themes.

8.6. Conclusion

This chapter served as a reply to the second aim of this study, namely to identify and describe the use of theory in the socio-behavioural research literature on HIV and AIDS in South Africa. The next chapter presents the findings of the meta-theoretical analysis of the three most prominent paradigms in the literature, namely Socio-Behaviourism, Critical Theory and the Socio-Ecological and Systems paradigm.

Chapter 9: Dominant Paradigms in the Behavioural and Social Study of HIV and AIDS in South Africa: A Meta-Theoretical Analysis

“HIV prevention is easy in theory – the practice is hard.” – Garnett and Baggaley (2009, p. 9)

9.1. Introduction

The previous chapter provided a delineation and discussion of the trends in theory visibility, theoretical contribution and the specific theories and paradigms that researchers drew upon. In this chapter, the most prominent paradigms are discussed in more depth, aided by the meta-theoretical analytic framework that was presented in Chapter 6. These paradigms are Socio-Behaviourism, Critical Theory and the Socio-Ecological and Systems-based paradigm.

As mentioned in Chapter 5, uncritical and unreflective theorising may lead to ineffective theory use, which can damage the development of a scientific field. The purpose of this meta-theoretical analysis is to identify and describe the underlying assumptions of these paradigms; outline how these assumptions are linked to the basic and applied use of the theory; and discuss how these assumptions contribute to our understanding of the research problems that we as social scientists are attempting to solve in the socio-behavioural study of HIV and AIDS in South Africa.

9.2. The Socio-Behaviourism: A Meta-Theoretical Analysis

While Behaviourism, especially the Neo-Behaviourist work of B.F. Skinner dominated Psychology in the USA for much of the 1950s to the 1980s. Critique of the lack of attention the paradigm offered to cognitive, and other mental processes led to the development of a new school of thought, namely Socio-Behaviourism. The shift toward Socio-Behaviourism around the late 1960s and 1970s took place within a larger movement in Psychology, commonly referred to as the *cognitive movement*. In its strictest sense, Classical and Neo-Behaviourism viewed human behaviour as mechanical, deterministic and the study thereof as limited to

observable behaviour exclusively. The study of consciousness, central to Psychology in its early years, had virtually disappeared under Classical and Neo-Behaviourism. There were some exceptions to this approach, such as the work of Jean Piaget, Leon Festinger, Kurt Lewin, John Atkinson's expectancy-value theory and the purposive behaviourism of Edward Tolman. Moreover, the realisation that this perspective on human behaviour was untenable was growing and eventually led to the shift towards the re-introduction of cognitive and mental processes into Psychology (Schultz & Schultz, 2011)

The cognitive movement redefined Psychology as "... the science of behaviour and mental processes instead of only behaviour, a science seeking to explain overt behaviour and its relationship to mental processes" (Schultz & Schultz, 2011, p. 353). Within the Behaviourist school of thought, the cognitive movement manifested itself in the form of a new wave of Behaviourism, namely Socio-Behaviourism. "The individual described by these [Socio-Behaviourist] theories no longer just responded to environmental stimuli but actively interacted with it" (Ogden, 1995, p. 260). Socio-Behaviourism (sometimes referred to as Cognitive Behaviourism or Neo-Neo-Behaviourism) was pioneered by Julian Rotter (1954, 1966) and Albert Bandura (1977a; 1977b; 1982; 1986).

While Socio-Behaviourism was rising in prominence, Health Psychology was also emerging as a new discipline. Health Psychology's theoretical basis became rooted in Socio-Behaviourism and related Psychological conceptual frameworks, because of the eminence of Socio-Behaviourism at the time, the strong focus on individual behaviour in the early stages of Health Psychology's development, and the applicability of Socio-Behaviourist theories in changing behaviour (Murray, 2012; Ogden, 2012). Consequently, Socio-Behaviourism became (and continues to a large extent to be) influential in shaping how health behaviour research and health behaviour interventions were conducted. Within the social and behavioural study of HIV in particular, the NIMH theorist workshop in 1992 (Fishbein et al., 2001) and subsequent conceptual applications of Socio-Behaviourist theory to HIV (e.g., Bandura, 1994; Catania et al., 1990; Fishbein, 2000; Fisher & Fisher, 1992; 2000) helped to further establish Socio-Behaviourism as the dominant paradigm in the field.

9.2.1. The Philosophical Level

It is worth noting that there are a wide variety of theories that fall under Socio-Behaviourism. While they may differ in several ways, the assumptions outlined below represent the core philosophical assumptions that these theories share.

9.2.1.1. Ontological assumptions

The ontological assumptions that form the basis of Socio-Behaviourism can be summarised as follows:

- a. **Realism:** Socio-Behaviourism is underpinned by a realist ontological perspective, which entails the belief that reality exists independent of our perceptions of it (Abraham & Hamfson, 1996).
- b. **Social-Cognitive Conception of Man:** Socio-Behaviourism views people to be biological, social and cognitive beings (Bandura, 1986).
- c. **Reciprocal determinism:** Socio-Behaviourism maintains that environmental structures influence individuals, but individuals also have the capacity to act intentionally and exert influence on their environment (Bandura, 2001; Fisher & Fisher, 1992).
- d. **Humans as thinking and motivated beings:** Socio-Behaviourists typically understand behaviour to be "...a function of people's perceptions of reality" as opposed to being produced by an objective, unbiased view of reality (Conner & Norman, 2008, p. 5). People have the capacity for rational thought; however, their perceptions of reality may be clouded by misinterpretations, self-serving motives, biases and inaccuracies. A person's beliefs (about themselves, expectations of others and their environment) are considered to be the origin of the formation of attitudes, subjective norms, expectations and perceptions of behavioural control. Through self-regulation, people can motivate themselves to action (Ajzen, 2011).
- e. **Emergence:** Socio-Behaviourists reject strict cognitivism and instead espouse an ontological non-reductionistic view of human cognition and behaviour. To this end, Socio-Behaviourists maintain that cognitive and behavioural processes are emergent and interact with environmental and socio-structural in a bi-directional manner to produce developmental and behavioural outcomes (Bandura, 1991; 1996; 2001).
- f. **Social learning:** Behaviour is viewed as largely a consequence of learning. A person's perceptions of reality (e.g., their beliefs and attitudes) can be created and changed through learning, especially through learning that involves observing and receiving feedback from peers (Bandura, 1986).
- g. **Self-regulation and behaviour change:** Socio-Behaviourism maintains a strong belief in the adaptive capability of individuals. It asserts that people possess the innate ability to regulate and control their behaviour and change it based on their interpretation of the feedback they receive. According to Socio-Behaviourists, knowledge is a necessary

precondition for behaviour change; however, it must be accompanied by self-influences such as motivation, self-confidence, favourable expectations of the changed behaviour's outcome and a social system that supports the behaviour (Bandura, 1998; Fisher & Fisher, 1992).

9.2.1.2. Epistemological assumptions

The key epistemological principles that underly Socio-Behaviourism can be summarised as follows:

- a. **Positivist research perspective:** Socio-Behaviourists assume that theories are more or less aligned with reality and can be used, through empirical research, to obtain objective truth and general cause-effect rules about human behaviour and cognitive processes. To this end, verbal and written self-reports from research participants allow researchers to access cognitions and behavioural dispositions which might be indicative of future behaviour (Abraham & Hamfson, 1996). Socio-Behaviourists are, in particular, interested in studying people's perceptions of a.) themselves, b.) their environment and c.) other people (especially peers and others whose opinions are valued), and how these perceptions influence a person's behaviour.
- b. **Non-reductionism:** Given the emergent ontological perspective on human cognition and behaviour, Socio-Behaviourists are not meant to study cognitive, affective or behavioural aspects in isolation. Instead, Socio-Behaviourists seek to understand how psychological, behavioural and environmental factors influence each other in an emergent manner (Bandura, 1996).
- c. **Behavioural change ideal of social science:** Socio-Behaviourist theorists maintain that Psychology should be used to contribute to a healthier society by developing strategies by which unhealthy, maladaptive, harmful, and other undesirable behaviours can be changed (Bandura, 2004). Changing individual behaviour is seen as the vehicle through which society might be changed for the better. Socio-Behaviourist theories are, therefore, not only meant to describe and explain behaviour, but must also be used to predict behaviour and offer solutions to change behaviour. Socio-Behaviourist research does this by specifying "...modifiable cognitive representations which appear to have a positive association with particular behaviours across persons within a given culture. This provides a theoretical basis for the development of interventions and the

identification of individuals most likely to benefit from them” (Abraham & Hamfson, 1996, p. 228).

- d. Experimental and quasi-experimental research methodology: Socio-Behaviourist theories lend themselves more toward experimental and quasi-experimental research designs. Quantitative data is primarily used. Hypothetical variables are measured, and statistical analysis methods are used to analyse the data. Objective language is used to describe the research problem, participants, results and findings.
- e. The dynamic relationship between theory, research and practice: Socio-Behaviourists value theory testing and refinement, and as a result, Socio-Behaviourist theories are often scrutinised, assessed and updated based on new data (Abraham & Hamfson, 1996). Additionally, Socio-Behaviourist theories are primarily aimed at being applied in practical settings to further behaviour change. Hence, there is a cyclical and dynamic relationship between Socio-Behaviourist theory, research and practice.

9.2.1.3. Assumptions about HIV and AIDS and the social and behavioural study thereof

Given these philosophical assumptions, one can summarise Socio-Behaviourism’s position regarding HIV and AIDS and the social science study thereof as follows (Bandura, 1994; Conner & Norman, 2008; Fishbein, 2000; Fisher & Fisher, 2000):

- a. People have the ability to appraise the extent to which they might be vulnerable or susceptible to HIV infection. These appraisals play a role in their behaviour to prevent HIV infection and engage with HIV testing services.
- b. Behaviour, whether it is sexual risk-taking, HIV testing or treatment behaviour, are learnt and mostly based on motivated and consciously deliberated thought.
- c. At-risk individuals and groups possess the capacity to regulate and control their behaviour. They are not entirely at the mercy of socio-structural entities, but instead, have the ability to exert influence on their environment and change their behaviour.
- d. If a person intends to do something (e.g., negotiate condom use with their partner), the chances are high that they will do so, provided that they have the necessary skills, confidence in their skills, and motivation that there are no contextual constraints that are preventing them from behaving in the way they intend to.
- e. In order to study HIV-related risk behaviour, social scientists have to observe behaviour directly (when possible) and access people’s thought processes (i.e., knowledge, memory, perceptions, attitudes and intentions) through questionnaires and interviews.

- f. While basic and applied research on HIV prevention, treatment and care should focus on the intra- and interpersonal levels, social scientists should not disregard the social and environmental context in which the individuals find themselves.
- g. Behaviour that places people at risk for acquiring HIV can be changed through a combination of the following: a.) improving the person's HIV prevention-related knowledge; b.) improving their self-protective skills to prevent HIV infection; c.) enhancing their skills; d.) strengthening their self-confidence in their newly acquired skills; as well as by e.) providing people with a supportive environment where the behaviour can be practised, reinforced, strengthened and sustained.

9.2.2. The Theory Level

The Reasoned Action Approach, which includes the Theory of Planned Behaviour and the Theory of Reasoned Action, were the most commonly used Socio-Behaviourist theory in the literature (n = 131; 21.2%) (see Chapter 8, Table 8.11). Other prominently used Socio-Behaviourist theories include the Social Cognitive Theory, the Information-Motivation-Behaviour Model, the Health Belief Model, the Self-Efficacy Theory, the Transactional Model of Stress and Coping and the Social Action Theory. This section will include a short discussion of the Social Cognitive Theory, the Reasoned Action Approach, and the Information-Motivation-Behaviour Model.

9.2.2.1. Social Cognitive Theory

Prior to the development of the Social Cognitive Theory, Albert Bandura developed the Social Learning Theory (Bandura, 1977a), which was primarily focused on learning and based on the social learning frameworks of Rotter (1954) and Miller and Dollard (1941). Bandura later expanded his theory by integrating aspects of cognitive psychology into the theory in order to account for the ways in which cognitive processes influence social learning (McAlister et al., 2015). He subsequently renamed his theory the Social Cognitive Theory (Bandura, 1986). Bandura continued to refine the Social Cognitive Theory throughout his career by applying it to various research problems, including HIV and AIDS (Bandura, 1994) and developing it further to develop a broader understanding of self-regulation (Bandura, 1997), moral disengagement (Bandura, 1999), and human agency (Bandura, 2000).

At the centre of the Social Cognitive Theory is the concept of triadic reciprocal causation (depicted in Figure 9.1). This entails that personal factors (including cognitive, affective and

biological), environmental factors (such as one's peers and socio-economic environment) and a person's behaviour (including their skills and abilities) mutually influence and determine each other (Bandura, 2001).

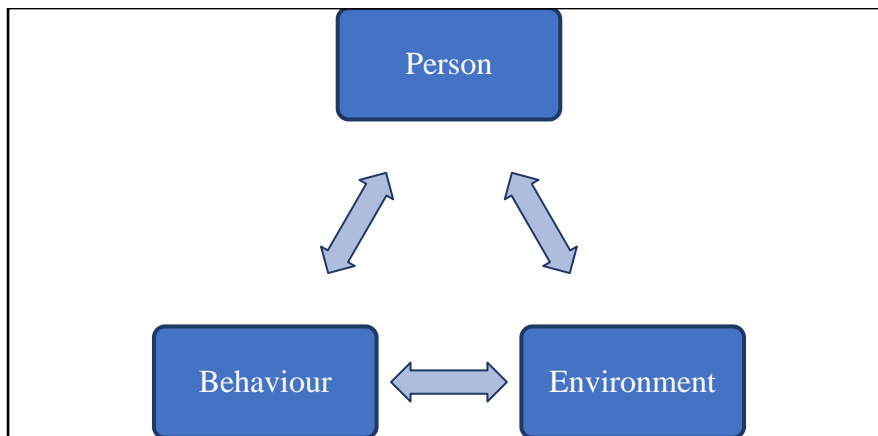


Figure 9.1 Triadic reciprocal causation (Bandura, 1994, p. 32)

According to the Social Cognitive Theory, behaviour can be described through five basic capabilities, namely (Bandura, 1986; Michie et al., 2014):

- a. Symbolising capability: The ability to use symbols to convert experiences into mental models that can serve as guidance for future behaviour.
- b. Forethought capability: The ability to anticipate and regulate one's behaviour based on the future. This may include setting goals, planning, and persisting with something in view of the anticipated future outcome.
- c. Vicarious capability: The ability to learn through observing other people's behaviour.
- d. Self-regulatory capability: The ability to regulate one's behaviour based on personal standards and self-worth. This ability can also include making changes to one's environment so that it matches and reinforces one's desired behaviour.
- e. Self-reflective capability: The ability to reflect upon and analyse one's thoughts, feelings, knowledge and experiences. This ability allows a person to learn from past experiences, which will inform future behaviour, attitudes and beliefs about their ability to succeed in a given task. The self-reflective capability is the most important determinant of behaviour.

The bi-directional relationships between the outcome of behaviour and personal factors and behavioural factors are mediated by expectations of efficacy and outcome (see Figure 9.2). Efficacy expectations (more commonly referred to as self-efficacy) refer to the beliefs that a

person has regarding their ability to execute a specific behaviour successfully. Efficacy expectations provide people with the incentive to act and are, therefore, crucial for behaviour (Bandura, 1986; 1998). In later publications, Bandura expanded on the ways in which the Social Cognitive Theory is not only applicable to individuals, but also collectives. Bandura (1995; 2000) maintained that groups, organisations, communities, societies and nations could also hold beliefs about their own efficacy (i.e., collective agency). Bandura (1995; 2000) emphasised that a collectives' belief in their ability to achieve a shared goal can be a powerful psychological barrier or motivator to achieving that goal.

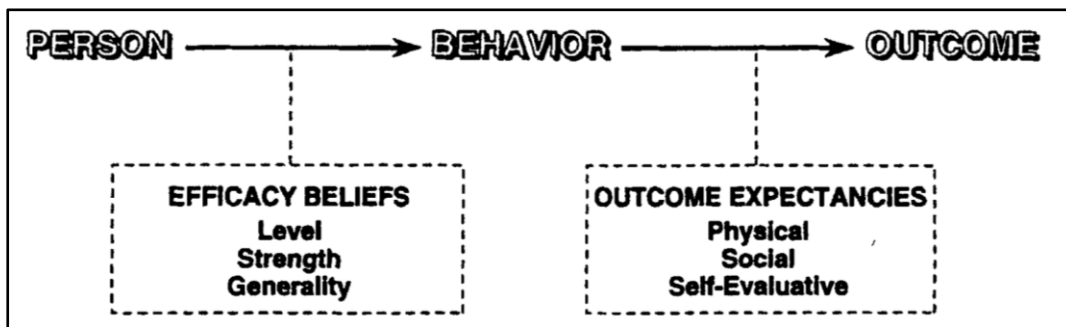


Figure 9.2 The conditional relations between efficacy beliefs and outcome expectancies (Bandura, 1998, p. 627)

Self-efficacy expectations may vary in terms of (Bandura, 1997; 1977b):

- a. Level (i.e., magnitude): The extent to which a person's self-efficacy beliefs might be limited to simple tasks or more complicated tasks.
- b. Strength: The intensity of the self-efficacy beliefs. People who possess a strong sense of self-efficacy may persevere through failure and continue to attempt a new skill, while those whose self-efficacy beliefs are relatively weak would abandon the use of the new skill upon experiencing failure.
- c. Generality: The extent to which a person's self-efficacy beliefs are limited to specific well-practised behaviours or extend further to include other behaviours.

Efficacy beliefs are informed by the cognitive appraisal of feedback from the environment and the outcome of personal experiences. Bandura (1998) identifies four sources of efficacy beliefs, namely:

- a. Performance accomplishments: Self-efficacy beliefs are strengthened by prior experiences of mastery, whereas failures will weaken self-efficacy beliefs. Early successful attempts are particularly vital for ensuring continued skill practice. Repeated

successful attempts will strengthen self-efficacy beliefs even more, thus dampening the negative impact of occasional failures and allowing for the generalisation of self-efficacy beliefs across other life areas. Within the context of a behaviour change intervention, this might include exposing people to safe opportunities to practice their newly acquired skills, such as via role-playing.

- b. Vicarious experience: Through observational learning, a person can learn a new skill by observing how someone else successfully performs a behaviour. Observing peers are particularly impactful in this regard. Building self-efficacy through vicarious experience may involve demonstrating the desired behaviour through media presentations (e.g., a television series), live theatre performances or role-playing. While this source of self-efficacy is not as compelling as personal mastery, it can be helpful in demonstrating the desired behaviour and allow people to observe the consequences without being directly exposed to them.
- c. Social persuasion: Through persuasive and suggestive communication, a person can be influenced to believe that they can successfully achieve something. While encouragement can help to reassure someone into attempting a new behaviour, the self-efficacy gained from it might be fairly weak. Interventions that emphasise social persuasion might need to complement suggestive communication with practical scenarios that are artificially designed in such a way as to avoid early participant failure and ensure initial success.
- d. Somatic and emotional states: Given that an attempt at performing a new skill can be stressful, the extent to which a person experiences anxiety and their ability to cope with that anxiety can inform the self-efficacy beliefs that they develop out of that encounter. The better they are able to handle the experience, the more likely they are to develop stronger self-efficacy expectations. Consequently, interventions that help people to manage acute and chronic stress, including symbolic desensitization, relaxation exercises and biofeedback, can promote self-efficacy.

Figure 9.3 demonstrates the causal pathways through which efficacy beliefs directly influence behaviour, but also indirectly through affecting the goals a person set for themselves, the outcome expectations they might have and their perceptions of the socio-structural factors that might facilitate or impede them.

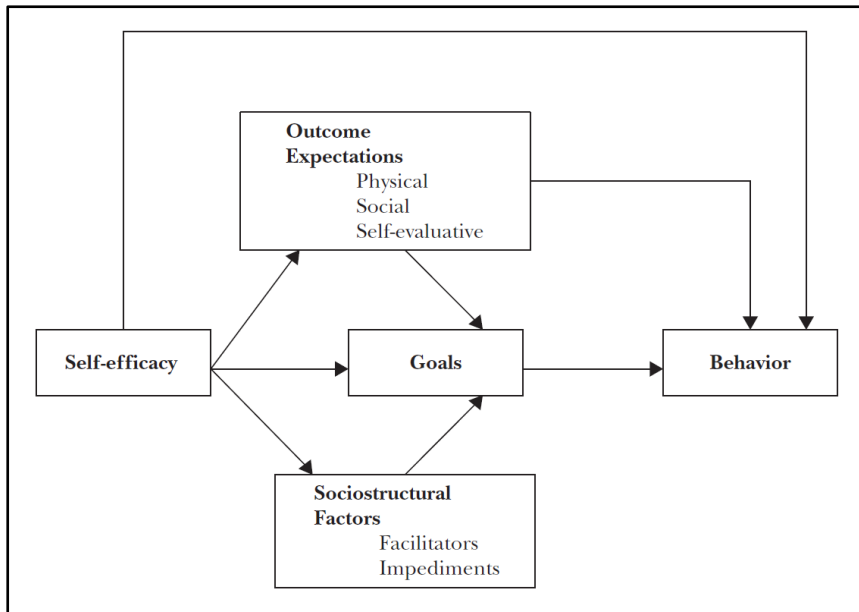


Figure 9.3 The pathways through which self-efficacy influence behaviour (Bandura, 2004, p. 146)

Outcome expectancies refer to the beliefs about the consequences of a behaviour, specifically in terms of the likelihood of an outcome and the value thereof. According to Bandura (1998), outcome expectancies can serve as incentives or deterrents of behaviour. There are three classes of outcome expectancies, including:

- a. Physical outcome expectancies: The pleasant or unenjoyable sensory experiences that one expects from engaging in a behaviour.
- b. Social outcome expectancies: The favourable and unfavourable social reactions that the behaviour is likely to have. If the behaviour is socially acceptable, it might be responded to with greater favourable social feedback than if it was a behaviour that went against social norms and expectations.
- c. Self-evaluative outcome expectancies: The extent to which the outcome of a behaviour aligns with an individual's personal standards. People tend to engage in behaviour that increases their self-worth and self-satisfaction and avoid actions that might denigrate their self-esteem.

The Social Cognitive Theory has made a significant impact on Psychology and numerous other fields, including Education, Public Health, Organisational Management and Sport Science. The theory is parsimonious, and it is possible to derive testable hypotheses from it. It is one of the most commonly used theories in the study of human behaviour and thus has considerable

empirical evidence that supports its premises. Self-efficacy, in particular, has become the lynchpin of numerous behaviour change programmes, including in the field of HIV and AIDS and health behaviour change in general (Beauchamp et al., 2019; Luszczynska & Schwarzer, 2020).

Numerous behaviour change and health behaviour theories have been created based on the Social Cognitive Theory (such as the Integrated Theory of Health Behaviour Change and Social Action Theory), and several others have incorporated self-efficacy or a similar concept into their conceptual frameworks (such as the Health Belief Model, Self-Regulation Theory and the Theory of Planned Behaviour) (Michie et al., 2014).

The Social Cognitive Theory is comprehensive in scope, encapsulating a wide range of cognitive, behavioural and interpersonal processes. This makes the theory generalisable to myriad phenomena and contexts. However, it also makes it difficult to apply in its entirety. As a result, most studies only incorporate some aspects of the theory (e.g., self-efficacy) and hence only test the validity of isolated components or concepts within the theory. While self-efficacy has received ample research attention, the more intricate cognitive-affective processes and the inter-relationships between them are not studied with the same rigour and frequency (McAlister et al., 2015). Given the lack of systematic, experimental research that tests the entire theory, there remains uncertainty about how essential each theory component might be for changing specific behaviours or which components of the theory should be applied in specific contexts (Luszczynska & Schwarzer, 2020). This challenge will be discussed further in the section on the general weaknesses and limitations of Socio-Behaviourist theories.

9.2.2.2. The Reasoned Action Approach

The Reasoned Action Approach refers to the theoretical work of Martin Fishbein and Icek Ajzen. The first version of this theory was devised in the late 1960s and 1970s and labelled the Theory of Reasoned Action (depicted in Figure 9.4) (Ajzen & Fishbein, 1972; Fishbein, 1967; Fishbein & Ajzen, 1975).

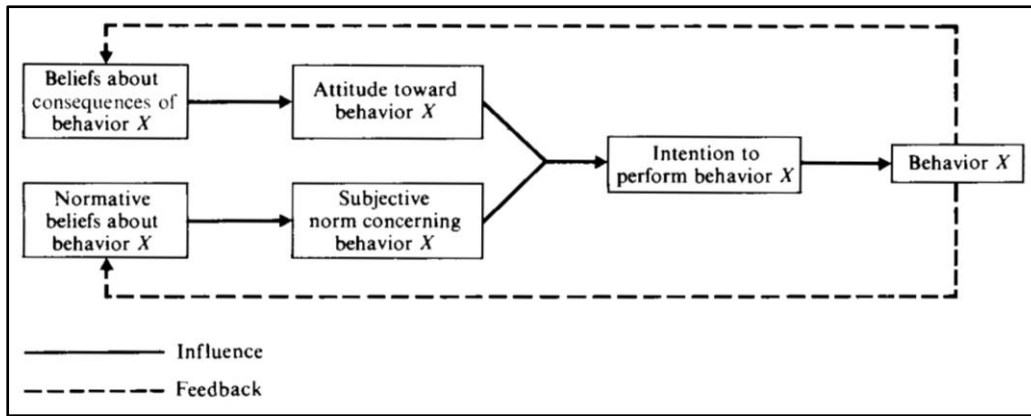


Figure 9.4 Theory of Reasoned Action (Fishbein & Ajzen, 1975, p.16)

The intention to perform a behaviour lies at the centre of the Theory of Reasoned Action. The theory proposes that behavioural intentions mediate overt behaviour. Behavioural intentions refer to motivation and willingness to attempt a behaviour. Behavioural intentions are proposed to be a function of a person’s attitude towards that behaviour and their beliefs about other people’s expectations of them (i.e., subjective norms) (Ajzen & Fishbein, 1972). A person’s attitude towards a behaviour is informed by their beliefs about the potential consequences of that behaviour. Social norms influence a person’s beliefs about others’ expectations. The individual’s motivation to adhere to these expectations enhances the effect of social norms on behavioural intention. The outcome of attempting a behaviour serves as feedback that further shapes normative beliefs and beliefs about a behaviour’s consequences (Fishbein & Ajzen, 1975).

The relative impact of attitude and subjective norms on behavioural intention may vary depending on the unique characteristics of the individual and the particular situation. As a result, based on empirical evidence, the social scientist should place appropriate weights on attitude and subjective norms. Behaviour intention will thus be the function of the weighted sum of the two variables (Ajzen & Fishbein, 1972; Fishbein & Ajzen, 1975).

One of the most pressing critiques of the Theory of Reasoned Action was that it failed to consider behaviours outside of a person’s conscious (i.e., volitional) control. Consequently, to improve the theory’s predictive power, Ajzen (1985; 1991) extended the Theory of Reasoned Action to include perceived behavioural control. This revision henceforth became known as the Theory of Planned Behaviour (depicted in Figure 9.5)

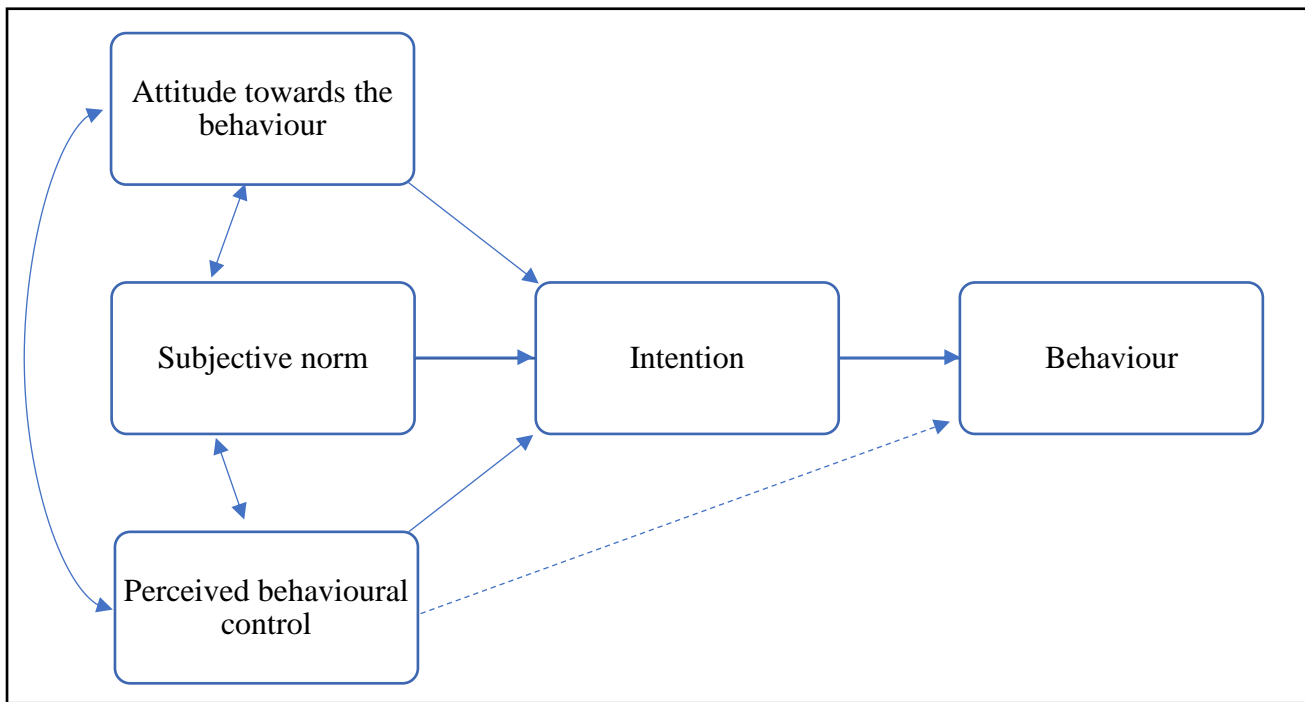


Figure 9.5 The Theory of Planned Behaviour (Ajzen, 1991, p. 182)

Ajzen (1991) maintains that “behavioural intention can find expression in behaviour only if the behaviour in question is under volitional control, i.e., if the person can decide at will to perform or not perform the behaviour” (pp. 181-182). Therefore, the Theory of Planned Behaviour makes allowance for external and non-motivational factors that influence behaviour, such as access to resources and the availability of opportunities to engage in a particular activity. While actual control of behaviour is obviously essential to the likelihood that someone will attempt a behaviour, a person’s *perception* of their control is of similar, if not greater, importance (Ajzen, 1991). Perceived behavioural control encapsulates the belief a person has that they have control over their ability to act and is influenced by the person’s beliefs regarding the presence (or absence) of factors that might hinder or help them in performing the act. Perceived behavioural control can influence a person’s behaviour directly as well as influence behavioural intentions to act. Ajzen (1991) makes a clear distinction between perceived behavioural control and Rotter’s (1966) locus of control. While the locus of control is deemed to be a stable trait that a person has that generalises across different contexts and all aspects of their lives, perceived behavioural control is not stable and can vary from one situation to another. According to Ajzen (1991), perceived behavioural control is analogous to perceived self-efficacy, as outlined by Bandura (1977b; 1982).

Fishbein (2000) created the Integrative Model of Behavioural Prediction with the aim to be used to inform the development of HIV prevention and similar behaviour change campaigns.

This model is mostly based on the Theory of Reasoned Action, but includes important theoretical variables for behavioural prediction from the Social Cognitive Theory and the Health Belief Model. To enhance the efficacy of the Integrative Model of Behavioural Prediction for health communication programmes, Fishbein and Yzer (2003) refined the model by combining it with elements of Media Priming theory. The resultant model is depicted in Figure 9.6.

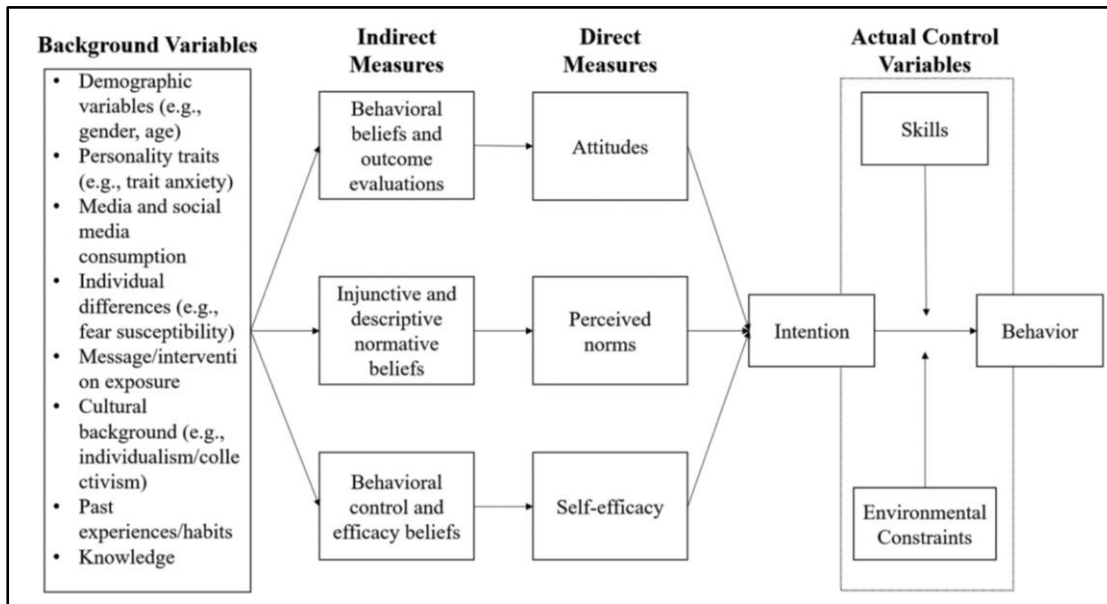


Figure 9. 6 The Integrative Model of Behavioural Prediction (Dai & Harrington, 2021, p. 3)

The Integrative Model of Behavioural Prediction tries to address the recurring problem of behaviour not always following intention by proposing that the relationship between the performance of behaviour and behavioural intention is influenced by two variables, namely a person’s skills and environmental constraints. A person’s actual control is hence now granted a higher status in the theory than in previous versions.

Self-efficacy (i.e., perceived behavioural control) is included as a variable that contributes to the formation of behavioural intentions. The Integrative Model of Behavioural Prediction also includes a set of background variables, including contextual factors, knowledge and intervention messages, that are expected to play a role in shaping a person’s beliefs about their behaviour, other’s expectations of how they should behave and their own efficacy in attempting a behaviour (Fishbein, 2000).

Fishbein and Ajzen (2010) incorporated elements of the Theory of Planned Behaviour into the Integrative Model of Behavioural Prediction in order to produce the Reasoned Action Model (depicted in Figure 9.7). While Fishbein and Ajzen (2010) maintain that behavioural intention “is the single best predictor of behaviour” (p. 7), they stress that the extent to which a person actually has control needs to be considered. Actual control influences a person’s perceived behaviour control, which together with attitudes and perceived norms, form the three determinants of behavioural intentions.

Background factors are distinguished based on whether they are individual-level factors, social-level factors or informational factors. The determinants of behavioural intentions may be weighted differently (i.e., carry different levels of importance) depending on the relevant background factors. For example, a person’s gender and personality may place greater importance on the normative beliefs of their peers when making a decision about what to do in a specific situation, compared to someone else who may perhaps be less affected by others’ expectations in the same situation (Fishbein & Ajzen, 2010).

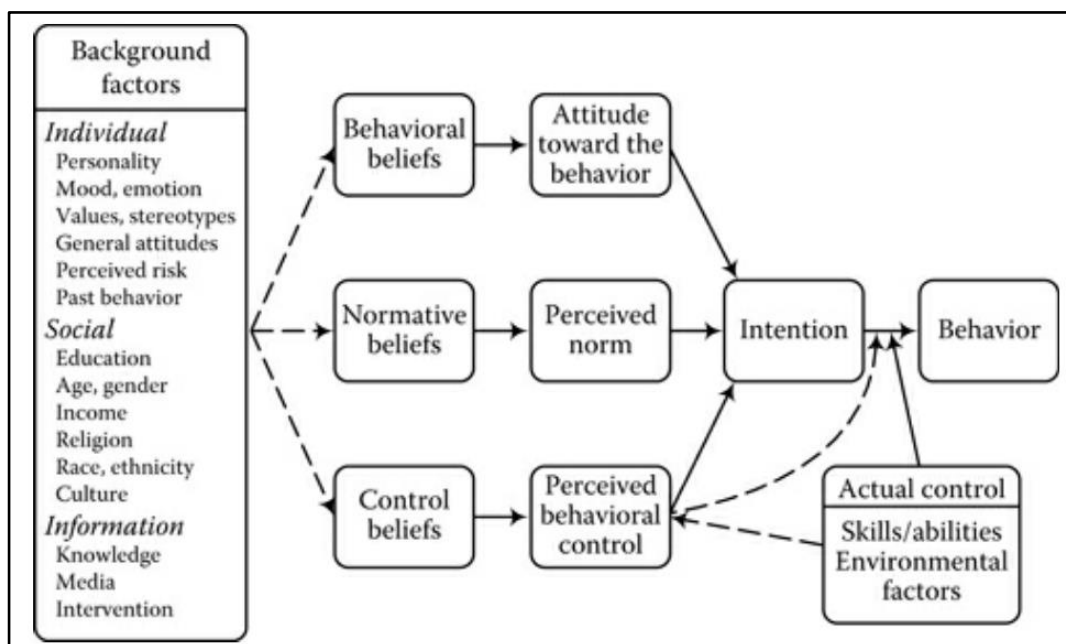


Figure 9.7 The Reasoned Action Model (Fishbein & Ajzen, 2010, p. 17)

The Reasoned Action Approach has made a substantial contribution to the study of human behaviour, and in particular, the study of health behaviour. Despite its popularity, the Reasoned Action Approach has also been met with vehement criticism. A recurring critique of the Reasoned Action Approach and its predecessors is that intentions (with or without attitudes, subjective norms and perceptions of control) are not necessarily strong and reliable predictors

of behaviour (e.g., Rich et al., 2015). This observation has not only been one of the driving forces behind the continuous refinement of the theory (Fishbein et al., 2003), but has also spurred debate about its validity as a behavioural theory (Sniehotta et al., 2014). This issue will be considered in more detail alongside a more thorough discussion of the weaknesses and limitations of Socio-Behaviourism.

9.2.2.3. Information-Motivation-Behaviour model

The Information-Motivation-Behaviour Skills Model (see Figure 9.8) is based on elements from the Theory of Reasoned Action and was designed specifically for changing HIV-related risk behaviour. According to Fisher and Fisher (1992), AIDS-related behaviour is determined by three factors:

1. *Information*: Information about HIV and AIDS, in particular how HIV is transmitted and how HIV infection can be prevented.
2. *Motivation*: The motivation to change one's HIV-related risk behaviour. Motivation includes people's attitudes towards HIV prevention, perceived HIV susceptibility and HIV prevention social norms. Motivation will influence the extent to which people act upon their knowledge of HIV prevention.
3. *Behavioural skill*: The skills that should be initiated and maintained to prevent HIV infection. These skills include: self-acceptance of one's sexuality; the skills to acquire accurate HIV prevention-related information; the ability to discuss and negotiate HIV prevention with one's partner, the ability to engage in public HIV prevention acts (e.g., buying condoms); consistently engaging in HIV prevention; the ability to reinforce one's own and one's partner's HIV prevention behaviours; possessing HIV prevention skills that are specific to one's gender, sexual orientation or lifestyle; and HIV prevention self-efficacy.

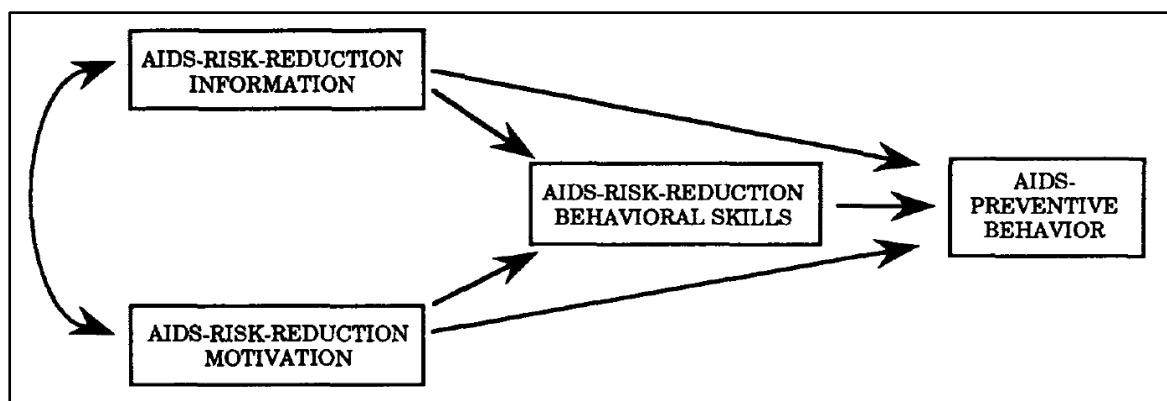


Figure 9.8 The Information-Motivation-Behavioural Skills Model (Fisher & Fisher, 1992, p. 465)

While *information* and *motivation* can directly influence *behaviour* in situations where the required behaviour would be fairly simple and straightforward to enact, the Information-Motivation-Behaviour Skills Model proposes that in most instances, *information* and *motivation* activate *behavioural skills*, which then affect *behaviour*. What this implies is that *information* is a necessary, but not sufficient condition for *behaviour* change. The added emphasis on *motivation* explains why even when a person is fully informed about HIV, and even adept at safe sex practices, they might still engage in risky activities if they are not motivated to change their behaviour. Moreover, without the necessary risk-reduction *behavioural skills*, even someone who is highly informed and motivated might not be able to prevent themselves from HIV infection (Fisher & Fisher, 1992).

The core purpose of the Information-Motivation-Behavioural Skills Model is to be used to change behaviour and promote HIV prevention. Consequently, Fisher and Fisher (1992) maintain that in order for an HIV prevention or risk reduction programme to be effective, it must address the three underlying determinants of HIV risk behaviour (i.e., HIV and AIDS-related information, motivation and behavioural skills). In order to use the Information-Motivation-Behavioural Skills Model for the design, implementation and evaluation of HIV prevention programmes, Fisher and Fisher (1992) recommend conducting research on the intervention's target population to determine: a.) what their current HIV-related knowledge is, b.) what the factors are that determine their motivation to change their behaviour, and c.) what their current HIV prevention behavioural skills are. Behaviour change interventions should then be designed based on the results of this research.

Fisher et al. (2008) used the Information-Motivation-Behavioural Skills Model to create a conceptual model specifically for HAART adherence (see Figure 9.9). The Information-Motivation-Behavioural Skills Model of HAART Adherence is based on the assumption that information regarding adherence and ARV treatment, motivation to remain adherent and adherence behavioural skills (both perceived and actual) are the essential determinants of HAART adherence (Fisher et al., 2006). The model connects adherence behaviour to health-related outcomes, such as CD4 count and viral load, which serves as feedback that will inform subsequent adherence. Moreover, the model states four moderating factors that might affect adherence, including mental health, unstable living conditions, limited healthcare access and

substance abuse. As with the original Information-Motivation-Behavioural Skills Model, the HAART adherence model is ultimately intended to inform the development, implementation and evaluation of HAART adherence promotion programmes (Fisher et al., 2008).

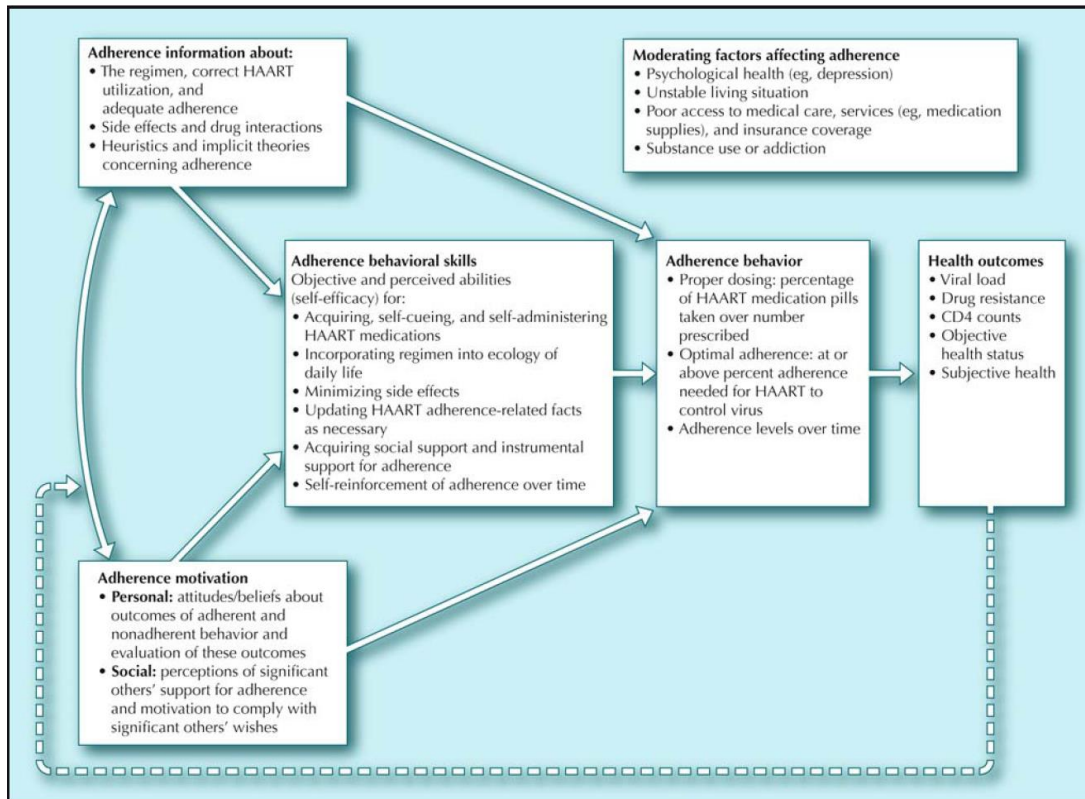


Figure 9.9 The Information-Motivation-Behavioural Skills Model of HAART Adherence (Fisher et al., 2008, p. 194)

Ferrer et al. (2010) expanded the use of the Information-Motivation-Behavioural Skills Model further by creating a model specifically for microbicide adherence (see Figure 9.10). The initial intention with the model was for it to be used to support adherence in microbicide clinical trials, where adherence is of the utmost importance. Similar to the HAART adherence model, Ferrer et al. (2010) propose that microbicide adherence-related information (i.e., information about the drug as well as how and why it should be used), motivation (i.e., attitudes and perceived social norms regarding microbicide use and HIV prevention), as well as microbicide behavioural skills (i.e., the ability to use it, negotiate its use with a partner and address drug side effects), influence microbicide adherence behaviour. Factors that might moderate the extent to which information, motivation and behavioural skills influence behaviour include psychological health, substance use and experiencing domestic violence (Ferrer et al., 2010).

Dubov et al. (2018) created a relatively similar Information-Motivation-Behavioural Skills Model for PrEP uptake based on an extensive literature review.

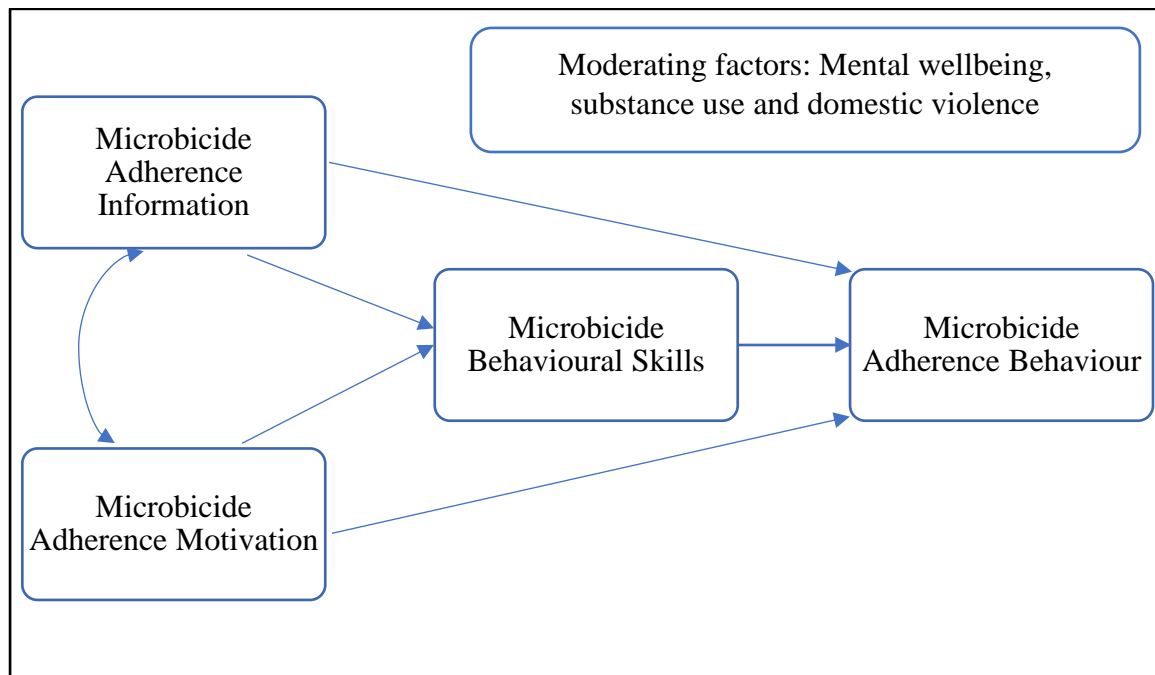


Figure 9. 10 The Information-Motivation-Behavioural Skills Model of Microbicide Adherence (Ferrer et al., 2010, p. 999)

Amico (2011) created the situated-Information-Motivation-Behavioral Skills Model of Care Initiation and Maintenance model (see Figure 9.11). This model is specifically meant to inform intervention programmes that help individuals with chronic medical conditions to initiate care and persist with the chronic treatment regime. This model can therefore be used to support ART initiation and prevent loss of follow-up in ART programmes.

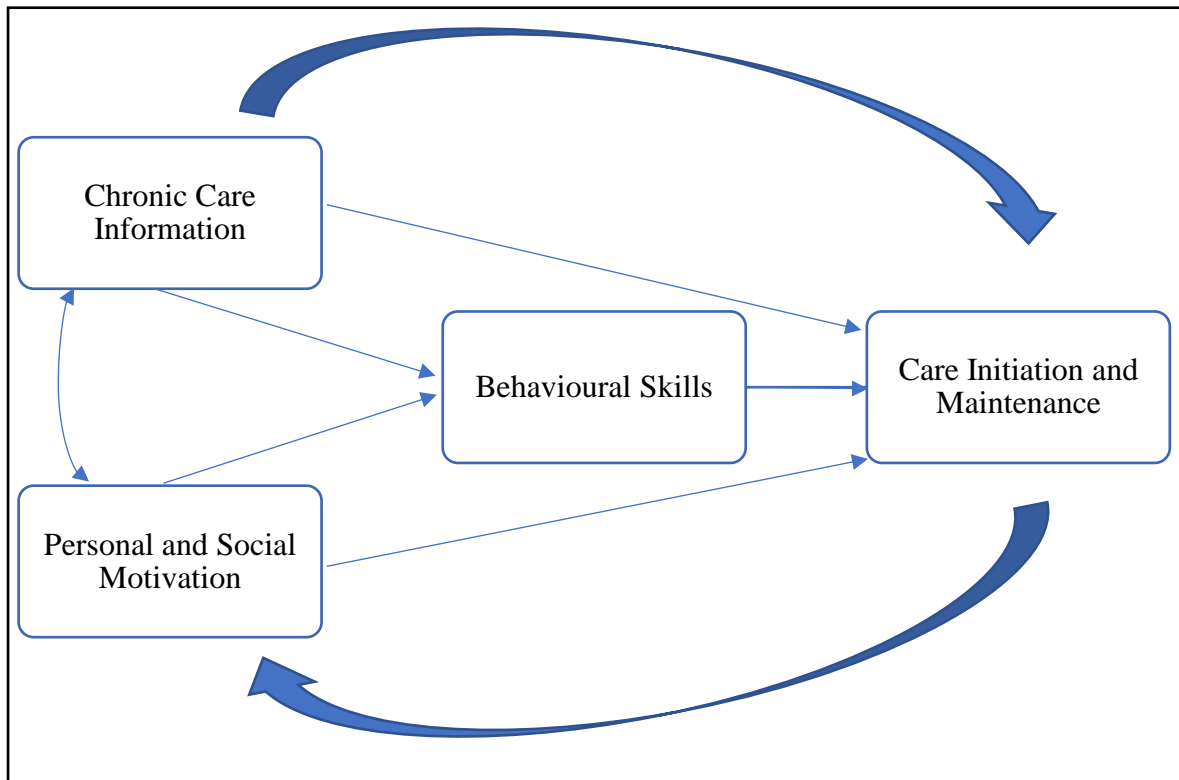


Figure 9. 11 The situated-Information-Motivation-Behavioral Skills Model of Care Initiation and Maintenance (Amico, 2011, p. 1073)

Similar to the HAART adherence model, Amico (2011) proposes that information, motivation and behavioural skills are essential determinants for chronic care initiation and maintenance. To this end, information includes accurate knowledge about the medical condition, the nature of the treatment, what one might expect in terms of adjusting to the treatment, as well as one’s rights as a patient. Motivation involves one’s attitudes and beliefs about care. This includes both one’s personal beliefs (i.e., personal motivation), such as the perceived cognitive-affective consequences of the treatment and one’s perceived ability to cope with the demands the treatment may place on one’s life, as well as one’s beliefs about how others might react to the treatment (i.e., social motivation), such as the social support one expects to receive and how other people might react when learning of your treatment. Behavioural skills include the actual skills and perceived self-efficacy to access treatment, navigate the healthcare system, manage treatment-related outcomes (e.g., side effects) and prioritise one’s treatment and self-care. Moreover, the model proposes that engaging in care and experiencing the outcomes of care (e.g., improved health and quality of life) inform future care initiation and maintenance beliefs, attitudes and behaviours (Amico, 2011).

The Information-Motivation-Behaviour Skills Model is not only a problem theory (i.e., a theory that allows for the explanation and prediction of behaviour), but it also provides a clear strategy of how social scientists might change behaviour through interventions. Given its simplicity and the ease with which it can inform behaviour change programming, the theory has enjoyed widespread use (Chang et al., 2014). However, tests of the theory have yielded inconsistent results regarding information's role in predicting behaviour as well as the extent to which information and motivation might be dependent on each other (Fisher & Fisher, 2009).

9.2.3. The Data Level

9.2.3.1. Research topics and methods

Socio-Behaviourist theories were used across a wide spectrum of research, especially HIV prevention research as well as HIV testing behaviour research and treatment adherence research. The majority of research that used Socio-Behaviourist theories employed quantitative research methods (68.6%; n = 415). Most Socio-Behaviourist studies tended to measure:

- a. HIV-related knowledge or beliefs,
- b. HIV and/or sexual-related social norms, attitudes and perceptions,
- c. Intentions to change behaviour or perform a behaviour, and
- d. Actual HIV-related and/or sexual-related behaviours.

The discussion on the evidence for Socio-Behaviourism (later in this section) demonstrates three of the most important methodological challenges that prevail in the testing of Socio-Behaviourist theories and the evaluation of interventions that were based on Socio-Behaviourist theories (and research in the HIV field in general).

Firstly, the use of cross-sectional and correlational research designs was common in the general literature, as is the case with most health behaviour research (Sussman & Gifford, 2018). These research designs cannot be used to determine causality, because the source and direction of causality are left unclear (Bandura, 1992). Hence, cross-sectional and correlational research designs limit the extent to which one can test the validity of a theory.

Secondly, most studies relied on self-reported behavioural data, such as reported condom use frequency. Given the biases related to self-reported data, one cannot necessarily trust that it is an accurate reflection of participants' true behaviour.

Thirdly, amongst the Socio-Behaviourist HIV prevention and risk reduction studies, none included HIV incidence as a study outcome. Only two studies (Fisher et al., 2014; Jemmott et al., 2015) used STI incidence as an outcome, and in both instances, the interventions did not succeed in preventing STI incidence. Similarly, while many clinical trials measured drug adherence objectively through testing for the presence of the drug (e.g., Mansoor et al., 2014) or through measuring CD4 count and viral load (e.g., van Loggerenberg et al., 2015), other less rigorous studies relied solely on self-reported adherence data (e.g., Saal & Kagee, 2011).

9.2.3.2. Practical applications

Given Socio-Behaviourism's strong focus on understanding human motivation and exploring the mechanisms through which behaviour could be changed, it is not surprising that Socio-Behaviourist theories have dominated the behaviour change literature (Michie et al., 2014). Similarly, the majority of papers that utilised theory in the social and behavioural study of HIV also made use of Socio-Behaviourist theories. Socio-Behaviourist-based interventions are typically aimed at changing intra- and interpersonal behaviour; however, they can be structured as community-level interventions aimed at promoting individual and collective behavioural change. Socio-Behaviourist-based interventions tend to include most, if not all, of the following components (Bandura, 1994):

- a. Education: The first component is aimed at increasing the intervention participant's awareness and knowledge of HIV, including how it is transmitted and how it can be prevented.
- b. Self-regulative and social skills development: The second component is aimed at improving the intervention participant's intra- and interpersonal skills, which will help them to act upon their newly acquired HIV-related knowledge. Interventions that drew upon the Information-Motivation-Behavioural Skills Model often included motivational interviewing as the primary intervention strategy in this regard.
- c. Self-efficacy promotion: The third component seeks to promote the intervention participant's self-efficacy in their newly developed skill by placing them in situations (e.g., role plays) where they can practice the skill and receive feedback.
- d. Social support systems: The fourth and final component is to identify and/or create a social support system to aid the intervention participant in maintaining the changed behaviour and newly acquired skills.

9.2.3.3. Evidence

Several studies have explicitly tested Socio-Behaviourist theories to determine whether they accurately predict behaviour in the South African context. Additionally, the majority of theory-based HIV and AIDS interventions have been based upon Socio-Behaviourist theories. Given the large number of relevant studies that either directly tested Socio-Behaviourist theories or applied them to interventions, the following section will only focus on the most prominent Socio-Behaviourist theories. A succinct summary of the results is provided first, followed by short summaries of each theory and, thereafter, a summary of the results of integrated theoretical approaches.

a) Summary of evidence

Explicit tests of theories were generally scarce. The Theory of Planned Behaviour was the most frequently tested theory in the South African HIV and AIDS literature. Most of the explicit theory testing results were generally favourable; however, effect sizes tended to be small to medium, and methodological issues may have compromised or otherwise limited the reliability of these theories. In this regard, the overreliance on self-reported behavioural data, the measurement of behavioural intention without also measuring actual behaviour and only testing some but not all components of a theory represented three of the most glaring limitations of many of these studies.

The Social Cognitive Theory was the most often applied theory in interventions. Results from the evaluations of Socio-Behaviourist theory-based interventions varied widely – while some were deemed to be markedly successful (Mansoor et al., 2014), others were no better than the most basic comparison interventions (e.g., Huis in 't Veld et al., 2019), some were only effective in improving knowledge, intention and skills but not necessarily actual behaviour (e.g., Fisher et al., 2014), and others produced initial positive effects which were not sustained over time (e.g., Jemmott et al., 2010).

Although there have been consistent criticisms over the lack of validity of Western theories in African contexts (e.g., Airhihenbuwa & Obregon, 2000; Uwah, 2014; 2015), a number of explicit theory tests and evaluations of programmes have been conducted in South Africa, and the results seem to suggest that these theories are comparably valid in the South African context as they are in Europe or the USA (Schaalma et al., 2009). The studies demonstrate that the exact determinants of intention to act and actual behaviour varies depending on various factors, including age, gender, the exact behaviour in question and the broader social context. Hence,

as emphasised by Fishbein and Ajzen (2010), empirical research has to be done to determine the relevance of contextual variables and their possible impact on the salience of the theory's constructs. This includes studying group norms, traditional and religious belief systems and practices, as well as the degree to which people adhere to them. The importance of thorough formative research prior to the development of an intervention can therefore not be overstated.

b) The Reasoned Action Approach

Most studies which explicitly tested a theory tested the Theory of Planned Behaviour. The majority of studies which directly tested the theory were able to validate it. However, most studies only tested the theory's ability to predict behaviour intentions, whereas few tested the extent to which the theory predicted actual behaviour. Of those that measured actual behaviour, the extent to which intention predicted behaviour was inconsistent (Diteweg et al., 2013; Goodnight et al., 2014).

The findings demonstrate that the relative importance of the determinants of intention (i.e., attitudes, subjective norms, perceived behavioural control) varies widely depending on the behaviour under study and other relevant socio-demographic and contextual factors. The results of studies that tested the theories of Reasoned Action, Planned Behaviour and their more recent extensions are summarised below, followed by a summary of the results of the SATZ programme:

- a. In a test of the Theory of Planned Behaviour on condom use in adolescents, Giles et al. (2005) found that the theory explained 67% of the variance in intention. They found that self-efficacy ($\beta = 0.481$, $p < .01$) and subjective norms ($\beta = 0.352$, $p < .01$) significantly predicted intention to use a condom. Actual condom use was significantly predicted by behavioural intention ($r = 0.309$, $p < .01$), but more strongly with self-efficacy ($r = 0.441$, $p < .01$). Attitudes towards condom use were not significant in predicting intention nor behaviour.
- b. Townsend and Dawes (2007) found that the Theory of Planned Behaviour accurately predicted 29.7% of the variance in intention to care for an HIV-positive child.
- c. Heeren et al. (2007) found that the Theory of Planned Behaviour accurately predicted condom use and condom use intention amongst university students from South Africa and the USA. Among South African students, the Theory of Planned Behaviour explained 31% and 35% of the variance in the frequency of condom use and condom use intention, respectively. Among the American students, the Theory of Planned

Behaviour explained 50% and 53% of the variance in the frequency of condom use and condom use intention, respectively. Compared to a student sample from the USA, the South African students' intention and behaviour to use condoms were more strongly predicted by self-efficacy, whereas for the American sample, attitude and subjective norms were the stronger predictors.

- d. In a test of the Reasoned Action Model on the condom use intentions of adolescents, Jemmott et al. (2007) found that attitudes towards condoms ($\beta = 0.16$, $t(313) = 3.78$, $p \leq 0.0002$) and perceived behavioural control ($\beta = 0.46$, $t(313) = 8.94$, $p \leq .0001$) predicted condom use intention. Subjective norms and normative beliefs did not predict condom use intentions. Hedonistic behavioural beliefs ($\beta = 0.16$, $t(281) = 3.17$, $p \leq .0017$) and beliefs of control about condom use negotiation ($\beta = 0.26$, $t(281) = 3.97$, $p \leq .0001$) and technical skill beliefs ($\beta = 0.42$, $t(281) = 6.67$, $p \leq .0001$) were found to accurately predict intention.
- e. While testing whether the Theory of Planned Behaviour accurately predicts willingness to participate in a vaccine trial, Giocos et al. (2008) found that only subjective norms significantly predicted behavioural intention (OR = 1.19, 95% CI = 1.06–1.34). As a result, they concluded that the Theory of Reasoned Action more accurately explained willingness to participate and that in the unique context of their study (i.e., the possibility of engaging in a clinical trial), perceived behavioural control might not have been an appropriate construct.
- f. In their test of the Theory of Planned Behaviour, Saal and Kagee (2011) found that the perceptions of behavioural control and group norms explained only 12% of the variance in ART adherence intention. Moreover, they could not find a significant relationship between self-reported adherence and intention to adhere.
- g. In a cross-sectional test of the Integrated Model of Behaviour Prediction in predicting intention to take an HIV test amongst adolescents, Diteweg et al. (2013) found that beliefs about the expectations of others ($\beta = 0.71$, $p \leq .001$) and beliefs about behavioural outcomes ($\beta = 0.76$, $p \leq .001$) directly predicted intention. Having taken an HIV test was predicted by efficacy beliefs coupled with self-efficacy ($\beta = 0.24$, $p \leq .05$). Intention to test did not predict actual testing behaviour.
- h. In their test of the Theory of Planned Behaviour, Goodnight et al. (2014) found that caregiver attitudes about offering youth information about sex predicted actual communication about sex when caregivers had perceived control in having such conversations ($\beta = 0.08$, SEB = 0.04, $p = .03$, CI 95% = 0.01, 0.16).

- i. In a test of the Reasoned Action Model, Jemmott et al. (2014b) found that normative support ($r = 0.29$; $p < .01$) and caregiver-child communication ($r = 0.27$; $p < .01$) predicted the intention to disclose HIV diagnosis to a child, however, behavioural beliefs did not predict intention. Actual disclosure was not measured.

Evaluation of the SATZ adolescent HIV prevention programme:

The SATZ programme was a teacher-led school-based HIV prevention programme for adolescents. It was tested in three research sites, namely, Cape Town and Mankweng in South Africa and Dar es Salaam in Tanzania. Analyses of the programme data found inconsistent support for the Reasoned Action Approach, and the programme itself failed to have a significant impact on South African participants.

- a. In a study on the extent to which the Theory of Planned Behaviour might predict the sexual debut amongst participants at the Cape Town site, Mathews et al. (2009) found that the Theory of Planned Behaviour explained 35% of the variance in intention to have sex and 16% in actually engaging in sexual intercourse for the first time.
- b. In a study that combined the results from the South African and Tanzanian research sites, Schaalma et al. (2009) found that the Theory of Planned Behaviour reliably predicted 77% of the explained variance between behavioural intentions and behaviour.
- c. In their test of the Theory of Planned Behaviour, Eggers et al. (2016) conducted a longitudinal, multi-country evaluation of the SATZ programme. Among South African adolescents, condom use intentions were predicted by subjective norms and self-efficacy and moderately predicted by attitudes to condom use. The proportion of explained variance between behavioural intentions and behaviour was 46% in the Cape Town participant group and 37% in the Mankweng group, the latter being notably lower than what one would expect, especially when compared to results from the USA and Europe.
- d. Mathews et al. (2012) conducted a cluster randomised controlled trial of the efficacy of the SATZ programme, which entailed data collection at baseline, six months and approximately 14 months follow-up. Mathews et al. (2012) found that the programme was successful in delaying sexual debut amongst Dar es Salaam participants; however, the programme had no significant impact on changing the sexual risk behaviours of South African participants.

c) Information-Motivation-Behaviour Skills model

There were only two instances of explicit testing of the Information-Motivation-Behavioural Skills Model. While both found favourable results, it is worth cautioning that one study was cross-sectional while the other had a short follow-up period. Numerous behaviour change programmes were based upon the Information-Motivation-Behavioural Skills Model. While some were found to be effective, most did not produce successful results.

The results of studies that tested the Information-Motivation-Behavioural Skills Model are summarised below, followed by summaries of the evaluation results of studies that applied the Information-Motivation-Behavioural Skills Model.

- a. Kalichman et al. (2006) found that the Information-Motivation-Behavioural Skills Model accurately predicted sexual risk-taking behaviour in STI clinic patients over a three-month period. To this end, AIDS knowledge and behavioural intentions had a significant effect on each other ($\chi^2 = 0.17, p < .05$), and behavioural intentions significantly influenced self-efficacy ($\chi^2 = 0.36, p < .01$), which significantly influenced sexual behaviour ($\chi^2 = 0.24, p < .01$).
- b. Kiene et al. (2013) used cross-sectional data from a large sample of ART patients at public health clinics to test the Information-Motivation-Behavioural Skills Model. Their path-estimate differences in the Information-Motivation-Behavioural Skills Model HIV-preventive behaviour by levels of sexual activity were able to explain 10.7% of the variance in the behaviour of ART patients who reported low levels of sexual activity. The model was able to explain 19.5% of the variance in the behaviour of ART patients who reported high sexual activity levels.

Evaluation of various Information-Motivation-Behavioural Skills Model-based interventions:

- a. Simbayi et al. (2004) performed a randomised trial to assess the effectiveness of a 60-minute HIV risk reduction counselling programme for STI clinic patients. They compared the intervention group to a comparison group that received a standard 20-minute HIV informational session. Data were collected at baseline and again at one and three-months follow-up. The evaluation revealed that intervention participants were significantly more likely to report a decline in sexual risk behaviour and an increase in HIV testing rates. Confidence in behavioural skills and HIV-related knowledge were

also significantly higher at the three-months follow-up. No significant differences were found in motivation or behavioural intentions.

- b. Mansoor et al. (2014) tested the effectiveness of the CAPRISA 004 microbicide clinical trial's *Adherence Support Programme* that was initiated halfway through the trial in order to boost adherence rates of the experimental drug. Adherence rates were compared prior to the start of the intervention (pre-test) (when a standard adherence counselling format was used) and after its initiation (post-test). A comparison between pre- and post-test adherence data demonstrated that the *Adherence Support Programme* contributed to significant improvements in microbicide adherence.
- c. Fisher et al. (2014) conducted a cluster-randomised trial of the *Izindlela Zokuphila/Options for Health* programme, an Information-Motivation-Behavioural Skills Model-based brief lay counsellor-administered intervention at public clinics to reduce sexual risk behaviour amongst people who are living with HIV. Self-reported sexual risk behaviour was significantly lower in the intervention group; however, there was no difference in STI incidence between the intervention and comparison groups.
- d. Pitpitan et al. (2015) conducted a longitudinal, randomised control trial in order to test whether the Information-Motivation-Behavioural Skills Model could predict condom use amongst STI patients following exposure to a brief sexual risk reduction intervention. While the theory-based intervention was more effective at reducing risk behaviour than a simple HIV education session control condition, condom use one year after the intervention was indirectly determined by alcohol-related constructs (e.g., alcohol use), but not any of the Information-Motivation-Behavioural Skills Model constructs.
- e. Van Loggerenberg et al. (2015) conducted the CAPRISA 058 randomised controlled trial in order to evaluate the efficacy of an intensive motivational adherence intervention for ART patients. The intervention was compared with a standard educational counselling session. Results from the trial indicated that there were no significant differences between the intervention and the control conditions and that both enhanced ART adherence equally.
- f. Huis in 't Veld et al. (2019) tested the efficacy of a brief intervention to reduce alcohol use in people who were living with HIV compared to a control condition where people only received an educational pamphlet on responsible drinking. Data were collected at baseline and again at five- and 12-months follow-up. Their randomised controlled trial determined that there were no significant differences between the intervention and

control groups with regard to alcohol-related sexual risk behaviours. Heavy drinking decreased significantly in both groups, suggesting that the theory-based intervention was not more effective at furthering risk reduction than the educational pamphlet.

d) Social Cognitive Theory

The Social Cognitive Theory was never directly tested. Although the Social Cognitive Theory was the most commonly used theory in interventions, it was often used in combination with other theories (see Integrated Theoretical Approaches later in this section). The intervention evaluation results appear to be inconsistent. Below is a summary of the interventions that applied the Social Cognitive Theory on its own:

- a. Kalichman et al. (2008b) performed a randomised trial of a community-based alcohol-related HIV risk-reduction intervention. Data were collected at baseline and again at three and six-months follow-up. Participants in the intervention arm demonstrated reduced sexual risk behaviour; however, the results were less prominent in heavy drinkers. The results were only evident up to three months post-intervention and were no longer significant by six-months follow-up.
- b. Heeren et al. (2013) performed a randomised controlled trial to test the effectiveness of an interactive HIV risk-reduction intervention for university students. Data were collected at baseline and at six and 12-month follow-ups. Participants reported more frequent condom use and less unprotected vaginal intercourse. Theoretical variables, including outcome expectancies related to condom use, self-efficacy to use condoms, as well as HIV and condom knowledge, were also significantly improved among members of the intervention group compared to the control.
- c. Jemmott et al. (2014c) conducted a cluster-randomised controlled trial of the *Men, Together Making a Difference!* HIV prevention programme. Data were collected at baseline and again at six and 12-month follow-ups. By the 12-month follow-up, participants in the intervention were still more likely than the comparison group to consistently use condoms during vaginal intercourse. The intervention did not significantly reduce reports of multiple sex partners and unprotected sex.
- d. Snyder et al. (2014) evaluated the *Hlanganani (Coming Together)* programme, a three-session cognitive behavioural support group for adolescents living with HIV. The support groups were based on Social Cognitive Theory and Social Capital. A quasi-experimental, mixed methods evaluation of the programme compared group

participants with a control group. The evaluation found that the adolescents who participated in the support group practised less risky sexual behaviour, were more inclined to be linked to ART care and had better HIV-related knowledge.

- e. Mantell et al. (2015) conducted a randomised behavioural trial of a two-session female condom promotion intervention for university students. The intervention was compared with a standard HIV and STI prevention intervention that extended over a five-month period. The trial revealed no differences between the intervention and the control group in terms of sexual risk behaviour (including frequency of male and female condom use) and attitudes towards condoms.

e) Health Belief Model

Relatively few studies directly tested the Health Belief Model or applied it to interventions. The limited evidence appears to provide conflicting results regarding its accuracy in predicting behaviour. The results of studies that tested the Health Belief Model can be summarised as follows:

- a. In their multi-level path analysis of longitudinal data from the Cape Area Panel Survey, Tenkorang (2013) found evidence to support the Health Belief Model as risk perception had a direct negative effect ($R^2 = -0.031$) on sexual behaviour (i.e., people with a low perception of HIV risk were the most likely to engage in high-risk behaviour). However, poverty ($R^2 = 0.138$), education ($R^2 = 0.089$) and being Muslim ($R^2 = -0.126$) were found to have slightly stronger effects on sexual behaviour.
- b. Nöthling and Kagee (2013) tested whether the core components of the Health Belief Model predicted the uptake of routine HIV counselling and testing in 1113 university students. They found that perceived HIV severity, perceived HIV susceptibility, and perceived benefits of and barriers to HIV testing explained 25.1% of the variance in acceptance of the uptake of HIV testing services.
- c. An exploratory-descriptive study of university students found that Health Belief Model variables did not predict the use of HIV prevention services (e.g., HIV testing) but that there was a positive correlation between perceived susceptibility and perceived threat of HIV infection and condom use ($\chi^2 = 0.80$, 95% CI) (Ndabarora & Mchunu, 2014).

f) Integrated theoretical approaches

A few studies explicitly tested the predictive value of integrating one or more Socio-Behaviourist theories.

- a. Mashegoane et al. (2004) created an integrated theoretical approach which combined the Theory of Planned Behaviour, the Theory of Reasoned Action, the Health Belief Model and the Social Cognitive Theory. In their analysis of cross-sectional survey data of university students, they found that, for male students, attitudes towards using condoms (Reasoned Action Approach) and the Health Belief Model's perceived barriers and benefits predicted the intention to use condoms. In contrast, for female students, using condoms, subjective norms (Reasoned Action Approach) and perceived self-efficacy (Social Cognitive Theory/Reasoned Action Approach) predicted the intention to use condoms.
- b. Peltzer and Oladimeji (2004) found that the Health Belief Model (perceived susceptibility, perceived benefits, and perceived barriers) and Theory of Reasoned Action (attitudes and subjective norms about condom use) predicted the intention to use condoms in a cross-sectional sample of university students. However, normative beliefs (the Theory of Reasoned Action construct) did not predict the intention to use condoms.
- c. Boer and Mashamba (2005; 2007) used the Theory of Planned Behaviour and the Protection Motivation Theory to test whether they predict intention to use condoms amongst adolescents (2005) and university students (2007). Both theories were found to accurately predict condom use intention (Boer & Mashamba, 2005; 2007).
- d. Eggers et al. (2013) tested the Information-Motivation-Behavioural Skills Model and the iChange model to predict condom use during last sex in a large sample of data from university students. While the assumptions of both models were validated, the iChange model was found to provide more significant determinant pathways to behaviour.

Evaluation of interventions that used one or more Socio-Behaviourist theories:

Many interventions combined two or more Socio-Behaviourist or related theories. The most common theories in these integrations tended to be the Social Cognitive Theory, the Theory of Planned Behaviour and the Information-Motivation-Behavioural Skills Model. The results of these evaluations were inconsistent.

- a. The *Our Times, Our Choices* programme was a school-based alcohol and HIV prevention programme adapted from the USA. It was based on Social Cognitive

Theory, the Theory of Planned Behaviour and the Social Inoculation Theory. A one-year quasi-experimental pilot study found that, compared to a comparison group, participants of the programme had improved condom use intentions; were less likely to drink and engage in sexual activity; and female participants had improved self-efficacy to decline sexual advances (Karnell et al., 2006). A larger-scale five-year randomised controlled trial confirmed these findings (Cupp et al., 2008).

- b. Kalichman et al. (2009) conducted a quasi-experimental field trial to evaluate the effectiveness of a five-session integrated gender-based violence and HIV risk reduction intervention that was based on the Social Cognitive Theory and aspects of the Theory of Planned Behaviour. The intervention was compared with a single three-hour alcohol and HIV risk reduction educational session. Data were collected at baseline and then again at one- three- and six-months post-intervention. Behavioural intention to reduce HIV risk was only significantly improved at the six-months follow-up in the intervention group. There were no significant differences between the intervention and control groups with regard to sexual risk behaviours or AIDS-related knowledge. Although acceptance of gender-based violence was only significantly reduced in the intervention condition until the first-month follow-up, the intervention condition did demonstrate significant reductions in gender-based violence reports.
- c. Peltzer et al. (2012a) evaluated the effectiveness of an HIV risk reduction intervention for medically circumcised young men based on the Social Cognitive Theory and the Information-Motivation-Behavioural Skills Model. Their randomised controlled trial, which collected data at baseline and three-month follow-up, found that the intervention had a significant impact on increasing participants' risk reduction intentions and skills. Moreover, the participants also reported less sexual risk behaviour after the intervention. However, the intervention was found not to influence male role norms.
- d. Peltzer et al. (2012b) evaluated the efficacy of a structured ART adherence support group intervention that trained lay healthcare workers administered. The intervention was based on a variety of Socio-Behaviourist theories, most notably the Health Promotion Model, the Health Belief Model and the Information-Motivation-Behavioural Skills Model. Peltzer et al. (2012b) conducted a randomised controlled trial, comparing the group intervention with a standard ART counselling session. The results of the evaluation indicated that the intervention's only significant impact was in improving the patient's ART adherence knowledge. Adherence-related skills and

motivation remained unchanged and CD4 count and self-reported ART adherence improved for patients in both the control and intervention conditions.

- e. Goga et al. (2020) evaluated the efficacy of an intervention to improve health workers' knowledge, attitudes and confidence with HIV and infant feeding counselling. The intervention was based on Dee Fink's (2003) six-part taxonomy of significant learning and the Theory of Planned Behaviour. A quasi-experimental controlled study with pre- and post-tests determined a significant improvement in the attitudes and confidence of participants to counsel patients on breastfeeding. Intervention participants demonstrated improved knowledge with regard to some aspects of infant feeding. Behavioural intentions were not measured.

Evaluation of the *Soul City* HIV prevention programme:

Soul City was a mass-media edutainment programme which included a television series, radio programmes, and print materials. The programme drew upon Social Cognitive Theory, Diffusion of Innovation, the Transtheoretical Model of Behaviour Change, as well as the Johns Hopkins University's Steps to behaviour change programme (Poitrow et al., 1997), the health promotion theory from the Ottawa Charter (WHO, 1986) and the Rockefeller Foundation's Communication for Social Change framework (Goldstein et al., 2005). Results from peer-reviewed evaluations of the programme produced favourable results; however, these evaluations were not randomised controlled trials and thus lacked methodological rigour.

- a. Peltzer and Promtussananon (2003) conducted a cross-sectional post-intervention survey to determine the *Soul City* programme's impact on secondary school pupils. They found that adolescents who reported high exposure to *Soul City* programming reported more condom use, HIV-related knowledge, attitudes towards people living with HIV, delaying sexual debut and HIV prevention-related self-efficacy.
- b. Goldstein et al. (2005) conducted a national pre- and post-intervention survey as well as a qualitative inquiry to assess the impact of the *Soul City* programme. Their results suggest a reduction in negative peer pressure, an improvement in HIV-related knowledge, positive changes in social norms, greater openness to talk about HIV and AIDS, as well as a positive impact on condom use and condom negotiation with a partner.

Evaluation of the *Let Us Protect Our Future* programme:

Let Us Protect Our Future was a school-based HIV and STI risk-reduction intervention aimed at adolescents. The programme was based on the Reasoned Action Model and Social Cognitive Theory. The programme was found to be effective and appeared to still have an impact several years later. However, it did not succeed in reducing STI incidence rates.

- a. Jemmott et al. (2010) conducted a cluster-randomised, controlled evaluation. They collected data at baseline and three-, six, and 12-months follow-up from 1057 adolescents. The results of the evaluation suggested that the intervention contributed to a reduction in sexual partners as well as a decrease in unprotected intercourse and the number of sex acts across all follow-up periods.
- b. A follow-up evaluation at 42- and 54-months post-intervention found that the intervention's impact on the reduction of unprotected intercourse was sustained over the longer-term period. Theoretical variables, such as behaviour skills, behavioural beliefs, perceived norms and attitudes remained elevated. The intervention's impact on other variables, such as knowledge about HIV, STIs and condoms, cultural myths, and outcome expectancies related to condom use, parental approval, abstinence and career goals, weakened over time but was still relatively favourable (Jemmott et al., 2015). The 42- and 54-months post-intervention evaluation also found that the intervention did not succeed in preventing STIs. It had a significant impact on reducing the incidence of curable STIs at 42-months follow-up in adolescents who reported being sexually active, but not at 54-months follow-up.

9.2.4. Implications and Critique of Socio-Behaviourism

9.2.4.1. Direct implications of utilising Socio-Behaviourism

Socio-Behaviourist thought has played a major role in shaping how the social and behavioural aspects of HIV prevention, treatment and care are studied. In particular, it has directed the study of HIV towards the study of behaviour and cognition, bringing forth countless studies that prioritise the study of awareness, knowledge, perceptions, beliefs, attitudes, intentions and behaviours. Given Socio-Behaviourism's emphasis on behavioural prediction, the paradigm has also been the driving force behind the primary approaches that are used in HIV behaviour change interventions.

9.2.4.2. Strengths of Socio-Behaviourism

Socio-Behaviourism specifies modifiable cognitions that can be used to change behaviour. While other paradigms, such as the Socio-Ecological and Systems theory, may provide an overarching framework for an intervention, they fail to provide a detailed account of how to intervene on each level. Socio-Behaviourist theories offer more comprehensive guidance regarding which factors to address and the mechanisms by which behaviour change is most likely expected to occur (Abraham & Hamfson, 1996; Sallis et al., 2015). Hence, Socio-Behaviourism has been and continues to be at the centre of most behaviour change interventions.

Additionally, Socio-Behaviourism's emphasis on a reciprocal deterministic understanding of how personal factors, behavioural factors and the environment dynamically interact with one another makes the paradigm particularly useful in studying social and health behaviour. Socio-Behaviourist thinking has been instrumental in shaping our understanding of stress and how people cope with adverse events and threats to their social and physical well-being (Lazarus & Folkman, 1987).

Socio-Behaviourist theories are typically parsimonious, which allows for easier use in basic and applied research. Additionally, Socio-Behaviourist theories, such as the ones most often used in the HIV literature, are "...content-free model[s] of human social behaviour" (Ajzen, 2012, p. 64). In other words, the theories are designed in such a way that they are generic and can be applied to a wide range of behavioural topics. They can be used just as easily to study sexual and reproductive behaviours as consumer and voting behaviours. The researcher must provide topic-specific content (based on their formative research) to use the theory fruitfully (Ajzen, 2012). Their simplicity and generalisability make Socio-Behaviourist theories suitable to be used across various research domains, population groups and contexts.

9.2.4.3. Weaknesses and limitations of Socio-Behaviourism

a) Incorrect and partial use of theories which leads to persistent misconceptions

Critique of Socio-Behaviourism was rife in the literature, most of which argued why the paradigm is not suitable for HIV research. While some of the critiques identified true weaknesses and shortcomings in Socio-Behaviourism, they also reflected a misconstrued understanding of the paradigm and were more in response to the way the theory was used than the theory itself.

Three of the most common and significant misconceptions about Socio-Behaviourism are listed below, followed by a concise explanation of each:

- a. Socio-Behaviourism is based on the assumption that improved knowledge will result in changed behaviour.
- b. Socio-Behaviourism assumes that people think and behave rationally at all times.
- c. Socio-Behaviourism is reductionistic, individualistic and completely disregards the complex social mechanisms and contexts in which behaviour occurs.

As mentioned earlier in this discussion on Socio-Behaviourism, theories in this paradigm consider learning (i.e., increasing knowledge about and having relevant information on a topic) as one precondition for behaviour change. Even a theory such as the Information-Motivation-Behavioural Skills Model, which allows for information to directly influence behaviour, does not propose that knowledge is the only way to change behaviour. Moreover, while verbal persuasion, education and observational learning are valid ways of enhancing a person's self-efficacy to perform a certain new behaviour, the person also needs to learn skills to put that knowledge into action (often through observing peers) and then practice their newly acquired skills (preferably in real-world conditions). The likelihood that they will persist with the new behaviour will rely, amongst other things, on their actual control of the situation, their perceptions about the expectations of others, the feedback that they receive from others and their attitude towards the behaviour (Fishbein & Ajzen, 2010; Bandura, 1986; Fisher & Fisher, 1992). In other words, knowledge and skills are necessary but by no means the only factors that ensure that behaviour will change. The idea that improved knowledge alone should compel people into acting differently is therefore not congruent with Socio-Behaviourist assumptions. Research further supports the observation that HIV-related knowledge is a weak predictor of behaviour (e.g., Diteweg et al., 2013; Guerra & Simbayi, 2014; Mnguni et al., 2015).

Some secondary sources of Socio-Behaviourist theory (e.g., Conner & Norman, 2008) and papers that discuss and critique Socio-Behaviourist theory (e.g., Campbell et al., 2007) tend to portray Socio-Behaviourism as being based on the belief that the individual is an "...impassionate, rational actor who reviews all available information in an unbiased fashion to arrive at a behavioural decision" (Ajzen, 2011, p. 1116). This is an oversimplification and misrepresentation of Socio-Behaviourism. As mentioned earlier, Socio-Behaviourists tend to maintain that humans possess various other cognitive abilities that allow them to learn, reflect, anticipate and form beliefs and intentions. The beliefs, attitudes and expectations people

develop through these cognitive processes are affected by many factors, such as past experiences and observations, feedback from others and social norms. Therefore, these beliefs, attitudes and expectations are often a reflection of a social reality as perceived by the individual rather than a perfect duplicate of reality itself. Hence, people can make incorrect judgements about their own ability, the outcome of a behaviour or the expectations of others (Ajzen, 2011; Beauchamp et al., 2019). The research in the HIV literature also demonstrates examples of this, such as that people may underestimate their risk for HIV infection (e.g., Adefuye et al., 2011) and that people may perceive HIV-related stigma to be higher in their communities than it actually is (Visser, 2018). These research findings do not invalidate Socio-Behaviourist theories; they demonstrate that people act upon their cognitions. Sometimes, those cognitions can be inaccurate because they are based on a perception of reality, not necessarily reality as it is. This is comparable to Critical Realism's distinction between the world and our experience of the world (Bhaskar, 1975/2008).

Given its focus on individual cognition, behaviour and interpersonal exchanges, Socio-Behaviourism is typically used to study the individual and interpersonal factors that influence individual-level behaviour. As a result, the paradigm has been criticised for neglecting contextual factors such as broader cultural, social and structural factors that influence behaviour. It is worth keeping in mind that Socio-Behaviourism subscribes to a reciprocal form of determinism, meaning that there is an interplay between individual and environmental factors. While it is not necessarily stated explicitly in many Socio-Behaviourist theories, the paradigm is based on the idea that personal, behavioural and environmental (i.e., contextual and social) factors interact with each other and produce behaviour and other developmental outcomes in an emergent manner (Bandura, 1996). Even though the theories focus on cognitive processes and how these processes influence behaviour, the impact of social, cultural and other contextual issues in shaping cognitions and behaviours are not ignored. For example, the Reasoned Action Approach includes normative beliefs, perceived social norms, and numerous contextual factors such as culture, race and gender (Fishbein & Ajzen, 2010). In addition, the Social Cognitive Theory emphasises social learning, peer influences, social expectations and socio-structural impediments that shape the goals we set and the behaviour we engage in (Bandura, 2004). Bandura (1991; 1996; 2002) has also emphasised that self-efficacy is equally relevant in individualist and collectivist cultures and that many of the concepts inherent to the Social Cognitive Theory can be applied to groups, communities and societies as well. Socio-

Behaviourism, therefore, allows for a study of human behaviour sensitive to the complexity of social context.

It is striking that much of the criticism of Socio-Behaviourism is often more a response to *how the theories are used* rather than what these theories really propose or assume. Aarø et al. (2006) came to the same conclusion in their formative research for the SATZ programme, using the Theory of Planned Behaviour:

Many, however, have questioned the applicability of such a cognitive behavioural model in cultures and contexts like those of Sub-Saharan Africa, basically because of the importance of cultural factors and societal constraints regarding sexual risk reduction. In our view, this critique basically addresses the way that cognitive theories were used rather than the applicability of cognitive theory. (p. 156).

This review of the South African HIV literature has demonstrated that Socio-Behaviourist theories (like theories from other paradigms) are vulnerable to being used in ambiguous and imprecise ways. As mentioned in Chapter 8, a total of 14.3% of papers that drew upon Socio-Behaviourism use the theory in a generalised and unspecific manner – in other words, they involved the so-called KAP approach and similar generic theoretical approaches that are based upon the vague idea that improved knowledge, changes attitudes which then changes practices. This vague and diluted form of Socio-Behaviourism has been criticised by others in the past, such as Schaalma et al. (2009), who recommended that healthcare researchers and interventionists should “...stop relying on simple knowledge-attitude-practice studies, and start to apply social cognition models to identify the targets of their prevention programmes, including cultural and societal barriers and facilitating factors” (p. 90). This weak application of Socio-Behaviourist theory is often based upon a partial and flawed understanding of the paradigm, tarnishes the paradigm’s image and tends to propagate stereotypical misperceptions of the paradigm.

b) Underutilisation of the assumption of emergent causation

As mentioned earlier, Socio-Behaviourism is based upon the assumptions of emergence and reciprocal determinism. While some theories, such as the Social Cognitive Theory, make this point very clear (Bandura, 1996), other theories that adhere to the same ontological assumptions, such as the Reasoned Action Approach, may imply but not explicitly emphasise

emergence in their theory's primary source materials. For example, the Theory of Planned Behaviour has been criticised for being static and assuming a linear and one-directional causal pathway from beliefs (i.e., attitude, social norm, perceived behavioural control) to intention and then to behaviour (Sniehotta et al., 2014). However, Ajzen (2014) has argued that that is not an accurate representation of the theory and that the theory does, in fact, assume that there are feedback pathways that connect behaviour and beliefs. As Ajzen (2020) explains:

Performance of a behaviour results in information about the actual (as opposed to anticipated) outcomes, experiences, reactions by significant others, as well as about facilitating or impeding factors encountered by the actor. This feedback is likely to change some of the behavioural, normative, and control beliefs and thus influence future intentions regarding the behaviour in question. (p. 316).

While a feedback loop between behaviour and beliefs had been included in the graphical representation of the Theory of Reasoned Action (Fishbein & Ajzen, 1975), the feedback loop had been omitted in subsequent visual representations of the more recent versions of the theory. Fishbein and Ajzen (2010) caution that the schematic representation of the Reasoned Action Model "...provides an oversimplified representation of our theoretical framework, a representation that lacks important conceptual distinctions as well as feedback loops and other relations among the constructs" (p. 19). While it is understandable that the schematic representation of the model may oversimplify the theory, its lack of feedback loops creates the impression, at least to the uninitiated, that the theory does not take account of any feedback from behaviour back to beliefs.

When reviewing studies that have utilised the Reasoned Action Approach in the South African HIV literature, one notices that the assumption of linear, one-directional causality is fairly common. Similarly, many studies that involved using other Socio-Behaviourist theories tended to also follow the same underlying belief that causality moves in one direction from knowledge to attitudes and norms and then to behaviour.

In other words, while Socio-Behaviourism assumes bi-directional and emergent causation, a significant proportion of research that uses it fails to incorporate this view of causality into their study of behaviour (Luszczynska & Schwarzer, 2020). One can argue that the value of a theory and the impact that it ultimately makes upon a study field lies in how it is *used* more so than what it actually proposes and assumes. If researchers do Socio-Behaviourist research in a

way that neglects emergent causation, then Socio-Behaviourism could just as well never have been based upon that assumption. Ironically, while researchers are increasingly turning to Socio-Ecological and Systems-based theories due to their emphasis on multi-directional causality, the emergent nature of causality inherent to Socio-Behaviourism is ignored.

c) Overreliance on self-reported behavioural data

Within the Socio-Behaviourist tradition, the primary way through which insights about cognitions and behaviours are collected is through self-reported data. Given that "...people form mental or cognitive representations of their reality...", which ultimately reflects their perceptions of their world, it is assumed that by asking people questions, their responses will offer us access to "...how individuals experience their bodies, themselves as persons, other people or particular situations" (Abraham & Hamfson, 1996, p. 224).

However, there are several caveats to relying on self-reported data. Self-report as a data collection method relies quite heavily on the assumptions that a person's motivations are conscious to them, that they have a fair degree of self-insight, and that they have the ability to accurately interpret their own feelings, motivations, attitudes and even rationales for their own behaviour. The extent to which people are able to do this is, of course, debatable (Greenwald & Banaji, 1995; Mackay, 1979; Malekzad et al., 2022).

Moreover, self-reported responses, especially in sexual and reproductive health studies, are vulnerable to self-presentational, social desirability and courtesy biases (McCallum & Peterson, 2012; Stuart & Grimes, 2009). Researchers such as Ogden (2003) have questioned the extent to which self-report questionnaires really access a respondent's true beliefs and attitudes and whether these questionnaires may actually create cognitions and serve as a catalyst for behaviour change in and of themselves. To this end, the way in which questionnaires are structured and the way in which questions are phrased have been shown to prime respondents to answer in a particular way¹¹¹. In particular, respondents might be led to answer questions in a way which they think might be what others expect them to answer or which might be the "right" answer instead of answering in accordance with their actual beliefs (Matthews & Simpson, 2020). Moreover, being confronted with a question on, for example, condom use, can raise the perceived importance of condom use, communicating to the

¹¹¹ This might be one possible reason why some studies find positive changes in both experimental and control groups.

respondent that it might be an important, healthy and even socially desirable thing to do (Glasman et al., 2015; Morrison et al., 1998).

Research on impression management has demonstrated that people control how they present themselves to others and may adjust their appearance, opinion, attitudes and demeanour, depending on the social context, in order to give a specific impression of themselves to others. This can be especially likely to occur if the research participant expects that there might be something to gain from presenting themselves in a certain manner (Mensch et al., 2003; Montgomery et al., 2016). Interviews and survey-based research place self-presentational demands on research participants (even those in the comparison groups) and may therefore play a role in the responses that researchers collect (Abraham & Hamfson, 1996). Other factors that might also influence participant's ability to answer questions accurately include forgetting, misunderstanding the questions, mistranslations of important words and local vernacular phrases, as well as fearing that their responses will not be treated confidentially (Chillag et al., 2006; DUBY et al., 2016; Mooney et al., 2018).

This is a concern for all social and behavioural scientists, not only those in the Socio-Behaviourist school of thought. However, it does highlight a possible weakness in Socio-Behaviourist research that solely bases its data on self-reports (even reports of behaviour) and might explain the disconnect between what people say and what they actually do.

d) Inconsistent and misleading operationalisations

A review of Socio-Behaviourist theories demonstrates that there is considerable overlap between the theories, not only in terms of basic assumptions, but also with regard to their constructs. While this is not necessarily a problem, it can lead to misunderstandings about what each concept uniquely refers to, how they are similar, and how they differ. For example, self-efficacy might be seen as essentially the same as perceived behavioural control, but is meaningfully different from motivation and skill (Ajzen, 2020). Similarly, attitudes and norms may correlate with one another, but still remain distinct concepts (Miller, 2017).

The appropriate operationalisation and measurement of Socio-Behaviourist concepts represent another major challenge in the literature. What makes Socio-Behaviourist concepts especially challenging to measure is that, although they may seem fairly simple and straightforward, they tend to be structurally complex. For example, attitudes involve both intensity and direction and can be conceptualised as being affective, cognitive and/or behavioural (Fabrigar et al., 2005).

Research has demonstrated that the type of data collection instrument and the number of items per construct can significantly impact the data quality. To this end, single-item measures, global and bipolar scales, as well as non-specific item phrasing tend to produce lower quality data (Luszczynska & Schwarzer, 2020; Miller, 2017). Poorly operationalised concepts contribute to the imprecise testing of theories and compromise research finding quality.

e) Weak predictive validity and utility

At the centre of Socio-Behaviourism is the assumption that mental processes influence behaviour. Human behaviour is not entirely reactive but is also produced out of intentions, beliefs and goals that motivate people into action. Although tests of the theories seem to provide moderate to strong positive support for their validity, it also reveals some shortcomings, in particular inconsistent validity and utility results and weak correlations between variables.

The Reasoned Action Approach was the most often used Socio-Behaviourist theory and also the theory that was the most often tested. One of the most pertinent critiques of the Reasoned Action Approach is that empirical tests of the theory often find the association between behavioural intentions and actual behaviour to be particularly weak. As the review of the evidence base for the Reasoned Action Approach revealed, most studies only tested the predictive validity of the determinants of behavioural intention without testing whether intention truly predicted actual behaviour. The few studies that tested the predictive value of intention on behaviour generated mixed results, with weak effect sizes for the relationship between these variables.

Ajzen (2011; 2014; 2020) admits that the theory's ability to predict behaviour from intentions is not strong and may vary widely. In a meta-analysis of evidence for the intentions-behaviour relationship in the Theory of Planned Behaviour, Sheeran (2002) found the overall correlation between intention and behaviour to be 0.53. In a meta-analysis of studies using the Theory of Planned Behaviour to predict dietary patterns, McDermott et al. (2015) found the correlation between intention and behaviour to be 0.47. Similarly, McEachan et al. (2011) reported a correlation of 0.43. The correlations between other constructs in the theory varied but tended not to be much better (Ajzen, 2011).

While it seems fairly logical that behaviour would follow naturally from intentions, there are many reasons why that might not always be the case. These reasons may include having low actual control over that specific part of one's life, changing one's mind about the intended

behaviour as well as forgetting about the intention (Ajzen, 2020). Intra-personal factors such as personality traits and mental health status might also play a role in the extent to which intention is shaped and acted upon (Ajzen, 2011). The Reasoned Action Approach makes allowance for this by indicating that the causal relationship between intention and behaviour is mediated by actual control, which includes personal and external factors that might prevent intention from being acted upon (Ajzen, 2020). The challenge is that some of these factors, such as personality, are immutable personal features that a behavioural intervention would not be able to change. While others, such as actual control, might be impossible to address or require large-scale and multifaceted societal changes which would lie beyond the scope of a typical behavioural intervention.

Ajzen (2011) states that:

At its core, the [Reasoned Action Approach] is concerned with the prediction of intentions. Behavioural, normative and control beliefs as well as attitudes, subjective norms and perceptions of behavioural control are assumed to feed into and explain behavioural intentions. Whether intentions predict behaviour depends in part on factors beyond the individual's control, i.e., the strength of the intention-behaviour relation is moderated by actual control over the behaviour. Barring methodological shortcomings, a low intention-behaviour relation is a warning sign indicating that we may be reaching the limits of reasoned action. (p. 1115).

In other words, the theory is considered to be at its strongest when determining intentions. The extent to which it is able to reliably predict behaviour is limited. For the interventionist, the primary goal is to implement a strategy that will result in changed behaviour. Whether beliefs, attitudes or intentions have been changed is ultimately secondary. Changing beliefs and attitudes, as well as spreading awareness, are still considered useful, as it is expected that it would ultimately result in some degree of behaviour change. However, this assumption might not be entirely valid, as even long-term follow-up evaluations of interventions tend to show weak behaviour change results (e.g., Kalichman et al., 2008b). This is substantiated by Ajzen (2020), who states that the impact of intention on behaviour is likely to be at its strongest in the immediate short-term and is expected to gradually dissipate as time goes on. This raises serious concerns about the effectiveness of HIV behaviour change programmes, their sustainability and our ability to accurately measure programme impact over time.

It is also worth emphasising that part of the limited predictive validity and utility of the Reasoned Action Approach (and other Socio-Behaviourist theories) might lie in the way that they are used, i.e., the way they are tested and applied to interventions (Armitage, 2014; Hagger, 2015). As mentioned earlier, the neglect of emergent causation, incomplete tests of a theory, the incorrect use of a theory, weak research designs, the overreliance on self-reported data, poor operationalisation of constructs, and other methodological flaws can undermine our ability to test theory properly and limit our ability to accurately study human behaviour through the Socio-Behaviourist lens.

9.3. Critical Theory: A Meta-Theoretical Analysis

Critical theory is rooted in the intellectual work of the Institute for Social Research at Goethe University in Frankfurt, Germany (i.e., Frankfurt School), specifically under the leadership of the German philosopher Max Horkheimer, as well as the subsequent scholarship that developed out of the school of thought that Horkheimer established. Other prominent philosophers that are considered to be part of the Frankfurt School (whether they worked directly at the school or later became associated with it) included Leo Löwenthal, Friedrich Pollock, György Lukács, Theodor W. Adorno, Herbert Marcuse, Erich Fromm, Walter Benjamin and Jürgen Habermas (Alvesson & Sköldbberg, 2018; Held, 1980).

The Frankfurt School sought to establish a new social science based upon the critique of certain aspects of Marxism and the critique of traditional approaches to social science theorising. While Critical Theory critiques certain elements within Marxist thought, it preserves some fundamental aspects of it, but shifts the focus from primarily being a study of economics to being a study of culture, socio-history and power in society. In doing so, the Frankfurt School drew upon a number of philosophers and theorists, including the work of Georg W. F. Hegel, Immanuel Kant, Max Weber and Sigmund Freud (Felluga, 2015; Held, 1980).

The term *critical theory* was devised by Horkheimer in an effort to describe a new form of theorising that was distinct from the prevailing traditional theory. Horkheimer argues that while traditional theory aims to describe, explain and interpret social phenomena, it represents the interests and the values of the ruling classes, and research using traditional theory only serves to maintain and reproduce this status quo. Traditional theory, therefore, supports the hegemonic ideological control that the ruling classes have over the marginalised classes (Horkheimer, 1975).

Horkheimer proposes that social theories should be *critical* in the sense that it should a.) take a normative standpoint (e.g., on how society should function and be structured); b.) provide critique that describes and specifies how current approaches, theories, methods or practices are failing to meet that normative ideal; and c.) provide a directive approach to deconstruct and dismantle dominant power structures in society, and in science, in order to transform it into the normative ideal that it envisions (Horkheimer, 1975). This aligns with Karl Marx's critique that while "...the philosophers have only *interpreted* the world, in various ways; the point is to *change* it" (Marx, 1845/1975, p. 423, original emphasis). In other words, whereas traditional theories have served to describe and explain social phenomena, the goal should ultimately be to change the world.

Hence, the Frankfurt School endeavoured to develop a new social scientific approach centred around the reflective study of social phenomena within their social, cultural and historical contexts and aimed toward the development of ideas that were philosophically based and, most importantly, practically useful to change society (Alvesson & Sköldbberg, 2018; Held, 1980). Most of the members of the Frankfurt School had to flee Germany in order to evade the totalitarian regime of Adolf Hitler. The rise to power of Hitler and the acclimatisation to the USA and its capitalist and consumerist culture undoubtedly made an impression on the members of the Frankfurt School and shaped their subsequent scholarship. Some of the most notable and influential publications to emerge out of the Frankfurt School include *One-Dimensional Man* (Marcuse, 1964/2008), *Dialectic of the Enlightenment* (Adorno & Horkheimer, 1944/1979) and *The Structural Transformation of the Public Sphere* (Habermas, 1962/1989). The critical school of thought expanded in the 1960s and 1970s as it grew in prominence; at the same time, Post Modern philosophers adopted some of its approaches to further their own work in the areas of discourse, history, deviance and sexuality (e.g., Foucault, 1976/1990).

Numerous sub-variants of Critical Theory have emerged over the decades. The rise of second-wave feminism in the 1960s and 1970s brought attention to the apparent lack of female representation in social science theory and the need to create a research programme that places women's subjective experiences at the centre of knowledge production. This provided the impetus for the development of feminist epistemologies and feminist theories (Webb, 2000). Queer theory developed in the late 1980s out of a culmination of influences, including the gay, lesbian and transsexual social movements of the 1970s and 1980s, AIDS activism in the USA

in the 1980s and developments in feminist, gender and women's studies scholarship (Stryker, 2008).

Critical education, a critical philosophy of education, developed through the seminal work of Paulo Freire (1968/1996; 1985) and later through the work of Henry Giroux (2011). Post-Colonialism emerged through the work of, amongst others, Frantz Fanon (e.g., Fanon, 1961/2017) and has become instrumental in driving the decolonial movements of recent years. Lastly, Critical Race Theory developed out of the Civil Rights Movement of the 1960s and further critical scholarship by Crenshaw and colleagues (1995).

Of particular interest in recent years has been the study of inequality, social identity and the power dynamics that underly different forms of identity membership in society. Critical Theorists maintain that the unequal distribution of power has led to unequal living conditions, health statuses and well-being across society. Critical theorists maintain that different identity groups hold different measures of power. Identity can be defined along various socio-demographic categorisations, such as gender, sexuality, race, ethnicity, age, socio-economic class, religious beliefs, physical ability, HIV status and so forth (Campbell, 2004). Marginalised identities are demographic groups who hold minority views or who are part of groups that are considered to be marginal (i.e., not part of the dominant social class). Marginalised identities are subject to systemic oppression and discrimination. For example, racial minorities are subjected to racism, women are subjected to sexism, and members of the LGBTQI community are subjected to homophobia. Given that individuals may fall within the scope of more than one identity group, a person may find themselves being subjected to multiple systems of oppression. For example, a black woman who is living with HIV may be oppressed and discriminated against on account of her race, gender and HIV status. Consequently, Crenshaw (1991) coined the term *intersectionality* to refer to the overlapping systems of oppression that marginalised communities may be subjected to.

Inequality and systematic oppression have received increased attention from health researchers in the last two decades. In 2008, the WHO formed a commission on social determinants of health (WHO, 2008) and a year later adopted a resolution to reduce health inequities through global action on the social determinants of health (WHO, 2009). This has stimulated further research interest in health and social inequities and the furtherance of social justice in the public health sector (e.g., Yearby, 2021).

9.3.1. The Philosophical Level

It must be emphasised that Critical Theory ultimately represents the work of a wide range of scholars from various disciplines and approaches. As a result, the Critical Theory school of thought includes a diverse group of scholars who are not necessarily always in agreement with each other. Hence, although Critical Theory may have core ontological and epistemological assumptions, how these theories are ultimately conceptualised and put into practice may differ widely across the vast spectrum of critical theories. The following summary of the philosophy of science of Critical Theory is thus meant to cover the general assumptions that apply to most critical theories.

9.3.1.1. Ontological assumptions

The ontological assumptions that form the basis of Critical Theory can be summarised as follows:

- a. **Power:** Critical Theory is based on the assumption that the world is unjust due to the unequal distribution of power in society. Some groups are considered to hold more power in society than others and directly or indirectly use their power to oppress and marginalise groups who do not have power. Given this disparity, there is a constant struggle for power, be it to retain or to usurp power (Lincoln et al., 2018).
- b. **Discourse:** While the study of discourse is primarily seated within Post-Modernism, Critical Theorists also recognise the importance of discourse (i.e., all aspects and forms of language) in constructing and preserving hegemonic power and in shaping what is considered to be true in society (Felluga, 2015).
- c. **Multi-Layered Society:** Critical Theories are mostly based upon a Critical Realist view of the nature of social reality (Marinopoulou, 2019). Consequently, reality is considered to comprise three layers, namely the empirical, the real and the actual (as discussed in Chapter 4). Critical Theory views reality as constructed through social structures that operate on the actual (i.e., the deepest) ontological level (Danermark et al., 2019).
- d. **Social-Historical Conception of Man:** Critical Theory views people to be the product of society and the historical development of that society (Madsen, 1988).
- e. **Dialectical Determinism:** Critical Theory generally espouses a dialectical deterministic perspective (also sometimes referred to as a bounded view of autonomy). In other words, elements of structure and agency interact with one another to the extent that individuals have some degree of free will, but that it is bounded (i.e., limited) by

material, social, subjective and cultural restrictions (Madsen, 1988; Neuman, 2006). Communities that are marginalised and oppressed may therefore have limited agency as they face more structural restrictions (Fassin, 2007).

- f. **False Consciousness:** Critical Theory maintains that people often hold false beliefs about themselves and the world. This misleading belief system is referred to as false consciousness. Critical Theory holds that people act in accordance with what they subjectively perceive to be possible, and this perception is shaped by material, social and cultural restrictions and hegemonic systems. False consciousness serves to uphold the ideological dominance of ruling classes by keeping the subaltern classes unaware of their oppression and consequently keeping them complacent with the status quo. False consciousness is evidenced by how people hold implicit biases or act against their own best interests and live below their true potential (Felluga, 2015; Held, 1980).

9.3.1.2. Epistemological assumptions

The key epistemological principles that underly Critical Theory can be summarised as follows:

- a. **Epistemic Relativism:** Critical Theory adheres to epistemic relativism, in other words, knowledge is viewed as a product of interpretation which is socially constructed, imperfect and relative to social and historical factors (Sayer, 2000). Accordingly, the social world is considered to be independent of people's perception of it. While Critical Theorists attach value to the subjective experiences of individuals, it understands that subjective experiences are fallible and do not necessarily reflect the power dynamics and multi-layered nature of society (Marinopoulou, 2019). Moreover, given that knowledge is defined by dominant discourses, our ability to attain truth is viewed as context-dependent, i.e., dependent on the current dominant discourse and thus subject to change over time as hegemonic systems change (Felluga, 2015).
- b. **Knowledge as Power:** Critical Theory views knowledge as a form of cultural (ideological) power that can be used to oppress but also to liberate. Knowledge can help to transform false consciousness into critical consciousness and allow marginalised groups to be emancipated. Research findings are similarly imbued with power, which means that researchers are in positions of power and have the moral obligation to ensure that they do not exploit that power, but instead use it to the emancipatory benefit of their research participants (Held, 1980; Lincoln et al., 2018).

- c. **Critical and Transformative Ideal of Science:** According to Critical Theory, social science research should primarily be preoccupied with critiquing and problematisation of aspects of the social world and science itself. In particular, Critical researchers focus their attention on unequal power dynamics, exploitation and oppression, as well as the underlying social structures that cause these mechanisms of power to remain in place. In doing so, Critical Theorists endeavour to uncover underlying power structures, change educational and institutional practices and raise the critical consciousness of those who are disenfranchised and oppressed (Lincoln et al., 2018).
- d. **Research as Moral-Political Activity:** Research is viewed, not only as being value-laden, but also as a moral and political activity. Given Critical Theory's transformative commitment, Critical Theorists and researchers perform as activists in their disciplines and typically have political agendas that underly their research (Held, 1980; Kezar, 2006; Neuman, 2006).
- e. **Historical-comparative, critical and participatory research approaches:** While it is possible to use Critical Theory alongside any research method, researchers that follow the Critical Theory tradition typically use historical-comparative research approaches that permit them to study underlying power structures. They also tend to use abductive and retroductive forms of inference in order to provide explanatory critique. This form of critique allows for the reinterpretation of social phenomena in a way that recontextualises the observed phenomena through a Critical Theory lens. In addition, critical researchers often draw upon democratic and participatory-action research methods in order to involve research participants as much as possible in the research process in order to dissolve the power differential between the researcher and the research participant. Research papers based on Critical Theory tend to contain descriptive and subjective language to describe the research context and findings (Felluga, 2015; Lincoln et al., 2018).
- f. **Reflexive-Dialectic Orientation to Research and Scientific Knowledge:** Critical social scientists study the subjective (i.e., internal perceptions) and objective (i.e., the social reality as multi-layered) in a reflexive and dialectic manner whereby these positions are juxtaposed and integrated (Marinopoulou, 2019; Neuman, 2006). Critical Theorists view research, theory and action as an interconnected unity. Social activity (be it through applied research or practical interventions) produces knowledge which is used to inform critical theories. Critical theories, and critical theory-based research, are evaluated based on their practical utility to further social action and transformation.

Praxis refers to initiating practical social and political change through one's theory. Achieving praxis is hence considered to be the most important objective of critical social science (Feenberg, 2014).

9.3.1.3. Assumptions about HIV and AIDS and the social and behavioural study thereof

With this in mind, Critical Theories tend to take the following position on HIV and AIDS and the study thereof:

- a. Sexuality is acutely influenced by socio-historical and cultural beliefs and norms. Norms and values related to sexuality are therefore considered to be socially constructed, may differ widely from one community to the next and may also change over time (Campbell, 2004). Similarly, men's and women's health behaviours are deeply influenced by gendered social norms and entrenched beliefs about masculinity and femininity (Courtenay, 2000).
- b. The sexual and reproductive health of a society is largely dependent on social, political and economic forces (WHO, 2008).
- c. The unequal distribution of power, as well as present and historical exclusion and discrimination, lie at the centre of health disparities (Bell et al., 2022; WHO, 2008).
- d. Inequalities impair individuals' agency, which weakens their ability to make health-related decisions that are in their best interests and thus places them at a heightened risk for developing poor health (Gibbs et al., 2010; Wallerstein, 1992).
- e. Women, especially AGYW in southern Africa, and members of minority groups are particularly vulnerable to HIV infection and sexual violence due to the intersectional nature of the oppression that they are subjected to (Gupta, 2002; Pettifor et al., 2004; UNAIDS, 2022a).
- f. Reducing inequalities can serve as a route towards reducing HIV incidence rates and improving HIV-related healthcare-seeking and treatment behaviours (UNAIDS, 2022a).
- g. In order to understand HIV vulnerability and susceptibility and sexual and reproductive health behaviour, social scientists need to study social inequalities and power differentials amongst men and women and within the broader society (Courtenay, 2000).
- h. Social, cultural, political and economic transformations are needed to address the "inequitable distribution of power, money, and resources" in order to reduce inequality

and health disparities in society (WHO, 2008, p. 2). These transformations require both top-down (e.g., policy changes) as well as bottom-up approaches (e.g., collective action by marginalised communities) (Campbell, 2004). The empowerment of women and other vulnerable population groups is considered to be of particular importance in this regard (UNAIDS, 2022a).

9.3.2. The Theory Level

The critical theories that were most frequently used in the South African HIV and AIDS literature (n = 187; 41.4%;) were feminist theories (see Chapter 8, Table 8.11). The most commonly used feminist and gender theories were the Theory of Gender and Power by Connell (1987/2013), the Theory of Gender and Power by Wingood and DiClemente (2000), and the Theory of Gender and Health (Courtenay, 2000). Other critical theories that were also often used in the literature include critical theories of empowerment and participation, Critical theories of stigma, Freire's Critical Pedagogy (Freire, 1968/1996), critical theories of stigma, social capital (from a critical theory perspective) and Foucault's theories of power and sexuality (Foucault, 1966/2005; 1975/2007). The remainder of this section will focus on offering a short discussion of the most commonly used feminist theories as well as the critical theories of empowerment, participation and stigma.

9.3.2.1. Feminist and gender theories

The sociologist, Raewyn Connell, proposed that society "...culturally elaborates the distinction between the sexes" (1987, p. 73) and that this manifests itself through the sexual division of labour, the sexual division of power, and the structure of cathexis (i.e., the emotional attachments amongst men and women and the social norms that shape masculinity and femininity). Connell's *Theory of Gender and Power* proposes that these three structures operate on the institutional and societal levels (e.g., the workplace, schools and legislation) and on the interpersonal level (e.g., in relationships). Social, cultural and historical forces maintain these structures in society. Moreover, Connell (1987/2013) argues that gender is not dichotomous (as biological and traditional worldviews of gender may assert) and that gender is a culturally assigned construct. Men and women are given distinct gender-determined societal roles based on that society's prevailing social norms.

Connell expanded her later work to include a deeper exploration of masculinity (Connell, 1995; 2002). Connell distinguishes between various types of masculinity, including dominant as

opposed to submissive forms of masculinity and complicit as opposed to oppositional forms of masculinity. However, the form of masculinity that is considered to be the culturally supreme masculinity and the form of masculinity that is perceived as the ideal for all men, based upon the social norms that predominate in a particular time and place, is referred to as hegemonic masculinity. Moreover, hegemonic masculinity is culturally dominant (i.e., hegemonic) over other forms of masculinity (i.e., lower-status men are oppressed and marginalised by hegemonic masculinity) as well as over femininity (i.e., hegemonic masculinity oppresses women and feminine ways of knowing and doing) (Connell, 1995; 2002).

Wingood and DiClemente (2000) extended the *Theory of Gender and Power* by applying it to the public health study of HIV. They maintain that gender-based inequities, harmful gender norms and gender-determined expectations increase women's exposure to HIV through physical, social and economic pathways. These pathways include a heightened risk for HIV infection due to biological susceptibility; risk of being exposed to intimate partner violence; having an older or higher-risk partner; being financially dependent on a partner; having personal risk factors such as poor condom negotiation skills; and having limited perceived control in relationships (Wingood & DiClemente, 2000).

Will Courtenay's (2000) *Theory of Gender and Health* draws upon the *Gender Role Strain Paradigm* (Pleck, 1981; 1995) as well as the feminist and social constructionist literature on gender, especially the work on masculinity by Connell (1995). Masculinity is viewed as being constructed within a relational context and shaped by social structural influences. Men negotiate social power and status by enacting their masculinity. Courtenay argues that, in an effort to negotiate social power, men may enact forms of masculinity which are harmful to themselves and to women. Within the context of health behaviour, this is no different – many of the forms of masculinity that men enact undermine men's health. This includes avoiding behaviours that may be perceived as feminine or behaviours that are associated with lower-status men. As a result, men may delay visits to healthcare centres, engage in risky behaviours, or fail to take adequate preventative measures to protect themselves against disease. Not only does this place men at greater risk for poor health outcomes, it also places the health of their female partners in danger (Courtenay, 2000).

The *Theory of Gender and Power* (Connell, 1987; 1995) and the *Theory of Gender and Health* (Courtenay, 2000) provide social scientists with explanatory frameworks from which to study and explain the health behaviour differences between men and women as well as differences

amongst men and women from different socio-economic and cultural backgrounds. While feminist theories place women at the centre of theorising, there are also ways in which such an approach could become counterproductive. This point of critique is discussed later in this section on Critical Theory, under the weaknesses and limitations segment.

9.3.2.2. Critical theories of empowerment and participation

A large proportion of interventions that were based upon Critical Theory were rooted in an “empowerment via grassroots participation and partnership-building” theoretical approach (Campbell & Cornish, 2011, p. 855). While this theoretical approach is fundamentally a form of Critical theory, some theorists place it into the Participatory paradigm as it is specifically aimed at transformation through the democratic partnership between researcher and research participant (Lincoln et al., 2018). The empowerment through participation approach relies heavily on Freire’s Critical Pedagogy (1968/1996; 1985), Social Capital theory (Campbell, 2020; Putnam, 2000), and other theoretical developments, mostly within the fields of community psychology, public health and public administration, including, amongst others, the work of Arnstein (1969), Wallerstein (1992; 1993), Prilleltensky (2001), Zimmerman (2000) and Rifkin (1996).

The empowerment through participation approach is predicated on the assumption that communities who suffer under systematic social, political and economic oppression and marginalisation are isolated from resources and support and at a heightened risk for experiencing chronic stress and developing a sense of learned helplessness and an external locus of control. As a result, they may feel powerless, and their ability to make health-related decisions may be impaired. This places them at an elevated risk of contracting diseases and suffering poor health outcomes (Wallerstein, 1992; 1993).

The empowerment through participation approach argues that through a process of critical education and collaborative participation, disenfranchised communities can be empowered to overcome these obstacles, challenge the social, economic and political systems that oppress them, and in doing so, improve their communities (Prilleltensky et al., 2001; Rifkin, 1996; Wallerstein, 1992). To this end, participatory programmes can facilitate the process of empowerment in communities by:

- a. raising their critical consciousness of the oppressive structural factors that influence their community and their well-being (sometimes referred to as intellectual empowerment),

- b. cultivating the ability to resist these oppressive structures through collective action,
- c. building skills to improve the community members' ability to mobilise collective action,
and by
- d. connecting the community to internal and external resources (MacPhail, 2006).

Participatory approaches value local knowledge, critical and active citizenship, respect for diversity, democratic decision-making, self-determination, collaborative action, equality and social justice (van Vlaenderen & Neves, 2004; Prilleltensky, 2001). The Participatory Action Research approach brings this theoretical approach alive in the applied research context. Within Participatory Action Research, the power differential between the researcher and the community participant dissolves, leading to an equal partnership (van Vlaenderen & Neves, 2004).

In practice, empowerment through participation programmes fuses elements of education (such as skills building and information sessions) with critical dialogue and collaborative activities (such as joint problem solving and community outreach) (van Vlaenderen & Neves, 2004). Through this process, empowerment through participation programmes strive towards (Prilleltensky et al., 2001; Wallerstein, 1992):

- a. Psychological empowerment: This includes an improved sense of self-efficacy and motivation to become involved in community matters, as well as greater confidence in collective action and a recognition of the value of collective well-being.
- b. Community empowerment: This includes the cultivation of stronger social networks and support systems, greater collective participation, as well as evidence of transformation, such as improved access to resources, equity and social justice as well as improved living conditions.

Ultimately, these programmes are meant to enhance a sense of community, cohesion and solidarity amongst community members; create an enabling environment for the community to practice their skills; and in so doing, increase the active participation of community members in decision-making processes and other important events that affect the community (Wallerstein, 1992). The longer-term goal is that the community would be able to continue with these participatory community programmes independently, without ongoing support from the researcher, and that the community context would become more conducive to the continued success of these and similar programmes and social change (van Vlaenderen & Neves, 2004).

Within the context of HIV, Campbell (2003) identified six factors that allow for the implementation of empowerment through participation programmes that are aimed at promoting health behaviour change and resisting harmful social and gender norms. These factors include: correct knowledge about sexual and reproductive health; the raising of critical consciousness regarding the structures that hinder behaviour change and what the community could potentially do to challenge and resist these structures; a communal sense of identity and social cohesion; the empowerment of the participants; and the presence of bonding and bridging social capital in the community (Campbell, 2003).

Although empowerment and participatory theories are commonly used in the HIV literature, the concepts of *empowerment* and *participation* remain weakly and inconsistently defined. This observation is not new and has been made by others in the field (e.g., Johnson, 2011; Perkins & Zimmerman, 1995; van Vlaenderen & Neves, 2004). Despite the above-mentioned theoretical work in this domain, the empowerment through participation theoretical approach seems to remain under-theorised. This is especially apparent when one reviews how most of the articles which used the approach in the HIV literature used it in a generalised and unspecific manner. Most of the theoretical work that has been done in this particular field seems to have yielded typologies, processes, methods and concepts, while a coherent theory remains elusive.

9.3.2.3. Critical theories of stigma

While Erving Goffman's interactionist perspective on stigma (Goffman, 1963/2009) has been the dominant conceptual approach to understanding and studying stigma, critical theories of stigma started to become more visible in the early 2000s in response to the apparent overemphasis on the individual in the study of stigma and the lack of attention to the structural elements in society that allow for and reproduce stigmatisation. Foucault's work was particularly influential in shaping this alternative perspective on stigma, in particular his work on power, the relationship between knowledge and power, and how deviance and otherness are framed in society (Foucault, 1961/2005; 1975/2007; 1976/1990). According to Foucault, knowledge and truth are defined by cultural systems of power, including academic knowledge, which is subject to change across time and place. Knowledge is inextricably connected to power as scientific experts and others who are in powerful positions in society create knowledge and ultimately determine what is true. This systemic power (referred to by Foucault as power-knowledge) effectively becomes a form of social control that is meted out upon society by defining what is right and what is wrong, what is normal and what is abnormal.

Foucault goes further by arguing that this social control serves to maintain social order as it oppresses those who are marked by abnormality or deviance while privileging and sustaining those who are deemed normal and compliant.

Scholars in the study of stigma, such as Link and Phelan (2001), Parker and Aggleton (2003) and Deacon (2006), build upon these concepts of power-knowledge and systemic power as a form of social control by arguing that stigmatisation serves as a way for society to mark those who are deviant or abnormal, and thereby to categorise and perpetually mark people on the basis of these signifiers of difference. This ultimately contributes to the marginalisation of groups that are perceived to be different (e.g., people who are living with HIV). Parker and Aggleton (2003) explain it as follows:

Stigma and stigmatisation function, quite literally, at the point of intersection between *culture*, *power* and *difference* – and it is only by exploring the relationships between these different categories that it becomes possible to understand stigma and stigmatisation not merely as an isolated phenomenon, or expressions of individual attitudes or of cultural values, but as central to the constitution of the social order. (p. 17, original emphasis).

Viewed from this perspective, stigma serves as a powerful tool for systemic power to maintain inequality amongst groups and perpetuate social, economic, and political power over society (Link & Phelan, 2001). By implication, the social scientist who is interested in studying stigma from a critical perspective should approach stigma as a matter of social inequality, oppression and exclusion; study the power-knowledge systems within that society, in order to gain deeper insight into the mechanisms that might be contributing and preserving stigma and stigmatisation; and draw upon other critical theories to promote resistance against this oppression and to encourage social transformation within society (Parker & Aggleton, 2003).

This critical approach to the study of stigma allows for a new approach to viewing how stigma operates on a cultural and structural level, and how it might change over time and differ amongst contexts. Researchers have noted that HIV-related stigma remains high despite the increasing number of people who are living with HIV, the availability of ART and the prominence of long-term HIV awareness campaigns. This might suggest that social psychological theories have failed to capture the entire scope of mechanisms that underly HIV-related stigma in South Africa. Critical theories may be able to augment this conceptual understanding of stigma by highlighting the social and cultural elements of society that allow

for stigma to form and continue. However, a study of stigma that focuses exclusively on the cultural and structural levels of society might run the risk of overestimating the contribution of distal factors contributing to stigma. How psychological, social, cultural and structural factors produce stigma in combination might allow for a more comprehensive and balanced understanding of this complex phenomenon.

9.3.3. The Data Level

9.3.3.1. Research topics and methods

Critical Theories were particularly common in studies that focused on women (e.g., Groves et al., 2020) and members of the LGBTQI community (e.g., Sandfort et al., 2016), sex workers (e.g., Huschke, 2019) as well as research that focussed on the gendered aspects of HIV (e.g., Gottert et al., 2018), vulnerable communities (e.g., Lippman et al., 2017) and stigma (e.g., Regenauer et al., 2020). Qualitative research designs were the most often employed (66.4%; n = 298).

9.3.3.2. Practical applications

Interventions based on Critical Theories are typically aimed at:

- a. Empowerment through raising critical consciousness
- b. Encouraging civic participation and political action
- c. Promoting social transformation

These interventions are usually based to some degree on Freire's Critical Pedagogy and also may include the use of other Critical theories, such as feminist theories, and theories from the Socio-Ecological and Systems paradigm.

In order to lay the foundations for community participation and social transformation, an intervention that are based on Critical Theory typically start with the goal of raising critical consciousness. This is done through critical dialogue, debate, problem-posing, reflection on lived experiences, as well as participatory and edutainment activities such as theatre and role play. These dialogues and activities are usually guided by a facilitator who is well-versed in Critical Theory, but also involves a great deal of peer-based interactions. The rationale behind this approach is that by creating a space where community members can reflect upon the problems that they face as well as the power dynamics and inequities that are causing these problems, the false beliefs (i.e., consciousness) that they hold about their circumstances and

their own abilities to address their problems will be rectified and renewed into critical consciousness.

The Critical Pedagogy work of Freire (1968/1996; 1985) is the most often used as the theoretical basis for this type of intervention. Critical participation and empowerment theories, principles from Augusto Boal's (1974/1993) *Theatre of the Oppressed*, as well as feminist theories, are sometimes used alongside Freire for this purpose.

After the raising of critical consciousness, the next step is to promote civic and political participation. This typically entails the joint development of a community-based programme. These types of programmes may involve educational sessions on topics such as sexual and reproductive health and skills training (e.g., assertiveness communication and condom negotiation). These programmes are typically rooted in a combination of critical participation, empowerment and stigma theories; feminist theories; and occasionally socio-ecological and systems theories and elements of Socio-Behaviourist theories.

Often based upon the "local sustainability assumption" (Gibbs et al., 2014, p. 115), the understanding is that given the close participation of community members in the programme, both in the development and implementation thereof, the ethos of the programme will be instilled in the community members, and they will remain committed to the programme and its activities, even when the social scientists are no longer closely involved. In other words, the community members are ultimately viewed as the owners of the programme.

The expectation is that critical consciousness-raising and civic participation are the necessary preconditions for the strengthening of the community and the ultimate social transformation thereof. For example, transformation in this context may mean reducing HIV incidence through enhancing gender equality and changing gender norms, such as the gender-transformative project *One Man Can* (Fleming et al., 2016; Pettifor et al., 2018; Van den Berg et al., 2013). Given that Critical Theory-based interventions are usually aimed at effecting larger-scale, social or cultural change, they are often paired with Socio-Ecological and Systems theories in order to specify how proximal and distal contexts interact with each other, such as the IMAGE study (RADAR, 2002).

9.3.3.3. Evidence

Although Critical Theories have been used across a wide variety of HIV and AIDS-related applied studies, the evidence base for them remains limited. Table 9.1 summarises the key

findings from the most well-researched and evaluated Critical Theory-based HIV-related interventions in South Africa (up until 2020). Freire's Critical Pedagogy was the most commonly used theory for intervention purposes. While positive effects on knowledge and attitudes were most commonly reported, reported behaviour change was only occasionally attained, seldom long-lasting and none of the interventions was able to contribute to a reduction in HIV incidence rates. Qualitative studies tended to provide the most positive evidence for these programmes.

Although many of the evaluations used appropriate and rigorous methods, some made use of methods that might have compromised the validity and reliability of the findings. This includes the use of convenience sampling and non-randomised research designs, the predominant use of qualitative research methods for evaluation purposes, the lack of comparison conditions, as well as limited longer-term follow-up assessments. In addition, self-report data collection measures were predominantly used, however, there were four studies that incorporated objective measures (e.g., viral load, HIV and STI tests).

Table 9.1 Evaluation Results of Critical Theory-Based Interventions

<i>Sex and Risk</i>	
Intervention purpose: Youth HIV prevention project	
Theories used: Theory of Planned Behaviour, Critical Pedagogy	
Mixed methods evaluation (Petersen et al., 2004)	
Notable Findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> • Men’s awareness of and intention to withstand negative social influences <p>No significant improvements:</p> <ul style="list-style-type: none"> • Women’s awareness of and intention to withstand negative social influences • HIV-related knowledge • Assertive communication self-efficacy • Condom use self-efficacy <p>A qualitative component of the evaluation found that participants deemed the participatory learning elements of the intervention to be responsible for “increasing awareness and by inference critical consciousness in male participants of the role of social influences on high-risk sexual behaviour” (Petersen et al., 2004, p. 98)</p>	<ul style="list-style-type: none"> • The quantitative component had a repeated measures pre- and post-test design. • The qualitative component included participant observation, three focus group discussions and 13 interviews. • Convenience sampling. • Comparable experimental (n = 115) and comparison (n = 91) groups. • Non-randomised study condition allocation. • Data were collected directly after sessions. • Follow-up rate (i.e., retention rate) not reported.

<i>Intervention with Microfinance for AIDS and Gender Equity (IMAGE) (RADAR, 2002)</i>	
Intervention Purpose: HIV and intimate partner violence prevention intervention that included microfinancing and the <i>Sisters for Life</i> gender and HIV training programme as modes of intervention.	
Theories used: A general socio-ecological framework as well as participatory learning and action principles, including Critical Pedagogy, Social Capital and implicit feminist theory.	
Cluster randomised trial (Pronyk et al., 2006)	
Notable Findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> • Reduction in intimate partner violence victimisation <p>No significant improvements:</p> <ul style="list-style-type: none"> • Unprotected sexual intercourse with a secondary partner • HIV incidence 	<ul style="list-style-type: none"> • Cluster randomised trial. • Two trial aims: one intervention and one control, each with three cohorts: <ul style="list-style-type: none"> ○ direct programme participants or matched controls (intervention, n = 426; control, n = 417), ○ randomly selected household co-residents between the ages of 14 and 25 (intervention, n = 725; control, n = 730), ○ randomly selected community members between the ages of 14 and 25 (intervention, n = 1488; control, n = 1370). • The comparison group received the intervention three years after the intervention group. • Data were collected at baseline and at 2-years follow-up.

An evaluation of the social capital element of the IMAGE intervention (Pronyk et al., 2008)	
Notable Findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> Structural and cognitive social capital (participation in community organisations and the extent of reciprocity and community support, solidarity and collective action). <p>The qualitative component of the study revealed several examples of the bonding and bridging dimensions of social capital.</p>	<ul style="list-style-type: none"> Mixed methods, randomised trial. Data collection included: <ul style="list-style-type: none"> Quantitative: Structured interviews (intervention group, n = 426; comparison group, n = 419) Qualitative data: eight focus discussion groups, 16 key informant interviews, 12 training facilitator diaries, observation of loan centre meetings.

<i>Stepping Stones</i>	
<p>Intervention Purpose: HIV prevention programme, specifically aimed at improving sexual and reproductive health through promoting gender-equitable relationships</p> <p>Theory used: Critical Pedagogy</p>	
Cluster randomised-controlled trial (Jewkes et al., 2008)	
Notable Findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> HSV-2 incidence was reduced by 33%. Men in the experimental group reported fewer risk behaviours at 12 months: less transactional sex and less 	<ul style="list-style-type: none"> Cluster randomised controlled trial. Control groups equivalent to experimental groups. Female: Experimental (n = 715), Control (n = 701); Male: Experimental (n = 694), Control (n = 666). Data were collected at baseline and then again at 12-months and 24-months follow-up.

<p>problem drinking; and at 24 months: less perpetration of intimate partner violence and less drug use.</p> <p>No significant improvements:</p> <ul style="list-style-type: none"> • HIV incidence • No behaviour change in women in the experimental group (an increase in transactional sex at 12-months in women was observed) 	<ul style="list-style-type: none"> • Follow-up rates below 80% - At 12-month follow-up: 75.8% and 75.3% in the female experimental and control groups; 75.1% and 71.8% in the male experimental and control group. At 24-months follow-up: 73.1% and 76.0% in the female experimental and control groups; 69.5% and 69.2% in the male experimental and control group.
--	--

<i>Fikelela: Agents of Change</i>	
Intervention purpose: HIV prevention amongst adolescents (12-19 years) through a participatory peer education programme	
Theories used: Social Cognitive Theory, Diffusion of Innovation, Critical Pedagogy, Social Capital	
Quasi-experimental study (Mash & Mash, 2012)	
Notable Findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> • Increase in condom use • Delaying sexual debut amongst virgins <p>No significant improvements:</p> <ul style="list-style-type: none"> • Postponing sexual activity amongst adolescents who were already sexually active • Number of sex partners 	<ul style="list-style-type: none"> • Quasi-experimental study, non-random selection of participants and group assignment • The intervention group (n = 741) received 12 peer-administered life skills programmes over a 12-month period, and their parents participated in three two-hour parenting skills workshops; the control group (n = 611) did not receive anything. • Data were collected at baseline and at the end of the programme.

<i>SISTA South Africa</i>	
Intervention purpose: HIV risk reduction programme for young women (Saleh-Onoya et al., 2008)	
Theories used: Social Cognitive Theory, Theory of Gender and Power	
Two-arm, randomised-controlled trial (Wingood et al., 2013)	
Notable Findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> • Reduced preference for dry sex • Higher perceived control in their relationship • Higher HIV-related knowledge • More likely to oppose HIV-related stigma <p>No significant improvements:</p> <ul style="list-style-type: none"> • Consistent condom use • Condom use at last sexual intercourse • Willingness to take an HIV test • HIV and STI incidence • Partner communication • Attitudes towards condom use • Condom use self-efficacy 	<ul style="list-style-type: none"> • Two-arm, randomised controlled trial • Purposive sampling. • Comparison group (n = 167) equivalent to experimental group (n = 175). • Randomised allocation to study conditions. • Data were collected at baseline and 6-months follow-up. • Follow-up rate below 80% (69.1%)

<i>Women's Health CoOp</i>	
Intervention purpose: Intervention aimed at the reduction of sexual risk, drug use and violence victimisation amongst high-risk women	
Theories used: Feminist theories; critical theories of empowerment and participation; cognitive behavioural therapy principles	
Randomised trial (Wechsberg et al., 2013a)	
Notable Findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> • None <p>No significant improvements:</p> <ul style="list-style-type: none"> • Sexual risk behaviour and violence victimisation remained unchanged. 	<ul style="list-style-type: none"> • Randomised trial. • A total of 720 women, randomly assigned to the experimental (n = 360) and two control groups (n = 181; n = 179). • Data collected at baseline and again at 6- and 12-months follow-up. • Follow-up rate above 80% (91.9%).

<i>Women's Health CoOp Plus</i>	
Intervention purpose: Intervention aimed at the reduction of sexual risk, drug use and gender-based violence amongst high-risk women and to increase HIV care uptake through HIV counselling and testing	
Theories used: Social cognitive theory and empowerment theory	
Cluster randomised trial (Wechsberg et al., 2019)	
Notable Findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> • At 6-month follow-up: Condom use with main partner, more frequent condom negotiation, less physical and sexual abuse, less frequent heavy drinking. 	<ul style="list-style-type: none"> • Cluster randomised trial. • A total of 14 randomly assigned clusters were divided into two groups: the experimental group (n = 321), who received the intervention and the control group (n = 320), who received standard HIV counselling and testing care.

- At 12-month follow-up: Less emotional abuse, more women in the experimental group had non-detectable viral loads.
- No significant improvements:
- At 6-month follow-up: Condom use with casual partner, alcohol and other drug use during last sex act, drug use, no difference between the groups in terms of non-detectable viral loads.
 - At 12-month follow-up: Condom use with main partner, condom use with casual partner, alcohol and other drug use during last sex act, participating in heavy drinking, drug use, physical and sexual abuse, condom negotiation.
 - No difference between the intervention and the control group with regard to linkage to HIV care and ART initiation.

- Data were collected at baseline and again at 6- and 12-months follow-up.

<i>Creating Futures combined with Stepping Stones</i>	
Intervention purpose: A livelihoods intervention aimed at transforming masculinities and promoting men's livelihoods in order to reduce HIV and intimate partner violence incidence	
Theories used: Critical Pedagogy, Social Capital	
Shortened interrupted time-series design (Jewkes et al., 2014)	
Notable Findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> • Improved HIV testing rates amongst men • Increase in men's earnings in the past month • Reduction in the women's experience of intimate partner violence in the past three months • Improved gender-related attitudes for both men and women • Reduction in male controlling practices in relationships • Reduction in depression and suicide ideation amongst men <p>No significant improvements:</p> <ul style="list-style-type: none"> • No reduction in male perpetration of intimate partner violence • No reduction in drug use and problem drinking in males • No reduction in transactional sex and the use of a condom at last sex in men and women. 	<ul style="list-style-type: none"> • Shortened interrupted time-series design • Data were collected twice at baseline and then again at 28-weeks and 58-weeks follow-up. • Non-randomised. • Purposive Sampling. • No comparison group. • Total number of men: 110 at baseline, 93 at second baseline, 105 at first follow-up, and 94 at second follow-up. • Total number of women: 122 at baseline, 113 at second baseline, 116 at first follow-up, and 111 at second follow-up. • Follow-up rates above 80% - 85.5% for men and 90.2% for women.

The Entabeni Project

Intervention purpose: A community-based intervention aimed at promoting women's leadership skills and status in the community, as well as their ability to provide care for people in their community who are living with HIV

Theories used: Critical Consciousness (Freire, 1968/1996); Social Capital (Bourdieu, 1986/2018); activist interpretations of Foucault (1975/2007); Fraser's (1992) work on counter-public spheres, which is built upon the public spheres work of Habermas (1962/1989).

Qualitative evaluation (Gibbs et al., 2014)

Notable Findings	Methodology
<p>Anecdotal evidence showed that the project promoted the quality of care that home-based carers provided; facilitated the development of a hospice by a missionary; and garnered support from religious leaders to openly support people who are living with HIV.</p> <p>Numerous challenges were noted, including a lack of acceptance from community leaders; unwillingness of community members to volunteer without compensation; inability to establish partnerships with local health and social welfare structures; and lack of funding.</p>	<ul style="list-style-type: none">• Evaluated through a series of qualitative case studies.• Data collection included observations, interviews and focus groups.

<i>Mpondombili</i>	
Intervention purpose: A school-based HIV prevention programme	
Theories used: Empowerment theory (Wallerstein, 1993); Theory of Gender and Power (Connell, 1987/2013); Critical Consciousness (Freire, 1968/1996); Social Cognitive Theory (Bandura, 1986)	
Quasi-experimental study (Harrison et al., 2016)	
Notable Findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> • Increased self-efficacy to refuse unsafe sex and use a condom communicate with partner • Knowledge of where to undertake an HIV test <p>No significant improvements:</p> <ul style="list-style-type: none"> • No increase in condom use 	<ul style="list-style-type: none"> • Quasi-experimental study. • Schools were pair-matched based on school size and location. • Non-random assignment to study conditions. • Baseline cross-sectional survey and endline cross-sectional survey five months after the end of the project.

<i>One Man Can</i>	
Intervention purpose: A gender transformative, community mobilisation HIV prevention programme	
Theories used: Feminist theories; Critical Consciousness (Freire, 1968/1996); Critical participation and empowerment theories	
Community cluster randomised Trial (Pettifor et al., 2018)	
Notable Findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> • Higher gender norms amongst men in experimental communities following participation in the project 	<ul style="list-style-type: none"> • Community cluster randomised trial. • Randomised sampling.

<ul style="list-style-type: none"> • Decrease in the number of sex partners in the past 12 months amongst women <p>No significant improvements:</p> <ul style="list-style-type: none"> • No difference in gender norms amongst women • No difference in multiple sex partners in the past 12 months, condom use at last sex, perpetration or experience of intimate partner violence or hazardous drinking amongst men • No difference in condom use at last sex, perpetration or victimisation of intimate partner violence or hazardous drinking amongst women <p>Men who had received a higher dosage of the intervention (i.e., attended more events) were more likely to report higher Gender Equitable Men’s Scale scores, use condoms and were more likely to report engaging in risky sexual behaviour, including having multiple concurrent partners and harmful drinking.</p>	<ul style="list-style-type: none"> • A total of 22 communities (11 in experimental group, 11 in control) • Pre-intervention survey, post-intervention survey conducted two years later. • Experimental households (n = 589) and control households (n = 592) were similar in terms of socio-demographic characteristics at baseline, but differed in terms of Gender Equitable Men’s Scale scores (measuring gender norms) (control groups had higher scores). • 54% of experimental community members reported engagement with the <i>One Man Can</i> project.
<p>Qualitative evaluation (Dworkin et al., 2013; Fleming et al., 2016)</p>	
<p>Notable Findings</p>	<p>Methodology</p>
<p>Participants reported that the “open discussion and challenging of masculine norms helped them more than other interventions they had received” (Fleming et al., 2016, p. 1257).</p>	<ul style="list-style-type: none"> • Qualitative evaluation. • Sixty in-depth interviews within six months of participation in the project. • Non-random sampling.

<p>Most participants also reported greater ease in disclosing their HIV-positive status to others and improved willingness to engage in HIV testing, care and treatment, a change regarding the perception that HIV is emasculating. Most participants also reported that the intervention helped to change their perceptions of women's rights, the gendered divisions of household labour, household decision-making and gender-based violence.</p>	
---	--

<i>Ubudoda Abukhulelwa Responsible Manhood: towards the Development of a Culturally Tailored and Contextually Sensitive Life Skills Programme</i>	
<p>Intervention purpose: Peer-led HIV/AIDS and STI health education intervention.</p>	
<p>Theories used: Critical Pedagogy, Social Cognitive Theory and the Theory of Planned Behaviour.</p>	
<p>Randomised pre-test post-test control group evaluation (Manyapelolo et al., 2019)</p>	
Notable Findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> • In one community, attitudes towards avoiding sex while inebriated improved. <p>No significant improvement:</p> <ul style="list-style-type: none"> • No improvements were observed in HIV and STI prevention attitudes, subjective norms, perceived behavioural control or intention to reduce risk behaviour 	<ul style="list-style-type: none"> • Randomised pre-test post-test control group design. • The intervention was conducted in two communities (one rural and one peri-urban) with men between the ages of 18 and 35 years. • Data was collected by means of a facilitator-administered questionnaire before and after the intervention. • The evaluation used the Theory of Planned Behaviour to test the effectiveness of the intervention.

9.3.4. Implications and Critique of the Critical Theory

9.3.4.1. Direct implications of utilising Critical Theory

In her book, *How to Have Theory in an Epidemic*, Paula Treichler (1999) aptly summarises critical theory's approach to the social science study of HIV and AIDS:

The apparatus of contemporary critical and cultural theory prepares us to analyse AIDS in relation to questions of language, representation, interpretation, narrative, ideology, social and intellectual difference, binary division, and contests for meaning. But the AIDS epidemic does not exist to demonstrate the value of contemporary theory. If anything, it puts theory stringently to the test, serving as a useful and often dramatic corrective for inadequate theoretical formulations. (p. 2).

The AIDS pandemic has served as the stage upon which social and behavioural theories are put to the test. Literature based upon Critical Theory has and continues to criticise traditional theoretical approaches, such as Socio-Behaviourism and the Socio-Ecological and Systems approaches, for depoliticising HIV, gender, sexuality, poverty and the distal drivers of HIV risk (e.g., Gacoin, 2017; Mannell, 2016). Through this critique and the development of a body of work that employs critical methods for the study of HIV and AIDS, the social and behavioural literature on HIV and AIDS has become more reflexive and attentive to the political, socio-economic and cultural factors that contribute to HIV vulnerability, susceptibility and HIV-related discrimination. Moreover, it facilitated a shift towards a more collectivist understanding of human behaviour.

9.3.4.2. Strengths of Critical Theory

Critical Theory essentially places ontology first and epistemology second, and instead of focusing on observable events, Critical Theory shifts the focus to underlying structural mechanisms that influence the social world (Danermark et al., 2019). From a philosophy of social science perspective, this approach can be valuable to reorient the study of the social sciences to focus on the way the social world is structured and the generative mechanisms that underly the events we observe. This allows Critical Theory-based research to make keen observations about the human condition as well as events and phenomena that people typically take for granted. Hence, Critical Theory-based research can be thought-provoking, novel and interesting.

A critical, ontology-first stance on social science allows social scientists to question their assumptions and the taken-for-granted assumptions that may prevail in their study fields. This may lead to unearthing underlying internal contradictions within theories, and the identification of important limitations to our research approaches.

Within the critical tradition, researchers and practitioners are cautioned to not necessarily accept the mainstream theory and approaches but to reflect and question them. Being critical of scientific practices and theories can be important in keeping disciplines self-reflective and helping them to grow instead of stagnating. Furthermore, critical theorists often occupy themselves with the study of the development of ideas and the socio-historical context in which these ideas were formed and maintained (e.g., Foucault, 1976/1990). This can be extremely valuable in highlighting important lessons that we can learn from history and help us to understand what shaped our current ways of thinking and doing in the social sciences. In doing so, such an approach to studying the history of the social sciences can help us become better, more sophisticated social science scholars.

Critical Theory reminds us that scientific knowledge, theories and ideas are powerful – they can be used to make claims about the world, including how it is and how it should be, what causes hardship and what could be done to alleviate that hardship. Hence, Critical Theory reminds social scientists of their responsibility to use their power as respected experts and creators of knowledge with caution and continual critical reflection. Social scientists have a responsibility toward their research participants, institutions and the public to conduct research that is relevant and necessary, offers practical solutions to urgent societal problems, and allows for the discovery of novel methods and approaches that will help to enhance humanity's well-being. Critical Theory-based papers, such as Baptiste et al. (2006) and de Lange (2012), add to the socio-behaviour study of HIV by drawing attention to the politics in (and of) social science and the tensions that exist between doing research and serving marginalised and disadvantaged communities.

Critical Theory recognises that there are pervasive and insidious structures within society that contribute to human suffering, exclusion and isolation. Hence, it attempts to highlight, describe and criticise immoral and unjust practices in society and suggest ways in which to circumvent and transform elements of the social world to become more just and equal. Understanding what allows for these practices to occur and what might lie at the core of human suffering are especially pertinent issues within the social sciences.

9.3.4.3. Weaknesses and limitations of Critical Theory

a.) Grand, complex and challenging nature of critical theories

For both researchers and practitioners, two of the most challenging aspects of attempting to engage with Critical Theories are that they lack specificity and that they can be quite complex and difficult to understand (Collins, 2004). This is especially true with regard to critical theories that are based on numerous works over long timeframes where slight nuances and refinements developed in later publications (e.g., Foucault's work) or in an expansive field such as feminist theory and Post-Modernism, where numerous, often contesting theories and perspectives have been published.

Most Critical Theories are meta-theories that centre around specific philosophical, especially ontological, positions. Others are more akin to grand theories that have a comprehensive scope (Kezar, 2006). Consequently, critical theories tend to lack the specificity and concreteness to allow for easy application in a research or intervention setting. Moreover, critical theories do not always comprise the conventional structure of propositional statements and clearly articulated concepts that can easily be operationalised. Their abstractness necessitates that the researcher or practitioner must first interpret the theory in order to connect it in a meaningful way to concrete events or phenomena for the purposes of a study or intervention. In order to conduct this interpretation, researchers and practitioners must have a comprehensive and deep understanding of the relevant critical theories, which requires being well-versed in philosophy and other related disciplines such as gender studies, sociology and anthropology.

Given the implicit, vague and unreflective manner in which theories, including critical theories, were used in the South African socio-behavioural HIV literature, one might question the extent to which researchers who base their work on Critical theories are knowledgeable about these theories. There are, of course, various reasons why theory usage seems implicit, vague and unreflective in the literature, such as limited space in journal articles; however, two of the most compelling possibilities are that researchers may sometimes lack in-depth knowledge and expertise in using a theory or that they might purposefully choose to use a theory in an unspecific and generalised manner. When faced with convoluted theoretical materials, one might be tempted to refer to easier-to-understand secondary materials, which may present the theory in an oversimplified, abridged and sometimes even biased manner. By over-relying on secondary materials, one might develop a fragmented, shallow and incomplete understanding of the theory one is using. For practical reasons, a researcher might deliberately choose to use

a theory in a vague manner by, for example, only referring to a general school of thought or not committing to any specific theory at all. It might be easier for the researcher to use theories in this manner, and it might suit the purpose for which they intend to use them. However, as stated before, vague and implicit theory use has detrimental consequences for the development of theory and the growth of the study field as a whole.

While a deep understanding of the theory that one is using is essential, no matter what paradigm the theory is from, it might even be more important in the case of critical theories, given their high degree of complexity and the opaqueness of their original source materials. Utilising critical theories in a shallow and unreflective manner perpetuates misconceptions about the theories and contributes to the overall lack of understanding of them.

b.) Limited supportive evidence and inherently vague concepts

Given that critical theories are mostly meta- or grand-theories, they typically do not comprise hypothetical constructs that are easy to operationalise, nor do they contain clearly outlined propositional statements that allow for direct empirical testing. Given that it is not possible to test critical theories by means of the scientific method, they remain in limbo in that they cannot be proven wrong and can be used to explain both their own successes and failures without conceding their validity. As a result, Critical Theory is often deemed unscientific. From a critical theory perspective, critical theories should not necessarily be evaluated based on the extent to which they might be true, but rather should be based on whether they were able to contribute to social change and a deeper understanding of the underlying structures that contribute to social phenomena and events (Feenberg, 2014; Kezar, 2006).

While we cannot test critical theories directly, we can assess them via the evaluation of interventions that were based on one or more Critical Theories. Given that these interventions are all aimed at social change in one way or the other, they allow us to gain some insight into the potential that the use of Critical theories may have in improving the HIV field.

Based on a review of the South African socio-behavioural HIV literature (discussed in the data-level section), the evidence suggests that these theories do not entirely achieve what it proposes to accomplish. Although the interventions were fairly successful in improving people's knowledge and attitudes, behaviour change was less commonly achieved, and HIV incidence rates did not abate as a result of the interventions. It is worth noting that many of the Critical Theory-based interventions were evaluated by means of qualitative studies, which generally produced a more positive assessment of the interventions' impact. One could argue that given

the nature of the concepts that are being studied (and that are expected to change as a result of the intervention), such as power in relationships, quantitative data would not be sufficient to capture these concepts adequately. In other words, quantitative methods would simply not provide epistemic access to such concepts. Qualitative research can bring much-needed contextual and otherwise concealed information to the fore. Consequently, several randomised controlled trials have incorporated qualitative sub-studies into their protocols (e.g., Amico et al., 2017). However, expectations from funders and the scientific community usually necessitate that outcome and impact evaluations of large-scale healthcare interventions should not be solely based upon qualitative data (which may be seen as anecdotal and subjective), and that standardised quantitative indicators should be used to monitor and determine intervention progress (Owczarzak et al., 2016).

However, this issue illustrates that the hypothetical constructs that are used in Critical Theory-based interventions are particularly likely to be inherently ambiguous and may lack widely regarded consistent definitions. As a result, these concepts might not always be defined and operationalised in a consistent manner across different studies. This might be especially problematic for the purposes of intervention evaluation. As discussed in Chapter 8, social capital is a prime example of such an unclear concept.

c.) The theories receive limited critical reflection

A review of papers that evaluated the efficacy of critical theory-based interventions also highlights another important issue. When a Critical Theory-based intervention appears to have failed, the theories on which the intervention was based are never called into question. While this is an issue across the entire social sciences, it is particularly striking in the case of Critical theory-based interventions, given that they typically aim to achieve drastic social transformations and that the theory inherently views social action and change as a sign of its success. Instead of turning the critical lens toward the theory and its underlying assumptions, researchers oftentimes identified numerous methodological, implementation and logistical issues which they felt explained why the intervention did not work as intended.

For example, in a short commentary on why interventions to prevent intimate partner violence and HIV (such as *Stepping Stones*) failed to produce positive HIV prevention results, Mannell and her colleagues (most of whom were directly involved in one or more of these interventions) offer three reasons (Mannell et al., 2019). Firstly, they claim that the interventions were not designed with purposeful input and participation from the young men and women who would

be the target of the interventions. Secondly, they argue that the interventions placed too much emphasis on risk factors (whether on the proximate or distal levels) instead of focussing on efforts that would enhance the young women's agency. Thirdly, the interventions did not adequately anticipate and engage with changes in gender norms, roles, relationship dynamics, technological advancements and socio-political shifts that had occurred in recent years (Mannell et al., 2019).

Similarly, when discussing why the *Entabeni* project failed, Gibbs et al. (2014) highlighted various community and programmatic-related issues that contributed to the limited success and the unsustainability of the project. This included the poor acceptance of the project by the community and, in particular, the community's traditional chief, as well as persistent issues with funding. Neither Mannell et al. (2019) nor Gibbs et al. (2014) challenge their projects' underlying theory or the assumptions on which it is based.

In slight contrast, Campbell and Cornish (2011) note that the *Entabeni* project was "perhaps let down by an overly optimistic critical social theory of 'empowerment via grassroots participation and partnership-building'" (p. 855). They explain that this critical social theory drew upon the work of Foucault, Habermas and Freire and that, in following the directive of these theoretical works, the project sought to engage with men and other stakeholders in "authentic dialogue and a shared commitment to social transformation" (p. 855). However, Campbell and Cornish (2011) concede that they underestimated the practical implications of establishing such dialogue and cooperation and that the project reminded them of "...the practical reality that much work always needs to be done in adapting abstract 'theories of change' to specific social circumstances" (p. 855). In this regard, Campbell and Cornish (2011) argued that the *Entabeni* environment was not conducive to women's empowerment and that this ultimately led to the project's failure. In an earlier paper on the *Entabeni* project, Campbell et al. (2009) elaborated on this point by emphasising that it may have been unrealistic to expect a radical change in a marginalised community such as *Entabeni*:

...the 'empowerment via participation' agenda is nothing more than a false promise. Given the massive inequalities that frame life, health and social relations in *Entabeni*, many rooted in social processes well beyond the reach of small participatory projects, any 'radical' vision of empowerment through local community engagement is unrealistic. (p. 332).

Campbell and Cornish (2011) note that the *Entabeni* programme might not have adapted the theories adequately to suit the research environment, which is fair and, as mentioned earlier in this discussion, both a key challenge and weakness of working with critical theories. However, what stands out is that while they acknowledge that they might have been over-optimistic in the use of their critical social theories, they do not question the theories themselves, nor any aspect of the philosophy that underpins these theories. Certainly, interventions can fail as a result of errors in implementation and methodology. However, theory failure is another reason why an intervention might fail, and it is important to at least engage with that possibility in order to avoid perpetuating the same flawed theoretical assumptions in future research.

d.) The oversimplification and stereotyping of male and female relationships

The majority of critical theories in the literature were feminist theories. As mentioned earlier, when discussing feminist and gender theories, these conceptual approaches are sensitive to the unique realities of women and HIV and AIDS's effect on them; however, they can also serve to undermine the social and behavioural study of HIV. A great deal of literature on the gendered nature of HIV focuses on the vulnerability of women and the ways in which hegemonic forms of masculinity oppress women and force them to participate in unprotected, unwanted, and even violent sex (e.g., Jewkes et al., 2010; Jewkes et al., 2011; Kilburn et al., 2018b; Pitpitan et al., 2016; Wechsberg et al., 2013b). As noted in Chapter 7, there was a clear upsurge in the number of papers from the mid-2000s on sexual violence and its connections to HIV infection amongst women. This literature is largely based upon the so-called "vulnerability paradigm", i.e., the implicit feminist assumptions that a.) women's HIV risk is largely dependent on men's risk behaviour; b.) that women want to prevent HIV infection more so than men; and c.) that women's inability to control when sex occurs and whether it will be protected are the biggest obstacles to HIV prevention for women (Higgins et al., 2010).

However, several South African studies (e.g., Duby et al., 2021) have found that this is not always entirely true. Studies on women's personal opinions about condom use and their perceived HIV risk have shown that they can hold complacent attitudes towards HIV infection and dismissive attitudes towards condom use. Women may purposefully engage in high-risk and condom-less sex for reasons such as: enjoying condom-less sex more; trusting their partner; for material or financial gain; and the personal desire to become pregnant (Duby et al., 2021; Lesch & Adams, 2016; Mampane, 2018; Mfecane, 2013; Ranganathan et al., 2018; Zembe et al., 2013).

The growing interest in the link between intimate partner violence and HIV were encouraged by research that found that women who were victims of intimate partner violence were more likely to contract HIV. This research finding suggested that new HIV infections amongst women, especially AGYW, could have been avoided had they not been subjected to intimate partner violence (Jewkes et al., 2010). As a result, public health experts suggested that intimate partner violence prevention programmes may be useful in also preventing HIV incidence (e.g., UNAIDS, 2011). However, subsequent clinical trials, such as *Stepping Stones* (Jewkes et al., 2008; Jewkes et al., 2014), *IMAGE* (Pronyk et al., 2006), and *One Man Can* (Pettifor et al., 2018) found limited evidence to suggest that preventing intimate partner violence supports a reduction in HIV incidence. In order to get a better understanding of the relationship between intimate partner violence and HIV, Rigby and Johnson (2017) created an agent-based statistical model with South African data. They found that the apparent correlational relationship between intimate partner violence and HIV was mostly due to confounding variables. Rigby and Johnson (2017) found that women who had a history of multiple partners were both more likely to contract HIV and to partner with men who had an inclination for violence. Similarly, men who had a history of having multiple partnerships were also more likely to perpetrate violence against their female partners. Furthermore, they determined that a programme that achieves a 50% success rate in preventing intimate partner violence would, at best, only be able to reduce HIV incidence by 1.3% (Rigby & Johnson, 2017).

In summation, while intimate partner violence and sexual coercion occur at a high rate in South Africa, they are not the primary driving forces behind HIV incidence amongst women. Moreover, while various social and cultural factors may place women in vulnerable positions, this does not mean that women (even women of low socio-economic status) are not able to protect themselves from HIV infection.

The vulnerability paradigm serves to construe men as perpetrators and the oppressors of women, which is certainly not a healthy nor realistic way to study human behaviour. As Lesch and Adams (2016) state:

...sexuality research in South Africa is often conducted within the sphere of pressing psychosocial problems, such as the high prevalence rates of HIV/AIDS and sexual violence perpetrated by men against women. These studies tend to problematise heterosexual intimate relationships and portray men as violent perpetrators and women as victims and lacking sexual agency.

Our study, however, provides a contesting picture of a group of politically and socioeconomically marginalised South African men and women who experience sexual respect, pleasure, and closeness in their heterosexual intimate relationships despite difficult life circumstances. (p. 1092).

O’Laughlin (2015) goes further by saying:

The labelling of women as victims and men as aggressors reinforces the moral culture of blame that Fassin’s (2007, 2013) work has shown to be so destructive to HIV/AIDS prevention efforts in South Africa. It is not at all safe to presume that HIV transmission in southern Africa today takes place only in transactional sex or in sex under duress, when men are perpetrators of contagion and women are victims. (p. 349).

This overemphasis on the vulnerability of women and the brutality of men therefore oversimplifies and stereotypes male and female sexuality. It ignores the complex interactions between men and women and fails to allow for a deeper, finer-grade study of men's and women’s personal risk perceptions and the complexity of sexuality (Zembe et al., 2013). Moreover, the study of men remains fairly limited, with the vast majority of research focusing on women rather than men. Although recent research in masculinity studies has attempted to pivot towards more positive, less deterministic approaches to men’s health behaviour and the unique health-related needs of men (e.g., Hodes & Gittings, 2019), the research on masculinity in the South African HIV literature remains largely within the Critical Theory domain, particularly guided by Connell’s (1995; 2002) theory of masculinity. As a result, there is limited competition from other paradigms to make sense of gender, leading to a one-dimensional view of gender and the gendered nature of HIV.

e.) Obtaining community acceptance while adhering to a political agenda

Critical theorists argue that in order for an intervention to be truly successful, it needs to be accepted by the community and that the community should ultimately take ownership of the project. In reality, for that to really work, the programme must be viewed as important (i.e., address an important priority) in the eyes of the community members and must continue to receive funding or be financially self-sustainable. This is easier said than done, as reviews of the *Entabeni* project clearly demonstrate. *Entabeni* volunteers were not given any remuneration for their efforts, and as a result, community members deemed the volunteering to be humiliating work, which few people were willing to do, which led to a lack of respect for the

volunteers. Despite numerous efforts, the project could not attain external funding, nor buy-in from the community members and leaders (Gibbs et al., 2014).

That the intervention must be viewed as important and worthwhile to the community is clearly of crucial importance. Critical Theory assumes that communities generally hold a false consciousness about their life and that through the raising of critical consciousness, this false perspective on reality can be lifted (Neuman, 2006). In the context of an intervention, this means that the project is meant to conscientise the community about what the real, underlying issues are that are shaping their lived experiences. However, what this implies is that the intervention developers (i.e., the researchers) have superior (i.e., critical) knowledge about the community and what the community members need. If community programmes are not preceded by thorough situational and needs assessments, the project runs the risk of being centred around an issue or strategy that is deemed important by the researchers, but not necessarily by the community members. This contradiction between designing an intervention that fulfils a political agenda to conscientise, while also remaining true to the moral, democratic and participatory ethos of Critical Theory stands out as a particularly precarious issue within the Critical Theory research domain.

f.) Sustainability and unintended consequences

Most Critical Theory-based interventions are ultimately aimed at attaining social transformation (e.g., changing social norms, promoting gender equality, social cohesion, and community-initiated collaboration). It is worth noting that these goals are incredibly difficult to attain, especially over a relatively short-term period, and it is arguably not possible to create and sustain these social transformations in a synthetic way (e.g., by artificially giving certain groups more opportunities). Not only are these artificial social projects not sustainable (evidenced by the observation that many of these projects tend to disintegrate once the researcher leaves and funding dries up), but they can also have unintended, sometimes harmful, consequences (Tsai, 2012). The latter may include inadvertently aggravating inequality – i.e., when members of the community that are best able to take advantage of an intervention end up benefitting from it the most. Another harmful consequence of such interventions can also be that they may prompt animosity between groups (e.g., between men and women in programmes where women are the sole beneficiaries) and change other aspects of the home- and community life that may unintentionally promote social disintegration and gender-based conflict (Salia et al., 2018). In other words, while these theories may propose that transforming social structures

is the preferred way to improve people's well-being, the evidence suggests that such an approach may not always be effective and might even have paradoxical consequences.

g.) Establishing critique on a distorted portrayal of other theories and approaches

Lastly, the HIV literature includes numerous examples of papers that are critical of Socio-Behaviourism. While some aspects of this critique highlight true shortcomings in Socio-Behaviourism, there are also notable instances where the critique reflects a distorted image of Socio-Behaviourist theories. For example, the use of the term "KAP paradigm" to refer to Socio-Behaviourism and critiquing it based on an oversimplified view of its assumptions and a generalisation of all the theories that form a part of it¹¹². Instead of basing the critique upon the strongest version of Socio-Behaviourism, Critical theorists sometimes opt to instead critique it based on a caricature of Socio-Behaviourism. This contributes negatively to the knowledge base by entrenching misperceptions about Socio-Behaviourism and, in doing so, discourages research to further test and develop Socio-Behaviourist theories.

9.4. Socio-Ecological and Systems Paradigm: A Meta-Theoretical Analysis

The Socio-Ecological and Systems Paradigm is sometimes also referred to as the eco-systemic, ecological, multi-level, systems, contextual or person-in-environment paradigm. The paradigm includes socio-ecological models as well as systems-based theories. The Socio-Ecological and Systems Paradigm can in itself be viewed as an ontological position which developed as a response to growing discontent with the reductionistic and mechanical theoretical perspectives (Skyttner, 2008).

The reductionistic approach to science has undoubtedly contributed to the amassing of a wealth of knowledge. In particular, reductionism has allowed scientists to isolate specific entities and study them closely, which permitted them to describe and predict how these entities would react to other stimuli. However, the reductionistic approach falls short when scientists are required to make sense of complexity, i.e., when they need to study how multiple entities influence each other at the same time or how entities respond to complex stimuli (Laszlo & Krippner, 1998). Given that social and natural phenomena typically do not occur in isolation,

¹¹² See Chapter 8, heading 8.4.1. *1982 to 1999* for a more thorough explanation of what that critique entailed.

studying them in a reductionistic manner would not allow for a complete understanding of the phenomena (Bhaskar, 1975/2008).

While deterministic and mechanical models of science were the primary vehicles through which science was practised in the early 1900s, gestalt psychologists and other scholars in the fields of organismic biology and ecology were starting to break away from this perspective. Instead of dissecting the phenomenon under study (either conceptually or physically), learning the properties of its separate parts and then deducing the properties of the whole based on the properties of its parts, they adhered to a different way of thinking about the social and natural world (Capra & Luisi, 2018; Skyttner, 2008). They centred their work around the idea of irreducible wholeness, i.e., that the whole is more than the sum of its parts and that wholes are created through the relationships and interactions amongst its parts. By implication then, in order to study an entity or phenomenon, one had to focus on the inter-relationships and reciprocal interactions between entities and constituents, and conceptualise social and natural phenomena as being part of larger interconnected networks. This type of thinking, later identified as systems thinking, values context, relationships, connectedness and emergence (Capra & Luisi, 2018).

Although gestalt psychologists, organismic biologists and ecologists were already responsible for producing systems-based research in the 1920s and 1930s, it was only by the 1950s that the so-called “System’s Age” (Skyttner, 2008, p. 36) commenced. The evolving interest in systems thinking could be attributed to the work of Ludwig Von Bertalanffy, who created the General Systems Theory (Von Bertalanffy, 1968), which was further developed by Kenneth Boulding (1956). In addition, the publication of Norbert Wiener’s book *Cybernetics or Control and Communication in the Animal and the Machine* in 1948, marked the first time that the term “Cybernetics” was used in print. Wiener (1948/2019) defined cybernetics as self-regulating systems that involved circular causal feedback mechanisms and maintained that cybernetics could be applied to a wide range of disciplines, including the study of human behaviour, computer science and language.

The Macy Conferences that took place from the mid-1940s to 1960 have also been identified as a key point in the development of systems thinking in science. The Josiah Macy, Jr. Foundation held the Macy Conferences, a series of interdisciplinary conferences, between 1946 and 1953 (referred to as the Cybernetics Conferences) and again from 1954 to 1960 (referred to as the Group Processes Conferences), which brought together a diverse group of scientists

to discuss in-process systems-based research and ideas across a variety of subjects. The Macy Conferences served as a springboard for the formation of the Systems paradigm as a contemporary intellectual movement that spanned the social and natural sciences (Pias & Von Foerster, 2016). The rise of this movement signalled a paradigmatic change from “seeing the world as a machine to understanding it as a network” (Capra & Luisi, 2018, p. 6).

Building upon systemic thought as well as Kurt Lewin’s field theory (Lewin, 1951), scientists in the 1960s and 1970s in the fields of Psychology, Anthropology, Sociology and Public Health started to become more interested in the interaction between people and their environments, in particular in terms of how biological, psychological, social, organisational and cultural contexts shape human development, health and well-being (Stokols, 1996). The social-ecological perspective emerged from this research, stratifying the social and natural world into multiple, interrelated levels and distinguishing between proximal and distal contexts that influence health and well-being. Urie Bronfenbrenner’s Socio-Ecological Framework (Bronfenbrenner, 1979) is considered to be the most prominent, recognised and influential social-ecological theory to date. Other notable social-ecological theories include the Ecological Model of Health Behaviour (McLeroy et al., 1988) and the Social Ecology Model of Health Promotion (Stokols, 1992)¹¹³. From the 2000s, Dynamic Systems Theory, as well as Complexity and Chaos Theory, have become increasingly visible in the social and health sciences as a way to better understand, amongst other things, the spread of infectious disease and the complexity that underlies health behaviour and society-level change (Byrne & Gill Callaghan, 2014).

In their review of social-ecological research trends, Schoon and van der Leeuw (2015) found that there was an exponential increase in the number of scientific papers that referred to social-ecological systems from the late 1990s onwards. They attributed this increase to advancements in complexity theory, ecology and political economics, as well as to an increase in interdisciplinary research. Richard et al. (2011) noted a similar increase in the use of socio-ecological frameworks in Public Health and attributed it to the renewal of interest in social inequalities and their influence on health. Indeed, in recent years, there has been a so-called “complexity turn” (Salway & Green, 2017, p. 523) in Public Health, leading to the increased use of complexity and multi-level frameworks (Greenhalgh & Papoutsis, 2018; McGill et al., 2021; Moore et al., 2019; Rutter et al., 2017).

¹¹³ One could also regard Bandura’s (1977a; 1986) Social Cognitive Theory as a Socio-Ecological theory as it focuses to a large degree on the reciprocal interaction between the individual and his/her social environment.

The results of this study (as discussed in Chapter 8) revealed a similar trend, as papers that utilise the Socio-Ecological and Systems Paradigm started to become visible in the HIV literature for the first time in 1997 and have grown in prominence throughout the 2000s and 2010s. Given the widespread interest in HIV and AIDS, it is possible that an increase in interdisciplinary research may have also contributed to the observed increase in Socio-Ecological and Systems papers in this study.

9.4.1. The Philosophical Level

9.4.1.1. Ontological assumptions

The ontological assumptions that form the basis of the Socio-Ecological and Systems perspective can be summarised as follows:

- a. **Emergence:** The whole system (e.g., a person, a social phenomenon, an event) is qualitatively different from the sub-systems that it is comprised of (Rountree, 1977). Laszlo and Krippner (1998) describe this by saying that “Structurally, a system is a divisible whole, but functionally it is an indivisible unity with emergent properties. An emergent property is marked by the appearance of novel characteristics exhibited on the level of the whole ensemble, but not by the components in isolation” (p. 53).
- b. **Relationally constituted hierarchal reality:** The social and natural worlds are comprised of systems that consist of sub-systems which themselves may also be comprised of several lower-order sub-systems. The world is therefore considered to be comprised of hierarchal levels (Rountree, 1977).
- c. **Adaptive and dynamic change:** Most systems are open and are able to influence each other bi-directionally. Moreover, systems are able to self-regulate through internal feedback processes. As a result, systems are also able to change, adapt to internal and external feedback and respond to changing environments (Preiser et al., 2021).
- d. **Reciprocal interaction and multi-level interrelations:** Systems and the sub-systems that they are comprised of influence each other in a multi-directional manner. Social phenomena are products of the interaction of a variety of socio-ecological systems, including biological, psychological, interpersonal, social, organisational, community, cultural and societal (Preiser et al., 2021).
- e. **Multi-systemic conceptualisation of man:** The Socio-Ecological and Systems paradigm views humans as being products of biological, social, environmental and cultural processes (Madsen, 1988).

- f. **Dynamic Determinism:** Although social, cultural and other environmental factors can play a significant role in determining an individual's behaviour, individuals are not passive receivers of external forces and possess the ability to influence their environment as well. Hence, the Socio-Ecological and Systems perspective leans toward determinism, but considers determinism to be dynamic instead of mechanistic (Madsen, 1988).

9.4.1.2. Epistemological assumptions

Von Bertalanffy called the epistemological position of General Systems Theory "Perspectivism" which he defined as the view "...that no knowledge grasps the ultimate reality, and that it can only mirror some aspects of reality in more or less appropriate models" (Von Bertalanffy 1965, translation into English quoted in Pouvreau and Drack 2007, p. 301). Bertalanffy's Perspectivism is strongly suggestive of critical realism's transcendental realist view of reality which states that reality is independent of our observations, thoughts or theories of it (Sayer, 2000). In relation to Gestalt Psychology, Madsen (1988) points out that although an epistemological position is not explicitly stated, one can conclude that gestalt psychologists implicitly drew upon elements of critical realist epistemology and ontology.

However, there is one key difference between the ontological position of Bhaskar's Critical Realism and that of the Socio-Ecological and Systems paradigm. The Socio-Ecological and Systems paradigm tends to view the social and the natural worlds as being structured and functioning in similar ways; hence systems-inclined scientists view the objects of study in the social and the natural worlds to be more or less the same. However, Bhaskar's Critical Realism maintains that studying the social world is meaningfully different from studying the natural world because our understanding of social phenomena is concept dependent and that studying social phenomena involves a double hermeneutic of interpreting interpretations of social phenomena (Danermark et al., 2019).

The key epistemological principles that underly the Socio-Ecological and Systems Paradigm can be summarised as follows:

- a. **Non-reductionism:** The components of a social system cannot be examined in isolation. Variables from all socio-ecological levels are deemed equally significant for research (Rountree, 1977).
- b. **Multi-directional (non-linear) causal pathways:** Given that socio-ecological systems influence each other in a reciprocal and multi-directional manner, causal pathways are

therefore expected to not be exclusively uni-directional, but rather multi-directional and circular. Upward and downward causation (i.e., from proximal to distal levels and vice versa) is possible (Preiser et al., 2021).

- c. Multi-level approach: Research within the Socio-Ecological and Systems paradigm must involve taking into consideration meta-contingencies and the inter-dependencies amongst multiple levels, including proximate between distal levels (Hovell et al., 2009; Stokols, 1992).
- d. Methodological pluralism: The study of phenomena at multiple levels allows (and perhaps even necessitates) the use of multiple methods, including quantitative, qualitative and mixed methods, and the use of study designs that will permit multiple levels of analysis (Preiser et al., 2021). Moreover, methods that allow for the modelling of data and the interactions between variables are of particular importance (Laszlo & Krippner, 1998).
- e. Synthesis: A non-reductionistic epistemology necessitates a synthesis research approach. To this end, in order to study a phenomenon, the scientist must identify the larger system or embedded context of which it is a part, study the properties, processes and inter-relationships that form part of the system, and then use that information to explain the properties of the phenomenon as a component of the larger system. This research approach draws on a combination of abduction and retroduction. The emphasis on the greater context in which the phenomenon takes place as well as the dynamic processes and inter-relationships that form part of this context means that the synthesis research approach lends itself particularly well toward *explaining* phenomena, as opposed to predicting the phenomenon (Laszlo & Krippner, 1998; Skyttner, 2008).
- f. Expansionism: While reductionist approaches tend to focus on system components, the non-reductionist, synthesis research approach focuses on whole systems. Consequently, the latter can be said to expand the scientist' view and understanding of phenomena by explaining entire systems (Skyttner, 2008).
- g. Contextual: Research under the guidance of the Socio-Ecological and Systems paradigm is intrinsically contextual. This type of research, therefore, values the importance of studying people within their various contexts and structures research in such a way as to capture that interaction between the person and their environment.
- h. Inter-Disciplinary Research: Given its fundamental interest in multi-faceted nature of phenomena and integrative ways of studying them, the Socio-Ecological and Systems paradigm values interdisciplinary partnership and cooperation (Capra & Luisi, 2018).

- i. Practical Usefulness of Research: The Socio-Ecological and Systems paradigm values the production of useful knowledge. In particular, research should produce evidence that can be of service to policymakers and practitioners (Preiser et al., 2021).

9.4.1.3. Assumptions about HIV and AIDS and the social and behavioural study thereof

By implication, the Socio-Ecological and Systems paradigm, therefore, understand HIV and AIDS and the study thereof as follows:

- a. Sexual and reproductive health behaviours are the product of multiple socio-ecological systems. Similarly, the factors that place people at risk for HIV infection and that contribute to other HIV-related behaviours, such as stigma and treatment adherence, take place within a larger social context and are influenced by a multitude of factors (Saul et al., 2018).
- b. Socio-ecological systems interact with each other and ultimately have an emergent impact on health behaviour (Sallis et al., 2015; Stokols, 1996).
- c. As a result, it is unlikely that only one factor or only one system is responsible for behaviour. Instead, behaviour is affected by multiple interrelated factors and processes (Sallis et al., 2015).
- d. For health behaviour change interventions to be effective, they should involve multiple socio-ecological levels. By engaging multiple levels, the multiple components of the intervention are expected to complement each other and work in a synergistic manner (Saul et al., 2018; Stokols, 1996).
- e. In order to understand HIV vulnerability and susceptibility and sexual and reproductive health behaviour, social scientists need to study the dynamic inter-relations between levels (Sallis et al., 2015; Stokols, 1996).
- f. Interventions targeted at HIV prevention, treatment and care should focus on “manipulable influences of behaviour...[which] are found only in an individual’s environment” (Hovell et al., 2009, p. 348) as well as aspects of society and public healthcare that are “policy sensitive” (Sawers & Stillwaggon, 2010, p. 34).

9.4.2. The Theory Level

The majority of papers that applied the Socio-Ecological and Systems Paradigm used non-specific Socio-Ecological theories (n = 93; 20.5%) (see Chapter 8, Table 8.11). The second most commonly used theory was Urie Bronfenbrenner’s Socio-Ecological Framework

(Bronfenbrenner, 1979) (n = 44; 9.7%). The other most common theories in the literature included the Model of the dynamics of HIV/AIDS stigma in five African Countries by Holzemer et al. (2007), Social Capital (approached from a socio-ecological perspective), Syndemics Theory, the PEN-3 Model, the Social Identity Theory and the Self-Categorisation Theory (Tajfel, 1974; 1982; Turner, 1982), Theory of the social ecology of resilience (Ungar, 2012) and the Theory of Triadic Influence. This section will comprise a series of short summaries of three of these theories, namely the Socio-Ecological Framework (Bronfenbrenner, 1979), the model of the dynamics of HIV/AIDS stigma in five African countries (Holzemer et al., 2007), and the PEN-3 Model (Airhihenbuwa, 1990; 1999).

9.4.2.1. Bronfenbrenner's Socio-Ecological Framework

In an effort to contribute to the creation of a more comprehensive approach to the study of human development, Urie Bronfenbrenner developed the *Ecology of Human Development* in the late 1970s (Bronfenbrenner, 1977; 1979). The Ecology of Human Development emphasises “the progressive accommodation, throughout the life span, between the growing human organism and the changing environments in which it actually lives and grows” (Bronfenbrenner, 1977, p. 513). The *Ecology of Human Development* placed a great deal of focus on context, i.e., on the systems in which the individual found themselves. These systems were conceptualised as topologically arranged systems that are nested within each other (see Figure 9.12). These systems, adapted after previous work by Brim (1975), are described as follows (Bronfenbrenner, 1977; 1979):

- a. **Microsystem:** The complex interactions between the individual and their immediate setting. The setting refers to the immediate place and time as well as the role that they occupy in that setting (e.g., son or parent).
- b. **Mesosystem:** The interactions among important settings in the individual's life (e.g., the interactions amongst a child's family, school, church, peer group, and neighbours).
- c. **Exosystem:** Structures that extend beyond the mesosystem. These structures include various informal and formal systems which influence the individual's immediate setting (e.g., government agencies, transportation, and mass media).
- d. **Macrosystem:** The overarching cultural, social, legal, political and economic systems that serve as “prototypes” or “blueprints” (Bronfenbrenner, 1977, p. 515) for social life at the exo, meso and micro levels. These systems can be explicit (e.g., legislation), but are more often implicit (e.g., cultural beliefs and traditions, social norms).

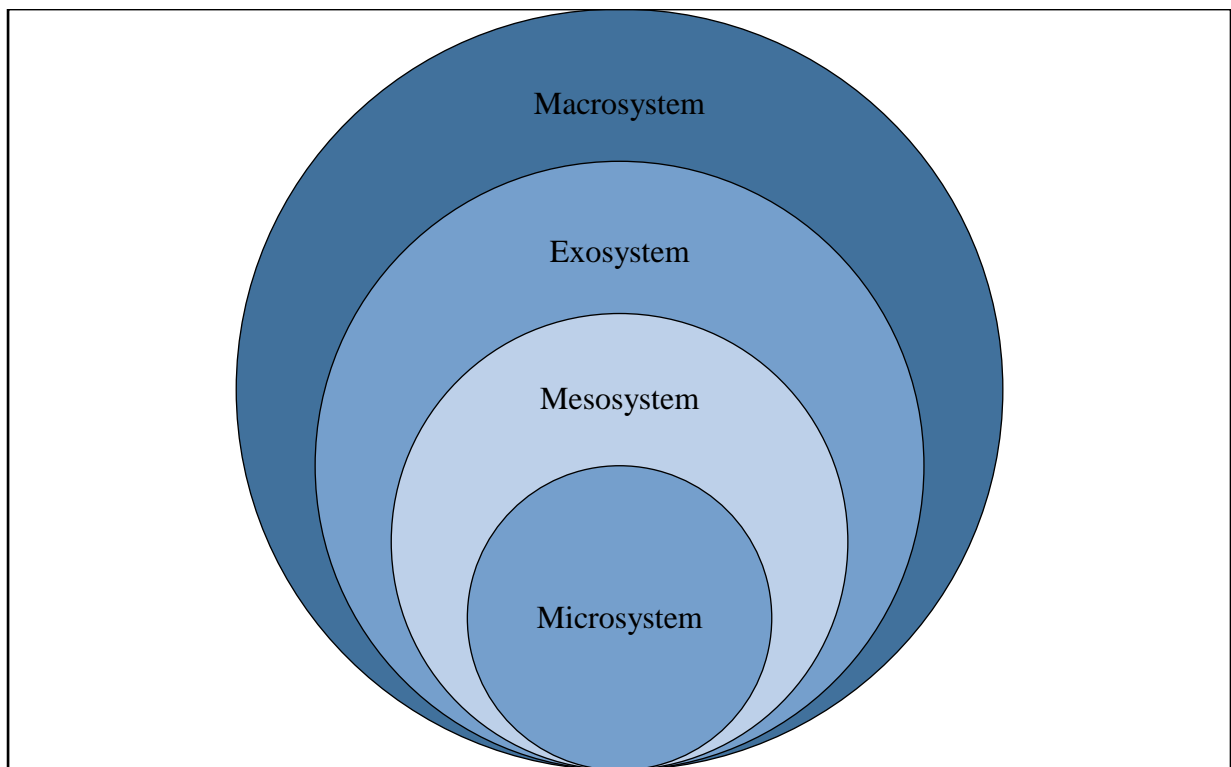


Figure 9. 12 The Ecology of Human Development (Bronfenbrenner, 1977)

As mentioned in Chapter 8, Bronfenbrenner continued to revise and refine his theory throughout the course of his career. In one of his later publications, he admitted that “I have been pursuing a hidden agenda: that of re-assessing, revising, and extending – as well as regretting and even renouncing – some of the conceptions set forth in my 1979 monograph” (Bronfenbrenner, 1989, p. 187). Whereas his Ecology of Human Development placed context at the centre of the study of human development, Bronfenbrenner’s later revisions of his theory shifted the focus more towards emergence (Bronfenbrenner, 1989). The subsequent refinement of Bronfenbrenner's socio-ecological framework gradually took shape in what is now referred to as his *Bio-Ecological Model* (see Figure 9.13) (Rosa & Tudge, 2013). The *Process-Person-Context-Time Model* (see Figure 9.14) is an operational framework that allows for the simultaneous study of all components of the *Bio-Ecological Model*.

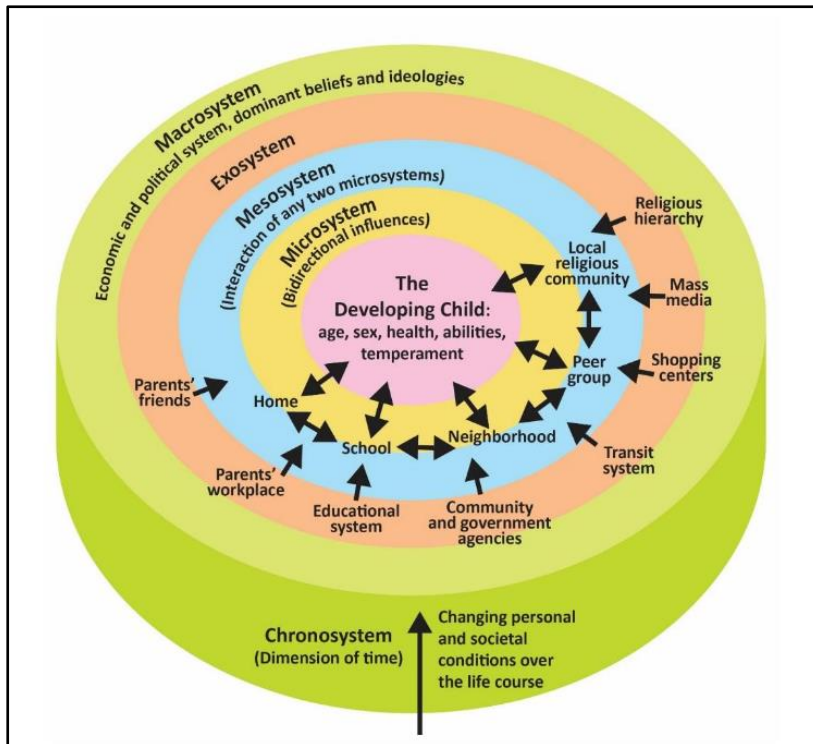


Figure 9. 13 The Bio-Ecological Model (Bronfenbrenner, 2005)

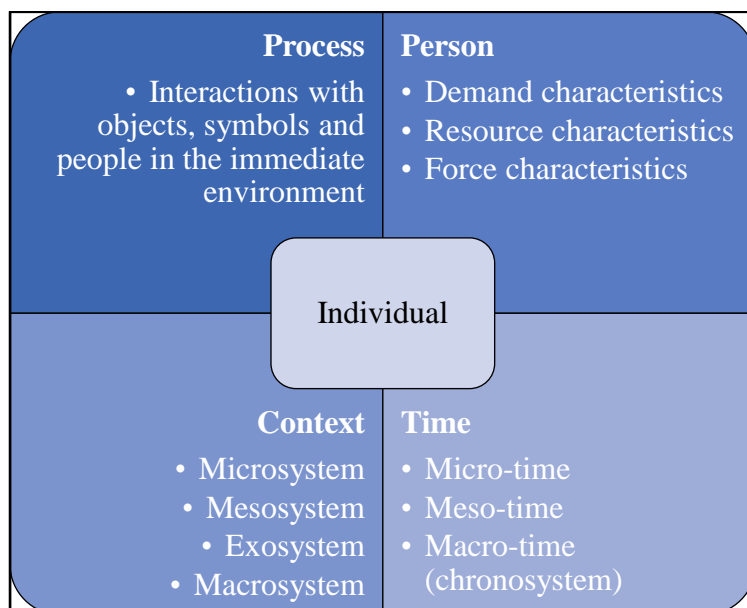


Figure 9. 14 The Process-Person-Context-Time Model (Bronfenbrenner & Morris, 1998)

The multi-level, nested systems of the Ecology of Human Development are retained and viewed as the contextual environment in the Bio-Ecological Model. However, *proximal processes* represent a new, and centrally important conceptualisation of the Bio-Ecological

Model. Proximal processes refer to the “progressively more complex reciprocal interaction between an active, evolving biopsychological human organism and the persons, objects, and symbols in its immediate external environment” (Bronfenbrenner & Morris, 1998, p. 996). Proximal processes are the vehicle through which the contextual systems influence the individual and vice versa (Tudge et al., 2016). The individual possesses three types of characteristics which they bring with them into social interactions, namely demand characteristics (traits that other people immediately see and respond to, such as age and physical appearance), resource characteristics (traits that are not immediately apparent such as mental and psychological characteristics as well as social and material resources that the person has access to), and force characteristics (character traits such as motivation, persistence and temperament). Lastly, the Bio-Ecological Model emphasises the importance of considering time as an essential part of studying human development. To this end, time is studied as micro-time (while a specific activity or interaction is taking place), meso-time (the consistent activities and interactions that occur in the person’s environment), and macro-time (historical events) (Bronfenbrenner & Morris, 1998; Tudge et al., 2016).

Bronfenbrenner developed his conceptual model in order to study human development, and his frameworks continue to be mostly used in the fields of child development and family studies (Tudge et al., 2016; Rosa & Tudge, 2013). However, the Ecology of Human Development and even the Bio-Ecological Model are generalisable enough that they could be applied to other fields, such as health behaviour and psychological well-being. Bronfenbrenner’s conceptual approach aligns with the dynamic interaction that is envisioned between biological, psychological and social factors in the biopsychosocial model, which underpins health psychology. However, it is important to keep in mind that the theory is ultimately a theory of development (ontogeny), and therefore it describes behavioural phenomena as a product of development. Contrast this with theories such as the Information-Motivation-Behavioural Skills Model and the Reasoned Action Approach, which seek to understand the causal mechanisms that produce behaviour over a relatively short-term period.

As mentioned in Chapter 8, Bronfenbrenner’s Socio-Ecological Framework was often unreflectively applied, whereby most authors preferred to use the older iteration (i.e., the Ecology of Human Development) of the theory. Whereas the Ecology of Human Development theory is fairly parsimonious, the Bio-Ecological Model and its Process-Person-Context-Time Model are far more complex. Hence, although the Bio-Ecological Model may resemble a model

that is perhaps a more accurate representation of reality, its complexity might be one of the obstacles that are keeping it from being used by researchers.

9.4.2.2. Model of the dynamics of HIV/AIDS stigma in five African Countries

As part of their five-country research project on HIV and AIDS-related stigma, Holzemer and colleagues (2007) developed a novel conceptual framework to capture the socio-ecological dynamics behind stigma (see Figure 9.15). The model was developed based on a comprehensive review of the HIV and AIDS-related stigma literature and 43 focus discussion groups with 251 individuals from South Africa, Tanzania, Lesotho, Malawi and Eswatini.

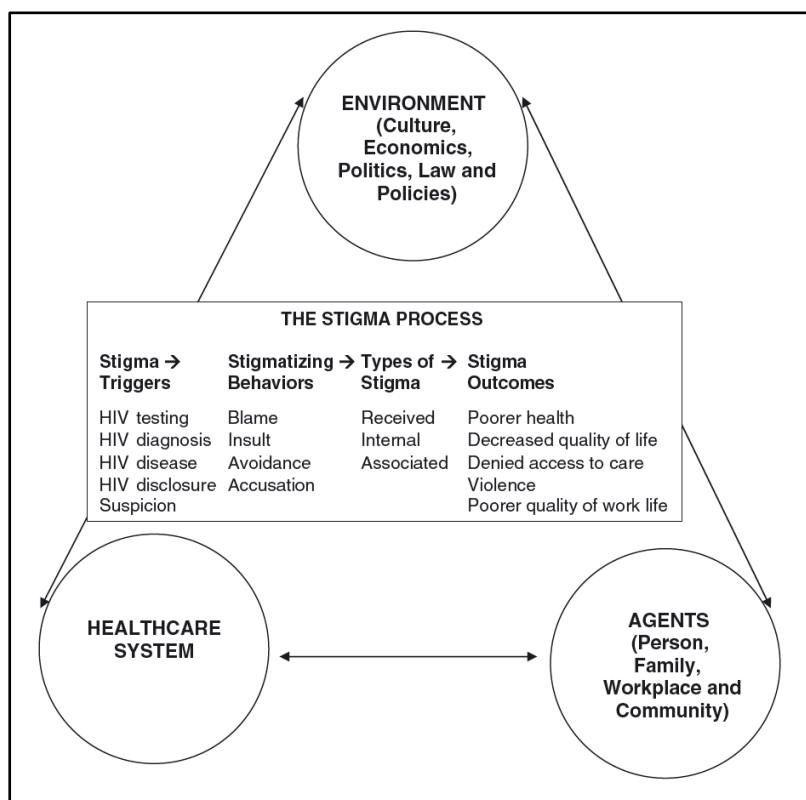


Figure 9. 15 Model of the Dynamics of HIV/AIDS Stigma (Holzemer et al., 2007, p. 546)

The conceptual model views stigma as a social phenomenon that follows a four-step process that starts with experiencing a stigma trigger (e.g., receiving an HIV-positive diagnosis) and then experiencing some form of stigma (e.g., blame). This stigma can be received (e.g., being insulted and rejected by colleagues), internal (e.g., stigma that a person internalises based on their own negative perceptions about HIV and themselves as someone who has been diagnosed as HIV-positive) or experienced by association (e.g., a healthcare provider who is stigmatised by members of her community for working with ART patients). Stigma leads to various health, psychological and social outcomes, such as social withdrawal and poorer mental health. This

stigma process occurs within the context of three systems, namely the healthcare system, the environment and various agents, including the individual, their family and the community. These three systems can serve as settings wherein stigma occurs as well as influencing factors that may impact the stigma process. The model, therefore, highlights these three systems as possible locations wherein further stigma intervention and research can be situated (Holzemer et al., 2007).

What makes this model unique as a conceptual model of stigma is that it views stigma as a process that emerges out of a complex interconnected context which involves elements at various socio-ecological levels. The dynamic determinism of the socio-ecological and systems paradigm is, therefore, clearly demonstrated by this model. Moreover, the model views stigma as emerging out of a complex interaction between psychological, social, institutional and cultural factors, thereby allowing for a comprehensive and balanced study of stigma.

The model is intuitive and simple. The nuanced interactions between the systems are not detailed by the model, and it is therefore up to the researcher to conduct research with the model as an overarching framework in order to flesh out the details of how exactly the stigma process unfolds in their specific research site. Hence, the model is sufficiently general to allow for application across different areas and with a range of population groups, even outside the African context. It may be especially useful in serving as a framework for exploratory and descriptive research.

The original paper in which the model is described (Holzemer et al., 2007) provides short definitions for the concepts that relate to the types of stigmas and the specific stigma behaviours that each involves. Holzemer et al. (2007) note that the model “represents an initial phase of development in describing the dynamics of HIV/AIDS stigma, and further development is needed to continue to clarify the concepts, processes and propositions. The conceptual model is designed to be useful as a guide for practice, education and research” (p. 543). Considering that it is a model, not a theory, it tends to only provide a limited and superficial summary of HIV-related stigma. Given this, one may conclude that it provides a description of HIV-related stigma, but does not immediately allow for an in-depth explanation of the phenomenon, nor does it allow for prediction.

9.4.2.3. The PEN-3 Model

The PEN-3 Model was developed by the public health researcher Collins Airhihenbuwa in an effort to help researchers and practitioners who are tasked with applied health behaviour

research or health behaviour interventions to study and utilise culture in a more productive manner. Based on the belief that “...it is better to adapt a health education program to fit in with a community’s existing practices and beliefs than to try to change those beliefs and practices to fit the program” (Airhihenbuwa, 1990, p. 57), the PEN-3 Model (see Figure 9.16) serves as a guide to creating and refining healthcare programmes to be more culturally sensitive. The model was initially devised in 1990 (Airhihenbuwa, 1990) and updated in 1999 (Airhihenbuwa, 1999).

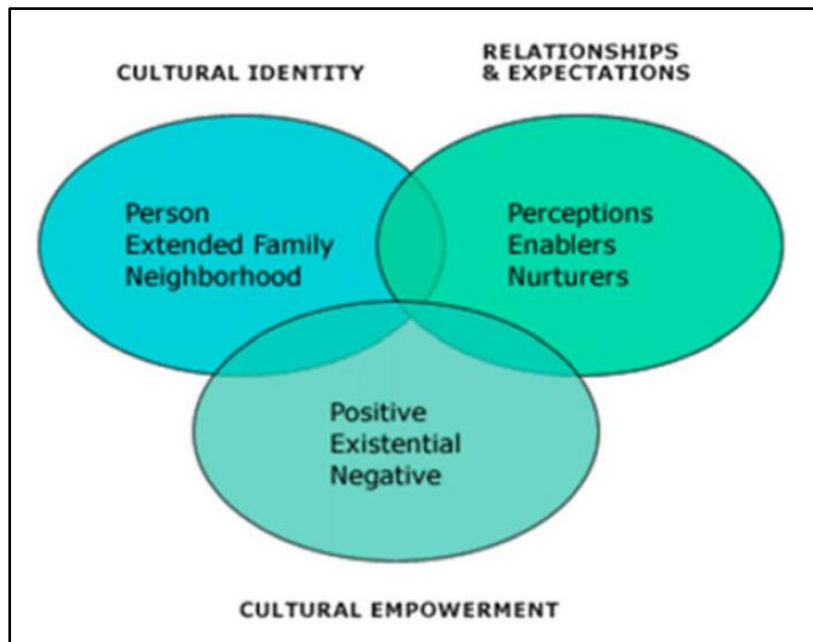


Figure 9. 16 The PEN-3 Cultural Model (Iwelunmor et al., 2014, p. 21)

The PEN-3 Model is comprised of three domains that a researcher is meant to address sequentially (Airhihenbuwa, 1999; Iwelunmor et al., 2014).

- a. Cultural Identity: First, the researcher should decide at what level (or levels) the intervention should be focused, the person (i.e., individual), the extended family and/or the neighbourhood (i.e., community).
- b. Relationships and Expectations: Secondly, the researchers must study the socio-cultural factors that influence perceptions about health, as well as the factors that enable (or disable) appropriate health management and the factors that nurture (i.e., promote) healthy behaviour.
- c. Cultural Empowerment: Thirdly, the researcher must study socio-cultural beliefs, attitudes and practices and identify to what extent they fall into the following three categories:

- a. Positive: Socio-cultural beliefs, attitudes and practices that promote a healthy lifestyle, have protective benefits and/or encourage effective health management. These positive beliefs, attitudes and practices can be drawn upon in the development of a more culturally appropriate intervention.
- b. Existential: Socio-cultural beliefs, attitudes and practices that pose no health-related threats. These beliefs, attitudes and practices could be incorporated into aspects of the intervention in order to increase the likelihood that the intervention participants will accept the programme.
- c. Negative: Socio-cultural beliefs, attitudes and practices that are harmful and hinder optimal health behaviour and treatment. These adverse beliefs, attitudes and practices can be addressed in the intervention in a culturally sensitive manner.

The PEN-3 Model is a conceptual framework that guides applied research practice rather than a theory that describes, explains or predicts health behaviour. Hence, it is an implementation theory, as it informs the development of interventions rather than describing or explaining phenomena (Glanz et al., 2015). Examples of such frameworks include the Six Steps in Quality Intervention Development model (Wight et al., 2014) and the ADAPT-ITT Framework (Wingood & DiClemente, 2008). It can easily be combined with other conceptual frameworks, and given its focus on culture, the PEN-3 Model is ideally suited to be applied alongside an African Worldview conceptual framework. It is sufficiently neutral and general that it could also be used to develop health interventions for specific sub-cultures (e.g., MSM) and religious groups.

The model allows for the research subject, whether it is the individual or a community, to be seen within a wider socio-cultural context. While culture is oftentimes either overlooked or framed in a negative light as the source of harmful beliefs, attitudes and practices, the PEN-3 Model offers researchers a different, more constructive perspective on culture. To this end, an effort is made to identify and describe cultural beliefs and practices that may have protective benefits or, at the very least, do not pose a threat to health and well-being. The model provides a useful general structure upon which a researcher or practitioner can build an intervention development plan.

However, the model does not specify how positive aspects of culture should be mobilised, nor does it provide guidance on how to address harmful cultural beliefs and practices – the latter being an especially sensitive issue. A thorough study of the cultural environment, as well as

cooperation with community leaders, may help intervention developers to make informed decisions in this regard.

9.4.3. The Data Level

9.4.3.1. Research topics and methods

Socio-Ecological and Systems-based theories were fairly well represented across all the research themes; however they were slightly more common in articles that described research on community (Prinsloo et al., 2016), dyads (e.g., parent-child dyads) and families (e.g., Crowley et al., 2019), schools (e.g., Sekgobela et al., 2020), groups (e.g., peer support groups) (e.g., Adeagbo & Naidoo, 2020), and research that discussed challenges or contributing factors to phenomena across various socio-ecological levels or networks (e.g., Choi et al., 2019; MacQueen et al., 2016). There was an almost equal number of quantitative papers (42.6%; n = 198) and qualitative papers (40.6%; n = 189) that utilised the Socio-Ecological and Systems paradigm.

9.4.3.2. Practical applications

Interventions that utilise theories from the Socio-Ecological and Systems paradigm are typically aimed at promoting behaviour change at one or more levels (e.g., the individual and family level). In order to accomplish this, these interventions tend to involve:

- a. Programmes that involve dyads (e.g., couples, parents and their children), such as Vuka (Bhana et al., 2014)
- b. Multi-component and multi-sectoral programmes that require collaboration between psychological, social, educational, economic, health and civil society sectors, such as DREAMS (Saul et al., 2018)

9.4.3.3. Evidence

Research in the behaviour change field, including health behaviour change, has repeatedly emphasised that multi-component interventions are the most promising at initiating behaviour change (Marcus et al., 2014). Consequently, one might suppose that Socio-Ecological models and systems-based theories could be the most promising conceptual frameworks for HIV-related behaviour change, considering that they allow for the study of multiple domains and societal levels at the same time. Table 9.2 summarises the key findings from the most well-

researched and evaluated HIV-related interventions in South Africa (up until 2020) that were based solely or in part on Socio-Ecological and Systems-based theories.

The interventions that produced the most significant positive results tended to be those that focussed mostly on the individual- and interpersonal levels (e.g., CHAMPSA and Vuka). The same has been observed in other reviews of the health behaviour literature (Salmon et al., 2020). While larger-scale, multi-sectoral programmes such as DREAMS and the HPTN-068 trial have appeared to be promising, they were not able to make an impact on the behavioural factors that drive HIV risk. This brings to mind an important observation by Tsai (2012) that the vast majority of structural interventions are “agentic” or “user-dependent” interventions, which means that they still rely on individuals to take deliberate action in one way or another (p. 1564). Even though the intervention may be structural, its success remains contingent on a range of factors, many of which lie at the individual level. For example, for the gender transformative microfinancing intervention to be a success, women need to apply for microloans and possess the necessary entrepreneurial prowess and business acumen to start their own business and manage it successfully (Tsai, 2012). Similarly, while a programme like DREAMS addresses several social and community systems, it still relies on individual-level behaviours to change in order to see a reduction in HIV infection rates. Although the assumption is that changes in higher-order levels would translate to lower-order changes in individual behaviour, this may not be achievable in a relatively short time period, and it is possible that this assumption oversimplifies and perhaps underplays the importance of individual and intra-personal level behavioural dynamics in determining behaviour and developmental outcomes.

Table 9. 2 Evaluation Results of Socio-Ecological and Systems-Based Interventions

<i>Collaborative HIV Adolescent Mental Health Program South Africa (CHAMPSA)</i>	
<p>Intervention purpose: Multi-level aims, including (on the individual level) increasing HIV knowledge, decreasing stigma; (on the parent/family level) increasing authoritative parenting, caregiver decision-making and monitoring of children, increasing comfort discussing hard-to-discuss subjects, increasing connectedness to caregiver social networks; (on the community level) decreasing neighbourhood disorganisation, and increase social control and cohesion.</p> <p>Theory used: The Theory of Triadic Influence</p>	
<p>Randomised control trial (Bell et al., 2008)</p>	
Notable findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> • Amongst children: improved HIV knowledge and less HIV-related stigma • Amongst caregivers: improved HIV knowledge and less HIV-related stigma, improved caregiver monitoring, communication and communication comfort, improved connection to social networks 	<ul style="list-style-type: none"> • Randomised control trial - treatment versus no treatment repeated-measures design • The treatment group included 245 intervention families (a total of 281 children), the control group included 233 families (total 298 children) • The treatment group enrolled on the 10-session CHAMPSA programme, whereas the control group were only exposed to the school's standard HIV prevention curriculum • Data were collected before and after the intervention by means of a self-administered questionnaire that was completed with assistance from a research assistant

Health Wise

Intervention purpose: To promote HIV prevention amongst adolescents in the 8th and 9th Grades.

Theories used: Developmental systems perspective, including Bronfenbrenner's Socio-Ecological Framework, Social Cognitive Theory, Self-Efficacy, Self-Determination Theory, theories of optimal arousal, including flow, sensation seeking, and boredom.

Non-randomised controlled trial (Coffman et al., 2011; Tibbits et al., 2011)

Notable findings

Significant improvements:

- Condom self-efficacy increased for learners in the intervention group, in particular for girls during grade 8 and for boys during grade 9 (Coffman et al., 2011)
- Learners in the intervention group who were virgins at baseline who became sexually active during the course of the study were less likely to engage in sexual risk behaviours (Tibbits et al., 2011).
- Learners in the intervention were less likely to report frequent drug use (Tibbits et al., 2011).
- Female students in the intervention were slightly less likely to engage in drug use (Tibbits et al., 2011).

No significant improvements (Tibbits et al., 2011):

- Male drug use
- Lifetime sexual activity and condomless sex refusal

Methodology

- Non-randomised controlled trial.
- The intervention was conducted in four schools that were randomly selected from a list of 19 eligible schools; five schools were non-randomly selected through a matching process to serve as the control group.
- Data were collected at baseline (before the intervention started), again after receiving the intervention in their grade 8 year and then again after receiving the intervention in their grade 9 year.

<i>Vuka</i>	
Intervention purpose: Adaptation of CHAMPSA. Vuka was specifically aimed at youth who are living with HIV and their caregivers.	
Theory used: The Theory of Triadic Influence	
Pilot randomised control trial (Bhana et al., 2014)	
Notable findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> • Youth ARV adherence • Youth ARV treatment knowledge • Caregiver external stigma • Caregiver communication frequency • Caregiver communication comfort <p>Improved, but not significantly:</p> <ul style="list-style-type: none"> • Youth mental health • Youth behaviour • Caregiver ARV treatment knowledge 	<ul style="list-style-type: none"> • Pilot randomised control trial • Data were collected before and after the intervention by means of a self-administered questionnaire that was completed with assistance from a research assistant • The treatment group (n = 33) received the Vuka intervention immediately upon the start of the project, and the control group (n = 32) received the intervention three months later after both groups completed the post-test.

<i>Couples Health CoOp</i>	
Intervention purpose: Reducing HIV incidence and alcohol abuse and improving condom use amongst couples	
Theories used: Social Cognitive Theory, the AIDS Risk Reduction Model, an Ecological Perspective (El-Bassel et al., 2003), and women's empowerment theories.	
Cluster randomised field experiment (Wechsberg et al., 2016)	
Notable findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> • At six-months follow-up, men in the Couples Health CoOp were less likely to report heavy drinking and more likely to report consistent condom use in the prior month. • At six-months follow-up, women in the Couples Health CoOp reported decreased heavy drinking • Fewer women contracted HIV in the Couples Health CoOp than in the other intervention arms. <p>No significant improvements:</p> <ul style="list-style-type: none"> • Consistent condom use amongst women 	<ul style="list-style-type: none"> • Cluster randomised field experiment. • Three intervention arms: Couples Health CoOp, Women's Health and Men's Health CoOp, and a comparison arm. • Purposive sampling of 290 men and their primary heterosexual sex partners. • Data were collected at baseline and at six-months follow-up.

<i>Swa Koteka – “It Is Possible” The HPTN 068 Conditional Cash Transfer for AGYW intervention</i>	
Intervention purpose: HIV incidence prevention amongst AGYW through the provision of cash transfers to the young women and their households, conditional based on the young women’s school attendance.	
Theories used: Unspecific socio-ecological model	
Phase 3, randomised controlled trial (Pettifor et al., 2016b)	
Notable findings	Methodology
<ul style="list-style-type: none"> • HIV incidence did not differ significantly between those the two study groups, i.e., conditional cash transfers did not contribute to a reduction in HIV incidence. • Regular school attendance (irrespective of a conditional cash transfer) was associated with a significant decrease in HIV infection risk. 	<ul style="list-style-type: none"> • Phase 3, randomised controlled trial • Experimental group (n = 1225) received a conditional transfer based on school attendance (at least 80% of school days per month); the control group (n = 1223) received nothing. • Data were collected by means of an Audio Computer-Assisted Self-Interview at baseline, along with an HIV and HSV-2 test. Data collection was repeated at 12-, 14- and 36-months follow-up.

Promoting sexual and reproductive health among adolescents in southern and eastern Africa – mobilising schools, parents and communities (PREPARE)

Intervention purpose: HIV and intimate partner violence prevention amongst adolescents.

Theories used: A combination of various theories, including the Socio-Behavioural theories Social Cognitive Theory, the Reasoned Action Model, the Information-Motivation-Behavioural Skills Model and the iChange model; general ecological and contextual models of health behaviours; a conceptual framework of the causes of intimate partner violence by Jewkes et al., (2002); research on attitude and behaviour change; and Intervention Mapping.

Cluster randomised controlled trial (Mathews et al., 2016)

Notable findings	Methodology
<p>Significant improvements:</p> <ul style="list-style-type: none"> • HIV and condom-related knowledge • Reduction in reports of intimate partner violence <p>No significant improvements:</p> <ul style="list-style-type: none"> • Sexual risk behaviour (including sexual debut, number of sexual partners in the last six months and condom use at last sex) 	<ul style="list-style-type: none"> • Cluster randomised controlled trial. • A total of 42 schools were enrolled and randomly assigned to the intervention (n = 20) or control (n = 22) conditions. • The intervention condition included an after-school interactive, skills-based educational programme, a school health service as well as a school safety programme. • Data was collected by means of self-administered questionnaires at baseline, and at six and 12-months follow-up.

<i>Determined, Resilient, Empowered, AIDS-Free, Mentored, and Safe (DREAMS)</i>	
<p>Intervention purpose: To reduce the HIV infection rate amongst AGYW through improving their access and use of health services, improving their access to education and social protection benefits, improving their male sex partner’s use of ART/male circumcision, reducing male sex partner intimate violence and increasing their favourable attitudes towards gender equity, and increasing AGYW’s family and community support structures and improved gender norms in the community.</p> <p>Theory used: The DREAMS theory of change which is a socio-ecological model (Saul et al., 2018)</p>	
Population-based cohort study (Birdthistle et al., 2021)	
Notable findings	Methodology
<ul style="list-style-type: none"> • At both sites, HIV incidence rates have been inclining prior to the implementation of DREAMS. HIV incidence rate reductions noted during the DREAMS programme period were found to be part of this ongoing gradual declining trend and not necessarily due to the DREAMS intervention. • Other studies on DREAMS beneficiaries have supported this finding, coming to the conclusion that the DREAMS programme has not been able to exert an influence on the behavioural factors that drive HIV (and HSV-2) incidence in the study communities (Floyd et al., 2022; Mthiyane, 2020). 	<ul style="list-style-type: none"> • Population-based cohort study • Data from two community-wide demographic surveillance sites (one in Kenya and another in South Africa) that spanned from 2006 to 2019 were used. DREAMS launched in those communities in 2016. Hence, the data before 2016 were considered to be the baseline data.

9.4.4. Implications and Critique of the Socio-Ecological and Systems-Based Paradigm

9.4.4.1. Direct implications of utilising the Socio-Ecological and Systems-based paradigm

The Socio-Ecological and Systems-based paradigm have allowed researchers to go beyond the proximal to also explore the distal aspects of the environment and society that might be relevant to their research. As Murphy and Callaghan (1988, p. 164) state: “Generally the strength of the systems approach is cited to be its ability to recognise the complexity of social life, while, simultaneously, offering an integrated view of society”. Given the current interest in combination interventions and context-sensitive research, it is likely that multi-level studies will become more prevalent in the academic literature.

9.4.4.2. Strengths of the Socio-Ecological and Systems-based paradigm

Theories in the Socio-Ecological and Systems-based paradigm view the world as being comprised of multiple levels and interrelated feedback processes, which allows for a more nuanced study of complexity and emergence in the social world. This ontological position is beneficial to researchers who study the social and behavioural aspects of HIV and AIDS in a number of ways:

- a. Compatibility with research approaches that are sensitive to contextual factors: The Socio-Ecological and Systems-based paradigm is an answer to the long-standing critique against mainstream theoretical approaches for not being sensitive to the contextual elements that influence health and sexual behaviours. The paradigm allows researchers to explore how individual-level factors (such as behaviour and risk perception) interact with interpersonal factors (such as social support), community-level factors (such as cultural norms), institutional-level factors (such as quality of healthcare services) and structural-level factors (such as poverty and political context)¹¹⁴.
- b. Understanding the unique nature of groups and communities: The Socio-Ecological and Systems-based paradigm allows for a study of groups and communities that recognise them as not just groups of individuals, but as systems that have their own, unique features and internal dynamics.

¹¹⁴ See Figure 5.14 for a summary of the factors influencing HIV-related behaviour and/or behaviour change at each socio-ecological level.

- c. Exploring and describing social phenomena: Socio-Ecological and Systems-based conceptual frameworks are ideal for explorative and descriptive research. The paradigm can also be particularly useful when applied as a framework to organise research and literature review results.
- d. Allowing for the study of multi-directional and reverse causation: Given the Socio-Ecological and Systems-based paradigm appreciation of the multi-directional manner in which variables can influence each other, the paradigm is perhaps uniquely suited to studying complex causal relationships (provided that the conceptual framework is accompanied by a suitable, robust research design).
- e. Suitability for inter-disciplinary research as well as practice- and policy-focused research: The Socio-Ecological and Systems-based paradigm allows for researchers from different disciplines to work in synergy on the same research project. Given that the paradigm recognises that social systems are self-regulating and adaptive, it allows researchers to study behaviour and social change; permits a better understanding of how behavioural and social changes occur in relation to epidemiological trends; and equips researchers with a conceptual framework with which they can identify the socio-ecological levels where intervention and policy development may be necessary (or likely to be the most impactful).

9.4.4.3. Weaknesses and limitations of the Socio-Ecological and Systems-based paradigm

a) Conceptual models that are not well-suited for research

Although it can be linked to certain epistemological assumptions (as pointed out earlier), the Socio-Ecological and Systems-based paradigm is mostly an ontological position, which researchers can use to frame their ideas about the phenomena they are studying. However, many of the socio-ecological frameworks in this paradigm are essentially conceptual models (i.e., schematic outlines, simplified visual schematics and basic frameworks), not complete theories¹¹⁵. This has three consequences (Bartholomew et al., 1998; Sallis et al., 2015):

¹¹⁵ As mentioned earlier (in Chapter 5, under the heading *5.3. Defining Theory*), a model is a limited conceptual framework that only offers a partial or oversimplified description of a phenomenon. It is often depicted in the form of a diagram or similar visual summary. Although such a visual representation might become popular as a way to effectively summarise key theoretical ideas, the visual representation is, on its own, not a complete theory as a lot of detail (e.g., the exact relationship between variables) is absent.

1. Firstly, the model is not detailed enough to specify the exact variables which are relevant at each level and how these variables might influence one another. The causal pathways within the model are, therefore, not clearly and explicitly detailed.
2. Secondly, this lack of specificity means that the model does not have clearly articulated concepts, propositional statements or assumptions. As a result, hypotheses cannot be easily formed to test or falsify the model.
3. Thirdly, the onus thus falls upon the researcher to draw upon past literature, data and their own expertise in order to complete the model into a conceptual framework that could be useful for research and intervention purposes.

Many socio-ecological frameworks, therefore, lack the necessary detail in order to sufficiently support the development and implementation of rigorous research studies and interventions.

The majority of socio-ecological research in this study, be it applied or basic, focussed on the socio-ecological levels themselves, yet the conceptual inter-relationships, mechanisms and processes that exist between these levels were not always as clearly articulated. The vague use of theories coupled with the overreliance on models and the limited use of theories might be two of the reasons for this shallow understanding of causal pathways within and between socio-ecological levels in the HIV field.

b) Numerous practical, technical and methodological constraints

It is worth noting that there are many practical, technical and methodological issues that make multi-level and systemic research incredibly challenging. Conducting and evaluating multi-level interventions are time-consuming and resource-intensive. In addition, these types of interventions are typically carried out in communities that are essentially open systems where the influences of other national-level interventions and other community-level events can have an effect on the research participants. Given the complexity of these interventions, it is difficult to measure every possible multi-level interaction to clearly ascertain causal pathways (Salmon et al., 2020). A robust evaluation methodology that involves randomisation, the use of counterfactuals and a multi-level analytic approach should be able to allow for the measurement of such multi-level interaction in a more precise manner. However, given the importance of context in the Socio-Ecological paradigm, isolating participant groups from each other and the so-called “outside world” may run counter to the ethos of the paradigm (Sallis et al., 2015). In addition, rigorous experimental studies are typically very expensive, necessitate

large sample sizes that are not always practically feasible and require advanced technical expertise that is not always available.

c) Limitations in systems thinking

Systems thinking is sometimes criticised for being fragmented and unscientific (Rountree, 1977). This criticism mostly centres around systemic thinking as being largely based upon abduction and retroduction as the main modes of inference. These forms of inference can be used to reinterpret observations in a way that fits pre-conceived, even biased views of the world that are not necessarily truthful reflections of reality. Given that it is not possible to assess the validity of these inferences in a definitive manner, critics of systems thinking are sceptical of the scientific status of systems thinking (and, by extension, the validity of the systems approach) (Rountree, 1977; Danermark et al., 2019).

d) Research that misconstrues the dynamic determinism of Socio-Ecological and Systems theories

A large proportion of the research that used the Socio-Ecological and Systems paradigm in this study tended to default to viewing causation as following a downward pattern from the higher-order to the lower-order levels, which suggests a deterministic point of view. In their review of Bronfenbrenner's Socio-Ecological Framework literature, Tudge et al. (2016) made a similar observation that researchers sometimes make the mistake of viewing the framework as a mechanistic theory rather than as a contextualist theory and, as a result, overemphasise the influence of context on the individual. Moreover, Tudge et al. (2016) highlight that researchers may also make an organicist assumption that there is a root or final cause to a phenomenon, while contextual theories (such as Bronfenbrenner's Socio-Ecological Framework) do not assume a causal endpoint and instead consider causality as emergent, a product of the complex interplay of multiple variables.

As mentioned in Chapter 5, the growing interest in structural factors and their impact on health behaviour has shifted health research towards a top-down view of causation. One could argue that an overtly top-down causal perspective deprives the individual of their agency, dilutes the complexity of the theory, and takes the nuance and the interestingness out of explanations for behaviour by focusing more on the higher-level, often more abstract, societal and structural forces. Conversely, as many have argued in the field of HIV (as discussed in Chapter 8), a top-down causal perspective relieves the individual of undue personal responsibility for behaviours

that are shaped by factors that are not necessarily always under his or her control (Sallis et al., 2015). The Socio-Ecological and Systems-based paradigm supports a dynamic form of determinism whereby causality is conceptualised as flowing in both directions and is not permanently affixed to either the micro- or the macro-level. However, given the observation in this study that most of the research tended to adopt a downward view of causation, the dynamic interplay between downward and upward causation in this study field has largely been left unexplored.

e) Challenges in working with aggregate data and the risk of committing the ecological fallacy

Socio-ecological and systems-based research typically collects data on multiple societal levels, often aggregated data from large groups and communities. Such studies could fall into the trap of committing the ecological fallacy by assuming that population-level associations directly reflect individual-level phenomena. In other words, an incorrect inference could be made about individual-level phenomena based on the analyses of the aggregate group- or population-level data, because it is wrongly assumed that the individuals all share the same average characteristics of the population (Morrone & Myer, 2014). Unknown or unexamined confounding variables may lead to the identification of spurious correlations on the population- or group-level, which will lead to mistaken conclusions about individual-level phenomena. This potential risk is especially likely in ecological studies that do not control for confounding factors and where the aggregate units are large, as this increases the likelihood for confounders to emerge (Cassels et al., 2014).

In addition, many of the higher-level factors that are identified as determinants of HIV risk and other HIV-related health behaviours, such as poverty and social cohesion, are difficult to measure in a valid and reliable manner. Although population-level measurements (e.g., indexes) exist for these concepts, they remain multi-faceted and are not consistently defined in the same way across all studies.

f) Achieving long-term, sustainable impact

Furthermore, these higher-level factors are notoriously difficult to change and would require long-term and comprehensive socio-economic and political changes that are largely out of the immediate control of social scientists or health professionals (Sallis et al., 2015). Moreover, the provision of grants and other incentives may work in the short term, yet they are not

sustainable in the long run, and, as mentioned in Chapter 8, our understanding of their efficacy in changing behaviour remains limited. Consequently, it is not uncommon for researchers who utilise the Socio-Ecological and Systems-based paradigm to recommend that policies should be amended or the government should launch particular programmes in light of their findings. As DiClemente et al. (2005) state in their paper on the importance of utilising socio-ecological frameworks for STI prevention and treatment: "...it is critical to note that implementation of this framework necessitates the ability to influence policies at several levels. Indeed, it should be noted that policy could be considered as the cornerstone of a socio-ecological approach" (p. 831). Hence, while socio-ecological and systems-based interventions may provide promising findings, the extent to which they will attain real-world success lies to a large degree in their ability to attract the attention of policymakers and persuade governmental stakeholders to continuously fund such programmes (Tsai, 2012).

g) Advances the idea of theoretical unification

Another observation of the Socio-Ecological and Systems-based paradigm is that it essentially hints at the possibility of a unifying theory of behaviour. As discussed in Chapter 5, the unification of a study field is virtually impossible and would not necessarily even be useful or desirable for the social sciences. Hence, it is more likely that Socio-Ecological and Systems-based theories would continue to be used in conjunction with other theories or be used as a framework for the combination of different theories rather than become an overarching theory on its own.

h) Pervasive unspecific use of theories

Lastly, as mentioned earlier in Chapter 8, researchers often report on the Socio-Ecological and Systems-based paradigm in vague and unspecific terms. In their review of the Socio-Ecological literature, Colding and Barthel (2019) found that a consistent, unified definition of socio-ecological systems appeared to be absent. As mentioned at the start of this section, generic socio-ecological models lack specificity, including detailed descriptions and definitions of concepts, propositional statements and assumptions. In addition, the idea of the world as stratified into multiple levels from the individual to society has almost become universal, perhaps even taken for granted, and may not be so closely tied to one specific socio-ecological theory (except perhaps for Bronfenbrenner's framework). This lack of a clear definition and the universality of the concept might be two of the reasons why the paradigm is reported on in such a vague and unspecific manner.

9.5. Conclusion

This chapter fulfils the third and final aim of this study, which was to conduct a meta-theoretical analysis of the most prominent paradigms that have been applied to the socio-behavioural study of HIV and AIDS in South Africa. I conclude this thesis in the next chapter by summarising the study's key findings, including the main insights gained from this meta-theoretical analysis and the implications thereof for research, theorising and practice.

Chapter 10: Conclusion

“The game of science is, in principle, without end. He who decides one day that scientific statements do not call for any further test, and that they can be regarded as finally verified, retires from the game.” – Karl Popper (1935/2002, p. 32)

“We are drowning in information, while starving for wisdom. The world henceforth will be run by synthesisers, people able to put together the right information at the right time, think critically about it, and make important choices wisely.” – E.O. Wilson (1999, p. 294)

10.1. Introduction

This study aimed to critically examine the use of theory in the scientific inquiry of the social and behavioural aspects of HIV and AIDS in South Africa. This examination was conducted across four phases, which involved:

1. Conducting a comprehensive literature search to identify and collect details from peer-reviewed articles that documented the study of the social and behavioural aspects of HIV and AIDS in South Africa from 1981 to 2020 (Phase 1).
2. Performing a thematic analysis of these articles within an *a priori* framework that distinguished between five overarching themes, namely *prevention, care and support, testing and treatment, living with HIV*, and the *impact of HIV and AIDS* (Phase 2, Research Objective 1).
3. Conducting a theoretical analysis of the articles, which included studying theory visibility, the theoretical contribution of the articles and identifying the types of theories that were reported in the literature and the trends in their use over time (Phase 3, Research Objective 2).
4. Creating a meta-theoretical analysis framework and using it to critically examine the most prominent paradigms in the literature (Phase 4, Research Objective 3).

This chapter serves to conclude the thesis by summarising the key findings of the study; discussing the implication of these findings for future basic and applied research; noting some

of the most important limitations of the study, and corresponding recommendations for how future studies of this nature could be strengthened; and highlighting the study's significance.

10.2. Summary of Findings

The main findings of this study are summarised below.

10.2.1. Research Themes and Publication Trends

As discussed in Chapter 7, under the heading 7.3. *Publication Trends and Research Methods*, there was limited academic interest in the social and behavioural aspects of HIV and AIDS in the 1980s and 1990s in South Africa. The true magnitude of the South African HIV epidemic was underestimated at the time and calls by some scientists to address the epidemic more decisively were not heeded. Consequently, the early years of the South African HIV epidemic were characterised by low social and behavioural research interest in HIV and AIDS. The number of publications in this research area only started to increase markedly in the early 2000s as the true devastating extent of the epidemic became more apparent and ART became more widely accessible.

As discussed in Chapter 7, under the heading 7.4 *Research Themes*, the focus of most research projects that studied the social and behavioural aspects of HIV in South Africa centred around HIV prevention (51.5% of the entire literature base from 1985 to 2020). The most common research sub-topics included the study of sexual risk behaviours; HIV prevention amongst the youth; knowledge, attitudes and beliefs about HIV, sex, relationships and health; and the socio-behavioural aspects of biomedical HIV prevention.

As discussed in Chapter 7, under the heading 7.5 *Intervention Techniques and Approaches*, the most common intervention strategy was education and awareness raising. However, by the late 2000s and 2010s, other intervention methods, especially capacity building and skills development, as well as community engagement, mobilisation, and other participatory approaches, started to become more prevalent.

10.2.2. Theory Visibility

As discussed in Chapter 8, under the heading 8.2 *Theory Visibility*, a total of 50.1% (n = 1 908) of articles seemingly did not use theory. A total of 1899 (49.9%) articles reported the use of one or more theories. Of those articles that reported theory use: 61.8% (n = 1 174) used theory explicitly and named the theories they were using directly, 12.2% (n = 231) used theory explicitly but named the theories in vague terms, and 26.0% (n = 1 405) used theory implicitly.

Most articles that demonstrated theory use applied aspects of the theory fairly consistently throughout the study (30.4%; n = 1 156).

Theory visibility trends remained relatively stable from 2000 to 2020; however, a gradual decrease in the implicit use of theory was observed.

The explicit use of theory appeared to be more common in qualitative papers and in articles that covered the social and psychological impact of HIV and AIDS, care and support and prevention.

Theories were the least visible in quantitative papers and in articles that pertained to HIV testing and treatment. Articles on compensatory risk behaviour, the use of incentives and peer-based strategies were also found to lack a theoretical basis.

10.2.3. Theoretical Contribution

As discussed in Chapter 8, under the heading 8.3 *Theoretical Contribution*, most articles demonstrated both low theory building (46.1%; n = 972) and theory testing (55.3%; n = 1 166). Explicit tests of theories were particularly rare (1.8%; n = 37).

Theories were mostly used to serve as guiding frameworks for studies or to explain empirical research findings retrospectively.

Theoretical contribution remained relatively stable over time. The theoretical contribution was the highest amongst papers that used theory explicitly, and especially amongst papers that directly stated the name of the theory and explained it clearly.

By contrast, the theoretical contribution was markedly lower in papers that made explicit but vague use of theory and, in particular, amongst papers that made implicit use of theory. Articles that seemingly did not use theory demonstrated the lowest theoretical contribution.

10.2.4. Theoretical Trends

As discussed in Chapter 8, under the heading 8.4 *Prominent Conceptual Frameworks and Trends Over Time*, Socio-Behaviourism, Critical Theory and the Socio-Ecological and Systems paradigm were the three most prominent paradigms in the literature. More specifically, Socio-Behaviourism was the most dominant paradigm in the 1980s and 1990s; however, by the late 1990s, the Interpretive paradigm, Critical Theory and the Socio-Ecological and Systems paradigm started to make inroads into the literature. From the 2000s onwards, Socio-Behaviourism started to gradually lose its prime position in the literature. At the same time,

other paradigms, in particular Critical Theory and the Socio-Ecological and Systems paradigm, gained more ground. By 2020, the majority of theory-based literature drew upon the Socio-Ecological and Systems paradigm (27.1%) and Critical Theory (26.4%).

Within Socio-Behaviourism, the Reasoned Action Approach (Ajzen, 1991; Fishbein & Ajzen, 2010) was the most common theoretical approach. Feminist theories (e.g., Connell, 1987) were the most prevalent Critical theory, and Bronfenbrenner's (1979) Socio-Ecological Framework was the most frequently used Socio-Ecological and Systems theory.

Neuro-Cognitive Psychology and Behavioural Economics are gradually emerging as a new paradigm in the socio-behavioural study of HIV and AIDS in South Africa.

The theoretical bases of risk perception, risk compensation, incentivisation and peer-based strategies were found to be underdeveloped in the South African literature.

10.2.5. Meta-Theoretical Analysis

A meta-theoretical analysis was conducted on Socio-Behaviourism, Critical Theory and the Socio-Ecological and Systems paradigm (see Chapter 9).

10.2.5.1. The philosophical level

The analysis on the philosophical level entailed examining each paradigm's ontological and epistemological assumptions and then, based on those assumptions, offering ontological and epistemological assumptions about sexual and reproductive health behaviour and the study of HIV and AIDS. The main conclusions of this analysis are summarised below. The purpose of this summary is to highlight important differences and commonalities amongst the paradigms.

While Socio-Behaviourism is mostly based upon realist ontological and positivist epistemological principles, Critical Theory and the Socio-Ecological and Systems paradigm lean more towards critical realist ontological and epistemological positions.

Critical Theory and the Socio-Ecological and Systems paradigm view the world as being comprised of multiple levels. However, Critical Theory's multi-layered view of the world is less literal than the Socio-Ecological perspective and instead suggests that there are social structures that function on the actual (i.e., the deepest) ontological level (not directly perceivable by us), which produces social reality.

All three paradigms support non-reductionism and an emergent view of human behaviour and social phenomena. There is a particularly strong emphasis on these two positions in the Socio-

Ecological and Systems paradigm. However, when taking a closer look at the way in which these theories are applied to the study of HIV, it is noticeable how the majority of research neglects emergence, even when using theories that are based on emergent assumptions of causality¹¹⁶.

Although there are differences in terms of their respective views on human agency, all three paradigms support the general assumption that there is some degree of a dynamic interplay between the individual and their external environment. However, the extent to which individuals are able to exert control over their environment differs. In particular, Socio-Behaviourism tends to place a relatively greater emphasis on the agency of the individual, whereas Critical Theory has a bounded view of autonomy which leads to a more restricted human agent. It is noticeable how research on health behaviour in recent years has shifted towards a view of causation that favours and perhaps over-emphasises top-down causal explanations. In doing so, structure is given precedence over agency, which leads to a reductionistic, downwards conflation of structure and agency. As discussed in Chapter 4¹¹⁷, Archer (1995) argues that the lack of attention to emergence has played an instrumental role in the social sciences' over-emphasis on either structure or agency. Critical Realism's view of the relationship between structure and agency (Bhaskar, 1979/2014; 1993/2008) and Archer's (1982; 1995) morphogenetic analytical scheme provide a productive solution to this issue. To this end, both Bhaskar (1979/2014) and Archer (1995) maintain that structure and agency are distinct but mutually dependent phenomena. Structure logically exists prior to action as it sets the material causes for human action; however, action can transform structure, resulting in structural elaboration over time.

Socio-Behaviourism views humans as thinking, motivated individuals who regulate their behaviour. Critical Theory understands humans to be the products of society and the historical development of that society. The Socio-Ecological and Systems paradigm views humans as multi-systemic beings, considered to be part of a much larger multi-level system.

Socio-Behaviourism is more inclined toward the use of experimental and quantitative research methods. Critical Theory favours historical-comparative, qualitative and participatory research

¹¹⁶ See Chapter 9, under the headings 9.2.4.3. b) *Underutilisation of the assumption of emergent causation* and 9.4.4.3. d) *Research that misconstrues the dynamic determinism of Socio-Ecological and Systems theories*.

¹¹⁷ Under the heading 4.5. *Structure and Agency*.

approaches. The Socio-Ecological and Systems paradigm is aligned with multi-methodologies and inter-disciplinary research.

The ideal of science and the purpose of scientific knowledge, according to Socio-Behaviourism, is to support efforts to change unhealthy, maladaptive and harmful behaviour and, in so doing, contribute to a healthier society. Critical Theory views science as being meant for critiquing and problematisation, the uncovering of underlying power structures and ultimately, the transformation of society. According to the Socio-Ecological and Systems paradigm, scientific knowledge should be practically useful, in particular to policymakers, applied researchers and practitioners. Hence, while all three paradigms intend for social science to influence society and change people's behaviour, Socio-Behaviourism does so by focusing mostly on the individual (and immediate social contacts), whereas Critical Theory and the Socio-Ecological and Systems paradigm are aimed at groups, communities and society as a whole.

When applied to the study of HIV and AIDS, these underlying ontological and epistemological assumptions reveal the following implicit perspectives on the socio-behavioural aspects of HIV and AIDS and how it should be studied:

- a. Socio-Behaviourism: People are at risk for HIV infection due to engaging in risky sexual behaviours. These behaviours are (mostly) intentional and were established through learning. These behaviours, and the cognitions that support the intention to engage in those behaviours, can be unlearned and adapted through education, the development of skills and self-efficacy, and the development of a supportive environment. Social scientists should study the behavioural and cognitive factors that drive HIV risk behaviour (and other behaviours of interest, such as stigma and adherence). This can be achieved by studying the perceptions, attitudes, knowledge, intentions and practices of individuals.
- b. Critical Theory: Social, political, economic and cultural factors influence people's vulnerability to HIV infection, their ability to cope with the disease, access and adhere to treatment and the extent to which they experience stigma. Social, economic and health inequalities in society causes some groups to be more affected by HIV and its devastating outcomes than other groups. Social scientists should study power differentials in society through a critical and socio-historical lens in order to identify and shed light upon the underlying social structures that produce these inequalities.

Interventions should aim to empower the disempowered and strive toward social transformation.

- c. Socio-Ecological and Systems paradigm: Vulnerability to HIV infection and the various social phenomena that are related to HIV and AIDS are produced by the emergent interaction of multiple, interrelated biological, psychological, social and environmental systems. Social scientists should endeavour to obtain a contextual understanding of social and behavioural phenomena and study the dynamic inter-relationships between societal levels. Interventions should involve the manipulation of environmental and societal factors on multiple socio-ecological levels.

While there are various points of connection among the three paradigms, it is evident that Socio-Behaviourism and Critical Theory stand in contrast to each other, while the Socio-Ecological and Systems paradigm is compatible with both positions and could easily be used alongside Socio-Behaviourism and Critical Theory.

10.2.5.2. The theory level

The analysis on the theory level involved providing a short overview of the most prominent theories within each paradigm and then offering a concise discussion, with some critique and reflections on three theories that were common in the literature. The analysis demonstrates that each paradigm (and the various theories that are based within it) attempt to capture different aspects of the social world and vary in terms of their ability to inform research and practical application.

Socio-Behaviourist theories focus primarily on the factors and mechanisms through which behaviour can be predicted and changed. Causal pathways are typically clearly articulated, and concepts are relatively well defined. Socio-Behaviourist theories are mostly contextless and thus highly generalisable for different research topics. These theories tend to be mostly problem theories meant for explaining and predicting behaviour, although some, like the Information-Motivation-Behaviour Skills Model and the Social Cognitive Theory, are also action theories, offering direct guidance on how to create behaviour change interventions. The theories allow for the empirical study of phenomena, and they can also be tested and falsified through empirical testing.

Critical Theories are not theories in the traditional sense, but rather explanatory frameworks, philosophies, concepts, typologies and methods. They primarily comment on the structure of society, especially how social, cultural and political factors shape society and the socially

constructed norms that predominate in it. Hence, Critical Theories serve as frameworks from which to critique, problematise and explain social and behavioural phenomena. Some Critical Theories (especially the empowerment through participation theories) are action theories, while most are socio-historical theories that explain and describe social phenomena rather than provide direct guidelines for action. Although most Critical Theories tend to be known by their concepts (e.g., the concept of hegemonic masculinity, which is part of Connell's Theory of Gender and Power), these concepts can sometimes still remain vague, and the theories themselves rarely provide clear and unambiguous guidance on what the precise relationships are between concepts. Although some theories describe how causal relationships between theoretical concepts are structured, they are usually not described in sufficient detail to allow for empirical testing of the theory, or to guide how precisely interventions should be implemented to change structural and contextual factors.

Theories in the Socio-Ecological and Systems paradigm are mostly descriptive frameworks that describe how society is structured, how human development takes place, and/or how social and behavioural phenomena are shaped by multiple societal levels. Socio-Ecological and Systems theories represent a logical, common-sense view of society. These theories emphasise emergence and causal pathways are, therefore, often bi- and multi-directional. Although some theories were designed with a specific purpose (e.g., Bronfenbrenner's Ecology of Human Development), most Socio-Ecological and Systems theories are highly generalisable. While they seem quite simple, especially when only considering their visual summaries, they are, in reality, far more complex.

10.2.5.3. The data level

Analysis on the data level involved examining the research topics and methods that were most often associated with each paradigm; the practical application of each paradigm; and evidence to support theories from each paradigm.

Socio-Behaviourism research was primarily quantitative, and the topics revolved largely around cognitions (knowledge, perceptions, attitudes, intentions) and risk behaviours. Critical Theory-based research was predominantly qualitative and focused especially on the gendered aspects of HIV and AIDS, women, sex workers, members of the LGBTQI community, stigma, and vulnerable communities. Studies in the Socio-Ecological and Systems paradigm used quantitative and qualitative methods to roughly the same extent. Research drawing upon this paradigm mostly involved studying groups, dyads and communities. Socio-Ecological and

Systems models were also typically used as frameworks for summarising and organising research findings.

Socio-Behaviourist theories were the most commonly used for behaviour change intervention purposes (especially the Social Cognitive Theory) and were mostly directed at changing intra- and interpersonal behaviour, but were also applied on group and community levels. Critical Theory interventions were mostly based on Freire's Critical Pedagogy, most often involved participatory group and community approaches and typically aimed at creating critical awareness and community-led social change. Interventions that utilise Socio-Ecological and Systems theories typically used the theories as overarching frameworks to guide multi-level interventions. While some interventions were only based on a single paradigm, many interventions drew upon theories from different conceptual approaches. To this end, Freire's Critical Pedagogy was often combined with Social Cognitive Theory and the Theory of Planned Behaviour. Socio-ecological and systems models were rarely used on their own and were often combined with a variety of Critical theories and Socio-Behaviourist theories.

Socio-Behaviourist theories (in particular, the Reasoned Action Approach, the Health Belief Model, and the Information-Motivation-Behavioural Skills Model) were the only theories that were explicitly tested. The Social Cognitive Theory, Critical Theories and Socio-Ecological and Systems theories were not tested but applied in interventions. Explicit tests of Socio-Behaviourist theories produced generally favourable results; however, effects tended to be small-to-medium sized.

Most interventions, from all paradigms, tended to be the most effective at improving knowledge, attitudes and intentions, but were less effective at changing behaviour, especially behaviour that is considered to be directly related to HIV infection risk. Changing behaviour in a sustainable way over many months and even years post-intervention was not particularly common, and some evidence suggested that while some aspects of intervention impact might persist, other studies demonstrated diminished effects over time. Moreover, most of the positive outcomes tended to be on the individual and interpersonal levels, while larger-scale community-level changes were uncommon. Although the majority of studies did not measure HIV and STI incidence as an outcome, those studies that did measure incidence found that the interventions did not seem to contribute to a reduction in HIV incidence. Only a few isolated interventions contributed to some reduction in STI incidence.

This evidence demonstrates that the increased use of Critical Theory or Socio-Ecological and Systems theories in interventions has not translated into more effective behaviour change outcomes compared to interventions that are entirely based upon Socio-Behaviourist theory.

Numerous methodological issues were observed. They were most visible in the studies that utilised Socio-Behaviourist theories, because these studies were more often tested directly and used in interventions. Yet these methodological weaknesses were also common in interventions that drew upon theories from other paradigms. This severely limits the reliability and validity of the evidence that we have to assess the theories' predictive value and utility. The most pernicious methodological issues and problems with the evaluation of theory and the interventions that are based on theory included:

- a. The limited number of direct tests of theory, especially studies that test all components of the theory, and few rigorous outcome (i.e., effectiveness, impact) evaluations of interventions.
- b. Misleading and inconsistent operationalisations of constructs.
- c. Over-reliance on self-report data and the limited use of objective data sources (e.g., HIV and STI incidence).
- d. Research designs and analysis methods which do not allow for the proper testing of theory. This includes using qualitative data exclusively for evaluation purposes, convenience sampling methods, cross-sectional, correlational, non-randomised research designs, the lack of comparison conditions, and limited longer-term follow-up assessments.

10.2.6. Unreflective and Poor Use of Theory

The theory and meta-theoretical analyses revealed critical issues regarding how theories were used in the literature. These issues can be summarised as follow:

- a. The implicit and vague naming of theories
- b. The imprecise citation of theories
- c. The incorrect, oversimplified and partial application of theories
- d. Misperceptions about theories and their underlying assumptions
- e. Lack of attention paid to emergent causality and dynamic determinism
- f. Inconsistent evidence base
- g. Uncritical interpretation of theory testing results.

The unreflective and poor use of theories contributes to the weaker understanding of those theories and their continued misuse, including the incongruent use of theories and research methods. It also contributes to the weak testing and critical examination of theories, which ultimately hampers efforts to evaluate them thoroughly. This prevents invalid theories from being discarded and perpetuates the continued use of inadequate theories.

10.3. Concluding Reflections and Implications of the Findings

The competition of opposing ideas and perspectives is clearly observed in the study of HIV in South Africa. This study's findings demonstrate how the social and behavioural study of HIV and AIDS in South Africa developed from being largely a psychological (specifically, Socio-Behavioural) research programme, to increasingly becoming more socio-ecological and critical.

Globally, there has been a paradigm shift towards multi-level conceptualisations of social and health issues, and in particular, a greater focus on public health (i.e., focussing on population- and group-level health outcomes) as opposed to individual-level health outcomes (Moore et al., 2019). Additionally, in the study of behaviour change, there is a shift currently underway from conceptual approaches that favour reflective psychological processes (e.g., Socio-Behaviourism) toward reaction-based conceptualisations of human behaviour (e.g., Behavioural Economics) (Armitage, 2014). These shifts are also visible in the South African HIV literature, and one can expect them to become even more evident in the coming years.

In particular, Behavioural Economic approaches to studying behaviour and nudging as a technique to promote desirable behaviour are becoming particularly popular in the behavioural sciences and are expected to become more commonly used in the study of HIV in South Africa (e.g., Indlela, 2022). Behavioural economic approaches are already used to study product preferences (e.g., Vickerman et al., 2020) and may have further utility in helping researchers determine how best to create demand for bio-medical HIV prevention products. Neuro-Cognitive Psychology and Behavioural Economics are likely going to receive the same types of critique that Socio-Behaviourism faced in the HIV literature, given their roots in Behaviourism and Cognitivism, and in nudge's case, its libertarian paternalism position (see Leggett, 2014).

In the case of Behavioural Economics and nudging, contention exists regarding how these approaches view behaviour as being largely reactive and the product of a combination of

deliberate choices, intuitive biases and the immediate environment in which decisions are made (Mols et al., 2015). In contrast, most Socio-Behaviourist, and even Critical theory-based, interventions tend to place most of the emphasis on engaging with reflective processes, assuming that behaviour change involves deeper-seated and more comprehensive thought processes. Nudging and similar top-down approaches rely almost entirely on reactive behavioural and thought processes, are often done covertly and have been used to justify behaviour change through paternalistic policies (Lusk, 2014). While nudging might be able to produce favourable behavioural outcomes in the short term, in some instances, it raises questions about ethics and sustainability. As Tsai (2012) aptly states: “Whether people can be durably nudged, prodded, or shoved into abstinence, protected sexual intercourse, partner reduction, or adherence to HIV antiretroviral therapy-based prevention regimens remains to be seen” (p. 1566).

The paradigm shifts observed in the HIV and general public health literature are perhaps not entirely Kuhnian scientific revolutions, as the “old” paradigm is never completely replaced; however, it is considered to be a significant turning point, and the influence thereof has spread across various countries and scientific communities. The paradigms that are currently in use (i.e., Socio-Behaviourism, Critical Theory, Interpretivism, Humanism, the Socio-Ecological and Systems paradigm, Communication and Media Studies, Neuro-Cognitive Psychology and Behavioural Economics) each attempt to answer different types of questions about the social world and some have fundamentally different and even opposing ontological and epistemological positions. Each one, therefore, has its own ideal purpose and is appropriate for certain types of studies, but not necessarily for others. Although the use of Socio-Behaviourism has declined in the HIV literature in recent years due to continued criticism and frustration with its limitations, it cannot be entirely replaced by other paradigms as they are not necessarily as well equipped to study the same types of research questions, nor inform practice in the same way.

The application of weak research designs and methods, as well as the unreflective and poor use of theory, represents two major obstacles to our ability to comprehensively test theories and make reliable judgements over the validity and utility of our theories and the scientific knowledge that is produced from them. Although much attention is often, understandably, placed on the strengthening of research methodology in an effort to improve the HIV research field, I would like to argue that uncritical and monological theorising are underappreciated and overlooked issues which should receive more attention in the HIV literature. Many of the

problems that plague the field, in particular, the poor intervention outcomes and the seemingly stagnated development of the socio-behavioural study of HIV, can be attributed to the incorrect and unreflective use of theory.

While this study focused primarily on the HIV field, Psychology and the South African context, it is important to note that the relevance of these findings could also be extended to research in other disciplines in the social and behavioural sciences, both locally and internationally. Studies that performed similar analyses of theory use in other locations, disciplines and fields (i.e., beyond the confines of HIV, Psychology or South Africa) have made similar observations about theory use, including limited explicit theory visibility (e.g., Davies et al., 2010) and incorrect use of theories (e.g., Tudge et al., 2016). Moreover, given that a large proportion of the articles in this study were authored, either entirely or partially, by international researchers, it is likely that the theory trends observed in this study reflect trends in theoretical approaches that are present in the HIV field and the social and behavioural sciences globally. In addition, the findings of this study seem to corroborate the observations of others who have noted similar paradigmatic trends in the social and behavioural sciences over the last four decades (i.e., an increase in the prevalence of critical and socio-ecological conceptual approaches) (e.g., Salway & Green, 2017). In contrast, the research themes that were identified in this study reflect the unique epidemiology and social context of South Africa. Research on the thematic focus areas of HIV research in other geographical locations, such as Asia or North America, might reveal markedly different points of scientific interest given the unique dynamics that are present in those HIV epidemics (e.g., a greater focus might be placed on MSM, sex workers and injection drug users).

10.4. Recommendations for Research and Practice

Based on the findings of this study, the following recommendations are made for researchers and practitioners in the South African HIV field and Social and Health Psychology.

Given that a lack of in-depth knowledge about relevant theory might be one of the reasons why theory is not used or used weakly and in uncritical ways, it is recommended that both researchers and practitioners engage more with the theories in their fields, and even with theories that might be relevant to their work but are based in other, related disciplines. In particular, it is recommended that researchers and practitioners engage directly with the original theoretical source materials, choose secondary sources carefully and be less reliant on secondary sources. This requires scepticism and critical thinking, as well as a willingness and

open-mindedness to step outside of one's preferred conceptual framework, examine it objectively and explore other ways of understanding with the same sceptical mindset.

More explicit, systematic and comprehensive tests of theory should be conducted. To this end, the entire theory should be tested, appropriate and rigorous research methods should be used, concepts should be operationalised properly and accurately, all concepts should be appropriately measured, and inter-relationships between concepts should be assessed. Theories that cannot be tested directly should be subjected to thorough and systematic examination to explore their validity, logical coherence and utility, as well as to clarify their ontological and epistemological assumptions and the implications thereof.

Theories should be used in a way that corresponds with what they truly propose and must be appropriate for the research topic, question, methodology and study type. Theories should be used in their entirety. Moreover, researchers and practitioners should keep in mind that models and concepts are not full theories and are limited in terms of what they can be used for.

Researchers should recognise the limitations of the conceptual frameworks that they are using and question (i.e., be sceptical of) their underlying assumptions. When a test of theory fails or delivers unexpected results, researchers should reflect upon all possible areas which could have caused the failure (e.g., methodology, implementation, environment), including (and especially) the possibility that the theory itself might be invalid and/or based upon flawed assumptions.

It is recommended that researchers pay closer attention to the possibility of emergent causality in their research. They should be wary of assuming linear, downward or upward causation, especially given the complexity of social and behavioural phenomena. Researchers should design studies in such a way that they would be better equipped to identify emergent causal processes.

It is strongly recommended that intervention planners make use of structured frameworks such as Intervention Mapping (Bartholomew et al., 1998) and ADAPT-ITT¹¹⁸ (Wingood & DiClemente, 2008) to guide the intervention development process. It is also recommended that intervention developers consider integrating explanatory (problem) theories with action (change) theories when developing an intervention and/or when evaluating interventions. The theory coding scheme of Michie and Prestwich (2010) may also be helpful as a guide to ensure

¹¹⁸ ADAPT-ITT: Assessment, Decision, Adaptation, Production, Topical experts – Integration, Training, Testing.

that the intervention is appropriately aligned with the relevant theory (or theories) and that theory use is properly reported on in publications. Moreover, in-depth ethnographic research with groups and individuals who are comparable to the intervention recipients is essential to ensure that the intervention topic, strategy and approach are appropriate, salient and feasible. Throughout the course of an intervention, thorough monitoring data collection should occur, and this data collection should entail the gathering of actual behavioural data (e.g., HIV and STI testing).

Given the limited reporting of theory and the weak descriptions of it in most peer-reviewed papers, it is recommended that authors should be encouraged to state their theoretical point of departure explicitly or, if a specific theory was not used, that they, at the very least, state their ontological and epistemological assumptions. Theories should be referred to directly, and authors should guard against mentioning theories or theoretical concepts in vague terms. Ideally, authors should also elaborate on their reason for choosing a theory (i.e., what factors influenced their decision and what they hope to achieve through using that particular theory). Furthermore, authors should be encouraged to provide as many detailed descriptions as possible of how precisely the theory was applied to the study and/or intervention. Peer reviewers and journal editors can also play an important role in this regard by identifying inaccuracies in the use of theory and promoting explicit discussion of theory in manuscripts.

Researchers interested in conducting similar studies by analysing theory use and visibility in the academic literature would be well served to make a clear distinction between explicit and implicit theory usage and perhaps to even refine that distinction further. The theory coding scheme of Michie and Prestwich (2010) is a helpful instrument that can be used to do a fine-grained analysis of theory use in intervention papers.

10.5. Limitations of the Study

When considering the findings of this study, it is important to take note of its limitations. These limitations highlight where possible weaknesses in this study might be and where opportunities for future research could improve upon this research.

In this review, the focus was placed exclusively on academic, peer-reviewed journal articles. However, there is a great deal of HIV-related socio-behavioural research papers and descriptive reports about the development and evaluation of HIV prevention interventions which are not documented in the academic literature, such as programmes conducted by governmental and non-governmental as well as community-based organisations. Moreover, one could also argue

that peer-reviewed articles are more likely to mention theory, as the articles are written mainly by academics who are generally more familiar with theory than their non-academic counterparts. Hence, the results of this study should be clearly understood as being limited to the peer-reviewed published literature and that it may not directly reflect HIV research and practice outside of the peer-review literature context.

I decided to focus on peer-reviewed journal articles as they represent a high-quality scientific literature base, can be found relatively easily with systematic searches and thus makes this review, to a large degree, also replicable. Searching for unpublished documents may be more resource intensive, and given that most unpublished documents may not be available online, identifying and gaining access to them would have been a time-consuming challenge. However, it would be insightful to conduct a follow-up study where a similar meta-theoretical analysis is applied to unpublished literature and to see how theorising compares to that of academic literature.

The full texts of a total of 76 papers were not publicly available. These papers represented 2% of the total number of articles that were included in the study. They were all published between 1985 and 1999 and represented 28.4% of all the articles included in the study in that time frame. Despite conducting thorough database and internet searches, the full articles of these 76 studies could not be located. This limited the extent to which these articles could be analysed. All the information that could be found in these articles, including their abstracts and descriptions about them in other articles which cited them, was used as far as possible.

While the implicit and vague reporting of theory was a central part of this study's findings, it also added to the difficulty in properly examining where and how theories were applied. Scientists may have been influenced by a theory far more deeply than they reported in their publications. This study, therefore, only offers insight into how theories were referred to in the literature. Future research might be able to extend our knowledge of how researchers and practitioners use theory, perhaps by interviewing them directly.

The analysis of quantitative data in this study entailed only descriptive statistics. Data trends over time and differences between groups and categories were not tested for statistical significance. Therefore, the significance of the observed trends over time and the differences between groups and categories should be interpreted with caution.

Although structured review guides were used, the researcher was alone in her task of reviewing papers for relevance and for collecting theory-related data from them as part of the theory

analysis. Hence, there is the possibility of systematic error being present in the way the articles were reviewed and analysed, which might influence the reliability of the findings. Future studies could be strengthened in this regard by using multiple reviewers, similar to the methodology employed by Michie and Prestwich (2010) and Poucher et al. (2020).

Lastly, as with any taxonomy and classification system, Colquitt and Zapata-Phelan's (2007) taxonomy of theoretical contribution for empirical articles can be argued to over-simplify the nature of theory testing and theory building. Moreover, the taxonomy does not allow for an evaluation of quality (e.g., how interesting or theoretically significant an article's contributions were), nor the extent to which methodological innovation may have taken place. Ghobadi and Robey (2017) extended Colquitt and Zapata-Phelan's (2007) taxonomy by adding an additional axis that rates articles on the extent to which they promote methodological expansion. Given that this study was specifically aimed at theorising, I decided to keep the focus exclusively on theory. However, it would be enriching for the meta-study of theorising to examine methodology in more detail.

10.6. Significance of the Study

This study contributes to a deeper understanding of how theories have been used over a 35-year period between 1982 and 2020. While the study's findings are directly applicable to the South African social and behavioural study of HIV and AIDS, many of the observations in this study reflect conceptual and methodological issues that are prevalent across Psychology as well as the social and behavioural sciences in general. Consequently, this study's findings, in particular the findings from the theory analysis and meta-theoretical analysis, may be of relevance to these fields as well. This study demonstrated novelty, both in its methodological approach and in its findings.

This study **reviewed theory trends over time**. Most previous studies only looked at theory use in aggregate terms (e.g., Shirley, 2010); however, this provides a limited understanding of how theory has really been utilised in the field. By studying theory use over time and specifically reviewing the literature in order to obtain a historical overview which contextualises theory trends, this study was able to offer a clearer picture of the intellectual history of the HIV field in South Africa.

In addition, this study **involved an in-depth review of research articles over a considerable time frame (35 years)**. While extensive reviews of theory use in the South African HIV literature have been conducted in the past (Campbell & Williams, 1996), this type of study has

not been conducted in the South African literature in recent years. Moreover, most reviews of the literature tended to limit the number of articles, either through stringent inclusion criteria (e.g., Harrison et al., 2010), by focusing on specific topics in the literature (e.g., Sweileh, 2019) or by only reviewing literature from selected journals (e.g., Shirley, 2010). This study thus offers insight into theory use over a more extended time period, including recent literature and across the entire peer-reviewed publication base.

This study **distinguished between different degrees of theory visibility** – not only in terms of where theory was used (e.g., partially, retrospectively or consistently), but also, more importantly, in terms of whether the theory was referred to explicitly (either directly or vaguely) or implicitly. Previous studies of theory use in the HIV literature did not make such distinctions. By making this distinction clear, this study was able to demonstrate how the explicit and direct use of theory relates to the overall theoretical contribution of the literature. It also provides deeper insight into *how* theories were referred to instead of just superficially noting that theories were mentioned.

This study **assessed the theoretical contribution of articles** in the South African HIV literature. Reviews of theoretical contribution (i.e., the extent to which theory testing and theory development are taking place) in a discipline are quite rare (e.g., Colquitt & Zapata-Phelan, 2007; Ghobadi & Robey, 2017) and have been absent from the South African HIV literature. A review of a field's theoretical contribution can provide insights into the extent to which theory is actually being constructively used, and may suggest where growth or possible stagnation has occurred. This study's review of the theoretical contribution of articles in the South African HIV literature has been especially useful in highlighting the dearth of theory testing in the South African literature and the general, consistently low level of theoretical contribution in the field.

Lastly, this study **created an adapted meta-theoretical framework** (based upon aspects of Madsen's (1988) Systemology approach, Smith and Liehr's (2014) ladder of theoretical abstraction and Bhaskar's (2010) omissive and explanatory critique. The framework was used to conduct a meta-theoretical analysis of the three most prominent paradigms in the literature. This is the first study to apply a structured meta-theoretical analysis framework and use it to conduct a detailed review of the preeminent paradigms in the South African HIV literature. Although there have been some studies which commented on the broader meta-theoretical trends in the South African HIV literature (e.g., Campbell & Williams, 1996; Harrison, 2000;

Harrison et al., 2010), they were not guided by a structured framework or a set of criteria for the analysis of theory use and they did not explore each paradigm in as much depth as this study did.

This study made a novel contribution to the conceptual literature base of the study of HIV and AIDS. In particular, this study demonstrated that, while theory is not entirely absent from the social and behavioural study of HIV in South Africa, a notable portion of the literature uses theory vaguely and implicitly. In order for theories to make a meaningful contribution to the conceptual development of a field, they must be used explicitly and referred to directly. Implicit and vague theory use are associated with weaker theoretical contribution.

Moreover, the findings of this study demonstrate that the unreflective, uncritical and poor use of theory (such as the partial, incorrect or oversimplified use of a theory) is common in the literature and complicates our interpretation of research findings. The underappreciation of emergent causation and dynamic determinism stands out as a particular limitation in the literature.

This study highlights that the frustration with Socio-Behaviourism and mainstream psychological theoretical frameworks in the HIV field is a response to the shortcomings of these theories, but also, directly and indirectly, a response to the poor use of these theories.

The in-depth analysis of the HIV field's meta-theoretical positions clarifies the ontological and epistemological assumptions that underpin most of the study field and highlights the major implications, strengths and shortcomings of different theoretical approaches. It is hoped that the findings of this study might serve as a call to action aimed at researchers and practitioners to pay closer attention to theory, to recognise the importance of dialogical theorising and the generative (and degenerative) potentialities of theory, and to use theories explicitly, accurately and sceptically.

10.7. Conclusion

Studying the use of theory in the social and behavioural study of HIV and AIDS in South Africa offers valuable insights into the field's intellectual history. In present times, where we are observing a paradigm shift in the study of HIV and AIDS (and more broadly in the social, behavioural and health sciences), it is particularly important to reflect upon and critically assess the historical trends in theory use and especially the ontological and epistemological assumptions that underpin both "old" and "new" paradigms. This allows us to reflect upon the

appropriateness of each paradigm and improve theorising in a manner that yields more useful, reliable and insightful basic and applied research in the future.

References

- Aarø, L. E., Flisher, A. J., Kaaya, S., Onya, H., Fuglesang, M., Klepp, K.I., & Schaalma, H. (2006). Promoting sexual and reproductive health in early adolescence in South Africa and Tanzania: Development of a theory- and evidence-based intervention programme. *Scandinavian Journal of Public Health*, 34(2), 150–158. <https://doi.org/10.1080/14034940510032356>
- Abdool Karim, Q. A., & Abdool Karim, S. S. A. (2020). COVID-19 affects HIV and tuberculosis care. *Science*, 369(6502), 366-368. <https://doi.org/10.1126/science.abd1072>
- Abdool Karim, Q., Abdool Karim, S. S., Coovadia, H. M., & Susser, M. (1998). Informed consent for HIV testing in a South African hospital: Is it truly informed and truly voluntary?. *American Journal Of Public Health*, 88(4), 637-640. <https://doi.org/10.2105/AJPH.88.4.637>
- Abdool Karim, Q., Abdool Karim, S., Frohlich, J. A., Grobler, A. C., Baxter, C., Mansoor, L. E., Kharsany, A.B.M., Sibeko, S., Mlisana, K.P., Omar, Z., Gengiah, T.N., Maarschalk, S., Arulappan, A., Mlotshwa, M., Morris, L., Taylor, D., CAPRISA 004 Trial Group. (2010). Effectiveness and Safety of Tenofovir Gel, an Antiretroviral Microbicide, for the Prevention of HIV Infection in Women. *Science*, 329(5996), 1168-1174. <https://doi.org/10.1126/science.1193748>
- Abdool Karim, S.S., Gengiah, T.N., & Abdool Karim, Q. A. (2019). *Protocol – CAPRISA 018: A phase I/II trial to assess the safety, acceptability, tolerability and pharmacokinetics of a sustained-release tenofovir alafenamide sub-dermal implant for HIV prevention in women*. https://www.caprissa.org/DBFile/Files/0a88623f-c1ce-455d-9ecd-648dfd03b620/CAPRISA%20018_Study%20protocol%20V2.0_12%20Aug%202019.pdf
- Abdool Karim, S. S., Baxter, C., Passmore, J. A. S., McKinnon, L. R., & Williams, B. L. (2019). The genital tract and rectal microbiomes: their role in HIV susceptibility and prevention in women. *Journal of the International AIDS Society*, 22(5), e25300. <https://doi.org/10.1002/jia2.25300>
- Abraham, C., & Hamfson, S. E. (1996). A social cognition approach to health psychology: Philosophical and methodological issues. *Psychology & Health*, 11(2), 223–241. <https://doi.org/10.1080/08870449608400254>
- Ackroyd, S., & Karlsson, J. C. (2014). Critical realism, research techniques, and research resigins. In P. K. Edwards, J. O’Mahoney, & S. Vincent (Eds.), *Studying Organizations Using Critical Realism: A Practical Guide* (pp. 21–45). Oxford University Press.
- Adeagbo, M. J., & Naidoo, K. (2020). Exploring narratives and advocating support and peer mentorship to improve HIV-positive adolescent mothers’ lives in South Africa. *African Journal of AIDS Research*, 19(3), 231–241. <https://doi.org/10.2989/16085906.2020.1808486>
- Adebayo, O. W., & Gonzalez-Guarda, R. M. (2017). Factors associated with HIV testing in youth in the United States: An integrative review. *Journal of the Association of Nurses in AIDS Care*, 28(3), 342-362. <https://doi.org/10.1016/j.jana.2016.11.006>

- Adefolalu, A. O. (2018). Cognitive-behavioural theories and adherence: Application and relevance in antiretroviral therapy. *Southern African Journal of HIV Medicine*, 19(1). <https://doi.org/10.4102/sajhivmed.v19i1.762>
- Adefuye, A., Abiona, T. C., Balogun, J. A., Amosun, S. L., Frantz, J., & Yakut, Y. (2011). Perception of risk of HIV and sexual risk behaviours among students in the United States, Turkey and South Africa. *SAHARA: Journal of Social Aspects of HIV/AIDS Research Alliance*, 8(1), 19-26. <https://doi.org/10.1080/17290376.2011.9724980>
- Adeniyi, O. V., Ajayi, A. I., Ter Goon, D., Owolabi, E. O., Eboh, A., & Lambert, J. (2018). Factors affecting adherence to antiretroviral therapy among pregnant women in the Eastern Cape, South Africa. *BMC Infectious Diseases*, 18(1), 175. <https://doi.org/10.1186/s12879-018-3087-8>
- Adorno, T. W., & Horkheimer, M. (1944/1979). *Dialectic Of Enlightenment*. Verso.
- Advisory Group on AIDS (1988). AIDS – the current situation in the RSA. *South African Medical Journal*, 74, 317.
- Ahmed, S., Autrey, J., Katz, I. T., Fox, M. P., Rosen, S., Onoya, D., Bärnighausen, T., Mayer, K. H., & Bor, J. (2018). Why do people living with HIV not initiate treatment? A systematic review of qualitative evidence from low- and middle-income countries. *Social Science & Medicine*, 213, 72–84. <https://doi.org/10.1016/j.socscimed.2018.05.048>
- Aibibula, W., Cox, J., Hamelin, A.-M., McLinden, T., Klein, M. B., & Brassard, P. (2017). Association Between Food Insecurity and HIV Viral Suppression: A Systematic Review and Meta-Analysis. *AIDS and Behavior*, 21(3), 754–765. <https://doi.org/10.1007/s10461-016-1605-5>
- AIDSinfo (2018). *AIDSinfo glossary of HIV/AIDS-related terms* (9th ed.). https://aidsinfo.nih.gov/contentfiles/glossaryhivrelatedterms_english.pdf
- AIDSinfo (2019a). *FDA Approval of HIV Medicines*. <https://aidsinfo.nih.gov/understanding-hiv-aids/infographics/25/fda-approval-of-hiv-medicines>
- AIDSinfo (2019b). *The Stages of HIV Infection*. <https://aidsinfo.nih.gov/understanding-hiv-aids/fact-sheets/19/46/the-stages-of-hiv-infection>
- Airhihenbuwa, C. O. (1990). A conceptual model for culturally appropriate health education programs in developing countries. *International Quarterly of Community Health Education*, 11(1), 53–62. <https://doi.org/10.2190/lpkh-pmpj-dbw9-fp6x>
- Airhihenbuwa, C. O. (1999). Of culture and multiverse: renouncing “the universal truth” in health. *Journal of Health Education*, 30(5), 267–273. <https://doi.org/10.1080/10556699.1999.10603409>
- Airhihenbuwa, C.O., & Obregon, R. (2000). A critical assessment of theories/models used in health communication for HIV/AIDS. *Journal of Health Communication*, 5(Suppl. 1), 5-15. <https://doi.org/10.1080/10810730050019528>
- Ajayi, A. I., Ismail, K. O., & Akpan, W. (2019). Factors associated with consistent condom use: a cross-sectional survey of two Nigerian universities. *BMC Public Health*, 19(1). <https://doi.org/10.1186/s12889-019-7543-1>
- Ajzen, I. (1985). From intentions to actions: A theory of planned behaviour. In J. Kuhland, & J. Beckman (Eds.), *Action-Control: From Cognitions To Behaviour* (pp. 11-39). Springer.

- Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behavior And Human Decision Processes*, 50(2), 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I. (2011). The theory of planned behaviour: Reactions and reflections. *Psychology & Health*, 26(9), 1113–1127. <https://doi.org/10.1080/08870446.2011.613995>
- Ajzen, I. (2012). Reflections on Morgan and Bachrach’s critique. *Vienna Yearbook of Population Research*, 9, 63–69. <https://doi.org/10.1553/populationyearbook2011s63>
- Ajzen, I. (2014). The theory of planned behaviour is alive and well, and not ready to retire: a commentary on Sniehotta, Pesseau, and Araújo-Soares. *Health Psychology Review*, 9(2), 131–137. <https://doi.org/10.1080/17437199.2014.883474>
- Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, 2(4). <https://doi.org/10.1002/hbe2.195>
- Ajzen, I., & Fishbein, M. (1972). Attitudes and normative beliefs as factors influencing behavioural intentions. *Journal of Personality and Social Psychology*, 21(1), 1–9. <https://doi.org/10.1037/h0031930>
- Ajzen, I., & Schmidt, P. (2020). Changing behaviour using the theory of planned behaviour. In M.S. Hagger, L.D., Cameron, K. Hamilton, N. Hankonen, T. Lintunen (Eds.), *The Handbook of Behavior Change* (pp. 17-31). Cambridge University Press.
- Akinnusi, D. M., & Molosi, L. D. (2008). Low rate of reporting of confirmed AIDS-related deaths using BI-1663 forms by private medical practitioners in the Mafikeng, North West Province. *Southern African Journal of Epidemiology and Infection*, 23(4), 20–24. <https://doi.org/10.1080/10158782.2008.11441329>
- Akullian, A., Bershteyn, A., Klein, D., Vandormael, A., Bärnighausen, T., & Tanser, F. (2017). Sexual partnership age pairings and risk of HIV acquisition in rural South Africa. *AIDS*, 31(12), 1755–1764. <https://doi.org/10.1097/qad.0000000000001553>
- Albarracín, D., Gillette, J. C., Earl, A. N., Glasman, L. R., Durantini, M. R., & Ho, M.-H. (2005). A test of major assumptions about behavior change: A comprehensive look at the effects of passive and active HIV-prevention interventions since the beginning of the epidemic. *Psychological Bulletin*, 131(6), 856–897. <https://doi.org/10.1037/0033-2909.131.6.856>
- Alcena, V. (1986). AIDS in third world countries. *New York State Journal of Medicine*, 86(8), 446. <https://pubmed.ncbi.nlm.nih.gov/3463895/>
- Alexander, T. S. (2016). Human immunodeficiency virus diagnostic testing: 30 years of evolution. *Clinical and Vaccine Immunology*, 23(4), 249-253. <https://doi.org/10.1128/CVI.00053-16>
- Aliouat-Denis, C. M., Chabé, M., Demanche, C., Viscogliosi, E., Guillot, J., Delhaes, L., & Dei-Cas, E. (2008). Pneumocystis species, co-evolution and pathogenic power. *Infection, Genetics and Evolution*, 8(5), 708-726. <https://doi.org/10.1016/j.meegid.2008.05.001>
- Allport, G. W. (1954). *The Nature of Prejudice*. Perseus Books
- Altenroxel, L. (2000, 1 September). Aids taking a toll on student nurses. *IOL News*. <https://www.iol.co.za/news/south-africa/aids-taking-a-toll-on-student-nurses-45963>
- Althusser, L. (1971). *Lenin And Philosophy And Other Essays*. Aakar Books.

- Alvesson, M., & Sköldbberg, K. (2018). *Reflexive Methodology: New Vistas For Qualitative Research*. Sage.
- American Psychiatric Association. (2013). *Diagnostic And Statistical Manual Of Mental Disorders (DSM-5)*. American Psychiatric Pub.
- Amico, K.R. (2011). A situated-Information Motivation Behavioral Skills Model of Care Initiation and Maintenance (sIMB-CIM): An IMB model-based approach to understanding and intervening in engagement in care for chronic medical conditions. *Journal of Health Psychology, 16*(7), 1071–1081. <https://doi.org/10.1177/1359105311398727>
- Amico, K. R., McMahan, V., Goicochea, P., Vargas, L., Marcus, J. L., Grant, R. M., & Liu, A. (2012). Supporting study product use and accuracy in self-report in the iPrEx study: next step counseling and neutral assessment. *AIDS and Behavior, 16*(5), 1243-1259. <https://doi.org/10.1007/s10461-012-0182-5>
- Amico, K. R., Wallace, M., Bekker, L.-G., Roux, S., Atujuna, M., Sebastian, E., Dye, B. J., Elharrar, V., & Grant, R. M. (2017). Experiences with HPTN 067/ADAPT Study-Provided Open-Label PrEP Among Women in Cape Town: Facilitators and Barriers Within a Mutuality Framework. *AIDS and Behavior, 21*(5), 1361–1375. <https://doi.org/10.1007/s10461-016-1458-y>
- Andersen, L., Kagee, A., O'Cleirigh, C., Safren, S., & Joska, J. (2015). Understanding the experience and manifestation of depression in people living with HIV/AIDS in South Africa. *AIDS Care, 27*(1), 59-62. <https://doi.org/10.1080/09540121.2014.951306>
- Andersen, L. S., Magidson, J. F., O'Cleirigh, C., Remmert, J. E., Kagee, A., Leaver, M., Stein, D. J., Safren, S. A., & Joska, J. (2016). A pilot study of a nurse-delivered cognitive behavioral therapy intervention (Ziphamandla) for adherence and depression in HIV in South Africa. *Journal of Health Psychology, 23*(6), 776–787. <https://doi.org/10.1177/1359105316643375>
- Andersson, N., & Cockcroft, A. (2011). Male circumcision, attitudes to HIV prevention and HIV status: a cross-sectional study in Botswana, Namibia and Swaziland. *AIDS Care, 24*(3), 301–309. <https://doi.org/10.1080/09540121.2011.608793>
- Andersson, K. M., Owens, D. K., Vardas, E., Gray, G. E., McIntyre, J. A., & Paltiel, A. D. (2007). Predicting the impact of a partially effective HIV vaccine and subsequent risk behavior change on the heterosexual HIV Epidemic in low-and middle-income countries a South African example. *Journal of Acquired Immune Deficiency Syndromes (1999), 46*(1), 78. <https://doi.org/10.1097/QAI.0b013e31812506fd>
- Andersson, K. M., Vardas, E., Niccolai, L. M., Van Niekerk, R. M., Mogale, M. M., Holdsworth, I. M., Bogoshi, M., McIntyre, J. A., & Gray, G. E. (2012). Anticipated changes in sexual risk behaviour following vaccination with a low-efficacy HIV vaccine: survey results from a South African township. *International Journal of STD & AIDS, 23*(10), 736–741. <https://doi.org/10.1258/ijsa.2009.009378>
- Anglo American. (2019). *HIV/AIDS*. <https://www.angloamerican.com/sustainability/safety-and-health/hiv-aids>
- Anjum, R.L.; Mumford, S. (2018). Dispositionalism: A dynamic theory of causation. In D. J. Nicholson, & J. Dupre (Eds.), *Everything Flows: Towards a Processual Philosophy of Biology* (pp. 61–75). Oxford University Press.

- Annas, G. J. (2003). The right to health and the nevirapine case in South Africa. *New England Journal of Medicine*, 348(8), 750-754. <https://doi.org/10.1056/NEJMlim022737>
- APA (2019). *1990s HIV/AIDS Timeline*. <https://www.apa.org/pi/aids/youth/nineties-timeline>
- APA (2020a). Psychology. *APA Dictionary of Psychology*. <https://dictionary.apa.org/psychology>
- APA (2020b). School. *APA Dictionary of Psychology*. <https://dictionary.apa.org/school>
- APA (2020c). Mechanistic theory. *APA Dictionary of Psychology*. <https://dictionary.apa.org/mechanistic-theory>
- APA (2022, May). *APA PsycInfo® Journal Coverage List*. <https://www.apa.org/pubs/databases/psycinfo/coverage#:~:text=Currently%2C%20the%20are%20%2C296%20journals%20covered%20in%20APA%20PsycInfo.>
- Archer, M. S. (1982). Morphogenesis versus Structuration: On Combining Structure and Action. *The British Journal of Sociology*, 33(4), 455. <https://doi.org/10.2307/589357>
- Archer, M.S. (1988/1996). *Culture and agency: The place of culture in social theory*. Cambridge University Press.
- Archer, M. S. (1995). *Realist social theory: The Morphogenetic Approach*. Cambridge University Press.
- Archer, M. S. (2000/2004). *Being human: The problem of agency*. Cambridge University Press.
- Archer, M. S., Bhaskar, R., Collier, A., Lawson, T., & Norrie, A. (Eds.), (2013). *Critical realism: Essential readings*. Routledge.
- Archer, M. S., Decoteau, C., Gorski, P., Little, D., Porpora, D., Rutzou, T., Vandenberghe, F. (2016). *What is critical realism? Perspectives: A newsletter of the ASA theory section, Fall 2016*. <http://www.asatheory.org/current-newsletter-online/what-is-critical-realism>
- Aristotle, M., & Book, H. (1933). *Aristotle in 23 Volumes* (translated by Tredennick Hugh). Harvard University Press
- Armitage, C. J. (2014). Time to retire the theory of planned behaviour? A commentary on Sniehotta, Pesseau and Araújo-Soares. *Health Psychology Review*, 9(2), 151–155. <https://doi.org/10.1080/17437199.2014.892148>
- Arndt, C., & Lewis, J. D. (2000). The macro implications of HIV/AIDS in South Africa: a preliminary assessment. *South African Journal of Economics*, 68(5), 380-392. <https://doi.org/10.1111/j.1813-6982.2000.tb01283.x>
- Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners*, 35(4), 216–224. <https://doi.org/10.1080/01944366908977225>
- Aschengrau, A., & Seage, G. R. (2013). *Essentials Of Epidemiology In Public Health*. Jones & Bartlett Publishers.
- Asikhia, O. A., & Mohangi, K. (2015). Self-concept and academic performance of adolescents affected by HIV/AIDS in Atteridgeville, South Africa. *Journal of Human Ecology*, 49(1-2), 9-20. <https://doi.org/10.1080/09709274.2015.11906819>

- Aspinall, E. J., Nambiar, D., Goldberg, D. J., Hickman, M., Weir, A., Van Velzen, E., Palmateer, N., Doyle, J. S., Hellard, M. E., & Hutchinson, S. J. (2014). Are needle and syringe programmes associated with a reduction in HIV transmission among people who inject drugs: a systematic review and meta-analysis. *International Journal of Epidemiology*, 43(1), 235–248. <https://doi.org/10.1093/ije/dyt243>
- Assefa, Y., Lynen, L., Kloos, H., Hill, P., Rasschaert, F., Hailemariam, D., Neilsen, G., & Van Damme, W. (2015). Brief report: long-term Outcomes and their determinants in patients on antiretroviral treatment in Ethiopia, 2005/6–2011/12: a retrospective cohort study. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 70(4), 414–419. <https://doi.org/10.1097/qai.0000000000000753>
- Assemie, M. A., Muchie, K. F., & Ayele, T. A. (2018). Incidence and predictors of loss to follow up among HIV-infected adults at Pawi General Hospital, northwest Ethiopia: competing risk regression model. *BMC Research Notes*, 11(1). <https://doi.org/10.1186/s13104-018-3407-5>
- Associated Press (2012, 31 January). South Africa: 1.35 Million Condoms Are Recalled. *New York Times*. <https://www.nytimes.com/2012/02/01/world/africa/south-africa-1-35-million-condoms-are-recalled.html>
- Attia, S., Egger, M., Müller, M., Zwahlen, M., & Low, N. (2009). Sexual transmission of HIV according to viral load and antiretroviral therapy: systematic review and meta-analysis. *Aids*, 23(11), 1397-1404. <https://doi.org/10.1097/QAD.0b013e32832b7dca>
- Auerbach, J. D., & Smith, L. R. (2015). Theoretical foundations of research focused on HIV prevention among substance-involved women: a review of observational and intervention studies. *Journal of Acquired Immune Deficiency Syndromes (1999)*, 69(Suppl 2), S146. <https://doi.org/10.1097/QAI.0000000000000658>
- Aulette-Root, E. (2010). Khomanani: Critical discourse analysis of South Africa state-funded publications on HIV. *Perspectives on Global Development and Technology*, 9(1-2), 173-198. <https://doi.org/10.1163/156914910X487988>
- Aung, H. L., Aghvinian, M., Gouse, H., Robbins, R. N., Brew, B. J., Mao, L., & Cysique, L. A. (2020). Is There Any Evidence of Premature, Accentuated and Accelerated Aging Effects on Neurocognition in People Living with HIV? A Systematic Review. *AIDS and Behavior*. <https://doi.org/10.1007/s10461-020-03053-3>
- Auvert, B., Taljaard, D., Lagarde, E., Sobngwi-Tambekou, J., Sitta, R., & Puren, A. (2005). Randomized, Controlled Intervention Trial of Male Circumcision for Reduction of HIV Infection Risk: The ANRS 1265 Trial. *PLoS Medicine*, 2(11), e298. <https://doi.org/10.1371/journal.pmed.0020298>
- Ayano, G., Tsegay, L., & Solomon, M. (2020). Food insecurity and the risk of depression in people living with HIV/AIDS: a systematic review and meta-analysis. *AIDS Research and Therapy*, 17(1), 1-11. <https://doi.org/10.1186/s12981-020-00291-2>
- Ayieko, J., Brown, L., Anthierens, S., Van Rie, A., Getahun, M., Charlebois, E. D., Petersen, M. L., Clark, T. D., Kanya, M. R., Cohen, C. R., Bukusi, E. A., Havlir, D. V., & Camlin, C. S. (2018). “Hurdles on the path to 90-90-90 and beyond”: Qualitative analysis of barriers to engagement in HIV care among individuals in rural East Africa in the context of test-and-treat. *PLOS ONE*, 13(8), e0202990. <https://doi.org/10.1371/journal.pone.0202990>

- Badcock, P. B. (2012). Evolutionary systems theory: A unifying meta-theory of psychological science. *Review of General Psychology*, *16*(1), 10–23. <https://doi.org/10.1037/a0026381>
- Badcock, P. B., Friston, K. J., & Ramstead, M. J. (2019). The hierarchically mechanistic mind: A free-energy formulation of the human psyche. *Physics Of Life Reviews*, *31*, 104-121. <https://doi.org/10.1016/j.plrev.2018.10.002>
- Bacharach, S. B. (1989). Organizational theories: Some criteria for evaluation. *Academy of Management Review*, *14*(4), 496–515. <https://doi.org/10.5465/amr.1989.4308374>
- Baeten, J. M., Donnell, D., Ndase, P., Mugo, N. R., Campbell, J. D., Wangisi, J., Tappero, J. W., Bukusi, E. A., Cohen, C. R., Katabira, E., Ronald, A., Tumwesigye, E., Were, E., Fife, K. H., Kiarie, J., Farquhar, C., John-Stewart, G., Kania, A., Odoyo, J., & Mucunguzi, A. (2012). Antiretroviral Prophylaxis for HIV Prevention in Heterosexual Men and Women. *New England Journal of Medicine*, *367*(5), 399–410. <https://doi.org/10.1056/nejmoa1108524>
- Baeten, J. M., Haberer, J. E., Liu, A. Y., & Sista, N. (2013). Preexposure Prophylaxis for HIV Prevention. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, *63*, S122–S129. <https://doi.org/10.1097/qai.0b013e3182986f69>
- Baeten, J. M., Palanee-Phillips, T., Brown, E. R., Schwartz, K., Soto-Torres, L. E., Govender, V., Mgodhi, N. M., Kiweewa, F. M., Nair, G., Mhlanga, F., Siva, S., Bekker, L.-G. ., Jeenarain, N., Gaffoor, Z., Martinson, F., Makanani, B., Pather, A., Naidoo, L., Husnik, M., & Richardson, B. A. (2016). Use of a Vaginal Ring Containing Dapivirine for HIV-1 Prevention in Women. *The New England Journal of Medicine*, *375*(22), 2121–2132. <https://doi.org/10.1056/NEJMoa1506110>
- Bailes, E., Gao, F., Bibollet-Ruche, F., Courgnaud, V., Peeters, M., Marx, P. A., Hahn, B. H., & Sharp, P. M. (2003). Hybrid origin of SIV in chimpanzees. *Science (New York, N.Y.)*, *300*(5626), 1713. <https://doi.org/10.1126/science.1080657>
- Bailey, R. C., Moses, S., Parker, C. B., Agot, K., Maclean, I., Krieger, J. N., Williams, C. F., Campbell, R. T., & Ndinya-Achola, J. O. (2007). Male circumcision for HIV prevention in young men in Kisumu, Kenya: a randomised controlled trial. *The Lancet*, *369*(9562), 643–656. [https://doi.org/10.1016/s0140-6736\(07\)60312-2](https://doi.org/10.1016/s0140-6736(07)60312-2)
- Bain, L. E., Nkoke, C., & Noubiap, J. J. N. (2017). UNAIDS 90–90–90 targets to end the AIDS epidemic by 2020 are not realistic: comment on “Can the UNAIDS 90–90–90 target be achieved? A systematic analysis of national HIV treatment cascades”. *BMJ Global Health*, *2*(2), e000227. <https://doi.org/10.1136/bmjgh-2016-000227>
- Bajunirwe, F., Tumwebaze, F., Akakimpa, D., Kityo, C., Mugenyi, P., & Abongomera, G. (2018). Towards 90-90-90 Target: Factors Influencing Availability, Access, and Utilization of HIV Services—A Qualitative Study in 19 Ugandan Districts. *BioMed Research International*, *2018*, 1–10. <https://doi.org/10.1155/2018/9619684>
- Baker, A. (2016). Simplicity. *Stanford Encyclopaedia of Philosophy Archive*. <https://stanford.library.sydney.edu.au/archives/spr2017/entries/simplicity/#QuaPar>
- Baleta, A. (1999a). South African faces an AIDS crisis as government health campaigns fail. *The Lancet*, *353*(9153), 653. [https://doi.org/10.1016/s0140-6736\(05\)75452-0](https://doi.org/10.1016/s0140-6736(05)75452-0)
- Baleta, A. (1999b). Widespread horror over killing of AIDS activist in South Africa. *The Lancet*, *353*(9147), 130. [https://doi.org/10.1016/S0140-6736\(05\)76172-9](https://doi.org/10.1016/S0140-6736(05)76172-9)

- Balmer, D. H. (1991). Towards a unified theory for HIV/AIDS counselling. *International Journal for the Advancement of Counselling*, 14(2), 129–139. <https://doi.org/10.1007/bf00117732>
- Bandura, A. (1977a). *Social Learning Theory*. Prentice Hall.
- Bandura, A. (1977b) Self-efficacy: toward a unifying theory of behavioral change, *Psychological Review*, 84, 191–215. <https://doi.org/10.1037/0033-295X.84.2.191>
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122–147. <https://doi.org/10.1037/0003-066X.37.2.122>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.
- Bandura, A. (1991). Human agency: The rhetoric and the reality. *American Psychologist*, 46(2), 157–162. <https://doi.org/10.1037/0003-066x.46.2.157>
- Bandura, A. (1992). On rectifying the comparative anatomy of perceived control: Comments on “Cognates of personal control.” *Applied and Preventive Psychology*, 1(2), 121–126. [https://doi.org/10.1016/s0962-1849\(05\)80153-2](https://doi.org/10.1016/s0962-1849(05)80153-2)
- Bandura, A. (1994). Social cognitive theory and exercise of control over HIV infection. In R.J. DiClemente, & J.L. Peterson (Eds.), *Preventing AIDS: Theories and Methods of Behavioural Interventions* (pp. 25-59). Springer.
- Bandura, A. (1995). Exercise of personal and collective efficacy in changing societies. In Bandura, A. (Ed.), *Self-Efficacy In Changing Societies* (pp. 1-45). Cambridge University Press.
- Bandura, A. (1996). Ontological and epistemological terrains revisited. *Journal of Behavior Therapy and Experimental Psychiatry*, 27(4), 323–345. [https://doi.org/10.1016/s0005-7916\(96\)00049-3](https://doi.org/10.1016/s0005-7916(96)00049-3)
- Bandura, A. (1997). *Self-Efficacy: The Exercise Of Control*. Freeman.
- Bandura, A. (1998). Health promotion from the perspective of Social Cognitive Theory. *Psychology & Health*, 13(4), 623–649. <https://doi.org/10.1080/08870449808407422>
- Bandura, A. (1999). Moral disengagement in the perpetration of inhumanities. *Personality and Social Psychology Review*, 3(3), 193–209. https://doi.org/10.1207/s15327957pspr0303_3
- Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science*, 9(3), 75–78. <https://doi.org/10.1111/1467-8721.00064>
- Bandura, A. (2001). Social Cognitive Theory: An agentic perspective. *Annual Review of Psychology*, 52(1), 1–26. <https://doi.org/10.1146/annurev.psych.52.1.1>
- Bandura, A. (2002). Social Cognitive Theory in Cultural context. *Applied Psychology*, 51(2), 269–290. <https://doi.org/10.1111/1464-0597.00092>
- Bandura, A. (2004). Health promotion by social cognitive means. *Health Education & Behavior*, 31(2), 143–164. <https://doi.org/10.1177/1090198104263660>
- Baptiste, D. R., Bhana, A., Petersen, I., McKay, M., Voisin, D., Bell, C., & Martinez, D. D. (2006). Community collaborative youth-focused HIV/AIDS prevention in South Africa and Trinidad: Preliminary findings. *Journal of Pediatric Psychology*, 31(9), 905–916. <https://doi.org/10.1093/jpepsy/jsj100>

- Barley, S. R. (2006). When I write my masterpiece: Thoughts on what makes a paper interesting. *Academy of Management Journal*, 49(1), 16–20. <https://doi.org/10.5465/amj.2006.20785495>
- Barnett, T., Whiteside, A., & Decosas, J. (2000). The Jaipur paradigm--a conceptual framework for understanding social susceptibility and vulnerability to HIV. *South African medical journal*, 90(11), 1098-1101. <http://archive.samj.org.za/2000%20VOL%2090%20Jan-Dec/Articles/11%20November/1.6%20PRESPECTIVES%20ON%20HIV-AIDS.THE%20JAIPUR%20PARADIGM-%20A%20CONCEPTUAL%20FRAMEWORK%20FOR%20UNDERSTANDING%20SOCIAL.pdf>
- Barré-Sinoussi, F., Chermann, J. C., Rey, F., Nugeyre, M. T., Chamaret, S., Gruest, J., Dautet, C., Axler-Blin, C., Vézinet-Brun, F., Rouzioux, C., Rozenbaum, W., & Montagnier, L. (1983). Isolation of a T-lymphotropic retrovirus from a patient at risk for acquired immune deficiency syndrome (AIDS). *Science (New York, N.Y.)*, 220(4599), 868–871. <https://doi.org/10.1126/science.6189183>
- Barré-Sinoussi, F., Ross, A. L., & Delfraissy, J. F. (2013). Past, present and future: 30 years of HIV research. *Nature Reviews Microbiology*, 11(12), 877-883. <https://doi.org/10.1038/nrmicro3132>
- Barrow, G. (2001, 4 April). South African split over AIDS. *BBC News*. <http://news.bbc.co.uk/2/hi/africa/1260941.stm>
- Bartholomew, L. K., Parcel, G. S., & Kok, G. (1998). Intervention mapping: A process for developing theory and evidence-based health education programs. *Health Education & Behavior*, 25(5), 545–563. <https://doi.org/10.1177/109019819802500502>
- Bateson, G. (1972/2000). *Steps To An Ecology Of Mind: Collected Essays In Anthropology, Psychiatry, Evolution, And Epistemology*. University of Chicago Press.
- Beauchamp, M. R., Crawford, K. L., & Jackson, B. (2019). Social cognitive theory and physical activity: Mechanisms of behavior change, critique, and legacy. *Psychology of Sport and Exercise*, 42, 110–117. <https://doi.org/10.1016/j.psychsport.2018.11.009>
- Befani, B. (2012). *Models of causality and causal inference. Broadening the range of designs and methods for impact evaluation*. http://www.managingforimpact.org/sites/default/files/resource/befani_2012-causal-inference-bb-february-26.pdf
- Bekker, L.-G., Roux, S., Sebastien, E., Yola, N., Amico, K. R., Hughes, J. P., Marzinke, M. A., Hendrix, C. W., Anderson, P. L., Elharrar, V., Stirratt, M., Rooney, J. F., Piwowar-Manning, E., Eshleman, S. H., McKinstry, L., Li, M., Dye, B. J., & Grant, R. M. (2018). Daily and non-daily pre-exposure prophylaxis in African women (HPTN 067/ADAPT Cape Town Trial): a randomised, open-label, phase 2 trial. *The Lancet HIV*, 5(2), e68–e78. [https://doi.org/10.1016/s2352-3018\(17\)30156-x](https://doi.org/10.1016/s2352-3018(17)30156-x)
- Beksinska, M. E., Smit, J. A., & Mantell, J. E. (2012). Progress and challenges to male and female condom use in South Africa. *Sexual Health*, 9(1), 51-58. <https://doi.org/10.1071/SH11011>

- Belcher, L., Sternberg, M. R., Wolitski, R. J., Halkitis, P., Hoff, C., & Study Team, S. U. M. S. (2005). Condom use and perceived risk of HIV transmission among sexually active HIV-positive men who have sex with men. *AIDS Education & Prevention, 17*(1), 79–89. <https://doi.org/10.1521/aeap.17.1.79.58690>
- Bell, C. C., Bhana, A., Petersen, I., McKay, M. M., Gibbons, R., Bannon, W., & Amatya, A. (2008). Building protective factors to offset sexually risky behaviors among black youths: A randomized control trial. *Journal of the National Medical Association, 100*(8), 936–944. [https://doi.org/10.1016/s0027-9684\(15\)31408-5](https://doi.org/10.1016/s0027-9684(15)31408-5)
- Bell, G. J., Ncayiyana, J., Sholomon, A., Goel, V., Zuma, K., & Emch, M. (2022). Race, place, and HIV: The legacies of apartheid and racist policy in South Africa. *Social Science & Medicine, 296*, 114755. <https://doi.org/10.1016/j.socscimed.2022.114755>
- Benton, T. (1977/2014). *Philosophical foundations of the three sociologies* (Routledge Library Editions: Social Theory). Routledge.
- Berghoff, C. R., Gratz, K. L., Portz, K. J., Pinkston, M., Naifeh, J. A., Evans, S. D., Konkle-Parker, D. J., & Tull, M. T. (2017). The Role of emotional avoidance, the patient–provider relationship, and other social support in ART adherence for HIV+ individuals. *AIDS and Behavior, 22*(3), 929–938. <https://doi.org/10.1007/s10461-017-1745-2>
- Berkman, E. T., & Wilson, S. M. (2021). So useful as a good theory? The practicality crisis in (social) psychological theory. *Perspectives on Psychological Science, 16*(4), 864–874. <https://doi.org/10.1177/1745691620969650>
- Bertrand, J. T., O'Reilly, K., Denison, J., Anhang, R., & Sweat, M. (2006). Systematic review of the effectiveness of mass communication programs to change HIV/AIDS-related behaviors in developing countries. *Health Education Research, 21*(4), 567–597. <https://doi.org/10.1093/her/cyl036>
- Bernstein, K. T., Marcus, J. L., Nieri, G., Philip, S. S., & Klausner, J. D. (2010). Rectal gonorrhea and chlamydia reinfection is associated with increased risk of HIV seroconversion. *JAIDS Journal of Acquired Immune Deficiency Syndromes, 53*(4), 537–543. <https://doi.org/10.1097/qai.0b013e3181c3ef29>
- Bhana, A., McKay, M. M., Mellins, C., Petersen, I., & Bell, C. (2010). Family-based HIV prevention and intervention services for youth living in poverty-affected contexts: the CHAMP model of collaborative, evidence-informed programme development. *Journal of the International AIDS Society, 13*(Suppl 2), S8. <https://doi.org/10.1186/1758-2652-13-s2-s8>
- Bhana, A., Mellins, C. A., Petersen, I., Alicea, S., Myeza, N., Holst, H., Abrams, E., John, S., Chhagan, M., Nestadt, D.F., Leu, C., & McKay, M. (2014). The VUKA family program: Piloting a family-based psychosocial intervention to promote health and mental health among HIV infected early adolescents in South Africa. *AIDS Care, 26*(1), 1–11. <https://doi.org/10.1080/09540121.2013.806770>
- Bhaskar R. (1975/2008). *A realist theory of science* (2nd ed.). Routledge.
- Bhaskar, R. (1979/2014). *The possibility of naturalism: A philosophical critique of the contemporary human sciences* (4th ed.). Routledge.
- Bhaskar, R. (1986/2009). *Scientific realism and human emancipation*. Routledge.
- Bhaskar, R. (1993/2008). *Dialectic: The Pulse Of Freedom*. Routledge.

- Bhaskar, R. (2010). Contexts of interdisciplinarity: Interdisciplinarity and climate change. In Bhaskar, R., Frank, C., Parker, J., & Høyer, K. G. (Eds.), *Interdisciplinarity and climate change: Transforming knowledge and practice for our global future* (pp.1-24). Taylor & Francis.
- Bhaskar, R. (2016). *Enlightened common sense: The philosophy of critical realism*. Routledge.
- Bhaskar, R., Danermark, B., & Price, L. (2017). *Interdisciplinarity and wellbeing: a critical realist general theory of interdisciplinarity*. Taylor & Francis.
- Bhaskar, R., Esbjörn-Hargens, S., Hedlund, N., & Hartwig, M. (2015). *Metatheory For The Twenty-First Century: Critical Realism And Integral Theory In Dialogue*. Routledge.
- Bhatia, D. S., Harrison, A. D., Kubeka, M., Milford, C., Kaida, A., Bajunirwe, F., & Matthews, L. T. (2017). The role of relationship dynamics and gender inequalities as barriers to HIV-serostatus disclosure: qualitative study among women and men living with HIV in Durban, South Africa. *Frontiers In Public Health*, 5, 188. <https://doi.org/10.3389/fpubh.2017.00188>
- Biagioli, M. (2012). Productive illusions: Kuhn's structure as a recruitment tool. *Historical Studies in the Natural Sciences*, 42(5), 479-484. <https://doi.org/10.1525/hsns.2012.42.5.479>
- Bikoro, B., Oljira, L., Gobena, T., & Erkaló, D. (2020). Incidence and predictors of loss to follow-up among human immunodeficiency virus-infected adult patients on anti-retroviral therapy at Hadiya zone public hospitals, southern Ethiopia: a retrospective cohort study. *Journal of Public Health*. <https://doi.org/10.1007/s10389-020-01268-1>
- Billig, M. (2019). *More Examples, Less Theory*. Cambridge University Press.
- Birdthistle, I., Kwaro, D., Shahmanesh, M., Baisley, K., Khagayi, S., Chimbindi, N., Kamire, V., Mthiyane, N., Gourlay, A., Dreyer, J., Phillips-Howard, P., Glynn, J., & Floyd, S. (2021). Evaluating the impact of DREAMS on HIV incidence among adolescent girls and young women: A population-based cohort study in Kenya and South Africa. *PLOS Medicine*, 18(10), e1003837. <https://doi.org/10.1371/journal.pmed.1003837>
- Birken, S. A., Powell, B. J., Shea, C. M., Haines, E. R., Kirk, A.M., Leeman, J., Rohweder, C., Damschroder, L., & Presseau, J. (2017). Criteria for selecting implementation science theories and frameworks: results from an international survey. *Implementation Science*, 12(1). <https://doi.org/10.1186/s13012-017-0656-y>
- Birnbaum, J. K., Murray, C. J., & Lozano, R. (2011). Exposing misclassified HIV/AIDS deaths in South Africa. *Bulletin of the World Health Organization*, 89, 278-285. <https://doi.org/10.2471/BLT.11.086280>
- Bittermann, A., & Fischer, A. (2018). How to identify hot topics in psychology using topic modeling. *Zeitschrift für Psychologie*, 226(1), 3–13. <https://doi.org/10.1027/2151-2604/a000318>
- Bloom, N., Jones, C. I., Van Reenen, J., & Webb, M. (2020). Are ideas getting harder to find?. *American Economic Review*, 110(4), 1104-44. <https://doi.org/10.1257/aer.20180338>
- Blower, S. M., Gershengorn, H. B., & Grant, R. M. (2000). A tale of two futures: HIV and antiretroviral therapy in San Francisco. *Science*, 287(5453), 650-654. <https://doi.org/10.1126/science.287.5453.650>

- Boal, A. (1974/1993). *Theatre of the Oppressed*. Theatre Communications Group
- Boer, H., & Mashamba, M. T. (2005). Psychosocial Correlates of HIV Protection Motivation Among Black Adolescents in Venda, South Africa. *AIDS Education and Prevention*, 17(6), 590–602. <https://doi.org/10.1521/aeap.2005.17.6.590>
- Boer, H., & Tshilidzi Mashamba, M. (2007). Gender power imbalance and differential psychosocial correlates of intended condom use among male and female adolescents from Venda, South Africa. *British Journal Of Health Psychology*, 12(1), 51-63. <https://doi.org/10.1348/135910706X102104>
- Bolton, R. (1999). Mapping terra incognita: Sex research for HIV prevention—An urgent agenda for the 1990s. In R. Parker & P. Aggleton (Eds.), *Culture, Society And Sexuality: A Reader* (pp. 434–456). UCL.
- Boneya, D. J., Ahmed, A. A., & Yalew, A. W. (2019). The effect of gender on food insecurity among HIV-infected people receiving anti-retroviral therapy: a systematic review and meta-analysis. *PLoS ONE*, 14(1), e0209903. <https://doi.org/10.1371/journal.pone.0209903>
- Bongaarts, J. (1991). The KAP-gap and the unmet need for contraception. *Population And Development Review*, 293-313. <https://doi.org/10.2307/1973732>
- Botes, A., & Otto, M. (2003). Ethical dilemmas related to the HIV-positive person in the workplace. *Nursing Ethics*, 10(3), 281-294. <https://doi.org/10.1191/09697333003ne606oa>
- Boulding, K. E. (1956). General systems theory – the skeleton of science. *Management Science*, 2(3), 197-208. <https://doi.org/10.1287/mnsc.2.3.197>
- Bourdieu, P. (1986/2018). The forms of capital. In: Richardson, J. (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 78-92). Routledge.
- Boyes, M. E., & Cluver, L. D. (2015). Relationships between familial HIV/AIDS and symptoms of anxiety and depression: the mediating effect of bullying victimization in a prospective sample of South African children and adolescents. *Journal Of Youth And Adolescence*, 44(4), 847-859. <https://doi.org/10.1007/s10964-014-0146-3>
- Braband, B. J., Faris, T., & Wilson-Anderson, K. (2018). Building Resilience among orphaned and vulnerable children through the memory book intervention. *Journal of Christian Nursing*, 35(3), 184–190. <https://doi.org/10.1097/cnj.0000000000000504>
- Bradbury-Jones, C., Taylor, J., & Herber, O. (2014). How theory is used and articulated in qualitative research: Development of a new typology. *Social Science & Medicine*, 120, 135-141. <https://doi.org/10.1016/j.socscimed.2014.09.014>
- Bradley, H., Mattson, C. L., Beer, L., Huang, P., & Shouse, R. L. (2016). Increased antiretroviral therapy prescription and HIV viral suppression among persons receiving clinical care for HIV infection. *AIDS*, 30(13), 2117–2124. <https://doi.org/10.1097/QAD.0000000000001164>.
- Bradshaw, D., Groenewald, P., Laubscher, R., Nannan, N., Nojilana, B., Norman, R., Pieterse, D., Schneider, M., Bourne, D.E., Timaeus, I., Dorrington, R., & Johnson, L. (2003). Initial burden of disease estimates for South Africa, 2000. *South African Medical Journal*, 93(9), 682-688. <https://www.ajol.info/index.php/samj/article/view/134254/123859>

- Brandt, A. M. (1988a). AIDS and metaphor: Toward the social meaning of epidemic disease. *Social Research*, 55(3), 413-432. <https://doi.org/10.2307/40970512>
- Brandt, A. M. (1988b). The syphilis epidemic and its relation to AIDS. *Science*, 239(4838), 375-380. <https://www.jstor.org/stable/1700232>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 11(4), 589-597. <https://doi.org/10.1080/2159676X.2019.1628806>
- Breslin, E. D. (1999). A participatory approach to community-based HIV/AIDS awareness. *Development In Practice*, 9(4), 473-479. <https://www.jstor.org/stable/4029482>
- Brim, O. G. (1975). Macro-structural influences on child development and the need for childhood social indicators. *American Journal of Orthopsychiatry*, 45(4), 516-524. <https://doi.org/10.1111/j.1939-0025.1975.tb01182.x>
- Britton, M. K., Porges, E. C., Bryant, V., & Cohen, R. A. (2021). Neuroimaging and Cognitive Evidence for Combined HIV-Alcohol Effects on the Central Nervous System: A Review. *Alcoholism: Clinical and Experimental Research*, 45(2), 290-306. <https://doi.org/10.1111/acer.14530>
- Broady, T., Power, C., Mao, L., Bavinton, B., Chan, C., Bambridge, C., & Holt, M. (2019). *Gay community periodic survey: Sydney 2019*. Sydney: Centre for Social Research in Health, UNSW Sydney.
- Brody, S. (2004). Declining HIV rates in Uganda: due to cleaner needles, not abstinence or condoms. *International journal of STD & AIDS*, 15(7), 440-441. <https://doi.org/10.1258/0956462041211324>
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 32(7), 513-531. <https://doi.org/10.1037//0003-066x.32.7.513>
- Bronfenbrenner, U. (1979). *The Ecology Of Human Development: Experiments By Nature And Design*. Harvard University Press.
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, 22(6), 723-742. <https://doi.org/10.1037/0012-1649.22.6.723>
- Bronfenbrenner, U. (1989/1992). Ecological systems theory. In R. Vasta (Ed.), *Annals Of Child Development. Vol. 6. Six Theories Of Child Development* (pp. 187-249). JAI Press.
- Bronfenbrenner, U. (1999). Environments in developmental perspective: Theoretical and operational models. In S. L. Friedman & T. D. Wachs (Eds.), *Measuring Environment Across The Life Span: Emerging Methods And Concepts* (pp. 3 - 28). American Psychological Association.
- Bronfenbrenner, U. (1995). Developmental ecology through space and time: A future perspective. In P. Moen, G. H. Elder, K. Luscher (Eds.), *Examining Lives In Context: Perspectives On The Ecology Of Human Development* (pp. 619-647). The American Psychological Association.
- Bronfenbrenner, U. (2005). *Making Human Beings Human: Bioecological Perspectives On Human Development*. Sage Publications.

- Bronfenbrenner, U., & Crouter, A. C. (1983). The evolution of environmental models in developmental research. In P. H. Mussen, & W. Kessen (Eds.), *Handbook Of Child Psychology, Vol. 1: History, Theory, Methods* (4th ed., pp. 357 – 414). Wiley.
- Bronfenbrenner, U., & Evans, G. W. (2000). Developmental science in the 21st century: Emerging questions, theoretical models, research designs and empirical findings. *Social Development, 9*, 115 – 125. <https://doi.org/10.1111/1467-9507.00114>
- Bronfenbrenner, U., & Morris, P. A. (1998). The ecology of developmental processes. In W. Damon & R. M. Lerner (Eds.), *Handbook Of Child Psychology, Vol. 1: Theoretical Models Of Human Development* (5th ed., pp. 993 – 1023). Wiley.
- Brown, D. (1996, 8 July). With fanfare, global AIDS conference gets underway in Vancouver. *Washington Post*.
<https://www.washingtonpost.com/archive/politics/1996/07/08/with-fanfare-global-aids-conference-gets-underway-in-vancouver/897b52bb-265d-4973-afc6-ca48f8465974/>
- Bruner, K. M., Wang, Z., Simonetti, F. R., Bender, A. M., Kwon, K. J., Sengupta, S., Fray, E. J., Beg, S. A., Antar, A. A. R., Jenike, K. M., Bertagnolli, L. N., Capoferri, A. A., Kufera, J. T., Timmons, A., Nobles, C., Gregg, J., Wada, N., Ho, Y.-C., Zhang, H., & Margolick, J. B. (2019). A novel quantitative approach for measuring the reservoir of latent HIV-1 proviruses. *Nature, 566*(7742), 120–125.
<https://doi.org/10.1038/s41586-019-0898-8>
- Bruton, S. V., Medlin, M., Brown, M., & Sacco, D. F. (2020). Personal motivations and systemic incentives: scientists on questionable research practices. *Science and Engineering Ethics*. <https://doi.org/10.1007/s11948-020-00182-9>
- Bogart, L. M., Skinner, D., Thurston, I. B., Toefy, Y., Klein, D. J., Hu, C. H., & Schuster, M. A. (2013). Let's Talk!, A South African worksite-based HIV prevention parenting program. *Journal of Adolescent Health, 53*(5), 602–608.
<https://doi.org/10.1016/j.jadohealth.2013.01.014>
- Boone, M. R., Cherenack, E. M., Wilson, P. A., & ATN 086/106 Protocol Team. (2015). Self-efficacy for sexual risk reduction and partner HIV status as correlates of sexual risk behavior among HIV-positive adolescent girls and women. *AIDS patient care and STDs, 29*(6), 346-353. <https://doi.org/10.1089/apc.2014.0175>
- Booyesen, F., & Arntz, T. (2002). Children of the storm: HIV/AIDS and children in South Africa. *Social dynamics, 28*(1), 170-192. <https://doi.org/10.1080/02533950208458729>
- Bowley, D. M., & Pitcher, G. J. (2002). Motivation behind infant rape in South Africa. *The Lancet, 359*(9314), 1352. [https://doi.org/10.1016/S0140-6736\(02\)08305-8](https://doi.org/10.1016/S0140-6736(02)08305-8)
- Bschir, K. (2015). Feyerabend and Popper on theory proliferation and anomaly import: On the compatibility of theoretical pluralism and critical rationalism. *HOPOS: The Journal of the International Society for the History of Philosophy of Science, 5*(1), 24-55. <https://doi.org/10.1086/680368>
- Buboltz, W., Jr., Deemer, E., & Hoffmann, R. (2010). Content analysis of the Journal of Counselling Psychology: Buboltz, Miller, and Williams (1999) 11 years later. *Journal of Counselling Psychology, 57*, 368–375. <https://doi.org/10.1037/a0020028>
- Buboltz, W. C., Jr., Miller, M., & Williams, D. J. (1999). Content analysis of research in the Journal of Counselling Psychology (1973–1998). *Journal of Counselling Psychology, 46*, 496–503. <https://doi.org/10.1037/0022-0167.46.4.496>

- Buchacz, K., Patel, P., Taylor, M., Kerndt, P. R., Byers, R. H., Holmberg, S. D., & Klausner, J. D. (2004). Syphilis increases HIV viral load and decreases CD4 cell counts in HIV-infected patients with new syphilis infections. *Aids*, *18*(15), 2075-2079. <https://doi.org/10.1097/00002030-200410210-00012>
- Buchanan, D. R. (1998). Beyond positivism: humanistic perspectives on theory and research in health education. *Health Education Research*, *13*(3), 439-450. <https://doi.org/10.1093/her/13.3.439>
- Bukenya, D., Mayanja, B. N., Nakamanya, S., Muhumuza, R., & Seeley, J. (2019). What causes non-adherence among some individuals on long term antiretroviral therapy? Experiences of individuals with poor viral suppression in Uganda. *AIDS research and therapy*, *16*(1), 1-9. <https://doi.org/10.1186/s12981-018-0214-y>
- Bulled, N., & Singer, M. (2020). In the shadow of HIV & TB: A commentary on the COVID epidemic in South Africa. *Global Public Health*, *15*(8), 1231-1243. <https://doi.org/10.1080/17441692.2020.1775275>
- Bunge, M. (1966). Technology as applied science. In F. Rapp (Ed.), *Contributions to a Philosophy of Technology* (pp. 19-39). Springer.
- Burger, C., Burger, R., & van Doorslaer, E. (2019). The health impact of a decade of free ART access in South Africa. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3403352>
- Burger, E. H., Van der Merwe, L., & Volmink, J. (2007). Errors in the completion of the death notification form. *South African Medical Journal*, *97*(11), 1077-1081. <https://hdl.handle.net/10520/EJC68902>
- Burke, M., Chen, M., & Brown, A. N. (2018). Applying Factorial Designs to Disentangle the Effects of Integrated Development. *IDS Bulletin*, *49*(4). <https://doi.org/10.19088/1968-2018.165>
- Burke, H. M., Chen, M., Murray, K., Bezuidenhout, C., Ngwepe, P., Bernholc, A., & Medina-Marino, A. (2020). The effects of the integration of an economic strengthening and HIV prevention education programme on the prevalence of sexually transmitted infections and savings behaviours among adolescents: a full-factorial randomised controlled trial in South Africa. *BMJ Global Health*, *5*(4), e002029. <https://doi.org/10.1136/bmjgh-2019-002029>
- Burrell, G., & Morgan, G. (2017). *Sociological Paradigms And Organisational Analysis: Elements Of The Sociology Of Corporate Life*. Routledge.
- Buse, K., Hildebrand, M., & Hawkes, S. (2016). A farewell to abstinence and fidelity?. *The Lancet Global Health*, *4*(9), e599-e600. [https://doi.org/10.1016/S2214-109X\(16\)30138-3](https://doi.org/10.1016/S2214-109X(16)30138-3)
- Butler, J. (1990/2002). *Gender Trouble*. Routledge.
- Byrne, D. S., & Gill Callaghan. (2014). *Complexity Theory And The Social Sciences: The State Of The Art*. Routledge, Taylor & Francis.
- Byrne, M. (2020). Gaps and priorities in advancing methods for health behaviour change research. *Health Psychology Review*, *14*(1), 165-175. <https://doi.org/10.1080/17437199.2019.1707106>

- Caffe, S., Perez, F., Kamb, M. L., Gomez Ponce de Leon, R., Alonso, M., Midy, R., Newman, L., Hayashi, C., & Ghidinelli, M. (2016). Cuba Validated as the First Country to Eliminate Mother-to-Child Transmission of Human Immunodeficiency Virus and Congenital Syphilis: Lessons Learned from the Implementation of the Global Validation Methodology. *Sexually Transmitted Diseases*, 43(12), 733–736. <https://doi.org/10.1097/olq.0000000000000528>
- Camlin, C. S., Koss, C. A., Getahun, M., Owino, L., Itiakorit, H., Akatukwasa, C., Maeri, I., Bakanoma, R., Onyango, A., Atwine, F., Ayieko, J., Kabami, J., Mwangwa, F., Atukunda, M., Owaraganise, A., Kwarisiima, D., Sang, N., Bukusi, E. A., Kanya, M. R., & Petersen, M. L. (2020). Understanding Demand for PrEP and Early Experiences of PrEP Use Among Young Adults in Rural Kenya and Uganda: A Qualitative Study. *AIDS and Behavior*, 24(7), 2149–2162. <https://doi.org/10.1007/s10461-020-02780-x>
- Campbell, C. (1997). Migrancy, masculine identities and AIDS: the psychosocial context of HIV transmission on the South African gold mines. *Social Science & Medicine*, 45(2), 273-281. [https://doi.org/10.1016/S0277-9536\(96\)00343-7](https://doi.org/10.1016/S0277-9536(96)00343-7)
- Campbell, C. (2000). Selling sex in the time of AIDS: the psycho-social context of condom use by sex workers on a Southern African mine. *Social Science & Medicine*, 50(4), 479-494. [https://doi.org/10.1016/s0277-9536\(99\)00317-2](https://doi.org/10.1016/s0277-9536(99)00317-2)
- Campbell, C. (2003). *Letting Them Die: Why HIV Prevention Programmes Often Fail*. James Currey.
- Campbell, C. (2004). The role of collective action in the prevention of HIV/AIDS in South Africa. In D. Hook (Ed.), *Critical Psychology* (pp. 335–359). UCT Press.
- Campbell, C. (2010). Political will, traditional leaders and the fight against HIV/AIDS: a South African case study. *AIDS Care*, 22(sup2), 1637-1643. <https://doi.org/10.1080/09540121.2010.516343>
- Campbell, C. (2020). Social capital, social movements and global public health: Fighting for health-enabling contexts in marginalised settings. *Social Science & Medicine*, 257, 112153. <https://doi.org/10.1016/j.socscimed.2019.02.004>
- Campbell, C., & Cornish, F. (2010). Towards a “fourth generation” of approaches to HIV/AIDS management: Creating contexts for effective community mobilisation. *AIDS Care*, 22(sup2), 1569-1579. <https://doi.org/10.1080/09540121.2010.525812>
- Campbell, C., & Cornish, F. (2011). How can community health programmes build enabling environments for transformative communication? Experiences from India and South Africa. *AIDS and Behavior*, 16(4), 847–857. <https://doi.org/10.1007/s10461-011-9966-2>
- Campbell, C., Gibbs, A., Nair, Y., & Maimane, S. (2009). Frustrated potential, false promise or complicated possibilities? Empowerment and Participation amongst female health volunteers in South Africa. *Journal of Health Management*, 11(2), 315–336. <https://doi.org/10.1177/097206340901100204>
- Campbell, C., & MacPhail, C. (2002). Peer education, gender and the development of critical consciousness: participatory HIV prevention by South African youth. *Social Science & Medicine*, 55(2), 331-345. [https://doi.org/10.1016/S0277-9536\(01\)00289-1](https://doi.org/10.1016/S0277-9536(01)00289-1)
- Campbell, C., & Murray, M. (2004). Community health psychology: Promoting analysis and action for social change. *Journal of Health Psychology*, 9(2), 187–196. <https://doi.org/10.1177/1359105304040886>

- Campbell, C., & Mzaidume, Z. (2001). Grassroots participation, peer education, and HIV prevention by sex workers in South Africa. *American Journal of Public Health, 91*(12), 1978-1986. <https://doi.org/10.2105/AJPH.91.12.1978>
- Campbell, C., Nair, Y., & Maimane, S. (2007). Building contexts that support effective community responses to HIV/AIDS: a South African case study. *American Journal Of Community Psychology, 39*(3), 347-363. <https://doi.org/10.1007/s10464-007-9116-1>
- Campbell, C., Nair, Y., Maimane, S., & Nicholson, J. (2007). “Dying twice” a multi-level model of the roots of AIDS stigma in two South African communities. *Journal Of Health Psychology, 12*(3), 403-416. <https://doi.org/10.1177/1359105307076229>
- Campbell, C. M., & Williams, B. G. (1996). Academic research and HIV/AIDS in South Africa. *South African Medical Journal, 86*(1), 57-60. <https://www.ajol.info/index.php/samj/article/download/155853/145480>
- Campbell, C., & Williams, B. (1998). Evaluating HIV-prevention programmes: Conceptual challenges. *Psychology in Society, 24*(4), 57-68. https://www.pins.org.za/pins/pins24/pins24_article06_Campbell_Williams.pdf
- Campbell, C., & Williams, B. (2001). Briefing: riding the tiger: contextualizing HIV prevention in South Africa. *African Affairs, 100*(398), 135-140. <https://www.jstor.org/stable/3518375>
- Campbell, C., Williams, B., & Gilgen, D. (2002). Is social capital a useful conceptual tool for exploring community level influences on HIV infection? An exploratory case study from South Africa. *AIDS Care, 14*(1), 41-54. <https://doi.org/10.1080/09540120220097928>
- Capra, F., & Luisi, P.L. (2018). *The Systems View of Life: A Unifying Vision*. Cambridge University Press.
- Carolan, M. S. (2005). Society, biology, and ecology: Bringing nature back into sociology’s disciplinary narrative through critical realism. *Organization & Environment, 18*(4), 393-421. <https://doi.org/10.1177/1086026605281697>
- Carrasco, M. A., Esser, M. B., Sparks, A., & Kaufman, M. R. (2015). HIV-alcohol risk reduction interventions in Sub-Saharan Africa: A systematic review of the literature and recommendations for a way forward. *AIDS and Behavior, 20*(3), 484–503. <https://doi.org/10.1007/s10461-015-1233-5>
- Carron, A. V., & Brawley, L. R. (2000). Cohesion: Conceptual and measurement issues. *Small Group Research, 31*(1), 89-106. <https://doi.org/10.1177/104649640003100105>
- Cassell, M. M., Halperin, D. T., Shelton, J. D., & Stanton, D. (2006). Risk compensation: the Achilles’ heel of innovations in HIV prevention? *BMJ, 332*(7541), 605–607. <https://doi.org/10.1136/bmj.332.7541.605>
- Cassels, S., Jenness, S. M., & Khanna, A. S. (2014). Conceptual framework and research methods for migration and HIV transmission dynamics. *AIDS and Behavior, 18*(12), 2302-2313. <https://doi.org/10.1007/s10461-013-0665-z>
- Cassidy, M. J., & Schlebusch, L. (1993). Biopsychosocial factors in HIV-AIDS: psychoneuroimmunological implications. *African Journal of Neurosciences, 1*(11).
- Catalán, J., Hedge, B., & Sherr, L. (1997). *The impact of AIDS: psychological and social aspects of HIV infection*. CRC Press.

- Catania, J. A., Kegeles, S. M., & Coates, T. J. (1990). Towards an understanding of risk behavior: An AIDS risk reduction model (ARRM). *Health Education Quarterly*, 17(1), 53-72. <https://doi.org/10.1177/109019819001700107>
- Cates Jr, W., & Bowen, G. S. (1989). Education for AIDS prevention: not our only voluntary weapon. *American Journal of Public Health*, 79(7), 871-874. <https://doi.org/10.2105/ajph.79.7.871>
- CDC (1981). Pneumocystis pneumonia — Los Angeles. *Morbidity and Mortality Weekly Report*, 30(21), 1-3. <https://www.cdc.gov/mmwr/preview/mmwrhtml/lmrk077.htm#:~:text=In%20the%20period%20October%201980,Two%20of%20the%20patients%20died.>
- CDC (1982a). Epidemiologic Notes and Reports Update on Kaposi's Sarcoma and Opportunistic Infections in Previously Healthy Persons - United States. *Morbidity and Mortality Weekly Report*, 31(22), 300-301. <https://www.cdc.gov/mmwr/preview/mmwrhtml/00001111.htm>
- CDC (1982b). Current Trends Update on Acquired Immune Deficiency Syndrome (AIDS) - United States. *Morbidity and Mortality Weekly Report*, 31(37), 513-514. <https://www.cdc.gov/mmwr/preview/mmwrhtml/00001163.htm#:~:text=An%20average%20of%20one%20to,diagnosed%20over%20a%20year%20ago.>
- CDC (1984). Update: acquired immunodeficiency syndrome (AIDS) in persons with hemophilia. *Morbidity and Mortality Weekly Report*, 333, 589– 92. <https://www.cdc.gov/mmwr/preview/mmwrhtml/00000421.htm>
- CDC (2015). *U.S. Ambassador Patrick Gaspard and Minister of Health Dr. Aaron Motsoaledi Celebrate One-Year Anniversary of MomConnect and Launch Youth Mobisite, B-Wise.* https://www.cdc.gov/globalhealth/countries/southafrica/stories/mom_connect.htm
- CDC (2017). *Genital Herpes - CDC Fact Sheet (Detailed).* <https://www.cdc.gov/std/herpes/stdfact-herpes-detailed.htm>
- CDC (2019a). *HIV transmission.* <https://www.cdc.gov/hiv/basics/transmission.html>
- CDC (2019b). *Undetectable = Untransmittable (U=U) Strategic Toolkit.* https://58b1608b-fe15-46bb-818a-cd15168c0910.filesusr.com/ugd/de0404_dc7f983a5b33410fbdaf62e84a192aa9.pdf
- Celum, C., & Baeten, J. M. (2020). Lessons on PrEP from the SEARCH study in east Africa. *The Lancet HIV*, 7(4), e219-e220. [https://doi.org/10.1016/S2352-3018\(20\)30003-5](https://doi.org/10.1016/S2352-3018(20)30003-5)
- Celum, C. L., Delany-Moretlwe, S., Baeten, J. M., van der Straten, A., Hosek, S., Bukusi, E. A., McConnell, M., Barnabas, R. V., & Bekker, L.G. (2019). HIV pre-exposure prophylaxis for adolescent girls and young women in Africa: from efficacy trials to delivery. *Journal of the International AIDS Society*, 22 Suppl 4, e25298. <https://doi.org/10.1002/jia2.25298>
- Chan, B. T., & Tsai, A. C. (2016). HIV stigma trends in the general population during antiretroviral treatment expansion: analysis of 31 countries in sub-Saharan Africa, 2003–2013. *Journal of Acquired Immune Deficiency Syndromes*, 72(5), 558-564. <https://doi.org/10.1097/QAI.0000000000001011>

- Chang, S. J., Choi, S., Kim, S.-A., & Song, M. (2014). Intervention Strategies Based on Information-Motivation-Behavioral Skills Model for Health Behavior Change: A Systematic Review. *Asian Nursing Research*, 8(3), 172–181. <https://doi.org/10.1016/j.anr.2014.08.002>
- Chappell, P. (2014). How Zulu-speaking youth with physical and visual disabilities understand love and relationships in constructing their sexual identities. *Culture, Health & Sexuality*, 16(9), 1156-1168. <https://doi.org/10.1080/13691058.2014.933878>
- Chazan, M. (2014). Everyday mobilisations among grandmothers in South Africa: Survival, support and social change in the era of HIV/AIDS. *Ageing & Society*, 34(10), 1641-1665. <https://doi.org/10.1017/S0144686X13000317>
- Chemnasiri, T., Varangrat, A., Amico, K. R., Chitwarakorn, A., Dye, B. J., Grant, R. M., & Holtz, T. H. (2020). Facilitators and barriers affecting PrEP adherence among Thai men who have sex with men (MSM) in the HPTN 067/ADAPT Study. *AIDS Care*, 32(2), 1–6. <https://doi.org/10.1080/09540121.2019.1623374>
- Chen, R., Hughes, A. C., & Austin, J. P. (2017). The use of theory in family therapy research: Content analysis and update. *Journal of Marital and Family Therapy*, 43(3), 514-525. <https://doi.org/10.1111/jmft.12217>
- Cherian, L., & Maphoso, L. S. (2009). Measurement of the effectiveness of an HIV/AIDS intervention programme on knowledge, attitudes, and behaviour of the South African Police Service employees. *Curationis*, 32(4), 4-18. <http://www.scielo.org.za/pdf/cura/v32n4/01.pdf>
- Cherry, M. (2000). Mbeki agrees to step back from AIDS debate. *Nature*, 407(6806), 822. <https://doi.org/10.1038/35038214>
- Chesney, M. A., Chambers, D. B., & Kahn, J. O. (1997). Risk Behavior for HIV Infection in Participants in Preventive HIV Vaccine Trials: A Cautionary Note. *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology*, 16(4), 266–271. <https://doi.org/10.1097/00042560-199712010-00007>
- Chesson, H. W., & Pinkerton, S. D. (2000). Sexually transmitted diseases and the increased risk for HIV transmission: implications for cost-effectiveness analyses of sexually transmitted disease prevention interventions. *Journal of Acquired Immune Deficiency Syndromes*, 24(1), 48-56. <https://doi.org/10.1097/00126334-200005010-00009>
- Chetty-Makkan, C. M., Grund, J. M., Munyai, R., Gadla, V., Chihota, V., Maraisane, M., & Charalambous, S. (2019). “To speak or not to speak”: A qualitative analysis on the attitude and willingness of women to start conversations about voluntary medical male circumcision with their partners in a peri-urban area, South Africa. *PLOS ONE*, 14(1), e0210480. <https://doi.org/10.1371/journal.pone.0210480>
- Chi, P., & Li, X. (2013). Impact of parental HIV/AIDS on children’s psychological well-being: A systematic review of global literature. *AIDS and Behavior*, 17(7), 2554-2574. <https://doi.org/10.1007/s10461-012-0290-2>

- Chi, B. H., Yiannoutsos, C. T., Westfall, A. O., Newman, J. E., Zhou, J., Cesar, C., Brinkhof, M. W. G., Mwango, A., Balestre, E., Carriquiry, G., Sirisanthana, T., Mukumbi, H., Martin, J. N., Grimsrud, A., Bacon, M., & Thiebaut, R. (2011). Universal Definition of Loss to Follow-Up in HIV Treatment Programs: A Statistical Analysis of 111 Facilities in Africa, Asia, and Latin America. *PLoS Medicine*, 8(10), e1001111. <https://doi.org/10.1371/journal.pmed.1001111>
- Chigwedere, P., Seage III, G. R., Gruskin, S., Lee, T. H., & Essex, M. (2008). Estimating the lost benefits of antiretroviral drug use in South Africa. *Journal of Acquired Immune Deficiency Syndromes*, 49(4), 410-415. <https://doi.org/10.1097/qai.0b013e31818a6cd5>
- Chillag, K., Guest, G., Bunce, A., Johnson, L., Kilmarx, P. H., & Smith, D. K. (2006). Talking about sex in Botswana: Social desirability bias and possible implications for HIV-prevention research. *African Journal of AIDS Research*, 5(2), 123-131. <https://doi.org/10.2989/16085900609490372>
- Choi, K. W., Smit, J. A., Coleman, J. N., Mosery, N., Bangsberg, D. R., Safren, S. A., & Psaros, C. (2019). Mapping a Syndemic of Psychosocial Risks During Pregnancy Using Network Analysis. *International Journal of Behavioral Medicine*, 26(2), 207-216. <https://doi.org/10.1007/s12529-019-09774-7>
- Chop, E., Duggaraju, A., Malley, A., Burke, V., Caldas, S., Yeh, P. T., Narasimhanb, M., Amin, A., & Kennedy, C. E. (2017). Food insecurity, sexual risk behavior, and adherence to antiretroviral therapy among women living with HIV: a systematic review. *Health Care For Women International*, 38(9), 927-944. <https://doi.org/10.1080/07399332.2017.1337774>
- Chu, J. S., & Evans, J. A. (2021). Slowed canonical progress in large fields of science. *Proceedings of the National Academy of Sciences*, 118(41). <https://doi.org/10.1073/pnas.2021636118>
- Cialdini, R. B. (1987). *Influence* (Vol. 3). Port Harcourt: A. Michel.
- Cichowitz, C., Maraba, N., Hamilton, R., Charalambous, S., & Hoffmann, C. J. (2017). Depression and alcohol use disorder at antiretroviral therapy initiation led to disengagement from care in South Africa. *PLoS ONE*, 12(12), e0189820. <https://doi.org/10.1371/journal.pone.0189820>
- Cilliers, C. D. (1989). The role of the school in the Republic of South Africa in the prevention of AIDS-a situation analysis. *South African Journal Of Education*, 9(1), 1-6.
- Clavel, F., Mansinho, K., Chamaret, S., Guetard, D., Favier, V., Nina, J., Santos-Ferreira, M.-O., Champalimaud, J.-L., & Montagnier, L. (1987). Human Immunodeficiency Virus Type 2 Infection Associated with AIDS in West Africa. *New England Journal of Medicine*, 316(19), 1180-1185. <https://doi.org/10.1056/nejm198705073161903>
- Closson, K., Hatcher, A., Sikweyiya, Y., Washington, L., Mkhwanazi, S., Jewkes, R., Dunkle, K., & Gibbs, A. (2019). Gender role conflict and sexual health and relationship practices amongst young men living in urban informal settlements in South Africa. *Culture, Health & Sexuality*, 22(1), 31-47. <https://doi.org/10.1080/13691058.2019.1568578>

- Clouse, K., Vermund, S. H., Maskew, M., Lurie, M. N., MacLeod, W., Maletse, G., Carmona, S., Sherman, G., & Fox, M. P. (2017). Mobility and Clinic Switching Among Postpartum Women Considered Lost to HIV Care in South Africa. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 74(4), 383–389.
<https://doi.org/10.1097/QAI.0000000000001284>
- Cluver, L., & Gardner, F. (2006). The psychological well-being of children orphaned by AIDS in Cape Town, South Africa. *Annals Of General Psychiatry*, 5(1), 1-9.
<https://doi.org/10.1186/1744-859X-5-8>
- Cluver, L., Gardner, F., & Operario, D. (2007). Psychological distress amongst AIDS-orphaned children in urban South Africa. *Journal of Child Psychology and Psychiatry*, 48(8), 755–763. <https://doi.org/10.1111/j.1469-7610.2007.01757.x>
- Cluver, L., Operario, D., & Gardner, F. (2009). Parental illness, caregiving factors and psychological distress among children orphaned by acquired immune deficiency syndrome (AIDS) in South Africa. *Vulnerable Children and Youth Studies*, 4(3), 185–198. <https://doi.org/10.1080/17450120902730196>
- Coates, T. J., Richter, L., & Caceres, C. (2008). Behavioural strategies to reduce HIV transmission: How to make them work better. *The Lancet*, 372(9639), 669-684.
[https://doi.org/10.1016/S0140-6736\(08\)60886-7](https://doi.org/10.1016/S0140-6736(08)60886-7)
- Cochrane, M. (2004). *When AIDS began: San Francisco and the making of an epidemic*. Routledge.
- Coetzee, D. (2014). Infectious disease epidemiology. In R. Ehrlich, & G. Joubert (Eds.), *Epidemiology: A research manual for South Africa* (pp.224-233). Oxford University Press.
- Coetzee, D., & Mahomed, H. (2014). Health information and surveillance. In R. Ehrlich, & G. Joubert (Eds.), *Epidemiology: A research manual for South Africa* (pp.190-201). Oxford University Press.
- Coetzee, B. J., Vogel, L., Sander, S., Field, C., Kagee, A., & Roomaney, R. (2022). Re-visiting the relevance and importance of health psychology in South Africa. *South African Journal of Psychology*, 52, 1–11.
<https://doi.org/10.1177/00812463221094728>
- Coffin, J., Haase, A., Levy, J. A., Montagnier, L., Oroszlan, S., Teich, N., & Vogt, P. (1986). What to call the AIDS virus?. *Nature*, 321(6065), 10.
<https://doi.org/10.1038/321010a0>
- Coffman, D. L., Smith, E. A., Flisher, A. J., & Caldwell, L. L. (2011). Effects of HealthWise South Africa on condom use self-efficacy. *Prevention Science*, 12(2), 162-172.
<https://doi.org/10.1007/s11121-010-0196-z>
- Cohen, I. B. (1985). *Revolution In Science*. Belknap Press.
- Cohen, J. (2011). The emerging race to cure HIV infections. *Science*, 332(6031), 784-789.
<https://doi.org/10.1126/science.332.6031.784>
- Cohen, J., & Tate, T. (2006). The less they know, the better: abstinence-only HIV/AIDS programs in Uganda. *Reproductive Health Matters*, 14(28), 174-178.
[https://doi.org/10.1016/s0968-8080\(06\)28249-1](https://doi.org/10.1016/s0968-8080(06)28249-1)

- Cohen, M. S. (2012). Classical sexually transmitted diseases drive the spread of HIV-1: Back to the future. *The Journal of Infectious Diseases*, 206, 1-2. <https://doi.org/10.1093/infdis/jis303>
- Cohen, M. S., Chen, Y. Q., McCauley, M., Gamble, T., Hosseinipour, M. C., Kumarasamy, N., Hakim, J. G., Kumwenda, J., Grinsztejn, B., Pilotto, J. H. S., Godbole, S. V., Mehendale, S., Chariyalertsak, S., Santos, B. R., Mayer, K. H., Hoffman, I. F., Eshleman, S. H., Piwowar-Manning, E., Wang, L., & Makhema, J. (2011). Prevention of HIV-1 infection with early antiretroviral therapy. *The New England Journal of Medicine*, 365(6), 493–505. <https://doi.org/10.1056/NEJMoa1105243>
- Cohen, M. S., Chen, Y. Q., McCauley, M., Gamble, T., Hosseinipour, M. C., Kumarasamy, N., Hakim, J. G., Kumwenda, J., Grinsztejn, B., Pilotto, J. H. S., Godbole, S. V., Chariyalertsak, S., Santos, B. R., Mayer, K. H., Hoffman, I. F., Eshleman, S. H., Piwowar-Manning, E., Cottle, L., Zhang, X. C., & Makhema, J. (2016). Antiretroviral Therapy for the Prevention of HIV-1 Transmission. *New England Journal of Medicine*, 375(9), 830–839. <https://doi.org/10.1056/nejmoa1600693>
- Cohen, M. S., Gay, C., Kashuba, A. D., Blower, S., & Paxton, L. (2007). Narrative review: antiretroviral therapy to prevent the sexual transmission of HIV-1. *Annals of Internal Medicine*, 146(8), 591-601. <https://doi.org/10.7326/0003-4819-146-8-200704170-00010>
- Colasanti, J. A., & Armstrong, W. S. (2019). Challenges of reaching 90–90–90 in the Southern United States. *Current Opinion in HIV and AIDS*, 14(6), 471-480. <https://doi.org/10.1097/COH.0000000000000577>
- Colding, J., & Barthel, S. (2019). Exploring the social-ecological systems discourse 20 years later. *Ecology and Society*, 24(1). <https://doi.org/10.5751/ES-10598-240102>
- Coleman, L. M., & Ford, N. J. (1996). An extensive literature review of the evaluation of HIV prevention programmes. *Health Education Research*, 11(3), 327–338. <https://doi.org/10.1093/her/11.3.327>
- Coleman, R. L., & Wilkinson, D. (1997). Increasing HIV prevalence in a rural district of South Africa from 1992 through 1995. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 16(1), 50-53. <https://doi.org/10.1097/00042560-199709010-00008>
- Colfax, G., Buchbinder, S., Vamshidar, G., Celum, C., McKirnan, D., Neidig, J., Koblin, B., Gurwith, M., & Bartholow, B. (2005). Motivations for Participating in an HIV Vaccine Efficacy Trial. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 39(3), 359–364. <https://doi.org/10.1097/01.qai.0000152039.88422.ec>
- Collier, A. (1994). *Critical realism: an introduction to Roy Bhaskar's philosophy*. Verso
- Collins, A. (2004). Theoretical resources. In D. Hook. (Ed.). *Critical Psychology* (pp. 2–9). UCT Press.
- Colomy, P. (1991). Metatheorizing in a postpositivist frame. *Sociological Perspectives*, 34(3), 269-286. <https://doi.org/10.2307/1389511>
- Colquitt, J. A., & Zapata-Phelan, C. P. (2007). Trends in theory building and theory testing: A five-decade study of the Academy of Management Journal. *Academy of Management Journal*, 50(6), 1281-1303. <https://doi.org/10.5465/amj.2007.28165855>
- Connell, R. (1987/2013). *Gender And Power: Society, The Person And Sexual Politics*. Polity.

- Connell, R. W. (1995). *Masculinities*. Cambridge Polity.
- Connelly, P., Feeley, R., Rosen, S., & Simon, J. (2006). The private sector and HIV/AIDS in Africa: taking stock of six years of applied research. Health and Development Discussion Paper No. 7. <http://www.iaen.org/library/Rosen%20Private%20sector%20and%20AIDS%20in%20Africa.pdf>
- Connelly, M., & Macleod, C. (2003). Waging war: discourses of HIV/AIDS in South African media. *African Journal of AIDS Research*, 2(1), 63-73. <https://doi.org/10.2989/16085906.2003.9626560>
- Conner, M., & Norman, P. (2008). Predicting health behaviour: A social cognition approach. In M. Conner, & P. Norman (Eds.), *Predicting Health Behaviour* (pp. 127-169). Open University Press.
- Connor, E. M., Sperling, R. S., Gelber, R., Kiselev, P., Scott, G., O'Sullivan, M. J., VanDyke, R., Bey, M., Shearer, W., Jacobson, R. L., Jimenez, E., O'Neill, E., Bazin, B., Delfraissy, J.-F., Culnane, M., Coombs, R., Elkins, M., Moye, J., Stratton, P., & Balsley, J. (1994). Reduction of Maternal-Infant Transmission of Human Immunodeficiency Virus Type 1 with Zidovudine Treatment. *New England Journal of Medicine*, 331(18), 1173–1180. <https://doi.org/10.1056/nejm199411033311801>
- Constitution of the Republic of South Africa Act No. 108 of 1996 (1996). *Government Gazette*, 378(17678), 1-147. <http://www.info.gov.za/view/DownloadFileAction?id=70763.html>
- Cook, T. D., Campbell, D. T., & Shadish, W. (2002). *Experimental And Quasi-Experimental Designs For Generalized Causal Inference*. Houghton Mifflin.
- Cooke, G. S., Tanser, F. C., Bärnighausen, T. W., & Newell, M. L. (2010). Population uptake of antiretroviral treatment through primary care in rural South Africa. *BMC public health*, 10(1), 1-9. <https://doi.org/10.1186/1471-2458-10-585>
- Cooper, D. A., & Merigan, T. C. (1996). Clinical treatment. *Aids*, 10, S133-134.
- Cooper, S., & Foster, D. (2009). Psychosocial analysis of HIV/AIDS-related stigma in South Africa. *International Quarterly Of Community Health Education*, 29(1), 23-44. <https://doi.org/10.2190/IQ.29.1.c>
- Cooper, T. J., Woodward, B. L., Alom, S., & Harky, A. (2020). Coronavirus disease 2019 (COVID-19) outcomes in HIV/AIDS patients: a systematic review. *HIV Medicine*, 21(9), 567-577. <https://doi.org/10.1111/hiv.12911>
- Corneli, A. L., McKenna, K., Headley, J., Ahmed, K., Odhiambo, J., Skhosana, J., Wang, M., Agot, K., & FEM-PrEP Study Group. (2014). A descriptive analysis of perceptions of HIV risk and worry about acquiring HIV among FEM-PrEP participants who seroconverted in Bondo, Kenya, and Pretoria, South Africa. *Journal of the International AIDS Society*, 17, 19152. <https://doi.org/10.7448/IAS.17.3.19152>
- Corneli, A. L., McKenna, K., Perry, B., Ahmed, K., Agot, K., Malamatsho, F., Skhosana, J., Odhiambo, J., & Van Damme, L. (2015a). The science of being a study participant: FEM-PrEP participants' explanations for overreporting adherence to the study pills and for the whereabouts of unused pills. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 68(5), 578-584. <https://doi.org/10.1097/QAI.0000000000000525>

- Corneli, A., Namey, E., Ahmed, K., Agot, K., Skhosana, J., Odhiambo, J., & Guest, G. (2015b). Motivations for reducing other HIV risk-reduction practices if taking pre-exposure prophylaxis: findings from a qualitative study among women in Kenya and South Africa. *AIDS Patient Care And STDs*, 29(9), 503-509. <https://doi.org/10.1089/apc.2015.0038>
- Coutsoudis, A., Pillay, K., Spooner, E., Kuhn, L., & Coovadia, H. M. (1999). Influence of infant-feeding patterns on early mother-to-child transmission of HIV-1 in Durban, South Africa: a prospective cohort study. *The Lancet*, 354(9177), 471-476. [https://doi.org/10.1016/s0140-6736\(99\)01101-0](https://doi.org/10.1016/s0140-6736(99)01101-0)
- Courtenay, W. H. (2000). Constructions of masculinity and their influence on men's well-being: a theory of gender and health. *Social Science & Medicine*, 50(10), 1385-1401. [https://doi.org/10.1016/s0277-9536\(99\)00390-1](https://doi.org/10.1016/s0277-9536(99)00390-1)
- Covey, J., Rosenthal-Stott, H. E., & Howell, S. J. (2016). A synthesis of meta-analytic evidence of behavioral interventions to reduce HIV/STIs. *Journal of Behavioral Medicine*, 39(3), 371-385. <https://doi.org/10.1186/s12955-017-0662-4>
- Crenshaw, K. (1991). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stanford Law Review*, 43(6), 1241-1299. <https://www.jstor.org/stable/1229039>
- Crenshaw, K., Gotanda, N., Peller, G., & Thomas, K. (1995). *Critical Race Theory: The Key Writings That Formed The Movement*. The New Press.
- Crepaz, N., Hart, T. A., & Marks, G. (2004). Highly active antiretroviral therapy and sexual risk behavior. *JAMA*, 292(2), 224. <https://doi.org/10.1001/jama.292.2.224>
- Crosby, R. A., & Holtgrave, D. R. (2006). Will sexual risk behaviour increase after being vaccinated for AIDS?. *International journal of STD & AIDS*, 17(3), 180-184. <https://doi.org/10.1258/095646206775809204>
- Crosby, R. A., & Kegler, M. C., & DiClemente, R. J. (2009). Understanding and applying theory in health promotion practice and research. In R. J. DiClemente, R. A. Crosby, & M. C. Kegler (Eds.), *Emerging Theories In Health Promotion Practice And Research* (pp. 1-15). John Wiley & Sons.
- Crotty, M. (1998/2020). *The foundation of social research: Meaning and perspective in the research process*. Routledge.
- Crowley, T., van der Merwe, A., & Skinner, D. (2019). Adolescent HIV Self-management: Lived Experiences of Adolescents, Caregivers, and Health Care Workers in a South African Context. *Journal of the Association of Nurses in AIDS Care*, 30(4), e7-e19. <https://doi.org/10.1097/jnc.0000000000000098>
- Cruikshank, J. (2002). Critical realism and critical philosophy: On the usefulness of philosophical problems. *Journal of Critical Realism*, 1(1), 49-66. <https://doi.org/10.1558/jocr.v1i1.49>
- Cruikshank, J. (2012). Positioning positivism, critical realism and social constructionism in the health sciences: A philosophical orientation. *Nursing Inquiry*, 19(1), 71-82. <https://doi.org/10.1111/j.1440-1800.2011.00558.x>
- Cukier, K., & Mayer-Schoenberger, V. (2013). *The Rise Of Big Data: How It's Changing The Way We Think About The World*. Princeton University Press.

- Cupp, P. K., Zimmerman, R. S., Bhana, A., Feist-Price, S., Dekhtyar, O., Karnell, A., & Ramsoomar, L. (2008). Combining and adapting American school-based alcohol and HIV prevention programmes in South Africa: The HAPS project. *Vulnerable Children and Youth Studies*, 3(2), 134–142. <https://doi.org/10.1080/17450120701867553>
- Dageid, W., & Duckert, F. (2007). The process of evaluating a capacity-building support initiative for HIV positive South Africans. *Evaluation and Program Planning*, 30(4), 381-391. <https://doi.org/10.1016/j.evalprogplan.2007.06.008>
- Dai, M., & Harrington, N. G. (2021). The need to examine behaviors within “actual” constraints: A systematic review of research using the integrative model of behavioral prediction. *Journal of Human Behavior in the Social Environment*, 1–17. <https://doi.org/10.1080/10911359.2021.2019166>
- Dalglish, A. G., Beverley, P. C., Clapham, P. R., Crawford, D. H., Greaves, M. F., & Weiss, R. A. (1984). The CD4 (T4) antigen is an essential component of the receptor for the AIDS retrovirus. *Nature*, 312(5996), 763. <https://doi.org/10.1038/312763a0>
- Dam, C. J. V. (1989). AIDS: is health education the answer?. *Health Policy and Planning*, 4(2), 141-147. <https://doi.org/10.1093/heapol/4.2.141>
- Dandachi, D., Geiger, G., Montgomery, M. W., Karmen-Tuohy, S., Golzy, M., Antar, A. A. R., Llibre, J. M., Camazine, M., Díaz-De Santiago, A., Carlucci, P. M., Zacharioudakis, I. M., Rahimian, J., Wanjalla, C. N., Slim, J., Arinze, F., Kratz, A. M. P., Jones, J. L., Patel, S. M., Kitchell, E., & Francis, A. (2020). Characteristics, Comorbidities, and Outcomes in a Multicenter Registry of Patients With Human Immunodeficiency Virus and Coronavirus Disease 2019. *Clinical Infectious Diseases*, 73(7). <https://doi.org/10.1093/cid/ciaa1339>
- Danermark, B., Ekström, M., & Karlsson, J. C. (2019). *Explaining Society: Critical Realism In The Social Sciences*. Routledge.
- Das, P. (2002). Court ruling orders South Africa to provide nevirapine. *The Lancet Infectious Diseases*, 2(8), 452. [https://doi.org/10.1016/S1473-3099\(02\)00352-3](https://doi.org/10.1016/S1473-3099(02)00352-3)
- Davies, M. A. (2020). HIV and risk of COVID-19 death: a population cohort study from the Western Cape Province, South Africa. *MedRxiv*. <https://www.medrxiv.org/content/10.1101/2020.07.02.20145185v2>
- Davies, P., Walker, A.E., & Grimshaw, J.M. (2010). A systematic review of the use of theory in the design of guideline dissemination and implementation strategies and interpretation of the results of rigorous evaluations. *Implementation Science*, 5(1), 14. <https://doi.org/10.1186/1748-5908-5-14>
- Davis, R., Campbell, R., Hildon, Z., Hobbs, L., & Michie, S. (2015). Theories of behaviour and behaviour change across the social and behavioural sciences: a scoping review. *Health Psychology Review*, 9(3), 323-344. <https://doi.org/10.1080/17437199.2014.941722>
- Davhana-Maselesele, M., & Igumbor, J. O. (2008). The impact of caring for persons living with HIV and AIDS on the mental health of nurses in the Limpopo Province. *Curationis*, 31(2), 67-73. <http://ref.scielo.org/nctp8y>
- Dawood, N., Bhagwanjee, A., Govender, K., & Chohan, E. (2006). Knowledge, attitudes and sexual practices of adolescents with mild retardation, in relation HIV/AIDS. *African Journal of AIDS Research*, 5(1), 1-10. <https://doi.org/10.2989/16085900609490361>

- Deacon, H. (2006). Towards a sustainable theory of health-related stigma: lessons from the HIV/AIDS literature. *Journal of Community & Applied Social Psychology*, 16(6), 418–425. <https://doi.org/10.1002/casp.900>
- De Bruyn, G., Shiboski, S., van der Straten, A., Blanchard, K., Chipato, T., Ramjee, G., & Padian, N. (2011). The effect of the vaginal diaphragm and lubricant gel on acquisition of HSV-2. *Sexually Transmitted Infections*, 87(4), 301-305. <https://doi.org/10.1258/jtt.2012.120118>
- Decker, M. R., Park, J. N., Allen, S. T., Silberzahn, B., Footer, K., Huettner, S., Galai, N., & Sherman, S. G. (2020). Inconsistent Condom Use Among Female Sex Workers: Partner-specific Influences of Substance Use, Violence, and Condom Coercion. *AIDS and Behavior*, 24(3). <https://doi.org/10.1007/s10461-019-02569-7>
- Decosas, J. (1992). AIDS education is not our only weapon. *Family Planning World*, 2(1), 4. <https://pubmed.ncbi.nlm.nih.gov/12317125/>
- Deeks, S. G. (2011). HIV infection, inflammation, immunosenescence, and aging. *Annual Review Of Medicine*, 62, 141-155. <https://doi.org/10.1146/annurev-med-042909-093756>
- De Jong, M. A., de Witte, L., Oudhoff, M. J., Gringhuis, S. I., Gallay, P., & Geijtenbeek, T. B. (2008). TNF- α and TLR agonists increase susceptibility to HIV-1 transmission by human Langerhans cells ex vivo. *The Journal of Clinical Investigation*, 118(10), 3440-3452. <https://doi.org/10.1172/JCI34721>
- De Lange, N. (2012). Researching to make a difference: Possibilities for social science research in the age of AIDS. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 9(sup1), S3–S10. <https://doi.org/10.1080/17290376.2012.744897>
- Delany-Moretlwe, S., Lombard, C., Baron, D., Bekker, L.-G., Nkala, B., Ahmed, K., Sebe, M., Brumskine, W., Nchabeleng, M., Palanee-Philips, T., Ntshangase, J., Sibiyi, S., Smith, E., Panchia, R., Myer, L., Schwartz, J. L., Marzinke, M., Morris, L., Brown, E. R., & Doncel, G. F. (2018). Tenofovir 1% vaginal gel for prevention of HIV-1 infection in women in South Africa (FACTS-001): a phase 3, randomised, double-blind, placebo-controlled trial. *The Lancet Infectious Diseases*, 18(11), 1241–1250. [https://doi.org/10.1016/s1473-3099\(18\)30428-6](https://doi.org/10.1016/s1473-3099(18)30428-6)
- De la Rey, C., & Ipser, J. (2004). The call for relevance: south african psychology ten years into democracy. *South African Journal of Psychology*, 34(4), 544–552. <https://doi.org/10.1177/008124630403400403>
- De Leys, R., Vanderborght, B., Vanden Haesevelde, M., Heyndrickx, L., van Geel, A., Wauters, C., Bernaerts, R., Saman, E., Nijs, P., & Willems, B. (1990). Isolation and partial characterization of an unusual human immunodeficiency retrovirus from two persons of west-central African origin. *Journal of Virology*, 64(3), 1207–1216. <https://doi.org/10.1128/jvi.64.3.1207-1216.1990>
- Delissaint, D. (2008). Analysis of theory utilization among prenatal HIV-testing research. *American Journal of Health Behavior*, 32(6), 764–770. <https://doi.org/10.5993/ajhb.32.6.20>
- Dellar, R. C., Dlamini, S., & Karim, Q. A. (2015). Adolescent girls and young women: key populations for HIV epidemic control. *Journal of the International AIDS Society*, 18, 19408. <https://doi.org/10.7448/IAS.18.2.19408>

- Delva, W., Verguet, S., Hargrove, J., Williams, B., Sheneberger, R., Stander, T., & Welte, A. (2011). Treatment-centred prevention: an integrated biomedical and social approach to HIV prevention. *AIDS*, 25(11), 1435-1437. <https://doi.org/10.1097/QAD.0b013e3283488503>
- Demmer, C. (2006). Caring for a loved one with AIDS: A South African perspective. *Journal of Loss and Trauma*, 11(5), 439-455. <https://doi.org/10.1080/15325020600668465>
- Demmer, C. (2007). Coping with AIDS-related bereavement in KwaZulu-Natal, South Africa. *AIDS Care*, 19(7), 866–870. <https://doi.org/10.1080/09540120601090446>
- Denzin, N. K., & Lincoln, Y. S. (2018). Introduction: The discipline and practice of qualitative research. In N. Denzin, & Y. Lincoln (Eds.), *The SAGE Handbook of Qualitative Research* (5th ed.), pp. 1-26). Sage.
- De Oliveira, T., Kharsany, A. B. M., Gräf, T., Cawood, C., Khanyile, D., Grobler, A., Puren, A., Madurai, S., Baxter, C., Karim, Q. A., & Karim, S. S. A. (2017). Transmission networks and risk of HIV infection in KwaZulu-Natal, South Africa: a community-wide phylogenetic study. *The Lancet HIV*, 4(1), e41–e50. [https://doi.org/10.1016/s2352-3018\(16\)30186-2](https://doi.org/10.1016/s2352-3018(16)30186-2)
- Desforges, J. F., & Horsburgh, C. R. (1991). Mycobacterium avium complex infection in the Acquired Immunodeficiency Syndrome. *New England Journal of Medicine*, 324(19), 1332–1338. <https://doi.org/10.1056/nejm199105093241906>
- Dessalegn, M., Tsadik, M., & Lemma, H. (2015). Predictors of lost to follow up to antiretroviral therapy in primary public hospital of Wukro, Tigray, Ethiopia: a case control study. *Journal of AIDS and HIV Research*, 7(1), 1-9. <https://doi.org/10.5897/JAHR2014.0315>
- Deuba, K., Sapkota, D., Shrestha, U., Shrestha, R., Rawal, B. B., Badal, K., Baird, K., & Ekström, A. M. (2020). Effectiveness of interventions for changing HIV related risk behaviours among key populations in low-income setting: A Meta-Analysis, 2001–2016. *Scientific Reports*, 10(1). <https://doi.org/10.1038/s41598-020-58767-0>
- De Vos, P. (2009). *Thabo Mbeki's strange relationship with the truth continues*. <https://constitutionallyspeaking.co.za/thabo-mbekis-strange-relationship-with-the-truth-continues/>
- De Wet-Billings, N. D., & Billings, K.B. (2020). The levels and factors associated with inconsistent condom use among young males with older, same-sex partners in South Africa. *Cogent Social Sciences*, 6(1), 1733245. <https://doi.org/10.1080/23311886.2020.1733245>
- Dewing, S., Mathews, C., Schaay, N., Cloete, A., Louw, J., & Simbayi, L. (2012). Behaviour change counselling for ARV adherence support within primary health care facilities in the Western Cape, South Africa. *AIDS and Behavior*, 16(5), 1286-1294. <https://doi.org/10.1007/s10461-011-0059-z>
- De Witt, M. W., & Lessing, A. C. (2005). Educators' views on the needs and support of HIV/AIDS orphans in their psychosocial development. *Journal of Child and Adolescent Mental Health*, 17(1), 13-22. <https://doi.org/10.2989/17280580509486587>
- Dickinson, D. (2013). Myths or theories? Alternative beliefs about HIV and AIDS in South African working class communities. *African Journal of AIDS Research*, 12(3), 121-130. <https://doi.org/10.2989/16085906.2013.863212>

- Dickinson, D., & Kgatea, K. D. (2008). Workplace peer educators and stress. *African Journal of AIDS Research*, 7(3), 293-303. <https://doi.org/10.2989/AJAR.2008.7.3.6.653>
- DiClemente, R. J., Crosby, R. A., & Kegler, M. C. (Eds.). (2009). *Emerging Theories In Health Promotion Practice And Research*. John Wiley & Sons.
- DiClemente, R. J., Salazar, L. F., Crosby, R. A., & Rosenthal, S. L. (2005). Prevention and control of sexually transmitted infections among adolescents: the importance of a socio-ecological perspective—a commentary. *Public Health*, 119(9), 825–836. <https://doi.org/10.1016/j.puhe.2004.10.015>
- Diener, E., & Ryan, K. (2009). Subjective well-being: A general overview. *South African Journal of Psychology*, 39, 391–406. <https://doi.org/10.1177/008124630903900402>
- Dira Sengwe (2003). *1st SA AIDS Conference*. <http://www.dirasengwe.org/1st-sa-aids-conference.html>
- Diteweg, H., Van Oostwaard, A., Tempelman, H., Vermeer, A., Appels, M., Van der Schaaf, M. F., & Maree, D. J. F. (2013). AIDS awareness and VCT behaviour: An application of the integrated model of behaviour prediction. *Health SA*, 18(1). <https://doi.org/10.4102/hsag.v18i1.530>
- Dlungwana, N. E., & Sathiparsad, R. (2008). Experiences of children heading households in hammarsdale, KwaZulu-natal, south africa. *Journal of Psychology in Africa*, 18(3), 373-377. <https://doi.org/10.1080/14330237.2008.10820212>
- DNHPD (1987). AIDS: the 1979-pandemic, with special reference to South Africa. *Epidemiological Comments*, 14, 1-61.
- DNHPD (1990). First national HIV survey in women attending antenatal clinics, South Africa, October-November 1990. *Epidemiological Comments*, 18(2), 35-45
- Dodd, P. J., Garnett, G. P., & Hallett, T. B. (2010). Examining the promise of HIV elimination by ‘test and treat’ in hyper-endemic settings. *AIDS*, 24(5), 729. <https://doi.org/10.1097/QAD.0b013e32833433fe>
- Dogan, A., Attygalle, A. D., & Kyriakou, C. (2003). Angioimmunoblastic T-cell lymphoma. *British Journal of Haematology*, 121(5), 681-691. <https://doi.org/10.1046/j.1365-2141.2003.04335.x>
- Dolmans, D. H., & Tigelaar, D. (2012). Building bridges between theory and practice in medical education using a design-based research approach: AMEE Guide No. 60. *Medical Teacher*, 34(1), 1-10. <https://doi.org/10.3109/0142159X.2011.595437>
- Dos Santos, M. M., Kruger, P., Mellors, S. E., Wolvaardt, G., & Van Der Ryst, E. (2014). An exploratory survey measuring stigma and discrimination experienced by people living with HIV/AIDS in South Africa: The People Living with HIV Stigma Index. *BMC Public Health*, 14(1), 1-13. <https://doi.org/10.1186/1471-2458-14-80>
- Dowse, R., Ramela, T., Barford, K.-L., & Browne, S. (2010). Developing visual images for communicating information about antiretroviral side effects to a low-literate population. *African Journal of AIDS Research*, 9(3), 213–224. <https://doi.org/10.2989/16085906.2010.530172>
- Dube, F. N., & Nkosi, Z. Z. (2008). The acceptability, knowledge and perceptions of pregnant women toward HIV testing in pregnancy at Ilembe District. *Curationis*, 31(3), 12-20. <http://ref.scielo.org/q53jh6>

- Dubov, A., Altice, F. L., & Fraenkel, L. (2018). An Information–Motivation–Behavioral Skills Model of PrEP Uptake. *AIDS and Behavior*, 22(11), 3603–3616. <https://doi.org/10.1007/s10461-018-2095-4>
- Duby, Z., Hartmann, M., Mahaka, I., Munaiwa, O., Nabukeera, J., Vilakazi, N., Mthembu, F., Colvin, C. J., Mensch, B., & van der Straten, A. (2016). Lost in Translation: Language, Terminology, and Understanding of Penile–Anal Intercourse in an HIV Prevention Trial in South Africa, Uganda, and Zimbabwe. *The Journal of Sex Research*, 53(9), 1096–1106. <https://doi.org/10.1080/00224499.2015.1069784>
- Duby, Z., Jonas, K., McClinton Appollis, T., Maruping, K., Dietrich, J., & Mathews, C. (2021). “Condoms Are Boring”: Navigating Relationship Dynamics, Gendered Power, and Motivations for Condomless Sex Amongst Adolescents and Young People in South Africa. *International Journal of Sexual Health*, 33(1), 40–57. <https://doi.org/10.1080/19317611.2020.1851334>
- Duff, P., Birungi, J., Dobrer, S., Akello, M., Muzaaya, G., & Shannon, K. (2018). Social and structural factors increase inconsistent condom use by sex workers’ one-time and regular clients in Northern Uganda. *AIDS care*, 30(6), 751-759. <https://doi.org/10.1080/09540121.2017.1394966>
- Dukers, N. H. T. M., Goudsmit, J., de Wit, J. B. F., Prins, M., Weverling, G.-J., & Coutinho, R. A. (2001). Sexual risk behaviour relates to the virological and immunological improvements during highly active antiretroviral therapy in HIV-1 infection. *AIDS*, 15(3), 369–378. <https://doi.org/10.1097/00002030-200102160-00010>
- Durantini, M. R., Albarracín, D., Mitchell, A. L., Earl, A. N., & Gillette, J. C. (2006). Conceptualizing the influence of social agents of behavior change: A meta-analysis of the effectiveness of HIV-prevention interventionists for different groups. *Psychological Bulletin*, 132(2), 212–248. <https://doi.org/10.1037/0033-2909.132.2.212>
- Du Toit, D., & Van der Merwe, N. (2006). The effect of a physical activity programme on the self-esteem of pre-primary HIV-directly affected learners. *South African Journal for Research in Sport, Physical Education and Recreation*, 28(2), 55-71. <https://hdl.handle.net/10520/EJC108834>
- Dworkin, S. L., Treves-Kagan, S., & Lippman, S. A. (2013). Gender-transformative interventions to reduce HIV risks and violence with heterosexually-active men: a review of the global evidence. *AIDS and Behavior*, 17(9), 2845-2863. <https://doi.org/10.1007/s10461-013-0565-2>
- Dzomba, A., Tomita, A., Govender, K., & Tanser, F. (2019). Effects of migration on risky sexual behavior and HIV acquisition in South Africa: a systematic review and meta-analysis, 2000–2017. *AIDS and Behavior*, 23(6), 1396-1430. <https://doi.org/10.1007/s10461-018-2367-z>
- Earl, A., & Lewis Jr, N. A. (2019). Health in context: New perspectives on healthy thinking and healthy living. *Journal of Experimental Social Psychology*, 81(3), 1-4. <https://osf.io/f28jd/download>

- Earnshaw, V. A., Bogart, L. M., Laurenceau, J.-P., Chan, B. T., Maughan-Brown, B. G., Dietrich, J. J., Courtney, I., Tshabalala, G., Orrell, C., Gray, G. E., Bangsberg, D. R., & Katz, I. T. (2018a). Internalized HIV stigma, ART initiation and HIV-1 RNA suppression in South Africa: exploring avoidant coping as a longitudinal mediator. *Journal of the International AIDS Society*, 21(10), e25198. <https://doi.org/10.1002/jia2.25198>
- Earnshaw, V. A., Kidman, R. C., & Violari, A. (2018b). Stigma, depression, and substance use problems among perinatally HIV-infected youth in South Africa. *AIDS and Behavior*, 22(12), 3892-3896. <https://doi.org/10.1007/s10461-018-2201-7>
- Eaton, L., Flisher, A. J., & Aarø, L. E. (2003). Unsafe sexual behaviour in South African youth. *Social Science & Medicine*, 56(1), 149-165. [https://doi.org/10.1016/S0277-9536\(02\)00017-5](https://doi.org/10.1016/S0277-9536(02)00017-5)
- Eaton, L. A., Cain, D. N., Pitpitan, E. V., Carey, K. B., Carey, M. P., Mehlomakulu, V., Simbayi, L. C., Mwaba, K., & Kalichman, S. C. (2014). Exploring the relationships among food insecurity, alcohol use, and sexual risk taking among men and women living in South African townships. *The Journal of Primary Prevention*, 35(4), 255-265. <https://doi.org/10.1007/s10935-014-0346-3>
- Eaton, L. A., & Kalichman, S. C. (2007). Risk compensation in HIV prevention: implications for vaccines, microbicides, and other biomedical HIV prevention technologies. *Current HIV/AIDS Reports*, 4(4), 165-172. <https://doi.org/10.1007/s11904-007-0024-7>
- Eaton, L. A., Kalichman, S. C., & Cherry, C. (2010). Sexual partner selection and HIV risk reduction among black and white men who have sex with men. *American Journal of Public Health*, 100(3), 503-509. <https://doi.org/10.2105/AJPH.2008.155903>
- Edlund, J. E., Cuccolo, K., Irgens, M. S., Wagge, J. R., & Zlokovich, M. S. (2022). Saving science through replication studies. *Perspectives on Psychological Science*, 17(1), 216-225. <https://doi.org/10.1177/1745691620984385>
- Edwards, D. A., & Wilcox, S. (2011). Unity, disunity and pluralism in science. *arXiv preprint arXiv:1110.6545*. <https://arxiv.org/abs/1110.6545>
- Edwards, P. K., O'Mahoney, J., & Vincent, S. (Eds.). (2014). *Studying organizations using critical realism: A practical guide*. OUP Oxford.
- Eggers, S. M., Aarø, L. E., Bos, A. E. R., Mathews, C., & de Vries, H. (2013). Predicting condom use in South Africa: A test of two integrative models. *AIDS and Behavior*, 18(1), 135-145. <https://doi.org/10.1007/s10461-013-0423-2>
- Eggers, S. M., Aarø, L. E., Bos, A. E. R., Mathews, C., Kaaya, S. F., Onya, H., & de Vries, H. (2016). Sociocognitive Predictors of condom use and intentions among adolescents in three sub-saharan sites. *Archives of Sexual Behavior*, 45(2), 353-365. <https://doi.org/10.1007/s10508-015-0525-1>
- Ehrlich, R., Katzenellenbogen, J., Hoffman, M., & Joubert, G. (2014). Key concepts in epidemiology. In R. Ehrlich, & G. Joubert (Eds.), *Epidemiology: A Research Manual For South Africa* (pp.13-32). Oxford University Press.
- Eisingerich, A. B., Wheelock, A., Gomez, G. B., Garnett, G. P., Dybul, M. R., & Piot, P. K. (2012). Attitudes and acceptance of oral and parenteral HIV preexposure prophylaxis among potential user groups: A multinational study. *PLoS ONE*, 7(1), e28238. <https://doi.org/10.1371/journal.pone.0028238>

- El-Bassel, N., Witte, S. S., Gilbert, L., Wu, E., Chang, M., Hill, J., & Steinglass, P. (2003). The efficacy of a relationship-based HIV/STD prevention program for heterosexual couples. *American Journal of Public Health*, 93(6), 963–969. <https://doi.org/10.2105/ajph.93.6.963>
- Elder-Vass, D. (2010). *The Causal Power Of Social Structures: Emergence, Structure And Agency*. Cambridge University Press.
- Elias, C. J., & Coggins, C. (1996). Female-controlled methods to prevent sexual transmission of HIV. *AIDS (London, England)*, 10, S43-51. <https://pubmed.ncbi.nlm.nih.gov/8970711/>
- Ellis, G. F. (2012). Top-down causation and emergence: some comments on mechanisms. *Interface Focus*, 2(1), 126-140. <https://doi.org/10.1098/rsfs.2011.0062>
- Eloff, I., Forsyth, B., Finestone, M., Ebersöhn, L., Visser, M., Ferreira, R., Boeving, A., & Sikkema, K. (2011). Intervention groups for HIV-infected women: The need for additional services. *South African Journal of Psychology*, 41(1), 38–51. <https://doi.org/10.1177/008124631104100105>
- Emerson, R. M. (1976). Social exchange theory. *Annual Review of Sociology*, 2(1), 335–362. <https://doi.org/10.1146/annurev.so.02.080176.002003>
- ENCA. (2014, 2 April). Flavours and colours to fight condom fatigue. *ENCA*. <https://www.enca.com/south-africa/flavours-and-colours-fight-condom-fatigue>
- Eng, T. R., & Butler, W. T. (1997). *The Hidden Epidemic: Confronting Sexually Transmitted Diseases*. National Academies Press.
- Engel, G. L. (1977). The need for a new medical model: a challenge for biomedicine. *Science*, 196(4286), 129-136. <https://doi.org/10.1126/science.847460>
- Epstein, H. (2008). *The Invisible Cure: Why We Are Losing The Fight Against AIDS In Africa*. Macmillan.
- Epstein, H., & Morris, M. (2011). Concurrent partnerships and HIV: an inconvenient truth. *Journal of the International AIDS Society*, 14(1), 13-13. <https://doi.org/10.1186/1758-2652-14-13>
- Erena, A. N., Shen, G., & Lei, P. (2019). Factors affecting HIV counselling and testing among Ethiopian women aged 15–49. *BMC Infectious Diseases*, 19(1), 1-12. <https://doi.org/10.1186/s12879-019-4701-0>
- Erikson, E. H. (1963). *Childhood And Society*. W.W. Norton.
- Erikson, E. H. (1968). *Identity: Youth And Crisis*. Faber & Faber.
- Erkal, H., & Vandekerckhove, W. (2021). Twenty years of philosophy of management. How has it shaped the field? *Philosophy of Management*, 20, 471–483. <https://doi.org/10.1007/s40926-021-00185-x>
- Essuon, A. D., Simmons, D. S., Stephens, T. T., Richter, D., Lindley, L. L., & Braithwaite, R. L. (2009). Transient populations: linking HIV, migrant workers, and South African male inmates. *Journal Of Health Care For The Poor And Underserved*, 20(2), 40-52. <https://doi.org/10.1353/hpu.0.0157>

- Etoori, D., Wringe, A., Kabudula, C. W., Renju, J., Rice, B., Gomez-Olive, F. X., & Reniers, G. (2020). Misreporting of patient outcomes in the South African National HIV Treatment Database: consequences for programme planning, monitoring, and evaluation. *Frontiers In Public Health*, 8, 100. <https://doi.org/10.3389/fpubh.2020.00100>
- Evangelini, M., Engelbrecht, S.-K., Swartz, L., Turner, K., Forsberg, L., & Soka, N. (2009). An evaluation of a brief motivational interviewing training course for HIV/AIDS counsellors in Western Cape Province, South Africa. *AIDS Care*, 21(2), 189–196. <https://doi.org/10.1080/09540120802002471>
- Evans, M., Maughan-Brown, B., Zungu, N., & George, G. (2017). HIV prevalence and ART use among men in partnerships with 15–29-year-old women in South Africa: HIV risk implications for young women in age-disparate partnerships. *AIDS and Behavior*, 21(8), 2533–2542. <https://doi.org/10.1007/s10461-017-1741-6>
- Evans, M. G. B., Cloete, A., Zungu, N., & Simbayi, L. C. (2016). HIV risk among men who have sex with men, women who have sex with women, lesbian, gay, bisexual and transgender populations in South Africa: A Mini-Review. *The Open AIDS Journal*, 10(1), 49–64. <https://doi.org/10.2174/1874613601610010049>
- Evans, W. D., Ulasevich, A., Hatheway, M., & Deperthes, B. (2020). Systematic review of peer-reviewed literature on global condom promotion programs. *International Journal of Environmental Research and Public Health*, 17(7), 2262. <https://doi.org/10.3390/ijerph17072262>
- Evatt, B. L. (2006). The tragic history of AIDS in the hemophilia population, 1982–1984. *Journal of Thrombosis and Haemostasis*, 4(11), 2295–2301. <https://doi.org/10.1111/j.1538-7836.2006.02213.x>
- Evian, C. R., De Beer, M., Crewe, M., Padayachee, G. N., & Hurwitz, H. S. (1991). Evaluation of an AIDS awareness campaign using city buses in Johannesburg. *South African Medical Journal*, 80(7), 343–346. <http://archive.samj.org.za/1991%20VOL%2080%20Jul-Dec/Articles/04%20October/1.12%20EVALUATION%20OF%20AN%20AIDS%20AWARENESS%20CAMPAIGN%20USING%20CITY%20BUSES%20IN%20JOHANNESBURG.pdf>
- Evian, C. R., Ijsselmuiden, C. B., Padayachee, G. N., & Hurwitz, H. S. (1990). Qualitative evaluation of an AIDS health education poster. A rapid assessment method for health education materials. *South African Medical Journal*, 78(9), 517–520. <http://archive.samj.org.za/1990%20VOL%20LXXVIII%20Jul-Dec/Articles/05%20November/15QUAL~1.PDF>
- Ewart, C. K. (1991). Social action theory for a public health psychology. *American Psychologist*, 46(9), 931–946. <https://doi.org/10.1037/0003-066X.46.9.931>
- Fabrigar, L.R., MacDonald, T.K., Wegener, D.T. (2005). The structure of attitudes. In D. Albarracin, B. T. Johnson, & M. P. Zanna. (2005). *The Handbook Of Attitudes*. (pp. 79–124) Lawrence Erlbaum Associates.
- Fabusoro, O. K., & Mejia, L. A. (2021). Nutrition in HIV-infected infants and children: current knowledge, existing challenges, and new dietary management opportunities. *Advances in Nutrition*, 12(4), 1424–1437. <https://doi.org/10.1093/advances/nmaa163>

- Fajardo-Ortiz, D., Lopez-Cervantes, M., Duran, L., Dumontier, M., Lara, M., Ochoa, H., & Castano, V. M. (2017). The emergence and evolution of the research fronts in HIV/AIDS research. *PLoS ONE*, *12*(5), e0178293. <https://doi.org/10.1371/journal.pone.0178293>
- Fanon, F. (1961/2017). *The Wretched of the Earth*. Kwela Books.
- Fassin, D. (2007) *When Bodies Remember: Experiences and Politics of AIDS in South Africa*. University of California Press.
- Fassin, D. (2013). Children as victims. In J. Biel, & A. Petryna (Eds.), *When People Come First: Critical Studies in Global Health* (pp. 109–129). Princeton University Press.
- Fauk, N. K., Kustanti, C. Y., Liana, D. S., Indriyawati, N., Crutzen, R., & Mwanri, L. (2018). Perceptions of Determinants of Condom Use Behaviors Among Male Clients of Female Sex Workers in Indonesia: A Qualitative Inquiry. *American Journal of Men's Health*, *12*(4), 666–675. <https://doi.org/10.1177/1557988318756132>
- Fawcett, J. (1986/1999). *The Relationship of Theory and Research*. F.A. Davis Company
- Fawcett, J. (2005). Criteria for evaluation of theory. *Nursing Science Quarterly*, *18*(2), 131-135. <https://doi.org/10.1177/0894318405274823>
- FDA. (2012, July 16). FDA approves first drug for reducing the risk of sexually acquired HIV infection. *FDA News Release*. <https://web.archive.org/web/20120717044723/https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm312210.htm>
- FDA. (2021, January 21). *FDA Approves First Extended-Release, Injectable Drug Regimen for Adults Living with HIV*. *FDA News Release*. <https://www.fda.gov/news-events/press-announcements/fda-approves-first-extended-release-injectable-drug-regimen-adults-living-hiv>
- Fee, E., & Krieger, N. (1993). Understanding AIDS: historical interpretations and the limits of biomedical individualism. *American Journal of Public Health*, *83*(10), 1477-1486. <https://doi.org/10.2105/ajph.83.10.1477>
- Feenberg, A. (2014). *The Philosophy of Praxis: Marx, Lukács, and the Frankfurt School*. Verso.
- Feitsma, A. T., Koen, M. P., Pienaar, A. J., & Minnie, C. S. (2007). Experiences and support needs of poverty-stricken people living with HIV in the Potchefstroom district in South Africa. *Journal of the Association of Nurses in AIDS Care*, *18*(3), 55-64. <https://doi.org/10.1016/j.jana.2007.03.006>
- Felix, B. (2007, 28 August). South Africa recalls 20 million risky condoms. *Reuters*. <https://uk.reuters.com/article/uk-safrica-condoms/south-africa-recalls-20-million-risky-condoms-idUKL282133320070828>
- Felluga, D. F. (2015). *Critical Theory: The Key Concepts*. Routledge, Taylor & Francis.
- Fennie, T., & Laas, A. (2014). HIV/AIDS-related knowledge, attitudes and risky sexual behaviour among a sample of South African university students. *Gender and Behaviour*, *12*(1), 6035-6044. <https://doi.org/10.10520/EJC154675>
- Fenton, K. A., Chinouya, M., Davidson, O., & Copas, A. (2002). HIV testing and high risk sexual behaviour among London's migrant African communities: a participatory research study. *Sexually Transmitted Infections*, *78*(4), 241-245. <https://doi.org/10.1136/sti.78.4.241>

- Fernandez, M. E., ten Hoor, G. A., van Lieshout, S., Rodriguez, S. A., Beidas, R. S., Parcel, G., Ruiter, R. A. C., Markham, C. M., & Kok, G. (2019). Implementation Mapping: Using Intervention Mapping to Develop Implementation Strategies. *Frontiers in Public Health*, 7(158). <https://doi.org/10.3389/fpubh.2019.00158>
- Ferrer, R. A., Morrow, K. M., Fisher, W. A., & Fisher, J. D. (2010). Toward an information–motivation–behavioral skills model of microbicide adherence in clinical trials. *AIDS Care*, 22(8), 997–1005. <https://doi.org/10.1080/09540121003623719>
- Festinger, L. A. (1957). *A Theory Of Cognitive Dissonance*. Row, Peterson.
- Feyerabend, P. (1975). *Against Method: Outline of an Anarchistic Theory of Knowledge*. Verso
- Feyerabend, P. (1978). *Science In A Free Society*. Verso
- Fiedler, K. (2004). Tools, toys, truisms, and theories: Some thoughts on the creative cycle of theory formation. *Personality and Social Psychology Review*, 8(2), 123-131. https://doi.org/10.1207/s15327957pspr0802_5
- Fiedler, K. (2018). The creative cycle and the growth of psychological science. *Perspectives on Psychological Science*, 13(4), 433-438. <https://doi.org/10.1177/1745691617745651>
- Fielding-Miller, R., Dunkle, K. L., & Murdock, D. (2015). Not everyone can afford an apple a day: Stigma and food insecurity in rural South African young adults. *African Journal of AIDS Research*, 14(4), 361-369. <https://doi.org/10.2989/16085906.2015.1123162>
- Fincham, D., Kagee, A., & Swartz, L. (2010). Inhibitors and facilitators of willingness to participate (WTP) in an HIV vaccine trial: construction and initial validation of the Inhibitors and Facilitators of Willingness to Participate Scale (WPS) among women at risk for HIV infection. *AIDS Care*, 22(4), 452-461. <https://doi.org/10.1080/09540120903202939>
- Finchilescu, G. (2002). HIV/AIDS versus smoking-induced cancer: A comparison of South African students' attributions of culpability, and risk-taking behaviour. *Social Dynamics*, 28(1), 109-131. <https://doi.org/10.1080/02533950208458725>
- Fink, A. J. (1986). A possible explanation for heterosexual male infection with AIDS. *The New England Journal Of Medicine*, 315(18), 1167-1167. <https://pubmed.ncbi.nlm.nih.gov/3762636/>
- Fink, D.L. (2003). *A Self-Directed Guide to Designing Courses for Significant Learning*. https://www.bu.edu/sph/files/2014/03/www.deefinkandassociates.com_GuidetoCourseDesignAug05.pdf
- Fishbein, M. (1967). A behavior theory approach to the relations between beliefs about an object and the attitude toward the object. In M. Fishbein (Ed.), *Readings In Attitude Theory And Measurement* (pp. 389-400). John Wiley & Sons.
- Fishbein, M. (2000). The role of theory in HIV prevention. *AIDS Care*, 12(3), 273-278. <https://doi.org/10.1080/09540120050042918>
- Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention And Behaviour: An Introduction To Theory And Research*. Addison-Wesley.
- Fishbein, M., & Ajzen, I. (2010). *Predicting and Changing Behavior: The Reasoned Action Approach*. Taylor & Francis.

- Fishbein, M., Hennessy, M., Yzer, M., & Douglas, J. (2003). Can we explain why some people do and some people do not act on their intentions? *Psychology, Health & Medicine*, 8(1), 3–18. <https://doi.org/10.1080/1354850021000059223>
- Fishbein, M., Triandis, H. C., Kanfer, F. H., Becker, M., Middlestadt, S. E., & Eichler, A. (2001). Factors influencing behavior and behavior change. In A. Baum, T.A. Revenson, & J.E. Singer, (Eds.), *Handbook of Health Psychology* (pp.3-18). Psychology press.
- Fishbein, M., & Yzer, M. C. (2003). Using theory to design effective health behavior interventions. *Communication Theory*, 13(2), 164–183. <https://doi.org/10.1111/j.1468-2885.2003.tb00287.x>
- Fisher, J. D., Amico, K. R., Fisher, W. A., & Harman, J. J. (2008). The information-motivation-behavioral skills model of antiretroviral adherence and its applications. *Current HIV/AIDS Reports*, 5(4), 193. <https://doi.org/10.1007/s11904-008-0028-y>
- Fisher, J. D., Cornman, D. H., Shuper, P. A., Christie, S., Pillay, S., Macdonald, S., Ngcobo, N., Rivet Amico, K., Lalloo, U., Friedland, G., & Fisher, W. A. (2014). HIV prevention counseling intervention delivered during routine clinical care reduces HIV risk behavior in HIV-infected South Africans receiving antiretroviral therapy. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 67(5), 499–507. <https://doi.org/10.1097/qai.0000000000000348>
- Fisher, J. D., & Fisher, W. A. (1992). Changing AIDS-risk behavior. *Psychological Bulletin*, 111(3), 455–474. <https://doi.org/10.1037/0033-2909.111.3.455>
- Fisher, J.D., & Fisher, W.A. (2000). Theoretical approaches to individual-level change in HIV risk behavior. In Peterson, J.L., DiClemente, R.J. (Eds.), *Handbook of HIV Prevention. Aids Prevention and Mental Health*. Springer. https://doi.org/10.1007/978-1-4615-4137-0_1
- Fisher, J.D., & Fisher, W.A. (2009). The information-motivation-behavioral skills model. In R. J. DiClemente, M. C. Kegler & R. A. Crosby (Eds.), *Emerging Theories in Health Promotion Practice and Research* (2nd ed., pp. 40-70). Jossey-Bass.
- Fisher, J. D., Fisher, W. A., Amico, K. R., & Harman, J. J. (2006). An information-motivation-behavioral skills model of adherence to antiretroviral therapy. *Health Psychology*, 25(4), 462. <https://doi.org/10.1037/0278-6133.25.4.462>
- Flay, B. R., & Petraitis, J. (1994). The theory of triadic influence: An integrative model of substance use. *Advances in Medical Sociology*, 4, 19-44. <https://www.researchgate.net/publication/224942196>
- Fleming, P. J., Colvin, C., Peacock, D., & Dworkin, S. L. (2016). What role can gender-transformative programming for men play in increasing men’s HIV testing and engagement in HIV care and treatment in South Africa? *Culture, Health & Sexuality*, 18(11), 1251–1264. <https://doi.org/10.1080/13691058.2016.1183045>
- Fletcher, A.J. (2017) Applying critical realism in qualitative research: Methodology meets method, *International Journal of Social Research Methodology*, 20(2), 181-194. <https://doi.org/10.1080/13645579.2016.1144401>
- Flis, I. (2019). Psychologists psychologizing scientific psychology: An epistemological reading of the replication crisis. *Theory & Psychology*, 29(2), 158–181. <https://doi.org/10.1177/0959354319835322>

- Floyd, K., Reid, R. A., Wilkinson, D., & Gilks, C. F. (1999). Admission trends in a rural South African hospital during the early years of the HIV epidemic. *Journal of the American Medical Association*, 282(11), 1087-1091. <https://doi.org/10.1001/jama.282.11.1087>
- Floyd, S., Mulwa, S., Magut, F., Gourlay, A., Mthiyane, N., Kamire, V., Osindo, J., Otieno, M., Chimbindi, N., Ziraba, A., Phillips-Howard, P., Kwaro, D., Shahmanesh, M., & Birdthistle, I. (2022). DREAMS impact on HIV status knowledge and sexual risk among cohorts of young women in Kenya and South Africa. *AIDS*, 36(Supplement 1), S61–S73. <https://doi.org/10.1097/qad.0000000000003157>
- Fonner, V. A., Armstrong, K. S., Kennedy, C. E., O'Reilly, K. R., & Sweat, M. D. (2014). School based sex education and HIV prevention in low-and middle-income countries: a systematic review and meta-analysis. *PLoS ONE*, 9(3), e89692. <https://doi.org/10.1371/journal.pone.0089692>
- Fonner, V. A., Dalglish, S. L., Kennedy, C. E., Baggaley, R., O'Reilly, K. R., Koechlin, F. M., Rodolph, M., Hodges-Mameletzis, I., & Grant, R. M. (2016). Effectiveness and safety of oral HIV preexposure prophylaxis for all populations. *AIDS*, 30(12), 1973–1983. <https://doi.org/10.1097/qad.0000000000001145>
- Fonseca, X., Lukosch, S., & Brazier, F. (2019). Social cohesion revisited: a new definition and how to characterize it. *Innovation: The European Journal of Social Science Research*, 32(2), 231-253. <https://doi.org/10.1080/13511610.2018.1497480>
- Foss, A. M., Hossain, M., Vickerman, P. T., & Watts, C. H. (2007). A systematic review of published evidence on intervention impact on condom use in sub-Saharan Africa and Asia. *Sexually Transmitted Infections*, 83(7), 510-516. <https://doi.org/10.1136/sti.2007.027144>
- Foucault, M. (1961/2005). *Madness and Civilization: A History of Insanity in the Age of Reason*. Routledge.
- Foucault, M. (1966/2005). *The Order Of Things*. Routledge.
- Foucault, M. (1975/2007). *Discipline And Punish: The Birth Of The Prison*. Duke University Press.
- Foucault, M. (1976/1990). *The History Of Sexuality: An Introduction*. Vintage.
- Fox, A. M. (2012). The HIV–poverty thesis re-examined: Poverty, wealth or inequality as a social determinant of HIV infection in sub-Saharan Africa?. *Journal of Biosocial Science*, 44(4), 459-480. <https://doi.org/10.1017/S0021932011000745>
- Fox, J., & Fidler, S. (2010). Sexual transmission of HIV-1. *Antiviral Research*, 85(1), 276–285. <https://doi.org/10.1016/j.antiviral.2009.10.012>
- Frame, G., Ferrinho, P., & Evian, C. (1991). Knowledge and attitudes relating to condoms on the part of African high school children around Johannesburg. *Curationis*, 14(2), 6-8. <https://doi.org/10.4102/curationis.v14i2.319>
- Francis, S. C., Mthiyane, T. N., Baisley, K., Mchunu, S. L., Ferguson, J. B., Smit, T., Crucitti, T., Gareta, D., Dlamini, S., Mutevedzi, T., Seeley, J., Pillay, D., McGrath, N., & Shahmanesh, M. (2018). Prevalence of sexually transmitted infections among young people in South Africa: A nested survey in a health and demographic surveillance site. *PLOS Medicine*, 15(2), e1002512. <https://doi.org/10.1371/journal.pmed.1002512>

- Frank, T. D., Carter, A., Jahagirdar, D., Biehl, M. H., Douwes-Schultz, D., Larson, S. L., Arora, M., Dwyer-Lindgren, L., Steuben, K. M., Abbastabar, H., Abu-Raddad, L. J., Abyu, D. M., Adabi, M., Adebayo, O. M., Adekanmbi, V., Adetokunboh, O. O., Ahmadi, A., Ahmadi, K., Ahmadian, E., & Ahmadpour, E. (2019). Global, regional, and national incidence, prevalence, and mortality of HIV, 1980–2017, and forecasts to 2030, for 195 countries and territories: a systematic analysis for the Global Burden of Diseases, Injuries, and Risk Factors Study 2017. *The Lancet HIV*, 6(12), e831–e859. [https://doi.org/10.1016/s2352-3018\(19\)30196-1](https://doi.org/10.1016/s2352-3018(19)30196-1)
- Frank, S., Esterhuizen, T., Jinabhai, C. C., Sullivan, K., & Taylor, M. (2008). Risky sexual behaviours of high-school pupils in an era of HIV and AIDS. *South African Medical Journal*, 98(5), 394–398. http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S0256-95742008000500025
- Fraser, N. (1992) Rethinking the public sphere: a contribution to the critique of actually existing democracy. In C. Calhoun (Ed.), *Habermas and the Public Sphere*. MIT Press.
- Free, C., Roberts, I. G., Abramsky, T., Fitzgerald, M., & Wensley, F. (2011). A systematic review of randomised controlled trials of interventions promoting effective condom use. *Journal of Epidemiology & Community Health*, 65(2), 100–110. <https://doi.org/10.1136/jech.2008.085456>
- Freeborn, K., & Portillo, C. J. (2018). Does pre-exposure prophylaxis for HIV prevention in men who have sex with men change risk behaviour? A systematic review. *Journal Of Clinical Nursing*, 27(17–18), 3254–3265. <https://doi.org/10.1111/jocn.13990>
- Freeman, M., & Nkomo, N. (2006a). Guardianship of orphans and vulnerable children. A survey of current and prospective South African caregivers. *AIDS Care*, 18(4), 302–310. <https://doi.org/10.1080/09540120500359009>
- Freeman, M., & Nkomo, N. (2006b). Assistance needed for the integration of orphaned and vulnerable children — views of South African family and community members. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 3(3), 503–509. <https://doi.org/10.1080/17290376.2006.9724877>
- Freeman, E. E., Weiss, H. A., Glynn, J. R., Cross, P. L., Whitworth, J. A., & Hayes, R. J. (2006). Herpes simplex virus 2 infection increases HIV acquisition in men and women: systematic review and meta-analysis of longitudinal studies. *Aids*, 20(1), 73–83. <https://doi.org/10.1097/01.aids.0000198081.09337.a7>
- Freire, P. (1968/1996). *Pedagogy Of The Oppressed* (revised). Continuum.
- Freire, P. (1985). *The Politics Of Education: Culture, Power, And Liberation*. Bergin & Garvey.
- French, S. D., Green, S. E., O'Connor, D. A., McKenzie, J. E., Francis, J. J., Michie, S., Buchbinder, R., Schattner, P., Spike, N., & Grimshaw, J. M. (2012). Developing theory-informed behaviour change interventions to implement evidence into practice: a systematic approach using the Theoretical Domains Framework. *Implementation Science*, 7(1). <https://doi.org/10.1186/1748-5908-7-38>

- French, H., Greeff, M., Watson, M. J., & Doak, C. M. (2015). A comprehensive HIV stigma-reduction and wellness-enhancement community intervention: A case study. *Journal of the Association of Nurses in AIDS Care*, 26(1), 81-96.
<https://doi.org/10.1016/j.jana.2014.03.007>
- Frieden, T. R. (2010). A framework for public health action: the health impact pyramid. *American Journal Of Public Health*, 100(4), 590-595.
<https://doi.org/10.2105/AJPH.2009.185652>
- Friedland, I. R. (1991). HIV-related practices and ethics-survey of opinions in a paediatric department. *South African Medical Journal*, 79(5), 529-532.
<http://archive.samj.org.za/1991%20VOL%2079%20Jan-Jun/Articles/05%20May/1.3%20HIV-RELARED%20PRACTICES%20AND%20ETHICS%20%20SURVEY%20OF%20OPINIONS%20IN%20A%20PAEDIATRIC%20DEPARTMENT.%20I.R.%20Friedl.pdf>
- Frosch, C. A., & Johnson-Laird, P. N. (2011). Is everyday causation deterministic or probabilistic?. *Acta Psychologica*, 137(3), 280-291.
<https://doi.org/10.1016/j.actpsy.2011.01.015>
- Gable, A. R., & Lagakos, S. W. (2008). *Methodological challenges in biomedical HIV prevention trials*. National Academies Press.
- Gacoin, A. E. (2017). Encountering gender: resisting a neo-liberal political rationality for sexuality education as an HIV prevention strategy. *Gender and Education*, 29(1), 66–83. <https://doi.org/10.1080/09540253.2016.1197378>
- Gafos, M., Pool, R., Mzimela, M. A., Ndlovu, H. B., McCormack, S., & Elford, J. (2015). Communication about microbicide use between couples in KwaZulu-Natal, South Africa. *AIDS and Behavior*, 19(5), 832-846. <https://doi.org/10.1007/s10461-014-0965-y>
- Gaist, P., & Stirratt, M. J. (2017). The Roles of Behavioral and Social Science Research in the Fight Against HIV/AIDS: A Functional Framework. *Journal of Acquired Immune Deficiency Syndromes*, 75(4), 371–381.
<https://doi.org/10.1097/qai.0000000000001399>
- Gaj, N. (2016). *Unity And Fragmentation In Psychology: The Philosophical And Methodological Roots Of The Discipline*. Routledge.
- Gaj, N. (2018). Psychology between science and technology: A proposal for the development of a theory of practice. *Journal of Theoretical and Philosophical Psychology*, 38(2), 77. <https://doi.org/10.1037/teo0000081>
- Galárraga, O., Genberg, B. L., Martin, R. A., Laws, M. B., & Wilson, I. B. (2013). Conditional economic incentives to improve HIV treatment adherence: literature review and theoretical considerations. *AIDS and Behavior*, 17(7), 2283-2292.
<https://doi.org/10.1007/s10461-013-0415-2>
- Galárraga, O., Kuo, C., Mtukushe, B., Maughan-Brown, B., Harrison, A., & Hoare, J. (2020). iSAY (incentives for South African youth): Stated preferences of young people living with HIV. *Social Science & Medicine*, 265, 113333.
<https://doi.org/10.1016/j.socscimed.2020.113333>
- Galison, P. L., & Stump, D. J. (1996). *The Disunity Of Science: Boundaries, Contexts, And Power*. Stanford University Press.

- Gallo, R. C., Salahuddin, S. Z., Popovic, M., Shearer, G. M., Kaplan, M., Haynes, B. F., Palker, T. J., Redfield, R., Oleske, J., & Safai, B. (1984). Frequent detection and isolation of cytopathic retroviruses (HTLV-III) from patients with AIDS and at risk for AIDS. *Science (New York, N.Y.)*, 224(4648), 500–503. <https://doi.org/10.1126/science.6200936>
- Galvin, S. R., & Cohen, M. S. (2004). The role of sexually transmitted diseases in HIV transmission. *Nature Reviews Microbiology*, 2(1), 33–42. <https://doi.org/10.1038/nrmicro794>
- Gao, F., Bailes, E., Robertson, D. L., Chen, Y., Rodenburg, C. M., Michael, S. F., Cummins, L. B., Arthur, L. O., Peeters, M., Shaw, G. M., Sharp, P. M., & Hahn, B. H. (1999). Origin of HIV-1 in the chimpanzee *Pan troglodytes*. *Nature*, 397(6718), 436–441. <https://doi.org/10.1038/17130>
- Gao, Y., Yuan, T., Zhan, Y., Qian, H.-Z., Sun, Y., Zheng, W., Fu, L., Liang, B., Zhu, Z., Ouyang, L., Liu, M., Fitzpatrick, T., Wu, Z., Meng, X., Baeten, J. M., Zhao, J., Vermund, S. H., Yu, M., Wu, G., & Su, B. (2021). Association between medical male circumcision and HIV risk compensation among heterosexual men: a systematic review and meta-analysis. *The Lancet Global Health*, 9(7), e932–e941. [https://doi.org/10.1016/s2214-109x\(21\)00102-9](https://doi.org/10.1016/s2214-109x(21)00102-9)
- Garnett, G. P., & Baggaley, R. F. (2009). Treating our way out of the HIV pandemic: Could we, would we, should we? *The Lancet*, 373(9657), 9–11. [https://doi.org/10.1016/s0140-6736\(08\)61698-0](https://doi.org/10.1016/s0140-6736(08)61698-0)
- Garofalo, R., Kuhns, L. M., Reisner, S. L., & Mimiaga, M. J. (2016). Behavioral interventions to prevent HIV transmission and acquisition for transgender women: a critical review. *Journal of acquired immune deficiency syndromes (1999)*, 72(Suppl 3), S220. <https://doi.org/10.1097/QAI.0000000000001084>
- Gause, N. K., Brown, J. L., Welge, J., & Northern, N. (2018). Meta-analyses of HIV prevention interventions targeting improved partner communication: effects on partner communication and condom use frequency outcomes. *Journal Of Behavioral Medicine*, 41(4), 423–440. <https://doi.org/10.1007/s10865-018-9916-9>
- Gellman, B. (2000, 19 April). South African President Escalates AIDS Feud. *Washington Post*. <https://www.washingtonpost.com/archive/politics/2000/04/19/s-african-president-escalates-aids-feud/1b3de4fe-7bcf-4cac-86ca-001d75816d92/>
- Geng, E. H., Odeny, T. A., Lyamuya, R., Nakiwogga-Muwanga, A., Diero, L., Bwana, M., Braitstein, P., Somi, G., Kambugu, A., Bukusi, E., Wenger, M., Neilands, T. B., Glidden, D. V., Wools-Kaloustian, K., Yiannoutsos, C., & Martin, J. (2015). Retention in Care and Patient-Reported Reasons for Undocumented Transfer or Stopping Care Among HIV-Infected Patients on Antiretroviral Therapy in Eastern Africa: Application of a Sampling-Based Approach. *Clinical Infectious Diseases*, 62(7), 935–944. <https://doi.org/10.1093/cid/civ1004>
- George, G., Cawood, C., Puren, A., Khanyile, D., Gerritsen, A., Govender, K., Beckett, S., Glenshaw, M., Diallo, K., Ayalew, K., Gibbs, A., Reddy, T., Madurai, L., Kufa-Chakezha, T., & Kharsany, A. B. M. (2020). Evaluating DREAMS HIV prevention interventions targeting adolescent girls and young women in high HIV prevalence districts in South Africa: protocol for a cross-sectional study. *BMC Women's Health*, 20(1), 7. <https://doi.org/10.1186/s12905-019-0875-2>

- George, G., Strauss, M., Chirawu, P., Rhodes, B., Frohlich, J., Montague, C., & Govender, K. (2014). Barriers and facilitators to the uptake of voluntary medical male circumcision (VMMC) among adolescent boys in KwaZulu–Natal, South Africa. *African Journal of AIDS Research*, 13(2), 179-187. <https://doi.org/10.2989/16085906.2014.943253>
- Gerring, J. (2005). Causation: A unified framework for the social sciences. *Journal Of Theoretical Politics*, 17(2), 163-198. <https://doi.org/10.1177/0951629805050859>
- Getahun, H., Gunneberg, C., Granich, R., & Nunn, P. (2010). HIV infection—associated tuberculosis: the epidemiology and the response. *Clinical Infectious Diseases*, 50(Supplement_3), S201-S207. <https://doi.org/10.1086/651492>
- Giano, Z., Kavanaugh, K. E., Durham, A. R., Currin, J. M., Wheeler, D. L., Croff, J. M., & Hubach, R. D. (2019). Factors Associated with Condom Use among a Sample of Men Who Have Sex with Men (MSM) Residing in Rural Oklahoma. *Journal of Homosexuality*, 1–21. <https://doi.org/10.1080/00918369.2019.1616430>
- Gibbs, A., Campbell, C., Akintola, O., & Colvin, C. (2015). Social contexts and building social capital for collective action: three case studies of volunteers in the context of HIV and AIDS in South Africa. *Journal of Community & Applied Social Psychology*, 25(2), 110-122. <https://doi.org/10.1002/casp.2199>
- Gibbs, A., Campbell, C., & Maimane, S. (2014). Can local communities “sustain” HIV/AIDS programmes? A South African example. *Health Promotion International*, 30(1), 114–125. <https://doi.org/10.1093/heapro/dau096>
- Gibbs, A., Campbell, C., Maimane, S., & Nair, Y. (2010). Mismatches between youth aspirations and participatory HIV/AIDS programmes in South Africa. *African Journal of AIDS Research*, 9(2), 153–163. <https://doi.org/10.2989/16085906.2010.517482>
- Gibbs, A., Jacobson, J., & Kerr Wilson, A. (2017). A global comprehensive review of economic interventions to prevent intimate partner violence and HIV risk behaviours. *Global Health Action*, 10(sup2), 1290427. <https://doi.org/10.1080/16549716.2017.1290427>
- Gibbs, A., & Jobson, G. (2011). Narratives of masculinity in the Daily Sun: Implications for HIV risk and prevention. *South African Journal of Psychology*, 41(2), 173-186. <https://hdl.handle.net/10520/EJC98637>
- Giddens, A. (1976). *New Rules of Sociological Method*. Hutchinson.
- Giddens, A. (1991). *Modernity And Self-Identity: Self And Society In The Late Modern Age*. Stanford University Press.
- Gilbert, M. T. P., Rambaut, A., Wlasiuk, G., Spira, T. J., Pitchenik, A. E., & Worobey, M. (2007). The emergence of HIV/AIDS in the Americas and beyond. *Proceedings of the National Academy of Sciences*, 104(47), 18566-18570. <https://doi.org/10.1073/pnas.0705329104>
- Giles, M., Liddell, C., & Bydawell, M. (2005). Condom use in African adolescents: The role of individual and group factors. *AIDS Care*, 17(6), 729–739. <https://doi.org/10.1080/09540120500038181>
- Giocos, G., Kagee, A., & Swartz, L. (2008). Predicting Hypothetical Willingness to Participate (WTP) in a Future Phase III HIV Vaccine Trial Among High-Risk Adolescents. *AIDS and Behavior*, 12(6), 842–851. <https://doi.org/10.1007/s10461-007-9289-5>

- Giroux, H. A. (2011). *On Critical Pedagogy*. Bloomsbury.
- Gharehghani, M., Khosravi, B., Irandoost, S. F., & Soofizad, G. (2020). Barriers to Condom Use Among Female Sex Workers in Tehran, Iran: A Qualitative Study. *International Journal of Women's Health*, 12, 681-689. <https://doi.org/10.2147/IJWH.S260481>
- Ghobadi, S., & Robey, D. (2017). Strategic signalling and awards: Investigation into the first decade of AIS best publications awards. *The Journal of Strategic Information Systems*, 26(4), 360-384. <https://doi.org/10.1016/j.jsis.2017.06.001>
- Glanz, K., Rimer, B. K., & Viswanath, K. (2015). Theory, research, and practice in health behavior and health education. In K. Glanz, B.K. Rimer, & K. Viswanath (Eds.), *Health Behavior And Health Education: Theory, Research, And Practice* (5th ed.). (pp. 23-40). Jossey-Bass.
- Glasman, L. R., Skinner, D., Bogart, L. M., Kalichman, S. C., McAuliffe, T., Sitzler, C. A., Toefy, Y., & Weinhardt, L. S. (2015). Do assessments of hiv risk behaviors change behaviors and prevention intervention efficacy? An experimental examination of the influence of type of assessment and risk perceptions. *Annals of Behavioral Medicine*, 49(3), 358–370. <https://doi.org/10.1007/s12160-014-9659-y>
- Glendinning, E., Spiers, J., Smith, J. A., Anderson, J., Campbell, L. J., Cooper, V., & Horne, R. (2019). A qualitative study to identify perceptual barriers to Antiretroviral Therapy (ART) uptake and adherence in HIV positive people from UK Black African and Caribbean communities. *AIDS and Behavior*, 23(9), 2514-2521. <https://doi.org/10.1007/s10461-019-02670-x>
- Glennan, S. (2002). Rethinking mechanistic explanation. *Philosophy Of Science*, 69(S3), S342-S353. <https://doi.org/10.1086/341857>
- Glick, J. L., Huang, A., Russo, R., Jivapong, B., Ramasamy, V., Rosman, L., Pelaez, D., Footer, K. H. A., & Sherman, S. G. (2020). ART Uptake and Adherence among Women who use Drugs Globally: A Scoping Review. *Drug and Alcohol Dependence*, 108218. <https://doi.org/10.1016/j.drugalcdep.2020.108218>
- Global Program on AIDS (1990). *Research Package: Knowledge, Attitudes, Beliefs and Practices on AIDS (KABP). Phase I*. Draft Document. SBR/GPA/WHO
- Godfrey-Smith, P. (2009). *Theory and reality: An Introduction To The Philosophy Of Science*. University of Chicago Press.
- Goertzen, J. R. (2008). On the possibility of unification. *Theory & Psychology*, 18(6), 829–852. <https://doi.org/10.1177/0959354308097260>
- Goffman, E. (1974/1986). *Frame Analysis: An Essay On The Organization Of Experience*. Northeastern University Press.
- Goffman, E. (1963/2009). *Stigma: Notes On The Management Of Spoiled Identity*. Simon and Schuster.
- Goga, A., Doherty, T., Manda, S., Nkwenika, T., Haskins, L., John, V., Engebretsen, I. M. S., Feucht, U., Dhansay, A., Rollins, N., Kroon, M., Sanders, D., Kauchali, S., Tylleskär, T., & Horwood, C. (2020). Translating new evidence into clinical practice: a quasi-experimental controlled before–after study evaluating the effect of a novel outreach mentoring approach on knowledge, attitudes and confidence of health workers providing HIV and infant feeding counselling in South Africa. *BMJ Open*, 10(10), e034770. <https://doi.org/10.1136/bmjopen-2019-034770>

- Goldman, K. D., & Schmalz, K. J. (2001). Theoretically speaking: Overview and summary of key health education theories. *Health Promotion Practice*, 2(4), 277-281. <https://doi.org/10.1177/152483990100200401>
- Goldstein, S., Usdin, S., Scheepers, E., & Japhet, G. (2005). Communicating HIV and AIDS, what works? A report on the impact evaluation of Soul City's fourth series. *Journal of Health Communication*, 10(5), 465-483. <https://doi.org/10.1080/10810730591009853>
- Golub, S. A., Fikslin, R. A., Goldberg, M. H., Peña, S. M., & Radix, A. (2019). Predictors of PrEP uptake among patients with equivalent access. *AIDS and Behavior*, 23(7), 1917-1924. <https://doi.org/10.1007/s10461-018-2376-y>
- Goparaju, L., Praschan, N. C., Warren-Jeanpiere, L., Experton, L. S., Young, M. A., & Kassaye, S. (2017). Stigma, partners, providers and costs: Potential barriers to PrEP uptake among US women. *Journal of AIDS & Clinical Research*, 8(9), 730. <https://doi.org/10.4172/2155-6113.1000730>
- Goodnight, B., Salama, C., Grim, E. C., Anthony, E. R., Armistead, L., Cook, S. L., Skinner, D., & Toefy, Y. (2014). Perceived control and communication about sex: A study of South African families. *African Journal of AIDS Research*, 13(1), 31-36. <https://doi.org/10.2989/16085906.2014.892016>
- Gordon, C. M., Forsyth, A. D., Stall, R., & Cheever, L. W. (2005). Prevention interventions with persons living with HIV/AIDS: state of the science and future directions. *AIDS Education & Prevention*, 17(Supplement A), 6-20. <https://doi.org/10.1521/aeap.17.2.6.58697>
- Goroff, D., Lewis, N. A., Jr., Scheel, A. M., Scherer, L., & Tucker, J. A. (2018). The inference engine: A grand challenge to address the context sensitivity problem in social science research. *Harvard Data Science Review*. <https://doi.org/10.31234/osf.io/j8b9a>
- Goto, A., Rudd, R. E., Lai, A. Y., Yoshida, K., Suzuki, Y., Halstead, D. D., Yoshida-Komiya, H., & Reich, M. R. (2014). Leveraging public health nurses for disaster risk communication in Fukushima City: a qualitative analysis of nurses' written records of parenting counseling and peer discussions. *BMC Health Services Research*, 14(1). <https://doi.org/10.1186/1472-6963-14-129>
- Gottlieb, M. S., Schroff, R., Schanker, H. M., Weisman, J. D., Fan, P. T., Wolf, R. A., & Saxon, A. (1981). Pneumocystis carinii pneumonia and mucosal candidiasis in previously healthy homosexual men: evidence of a new acquired cellular immunodeficiency. *New England Journal of Medicine*, 305(24), 1425-1431. <https://doi.org/10.1056/NEJM198112103052401>
- Govender, K., George, G., Beckett, S., Montague, C., & Frohlich, J. (2018). Risk compensation following medical male circumcision: Results from a 1-year prospective cohort study of young school-going men in KwaZulu-Natal, South Africa. *International Journal of Behavioral Medicine*, 25(1), 123-130. <https://doi.org/10.1007/s12529-017-9673-0>
- Govender, D., Naidoo, S., & Taylor, M. (2020). "My partner was not fond of using condoms and I was not on contraception": understanding adolescent mothers' perspectives of sexual risk behaviour in KwaZulu-Natal, South Africa. *BMC Public Health*, 20(1). <https://doi.org/10.1186/s12889-020-08474-2>

- Graeber, D. (2014, 4 December). Roy Bhaskar obituary. *The Guardian*.
<https://www.theguardian.com/world/2014/dec/04/roy-bhaskar>
- Granich, R. M., Gilks, C. F., Dye, C., De Cock, K. M., & Williams, B. G. (2009). Universal voluntary HIV testing with immediate antiretroviral therapy as a strategy for elimination of HIV transmission: a mathematical model. *The Lancet*, 373(9657), 48-57. [https://doi.org/10.1016/S0140-6736\(08\)61697-9](https://doi.org/10.1016/S0140-6736(08)61697-9)
- Grant, R. M., Lama, J. R., Anderson, P. L., McMahan, V., Liu, A. Y., Vargas, L., Goicochea, P., Casapía, M., Guanira-Carranza, J. V., Ramirez-Cardich, M. E., Montoya-Herrera, O., Fernández, T., Veloso, V. G., Buchbinder, S. P., Chariyalertsak, S., Schechter, M., Bekker, L.-G., Mayer, K. H., Kallás, E. G., & Amico, K. R. (2010). Preexposure chemoprophylaxis for HIV prevention in men who have sex with men. *New England Journal of Medicine*, 363(27), 2587–2599. <https://doi.org/10.1056/nejmoa1011205>
- Grant, R. M., Mannheimer, S., Hughes, J. P., Hirsch-Moverman, Y., Loquere, A., Chitwarakorn, A., Curlin, M. E., Li, M., Amico, K. R., Hendrix, C. W., Anderson, P. L., Dye, B. J., Marzinke, M. A., Piwowar-Manning, E., McKinstry, L., Elharrar, V., Stirratt, M., Rooney, J. F., Eshleman, S. H., & McNicholl, J. M. (2018). Daily and nondaily oral preexposure prophylaxis in men and transgender women who have sex with men: The human immunodeficiency virus prevention trials network 067/ADAPT Study. *Clinical Infectious Diseases*, 66(11), 1712–1721. <https://doi.org/10.1093/cid/cix1086>
- Gray, G., Buchbinder, S., & Duerr, A. (2010). Overview of STEP and Phambili trial results: two phase IIb test of concept studies investigating the efficacy of MRK ad5 gag/pol/nef sub-type B HIV vaccine. *Current Opinion In HIV And AIDS*, 5(5), 357. <https://doi.org/10.1097/COH.0b013e32833d2d2b>
- Gray, R. H., Kigozi, G., Serwadda, D., Makumbi, F., Watya, S., Nalugoda, F., Kiwanuka, N., Moulton, L. H., Chaudhary, M. A., Chen, M. Z., Sewankambo, N. K., Wabwire-Mangen, F., Bacon, M. C., Williams, C. F. M., Opendi, P., Reynolds, S. J., Laeyendecker, O., Quinn, T. C., & Wawer, M. J. (2007). Male circumcision for HIV prevention in men in Rakai, Uganda: a randomised trial. *Lancet (London, England)*, 369(9562), 657–666. [https://doi.org/10.1016/S0140-6736\(07\)60313-4](https://doi.org/10.1016/S0140-6736(07)60313-4)
- Greely, P., Maharaj, P., Letsoalo, T., & Miti, A. (2013). Traditional male circumcision for reducing the risk of HIV infection: perspectives of young people in South Africa. *Culture, Health & Sexuality*, 15(2), 148-159. <https://doi.org/10.1080/13691058.2012.740074>
- Greevy, C., King, R., & Haffejee, F. (2018). Male circumcision for HIV prevention: Female risk compensatory behaviour in South Africa. *AIDS Care*, 30(9), 1083–1089. <https://doi.org/10.1080/09540121.2018.1476658>
- Green, E. C., Halperin, D. T., Nantulya, V., & Hogle, J. A. (2006). Uganda's HIV prevention success: the role of sexual behavior change and the national response. *AIDS and Behavior*, 10(4), 335-346. <https://doi.org/10.1007/s10461-006-9073-y>
- Green, J., & Tones, K. (1999). For debate. Towards a secure evidence base for health promotion. *Journal of Public Health*, 21(2), 133-139. <https://doi.org/10.1093/pubmed/21.2.133>
- Green, L., & Kreuter, M. (1999). *The Precede–Proceed Model. Health Promotion Planning: An Educational Approach* (3rd edition). Mayfield Publishing Company.

- Greenhalgh, T., & Papoutsi, C. (2018). Studying complexity in health services research: desperately seeking an overdue paradigm shift. *BMC Medicine*, *16*(1). <https://doi.org/10.1186/s12916-018-1089-4>
- Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review*, *102*(1), 4–27. <https://doi.org/10.1037/0033-295x.102.1.4>
- Groenewald, P., Nannan, N., Bourne, D., Laubscher, R., & Bradshaw, D. (2005). Identifying deaths from AIDS in South Africa. *Aids*, *19*(2), 193–201. <https://doi.org/10.1097/00002030-200501280-00012>
- Gross, R., Zheng, L., La Rosa, A., Sun, X., Rosenkranz, S. L., Cardoso, S. W., & Collier, A. C. (2015). Partner-based adherence intervention for second-line antiretroviral therapy (ACTG A5234): a multinational randomised trial. *The Lancet HIV*, *2*(1), e12–e19. [https://doi.org/10.1016/S2352-3018\(14\)00007-1](https://doi.org/10.1016/S2352-3018(14)00007-1)
- Grossman, P., & Van Dam, N. T. (2011). Mindfulness, by any other name...: trials and tribulations of sati in western psychology and science. *Contemporary Buddhism*, *12*(1), 219–239. <https://doi.org/10.1080/14639947.2011.564841>
- Gottert, A., Barrington, C., McNaughton-Reyes, H. L., Maman, S., MacPhail, C., Lippman, S. A., Kahn, K., Twine, R., & Pettifor, A. (2018). Gender Norms, Gender Role Conflict/Stress and HIV Risk Behaviors Among Men in Mpumalanga, South Africa. *AIDS and Behavior*, *22*(6), 1858–1869. <https://doi.org/10.1007/s10461-017-1706-9>
- Gourlan, M., Bernard, P., Bortolon, C., Romain, A. J., Lareyre, O., Carayol, M., Ninot, G., & Boiché, J. (2015). Efficacy of theory-based interventions to promote physical activity. A meta-analysis of randomised controlled trials. *Health Psychology Review*, *10*(1), 50–66. <https://doi.org/10.1080/17437199.2014.981777>
- Groves, A. K., Reyes, H. L. M., Gebrekristos, L. T., Moodley, D., & Maman, S. (2020). Examining Why Age-Disparate Relationships Influence Unsafe Sex Postpartum Among South African Women: Relationship Control and Physical Partner Violence as Explanatory Mechanisms. *Journal of Interpersonal Violence*, *37*(5–6), NP2944–NP2960. <https://doi.org/10.1177/0886260520944531>
- Gruchy, T. D., & Vearey, J. (2020). “Left behind”: why implementing migration-aware responses to HIV for migrant farm workers is a priority for South Africa. *African Journal of AIDS Research*, *19*(1), 57–68. <https://doi.org/10.2989/16085906.2019.1698624>
- Grund, J. M., Bryant, T. S., Jackson, I., Curran, K., Bock, N., Toledo, C., Taliano, J., Zhou, S., del Campo, J. M., Yang, L., Kivumbi, A., Li, P., Pals, S., & Davis, S. M. (2017). Association between male circumcision and women’s biomedical health outcomes: a systematic review. *The Lancet. Global Health*, *5*(11), e1113–e1122. [https://doi.org/10.1016/S2214-109X\(17\)30369-8](https://doi.org/10.1016/S2214-109X(17)30369-8)
- Grünkemeier, E. (2013). *Breaking the Silence: South African Representations of HIV/AIDS*. Boydell & Brewer Ltd.

- Guay, L. A., Musoke, P., Fleming, T., Bagenda, D., Allen, M., Nakabiito, C., Sherman, J., Bakaki, P., Ducar, C., Deseyve, M., Emel, L., Mirochnick, M., Fowler, M. G., Mofenson, L., Miotti, P., Dransfield, K., Bray, D., Mmiro, F., & Jackson, J. B. (1999). Intrapartum and neonatal single-dose nevirapine compared with zidovudine for prevention of mother-to-child transmission of HIV-1 in Kampala, Uganda: HIVNET 012 randomised trial. *Lancet (London, England)*, 354(9181), 795–802. [https://doi.org/10.1016/S0140-6736\(99\)80008-7](https://doi.org/10.1016/S0140-6736(99)80008-7)
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook Of Qualitative Research* (pp. 105–117). Sage.
- Guba, E. G., & Lincoln, Y. S. (2005). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage Handbook Of Qualitative Research* (pp. 191–215). Sage.
- Gubrium, A. C. (2000). Contextualizing the construction of women and men in South African AIDS prevention literature. *Perspectives on Social Problems*, 12, 291-306.
- Guerra, F. M., & Simbayi, L. C. (2014). Prevalence of knowledge and use of the female condom in South Africa. *AIDS and Behavior*, 18(1), 146–158. <https://doi.org/10.1007/s10461-013-0580-3>
- Guest, G., Johnson, L., Burke, H., Rain-Taljaard, R., Severy, L., von Mollendorf, C., & Van Damme, L. (2007). Changes in sexual behavior during a safety and feasibility trial of a microbicide/diaphragm combination: an integrated qualitative and quantitative analysis. *AIDS Education & Prevention*, 19(4), 310-320. <https://doi.org/10.1521/aeap.2007.19.4.310>
- Gupta, G. R. (2002). How men's power over women fuels the HIV epidemic. *BMJ*, 324(7331), 183–184. <https://doi.org/10.1136/bmj.324.7331.183>
- Gupta, G. R., Parkhurst, J. O., Ogden, J. A., Aggleton, P., & Mahal, A. (2008). Structural approaches to HIV prevention. *The Lancet*, 372(9640), 764–775. [https://doi.org/10.1016/s0140-6736\(08\)60887-9](https://doi.org/10.1016/s0140-6736(08)60887-9)
- Gürtler, L. G., Hauser, P. H., Eberle, J., von Brunn, A., Knapp, S., Zekeng, L., Tsague, J. M., & Kaptue, L. (1994). A new subtype of human immunodeficiency virus type 1 (MVP-5180) from Cameroon. *Journal of Virology*, 68(3), 1581–1585. <https://doi.org/10.1128/jvi.68.3.1581-1585.1994>
- Guthrie, T., Chaitkin, M., Khoza, N., Zulu, N., Madisha, V., Ndlovu, N., Shezi, S., Karume, J., Motsoeneng, P., Simelane, S., Meyer-Rath, G., Masuku, S., Jamieson, L., & Ghai, K. 2018. *Consolidated Spending on HIV and TB in South Africa (2014/15-2016/17)*. Pretoria: National Department of Health, Health, Finance & Governance Project, Results for Development Institute. <https://www.r4d.org/resources/analysis-consolidated-spending-hiv-tb-south-africa/>
- Haber, N., Bärnighausen, T., Bor, J., Cohen, J., Tanser, F., Pillay, D., & Fink, G. (2018). Disability for HIV and Disincentives for Health: The Impact of South Africa's Disability Grant on HIV/AIDS Recovery. *arXiv preprint*. <https://arxiv.org/abs/1810.01971>

- Haberer, J., Baeten, J., Celum, C., Tumwesigye, E., Katabira, E., & Krows, M. (2011, February). Near perfect early adherence to antiretroviral PrEP against HIV infection among HIV serodiscordant couples as determined by multiple measures: preliminary data from the Partners PrEP Study. 18th Conference on Retroviruses and Opportunistic Infections (Vol. 27).
- Habermas, J. (1962/1989). *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society*. The MIT Press
- Haesevelde, M. V., Decourt, J. L., De Leys, R. J., Vanderborght, B., Van der Groen, G., Van Heuverswijn, H., & Saman, E. (1994). Genomic cloning and complete sequence analysis of a highly divergent African human immunodeficiency virus isolate. *Journal of Virology*, 68(3), 1586-1596. <https://doi.org/10.1128/JVI.68.3.1586-1596.1994>
- Hagger, M. S. (2015). Retired or not, the theory of planned behaviour will always be with us. *Health Psychology Review*, 9(2), 125–130. <https://doi.org/10.1080/17437199.2015.1034470>
- Hagger, M. S., Cameron, L. D., Hamilton, K., Hankonen, N., & Lintunen, T. (Eds.). (2020). *The Handbook Of Behaviour Change*. Cambridge University Press.
- Haigh, F., Kemp, L., Bazeley, P., & Haigh, N. (2019). Developing a critical realist informed framework to explain how the human rights and social determinants of health relationship works. *BMC Public Health*, 19(1), 1-12. <https://doi.org/10.1186/s12889-019-7760-7>
- Halkitis, P. N., Parsons, J. T., & Wilton, L. (2003). Barebacking among gay and bisexual men in New York City: Explanations for the emergence of intentional unsafe behavior. *Archives Of Sexual Behavior*, 32(4), 351-357. <https://doi.org/10.1023/a:1024095016181>
- Hall, K., & Posel, D. (2019). Fragmenting the family? The complexity of household migration strategies in post-apartheid South Africa. *IZA Journal of Development and Migration*, 10(2), 1-20. <http://dx.doi.org/10.2478/izajodm-2019-0004>
- Hamilton, K., & Johnson, B.T. (2020). Attitudes and persuasive communication interventions. In M. Hagger, L. D. Cameron, K. Hamilton, N. Hankonen, & T. Lintunen. (Eds.), *The Handbook of Behavior Change* (pp. 445-460). Cambridge University Press.
- Hamilton, A. R. L., le Roux, K. W. du P., Young, C. W., & Södergård, B. (2020). Mentor Mothers Zithulele: exploring the role of a peer mentorship programme in rural PMTCT care in Zithulele, Eastern Cape, South Africa. *Paediatrics and International Child Health*, 40(1), 58–64. <https://doi.org/10.1080/20469047.2018.1474697>
- Hammer, S. M., Katzenstein, D. A., Hughes, M. D., Gundacker, H., Schooley, R. T., Haubrich, R. H., Henry, W. K., Lederman, M. M., Phair, J. P., Niu, M., Hirsch, M. S., & Merigan, T. C. (1996). A Trial Comparing Nucleoside Monotherapy with Combination Therapy in HIV-Infected Adults with CD4 Cell Counts from 200 to 500 per Cubic Millimeter. *New England Journal of Medicine*, 335(15), 1081–1090. <https://doi.org/10.1056/nejm199610103351501>

- Hammer, S. M., Squires, K. E., Hughes, M. D., Grimes, J. M., Demeter, L. M., Currier, J. S., Eron, J. J., Feinberg, J. E., Balfour, H. H., Deyton, L. R., Chodakewitz, J. A., Fischl, M. A., Phair, J. P., Pedneault, L., Nguyen, B.-Y., & Cook, J. C. (1997). A Controlled Trial of Two Nucleoside Analogues plus Indinavir in Persons with Human Immunodeficiency Virus Infection and CD4 Cell Counts of 200 per Cubic Millimeter or Less. *New England Journal of Medicine*, 337(11), 725–733.
<https://doi.org/10.1056/nejm199709113371101>
- Hampanda, K. (2013). Vertical transmission of HIV in Sub-Saharan Africa: applying theoretical frameworks to understand social barriers to PMTCT. *ISRN Infectious Diseases*, 2013 (Article ID 420361), <https://doi.org/10.5402/2013/420361>
- Hanass-Hancock, J. (2014). Tangible skill building and HIV youth prevention intervention in rural South Africa. *African Journal of AIDS Research*, 13(3), 229–235.
<https://doi.org/10.2989/16085906.2014.952647>
- Hanass-Hancock, J., & Casale, M. (2014). An exploratory model to illustrate the interrelationship between HIV, disability, and caregiving in Southern Africa. *Journal of the Association of Nurses in AIDS Care*, 25(4), 351–363.
<http://dx.doi.org/10.1016/j.jana.2013.10.001>
- Hanass-Hancock, J., Nene, S., Johns, R., & Chappell, P. (2018). The Impact of Contextual Factors on Comprehensive Sexuality Education for Learners with Intellectual Disabilities in South Africa. *Sexuality and Disability*, 36(2), 123–140.
<https://doi.org/10.1007/s11195-018-9526-z>
- Hankins, C. A., & de Zaluondo, B. O. (2010). Combination prevention: a deeper understanding of effective HIV prevention. *AIDS*, 24(Suppl 4), S70–S80.
<https://doi.org/10.1097/01.aids.0000390709.04255.fd>
- Hankinson, R. J. 1998. *Cause and Explanation in Ancient Greek Thought*. Oxford University Press. <https://doi.org/10.1093/0199246564.001.0001>
- Hanson, B. G. (2013). *General Systems Theory: Beginning With Wholes*. Routledge.
- Hardon, A. P., Akurut, D., Comoro, C., Ekezie, C., Irunde, H. F., Gerrits, T., Kglatwane, J., Kinsman, J., Kwasa, R., Maridadi, J., Moroka, T. M., Moyo, S., Nakiyemba, A., Nsimba, S., Ogenyi, R., Oyabba, T., Temu, F., & Laing, R. (2007). Hunger, waiting time and transport costs: time to confront challenges to ART adherence in Africa. *AIDS Care*, 19(5), 658–665. <https://doi.org/10.1080/09540120701244943>
- Hardy, C., & Richter, M. (2006). Disability grants or antiretrovirals? A quandary for people with HIV/AIDS in South Africa. *African Journal Of AIDS Research*, 5(1), 85–96.
<https://doi.org/10.2989/16085900609490369>
- Hargreaves, J. R., Pliakas, T., Hoddinott, G., Mainga, T., Mubekapi-Musadaidzwa, C., Donnell, D., & Ayles, H. (2020). HIV stigma and viral suppression among people living with HIV in the context of universal test and treat: analysis of data from the HPTN 071 (PopART) trial in Zambia and South Africa. *Journal Of Acquired Immune Deficiency Syndromes (1999)*, 85(5), 561.
<https://doi.org/10.1097/QAI.0000000000002504>
- Harré, R. (1970). *The Principles Of Scientific Thinking*. Macmillan.
- Harré, R., & Madden, E. H. (1975). *Causal Powers*. Basil Blackwell.

- Harrison, A. (2008). Hidden love: Sexual ideologies and relationship ideals among rural South African adolescents in the context of HIV/AIDS. *Culture, Health & Sexuality*, 10(2), 175-189. <https://doi.org/10.1080/13691050701775068>
- Harrison, A., Cleland, J., & Frohlich, J. (2008). Young people's sexual partnerships in KwaZulu-Natal, South Africa: patterns, contextual influences, and HIV risk. *Studies In Family Planning*, 39(4), 295-308. <https://doi.org/10.1111/j.1728-4465.2008.00176.x>
- Harrison, A., Colvin, C. J., Kuo, C., Swartz, A., & Lurie, M. (2015). Sustained high HIV incidence in young women in Southern Africa: social, behavioral, and structural factors and emerging intervention approaches. *Current HIV/AIDS Reports*, 12(2), 207-215. <https://doi.org/10.1007/s11904-015-0261-0>
- Harrison, A., Hoffman, S., Mantell, J. E., Smit, J. A., Leu, C.-S., Exner, T. M., & Stein, Z. A. (2016). Gender-focused HIV and pregnancy prevention for school-going adolescents: The Mpondombili pilot intervention in KwaZulu-Natal, South Africa. *Journal of HIV/AIDS & Social Services*, 15(1), 29–47. <https://doi.org/10.1080/15381501.2014.999183>
- Harrison, A., Newell, M. L., Imrie, J., & Hoddinott, G. (2010). HIV prevention for South African youth: which interventions work? A systematic review of current evidence. *BMC Public Health*, 10(1), 1-12. <https://doi.org/10.1186/1471-2458-10-102>
- Hart, G. J., & Williamson, L. M. (2005). Increase in HIV sexual risk behaviour in homosexual men in Scotland, 1996–2002: prevention failure?. *Sexually Transmitted Infections*, 81(5), 367-372. <https://doi.org/10.1136/sti.2004.013995>
- Hartung, T. K., Nash, J., Ngubane, N., & Fredlund, V. G. (2002). AIDS awareness and sexual behaviour in a high HIV prevalence area in rural northern Kwazulu-Natal, South Africa. *International Journal Of STD & AIDS*, 13(12), 829-832. <https://doi.org/10.1258/095646202321020107>
- Hartwig, M. (Ed.). (2015). *Dictionary of Critical Realism*. Routledge.
- Harvey, M. (2000, 21 September). How can a virus cause a syndrome? asks Mbeki. *iClinic*. <https://web.archive.org/web/20110526083439/http://www.aegis.com/news/woza/2000/IC000906.html>
- Hastings, J., Michie, S., & Johnston, M. (2020). Theory and ontology in behavioural science. *Nature Human Behaviour*, 4(3), 226–226. <https://doi.org/10.1038/s41562-020-0826-9>
- Hatcher, A. M., Gibbs, A., McBride, R. S., Rebombo, D., Khumalo, M., & Christofides, N. J. (2019). Gendered syndemic of intimate partner violence, alcohol misuse, and HIV risk among peri-urban, heterosexual men in South Africa. *Social Science & Medicine*, 296, 112637. <https://doi.org/10.1016/j.socscimed.2019.112637>
- Hatzipapas, I., Visser, M. J., & Janse van Rensburg, E. (2017). Laughter therapy as an intervention to promote psychological well-being of volunteer community care workers working with HIV-affected families. *SAHARA J: Journal of Social Aspects of HIV/AIDS Research Alliance*, 14(1), 202–212. <https://doi.org/10.1080/17290376.2017.1402696>

- Hayes, R., Ayles, H., Beyers, N., Sabapathy, K., Floyd, S., Shanaube, K., Bock, P., Griffith, S., Moore, A., Watson-Jones, D., Fraser, C., Vermund, S. H., & Fidler, S. (2014). HPTN 071 (PopART): Rationale and design of a cluster-randomised trial of the population impact of an HIV combination prevention intervention including universal testing and treatment – a study protocol for a cluster randomised trial. *Trials*, *15*(1), 57. <https://doi.org/10.1186/1745-6215-15-57>
- Hayes, R., Schmidt, A. J., Pharris, A., Azad, Y., Brown, A. E., Weatherburn, P., Hickson, F., Delpech, V., & Noori, T. (2019). Estimating the “PrEP Gap”: how implementation and access to PrEP differ between countries in Europe and Central Asia in 2019. *Eurosurveillance*, *24*(41). <https://doi.org/10.2807/1560-7917.es.2019.24.41.1900598>
- Hean, S., Anderson, L., Green, C., John, C., Pitt, R., & O’Halloran, C. (2016). Reviews of theoretical frameworks: Challenges and judging the quality of theory application. *Medical Teacher*, *38*(6), 613-620. <https://doi.org/10.3109/0142159X.2015.1075648>
- Hedlund, J. (2000). Risky business: safety regulations, risk compensation, and individual behavior. *Injury prevention*, *6*(2), 82-89. <https://doi.org/10.1136/ip.6.2.82>
- Heeren, G. A., Jemmott, J. B., Mandeya, A., & Tyler, J. C. (2007). theory-based predictors of condom use among university students in the United States and South Africa. *AIDS Education and Prevention*, *19*(1), 1–12. <https://doi.org/10.1521/aeap.2007.19.1.1>
- Heeren, G. A., Jemmott, J. B., Mandeya, A., & Tyler, J. C. (2009). Sub-Saharan African university students’ beliefs about condoms, condom-use intention, and subsequent condom use: a prospective study. *AIDS and Behavior*, *13*(2), 268-276. <https://doi.org/10.1007/s10461-008-9415-z>
- Heeren, G. A., Jemmott III, J. B., Ngwane, Z., Mandeya, A., & Tyler, J. C. (2013). A Randomized controlled pilot study of an HIV risk-reduction intervention for Sub-Saharan African University Students. *AIDS and Behavior*, *17*(3), 1105–1115. <https://doi.org/10.1007/s10461-011-0129-2>
- Heeren, G. A., Jemmott III, J. B., Sidloyi, L., Ngwane, Z., & Tyler, J. C. (2012). Disclosure of HIV diagnosis to HIV-infected children in South Africa: focus groups for intervention development. *Vulnerable Children And Youth Studies*, *7*(1), 47-54. <https://doi.org/10.1080/17450128.2012.656733>
- Heise, L., Lutz, B., Ranganathan, M., & Watts, C. (2013). Cash transfers for HIV prevention: considering their potential. *Journal of the International AIDS Society*, *16*(1). <https://doi.org/10.7448/IAS.16.1.18615>
- Held, D. (1980). *Introduction to Critical Theory: Horkheimer to Habermas*. University Of California Press.
- Henderson, R. H. (1977). Improving sexually transmitted disease health services for gays: a national prospective. *Sexually Transmitted Diseases*, *4*(2), 58-62. <https://doi.org/10.1097/00007435-197704000-00007>
- Henderson, D. K., & Gerberding, J. L. (1989). Prophylactic zidovudine after occupational exposure to the human immunodeficiency virus: an interim analysis. *Journal of Infectious Diseases*, *160*(2), 321-327. <https://doi.org/10.1093/infdis/160.2.321>
- Henriques, G. (2011). *A New Unified Theory Of Psychology*. Springer Science & Business Media.

- Henslin, J. M. (1988). Structuralism and individualism in deviance theory. *Deviant Behavior*, 9(3), 211-223. <https://doi.org/10.1080/01639625.1988.9967781>
- Herbst, M. C. (1985). AIDS: implications for South African nurses--I. *Curationis*, 8(3), 13-17.
- Herek, G. M., & Capitano, J. P. (1997). AIDS stigma and contact with persons with AIDS: Effects of direct and vicarious contact. *Journal of Applied Social Psychology*, 27(1), 1-36. <https://doi.org/10.1111/j.1559-1816.1997.tb00621.x>
- Heyer, A., & Ogunbanjo, G. A. (2006). Adherence to HIV antiretroviral therapy: Part I: A review of factors that influence adherence. *South African Family Practice*, 48(8), 5-9. <https://www.researchgate.net/publication/277071511>
- Higgins, J. A., Hoffman, S., & Dworkin, S. L. (2010). Rethinking gender, heterosexual men, and women's vulnerability to HIV/AIDS. *American Journal of Public Health*, 100(3), 435-445. <https://doi.org/10.2105/AJPH.2009.159723>
- Higgins, P. A., & Moore, S. M. (2000). Levels of theoretical thinking in nursing. *Nursing Outlook*, 48(4), 179-183. <https://doi.org/10.1067/mno.2000.105248>
- Higginson, A. D., & Munafò, M. R. (2016). Current incentives for scientists lead to underpowered studies with erroneous conclusions. *PLoS Biology*, 14(11), e2000995. <https://doi.org/10.1371/journal.pbio.2000995>
- Higuchi, K. (2016). *KH Coder 3 Reference Manual*. Ritsumeikan University.
- Hill, A.B. (1965). The Environment and Disease: Association or Causation?. *Proceedings of the Royal Society of Medicine*, 58(5), 295-300. <https://doi.org/10.1177/003591576505800503>
- Hlabangane, N. (2014). Teenage sexuality, HIV risk, and the politics of being “duted”: perceptions and dynamics in a South African township. *Health Care for Women International*, 35(7-9), 859-877. <https://doi.org/10.1080/07399332.2014.907295>
- Hoare, A., Kerr, S. J., Ruxrungtham, K., Ananworanich, J., Law, M. G., Cooper, D. A., Phanuphak, P., & Wilson, D. P. (2010). Hidden drug resistant HIV to emerge in the era of universal treatment access in Southeast Asia. *PLoS ONE*, 5(6), e10981. <https://doi.org/10.1371/journal.pone.0010981>
- Hodal, L. (2019, 30 November). South Africa begins rollout of cutting-edge HIV drug. *The Guardian*. <https://www.theguardian.com/global-development/2019/nov/30/south-africa-begins-rollout-of-cutting-edge-hiv-drug>
- Hodes, R., & Gittings, L. (2019). “Kasi curriculum”: what young men learn and teach about sex in a South African township. *Sex Education*, 19(4), 436-454. <https://doi.org/10.1080/14681811.2019.1606792>
- Hogg, M. A., & Williams, K. D. (2000). From I to we: Social identity and the collective self. *Group Dynamics: Theory, Research, and Practice*, 4(1), 81-97. <https://doi.org/10.1037/1089-2699.4.1.81>
- Holderness, W. L. (2012). Equipping educators to address HIV and AIDS: A review of selected teacher education initiatives. *SAHARA: Journal of Social Aspects of HIV/AIDS Research Alliance*, 9(sup-1), 48-55. <https://doi.org/10.10520/EJC128501>
- Holmes, K. K., Levine, R., & Weaver, M. (2004). Effectiveness of condoms in preventing sexually transmitted infections. *Bulletin of the World Health Organization*, 82, 454-461. <https://pubmed.ncbi.nlm.nih.gov/15356939/>

- Holt, M., & Murphy, D. A. (2017). Individual versus community-level risk compensation following preexposure prophylaxis of HIV. *American Journal Of Public Health*, 107(10), 1568-1571. <https://doi.org/10.2105/AJPH.2017.303930>
- Holtgrave, D. R. (2010). Potential and limitations of a ‘test and treat’ strategy as HIV prevention in the United States. *International Journal of Clinical Practice*, 64(6), 678-681. <https://doi.org/10.1111/j.1742-1241.2010.02381.x>
- Holzemer, W. L., Uys, L., Makoae, L., Stewart, A., Phetlhu, R., Dlamini, P. S., Greeff, M., Kohi, T. W., Chirwa, M., Cuca, Y., & Naidoo, J. (2007). A conceptual model of HIV/AIDS stigma from five African countries. *Journal of Advanced Nursing*, 58(6), 541–551. <https://doi.org/10.1111/j.1365-2648.2007.04244.x>
- Homans, G. C. (1958). Social behavior as exchange. *American Journal of Sociology*, 63(6), 597–606. <https://doi.org/10.1086/222355>
- Hoosen, S., & Collins, A. (2004). Sex, sexuality and sickness: Discourses of gender and HIV/AIDS among KwaZulu-Natal women. *South African Journal of Psychology*, 34(3), 487-505. <https://doi.org/10.10520/EJC98280>
- Horkheimer, M. (1975). *Critical Theory Selected essays* (M. J. O’Connell, Trans.). Continuum Publishing.
- Horne, R., Weinman, J., Barber, N., Elliott, R., Morgan, M., Cribb, A., & Kellar, I. (2005). *Concordance, adherence and compliance in medicine taking*. Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R & D (NCCSDO). <https://www.researchgate.net/publication/271443859>
- Hosegood, V., Preston-Whyte, E., Busza, J., Moitse, S., & Timaeus, I. M. (2007). Revealing the full extent of households’ experiences of HIV and AIDS in rural South Africa. *Social Science & Medicine*, 65(6), 1249-1259. <https://doi.org/10.1016/j.socscimed.2007.05.002>
- Hosek, S., & Pettifor, A. (2019). HIV Prevention Interventions for Adolescents. *Current HIV/AIDS Reports*, 16(1), 120–128. <https://doi.org/10.1007/s11904-019-00431-y>
- Houdmont, J., Munir, F., & Grey, M. (2013). Acceptance of repeat worksite HIV voluntary counselling and testing in a rural South African factory. *AIDS Care*, 25(9), 1199-1202. <https://doi.org/10.1080/09540121.2013.764388>
- Houlihan, C. F., Larke, N. L., Watson-Jones, D., Smith-McCune, K. K., Shiboski, S., Gravitt, P. E., Smith, J. S., Kuhn, L., Wang, C., & Hayes, R. (2012). HPV infection and increased risk of HIV acquisition. A systematic review and meta-analysis. *AIDS (London, England)*, 26(17). <https://doi.org/10.1097/QAD.0b013e328358d908>
- Hovell, M.F., Wahlgren, D.R., & Gehrman, C.A. (2009). The behavioral ecological model: Integrating public health and behavioral science. In R. J. DiClemente, R. A. Crosby, & M. C. Kegler (Eds.), *Emerging Theories In Health Promotion Practice And Research* (pp. 347-385). John Wiley & Sons.
- Howard-Payne, L. (2017). “The other”: Persistent beliefs regarding HIV risk in South Africa. *Journal of Psychology in Africa*, 27(1), 18-26. <https://doi.org/10.1080/14330237.2016.1268284>
- Howard-Payne, L., & Kiguwa, P. (2008). The value of social representations theory in understanding perceptions regarding HIV/AIDS. *Journal of Psychology in Africa*, 18(4), 591–596. <https://doi.org/10.1080/14330237.2008.10820238>

- Hoy, D. C. (1993). Heidegger and the hermeneutic turn. In C. Guignon (Ed.). *The Cambridge Companion to Heidegger* (pp. 170-194). Cambridge University Press
- Huet, T., Cheynier, R., Meyerhans, A., Roelants, G., & Wain-Hobson, S. (1990). Genetic organization of a chimpanzee lentivirus related to HIV-1. *Nature*, 345(6273), 356. <https://doi.org/10.1038/345356a0>
- Huis in 't Veld, D., Ensoy-Musoro, C., Pengpid, S., Peltzer, K., & Colebunders, R. (2019). The efficacy of a brief intervention to reduce alcohol use in persons with HIV in South Africa, a randomized clinical trial. *PLOS ONE*, 14(8), e0220799. <https://doi.org/10.1371/journal.pone.0220799>
- Hull, D. L. (1988). A mechanism and its metaphysics: An evolutionary account of the social and conceptual development of science. *Biology and Philosophy*, 3(2), 123-155. <https://doi.org/10.1007/BF00140989>
- Hume, D. (1960) The Idea of Necessary Connexion. In E. H. Madden (Ed.), *The Structure of Scientific Thought: An Introduction to Philosophy of Science*. Routledge & Kegan Paul
- Hunter, M. (2015). The political economy of concurrent partners: toward a history of sex–love–gift connections in the time of AIDS. *Review of African Political Economy*, 42(145), 362-375. <https://doi.org/10.1080/03056244.2015.1064367>
- Huschke, S. (2019). Empowering sex workers? Critical reflections on peer-led risk-reduction workshops in Soweto, South Africa. *Global Health Action*, 12(1), 1522149. <https://doi.org/10.1080/16549716.2018.1522149>
- IAS (2016). *The Second Durban Declaration*. <https://www.iasociety.org/Second-Durban-Declaration>
- IAVI (2019). *History of IAVI*. <https://www.iavi.org/about/history-of-iavi>
- IeDEA (n.d.). *Who we are*. <https://www.iedea.org/home/who-we-are/>
- Igumbor, J. O., Scheepers, E., Ebrahim, R., Jason, A., & Grimwood, A. (2011). An evaluation of the impact of a community-based adherence support programme on ART outcomes in selected government HIV treatment sites in South Africa. *AIDS Care*, 23(2), 231-236. <https://doi.org/10.1080/09540121.2010.498909>
- Ijsselmuiden, C. B., Padayachee, G. N., Mashaba, W., Martiny, O. V. S. H., & Van Staden, H. P. (1990). Knowledge, beliefs and practices among black goldminers relating to the transmission of human immunodeficiency virus and other sexually transmitted diseases. *South African Medical Journal*, 78(9), 520-523. <http://archive.samj.org.za/1990%20VOL%20LXXVIII%20Jul-Dec/Articles/05%20November/1.6%20KNOWLEDGE,%20BELIEFS%20AND%20PRACTICES%20AMONG%20BLACK%20GOLDMINERS%20RELATING%20TO%20THE%20TRANSMISSION%20OF%20HUMAN.pdf>
- Ikwegbue, J. N., Ross, A., & Ogonnaya, H. (2015). Rural Zulu women's knowledge of and attitudes towards medical male circumcision. *African Journal Of Primary Health Care & Family Medicine*, 7(1), 1-6. <http://dx.doi.org/10.4102/phcfm.v7i1.775>
- Iiffe, J. (2005). *The African AIDS Epidemic: A History*. Ohio University Press.
- Indlela. (2022). *The NUDGE Handbook*. <https://indlela.org/nudge-handbook/>

- Inglehart, R. (1971). The silent revolution in Europe: Intergenerational change in post-industrial societies. *The American Political Science Review*, 65(4), 991-1017. <https://doi.org/10.2307/1953494>
- Inglehart, R. F. (2008). Changing values among western publics from 1970 to 2006. *West European Politics*, 31(1-2), 130-146. <https://doi.org/10.1080/01402380701834747>
- Inglehart, R. (2018). *Cultural Evolution: People's Motivations Are Changing, And Reshaping The World*. Cambridge University Press.
- Irvine, E. (2021). The role of replication studies in theory building. *Perspectives on Psychological Science*, 16(4), 844–853. <https://doi.org/10.1177/1745691620970558>
- Isaacs, G. & Miller, D. (1985). AIDS-Its implications for South African homosexuals and the mediating role of the medical practitioner. *South African Medical Journal*, 68(5), 327-330. https://journals.co.za/doi/pdf/10.10520/AJA20785135_6049
- Isaksen, K.R. (2016). Reclaiming rational theory choice as central: a critique of methodological applications of critical realism. *Journal of Critical Realism*, 15(3), 245-262. <https://doi.org/10.1080/14767430.2016.1169369>
- Iseselo, M. K., Tarimo, E. A., Sandstrom, E., & Kulane, A. (2020). Sexual Behaviours and Practices before and after Phase I/II HIV Vaccine Trial: A Qualitative Study among Volunteers in Dar es Salaam Tanzania. *International Journal of Environmental Research and Public Health*, 17(19), 7193. <https://doi.org/10.3390/ijerph17197193>
- Ivers, L. C., Cullen, K. A., Freedberg, K. A., Block, S., Coates, J., Webb, P., & Mayer, K. H. (2009). HIV/AIDS, undernutrition, and food insecurity. *Clinical Infectious Diseases*, 49(7), 1096-1102. <https://doi.org/10.1086/605573>
- Iwelunmor, J., Newsome, V., & Airhihenbuwa, C. O. (2014). Framing the impact of culture on health: A systematic review of the PEN-3 cultural model and its application in public health research and interventions. *Ethnicity & Health*, 19(1), 20–46. <https://doi.org/10.1080/13557858.2013.857768>
- Jemmott, J. B., Heeren, G. A., Ngwane, Z., Hewitt, N., Jemmott, L. S., Shell, R., & O’Leary, A. (2007). Theory of planned behaviour predictors of intention to use condoms among Xhosa adolescents in South Africa. *AIDS Care*, 19(5), 677–684. <https://doi.org/10.1080/09540120601084308>
- Jemmott, L. S., Jemmott, J. B., Ngwane, Z., Icard, L., O’Leary, A., Gueits, L., & Brawner, B. (2014a). “Let Us Protect Our Future” a culturally congruent evidenced-based HIV/STD risk-reduction intervention for young South African adolescents. *Health Education Research*, 29(1), 166–181. <https://doi.org/10.1093/her/cyt072>
- Jemmott III, J. B., Heeren, G. A., Sidloyi, L., Marange, C. S., Tyler, J. C., & Ngwane, Z. (2014b). Caregivers’ Intentions to disclose hiv diagnosis to children living with HIV in South Africa: A theory-based approach. *AIDS and Behavior*, 18(6), 1027–1036. <https://doi.org/10.1007/s10461-013-0672-0>
- Jemmott, J. B., Jemmott, L. S., O’Leary, A., Ngwane, Z., Icard, L. D., Heeren, G. A., Mtose, X., & Carty, C. (2014c). Cluster-Randomized Controlled Trial of an HIV/Sexually Transmitted Infection Risk-Reduction Intervention for South African Men. *American Journal of Public Health*, 104(3), 467–473. <https://doi.org/10.2105/ajph.2013.301578>

- Jemmott, J. B., Jemmott, L. S., O’Leary, A., Ngwane, Z., Icard, L. D., Bellamy, S. L., Jones, S. F., Landis, J. R., Heeren, G. A., Tyler, J. C., & Makiwane, M. B. (2010). School-based randomized controlled trial of an HIV/STD risk-reduction intervention for South African adolescents. *Archives of Pediatrics & Adolescent Medicine*, *164*(10). <https://doi.org/10.1001/archpediatrics.2010.176>
- Jemmott, J. B., Jemmott, L. S., O’Leary, A., Ngwane, Z., Lewis, D. A., Bellamy, S. L., Icard, L. D., Carty, C., Heeren, G. A., Tyler, J. C., Makiwane, M. B., & Teitelman, A. (2015). HIV/STI risk-reduction intervention efficacy with South African adolescents over 54 months. *Health Psychology*, *34*(6), 610–621. <https://doi.org/10.1037/hea0000140>
- Jana, M., Letsela, L., Scheepers, E., & Weiner, R. (2014). Understanding the role of the onelove campaign in facilitating drivers of social and behavioral change in Southern Africa: A qualitative evaluation. *Journal of Health Communication*, *20*(3), 252–258. <https://doi.org/10.1080/10810730.2014.925014>
- Janis, I. L., & Feshbach, S. (1953). Effects of fear-arousing communications. *Journal of Abnormal Social Psychology*, *48*, 78-92. <https://doi.org/10.1037/h0060732>
- Janke, S., Daumiller, M., & Rudert, S. C. (2019). Dark pathways to achievement in science: Researchers’ achievement goals predict engagement in questionable research practices. *Social Psychological And Personality Science*, *10*(6), 783-791. <https://doi.org/10.1177/1948550618790227>
- Jansen, M. P. M., Tromp, N., & Baltussen, R. (2016). PrEP: why we are waiting. *The Lancet HIV*, *3*(1), e11–e12. [https://doi.org/10.1016/s2352-3018\(15\)00250-7](https://doi.org/10.1016/s2352-3018(15)00250-7)
- Jarrott, S. E., & Smith, C. L. (2010). The complement of research and theory in practice: Contact theory at work in nonfamilial intergenerational programs. *The Gerontologist*, *51*(1), 112-121. <https://doi.org/10.1093/geront/gnq058>
- Jewkes, R. (2002). Intimate partner violence: causes and prevention. *The Lancet*, *359*(9315), 1423–1429. [https://doi.org/10.1016/s0140-6736\(02\)08357-5](https://doi.org/10.1016/s0140-6736(02)08357-5)
- Jewkes, R. K., Dunkle, K., Nduna, M., & Shai, N. (2010). Intimate partner violence, relationship power inequity, and incidence of HIV infection in young women in South Africa: a cohort study. *The Lancet*, *376*(9734), 41–48. [https://doi.org/10.1016/S0140-6736\(10\)60548-X](https://doi.org/10.1016/S0140-6736(10)60548-X)
- Jewkes, R., Gibbs, A., Jama-Shai, N., Willan, S., Misselhorn, A., Mushinga, M., Washington, L., Mbatha, N., & Skiweyiya, Y. (2014). Stepping Stones and Creating Futures intervention: shortened interrupted time series evaluation of a behavioural and structural health promotion and violence prevention intervention for young people in informal settlements in Durban, South Africa. *BMC Public Health*, *14*(1). <https://doi.org/10.1186/1471-2458-14-1325>
- Jewkes, R., Martin, L., & Penn-Kekana, L. (2002). The virgin cleansing myth: Cases of child rape are not exotic. *The Lancet*, *359*(9307), 711. [https://doi.org/10.1016/S0140-6736\(02\)07794-2](https://doi.org/10.1016/S0140-6736(02)07794-2)
- Jewkes, R., & Morrell, R. (2012). Sexuality and the limits of agency among South African teenage women: Theorising femininities and their connections to HIV risk practises. *Social Science & Medicine*, *74*(11), 1729-1737. <https://doi.org/10.1016/j.socscimed.2011.05.020>

- Jewkes, R., Nduna, M., Levin, J., Jama, N., Dunkle, K., Puren, A., & Duvvury, N. (2008). Impact of stepping stones on incidence of HIV and HSV-2 and sexual behaviour in rural South Africa: cluster randomised controlled trial. *BMJ*, 337. <https://doi.org/10.1136/bmj.a506>
- Jewkes, R., Sikweyiya, Y., Morrell, R., & Dunkle, K. (2011). The relationship between intimate partner violence, rape and HIV amongst South African men: a cross-sectional study. *PLoS ONE*, 6(9), e24256. <https://doi.org/10.1371/journal.pone.0024256>
- JHHESA (2013). *A streetwise response to HIV: The story of Scrutinize*. https://www.ccisa.org.za/sites/default/files/scrutinize_report.pdf
- Joffe, H. (1996a). AIDS research and prevention: A social representational approach. *British Journal of Medical Psychology*, 69(3), 169-190. <https://doi.org/10.1111/j.2044-8341.1996.tb01863.x>
- Joffe, H. (1996b). The Shock of the New: A Psycho-dynamic Extension of Social Representational Theory. *Journal for the Theory of Social Behaviour*, 26(2), 197–219. <https://doi.org/10.1111/j.1468-5914.1996.tb00529.x>
- John, S., Moletsane, M. K., & Mohangi, K. (2016). Masekitlana: Indigenous Stone Play And Dynamic Assessment As Therapeutic Techniques For Children Affected by HIV/AIDS in South Africa. *Studies on Ethno-Medicine*, 10(3), 361–374. <https://doi.org/10.1080/09735070.2016.11905509>
- Johnson, B. T., & Michie, S. (2015). Towards healthy theorising about health behaviours in the maze of messy reality: a reaction to Peters, de Bruin, and Crutzen. *Health Psychology Review*, 9(1), 21-24. <https://doi.org/10.1080/17437199.2014.900722>
- Johnson, L. F., Dorrington, R. E., & Moolla, H. (2017). HIV epidemic drivers in South Africa: A model-based evaluation of factors accounting for inter-provincial differences in HIV prevalence and incidence trends. *Southern African Journal of HIV Medicine*, 18(1), a695. <https://doi.org/10.4102/sajhivmed.v18i1.695>
- Johnson, L. F., Hallett, T. B., Rehle, T. M., & Dorrington, R. E. (2012). The effect of changes in condom usage and antiretroviral treatment coverage on human immunodeficiency virus incidence in South Africa: a model-based analysis. *Journal of the Royal Society Interface*, 9(72), 1544-1554. <https://doi.org/10.1098/rsif.2011.0826>
- Johnson, L. F., Rehle, T. M., Jooste, S., & Bekker, L. G. (2015). Rates of HIV testing and diagnosis in South Africa: successes and challenges. *Aids*, 29(11), 1401-1409. <https://doi.org/10.1097/QAD.0000000000000721>
- Johnson, L. F., Chiu, C., Myer, L., Davies, M.-A., Dorrington, R. E., Bekker, L.-G., Boule, A., & Meyer-Rath, G. (2016). Prospects for HIV control in South Africa: a model-based analysis. *Global Health Action*, 9(1), 30314. <https://doi.org/10.3402/gha.v9.30314>
- Johnson, L. F., May, M. T., Dorrington, R. E., Cornell, M., Boule, A., Egger, M., & Davies, M. A. (2017). Estimating the impact of antiretroviral treatment on adult mortality trends in South Africa: A mathematical modelling study. *PLoS Medicine*, 14(12), e1002468. <https://doi.org/10.1371/journal.pmed.1002468>

- Johnson, L. M., Krovi, S. A., Li, L., Girouard, N., Demkovich, Z. R., Myers, D., Creelman, B., & van der Straten, A. (2019). Characterization of a Reservoir-Style Implant for Sustained Release of Tenofovir Alafenamide (TAF) for HIV Pre-Exposure Prophylaxis (PrEP). *Pharmaceutics*, *11*(7), 315. <https://doi.org/10.3390/pharmaceutics11070315>
- Johnson, M. O. (2011). The shifting landscape of health care: Toward a model of health care empowerment. *American Journal of Public Health*, *101*(2), 265–270. <https://doi.org/10.2105/ajph.2009.189829>
- Johnson, N. (2000). *Speech given at the Opening ceremony of the 13th International AIDS Conference in Durban, July, 2000.* http://web.sabc.co.za/digital/stage/trufm/Nkosi_speech.pdf
- Johnson, P. & Duberley, J. (2000). *Understanding Management Research*. Sage Publications.
- Johnson, S. M., & Naidoo, A. V. (2016). A psychoeducational approach for prevention of burnout among teachers dealing with HIV/AIDS in South Africa. *AIDS Care*, *29*(1), 73–78. <https://doi.org/10.1080/09540121.2016.1201193>
- Johnston, E., & Ross, E. (1991). Attitudes of a group of South African speech and hearing therapists towards patients with acquired immunodeficiency syndrome (AIDS). *The South African Journal Of Communication Disorders*, *38*, 49-62.
- Jonassen, T. Ø., Stene-Johansen, K., Berg, E. S., Hungnes, O., Lindboe, C. F., Frøland, S. S., & Grinde, B. (1997). Sequence Analysis of HIV-1 Group O from Norwegian Patients Infected in the 1960s. *Virology*, *231*(1), 43–47. <https://doi.org/10.1006/viro.1997.8510>
- Jones, A., Cremin, I., Abdullah, F., Idoko, J., Cherutich, P., Kilonzo, N., Rees, H., Hallett, T., O'Reilly, K., Koechlin, F., Schwartlander, B., de Zaluendo, B., Kim, S., Jay, J., Huh, J., Piot, P., & Dybul, M. (2014). Transformation of HIV from pandemic to low-endemic levels: a public health approach to combination prevention. *The Lancet*, *384*(9939), 272–279. [https://doi.org/10.1016/s0140-6736\(13\)62230-8](https://doi.org/10.1016/s0140-6736(13)62230-8)
- Jones, D., Cook, R., Rodriguez, A., & Waldrop-Valverde, D. (2013). Personal HIV knowledge, appointment adherence and HIV outcomes. *AIDS and Behavior*, *17*(1), 242-249. <https://doi.org/10.1007/s10461-012-0367-y>
- Jones, D. L., Rodriguez, V. J., Mandell, L. N., Lee, T. K., Weiss, S. M., & Peltzer, K. (2019). Sexual risk behavior among HIV-infected women in South Africa at 12-months postpartum. *AIDS Care*, *31*(9), 1114-1123. <https://doi.org/10.1080/09540121.2019.1620168>
- Jordaan, W., & Jordaan, J. (1980). Metateorie: 'n Sesde “krag” in die sielkunde. *South African Journal of Psychology*, *10*(1-2), 28–41. <https://doi.org/10.1177/008124638001000104>
- Joseph Davey, D. L., Nyemba, D. C., Gomba, Y., Bekker, L. G., Taleghani, S., DiTullio, D. J., Shabsovich, D., Gorbach, P.M., Coates, T.J., Klausner, J.D., & Myer, L. (2019). Prevalence and correlates of sexually transmitted infections in pregnancy in HIV-infected and uninfected women in Cape Town, South Africa. *PLoS ONE*, *14*(7), e0218349. <https://doi.org/10.1371/journal.pone.0218349>

- Joshi, D., Tiwari, M.M.K., Kannan, V., Dalal, S. S., & Mathai, S. S. (2017). Emotional and behavioural disturbances in school going HIV positive children attending HIV clinic. *Medical Journal, Armed Forces India*, 73(1), 18–22. <https://doi.org/10.1016/j.mjafi.2016.12.002>
- Judge, T. A., & Bono, J. E. (2001). A rose by any other name: Are self-esteem, generalized self-efficacy, neuroticism, and locus of control indicators of a common construct? In B. W. Roberts & R. Hogan (Eds.), *Personality Psychology In The Workplace* (pp. 93–118). American Psychological Association. <https://doi.org/10.1037/10434-004>
- Jugeo, N., & Moalusi, K. P. (2014). My secret: The social meaning of HIV/AIDS stigma. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 11(1), 76-83. <https://doi.org/10.1080/17290376.2014.932302>
- Kåberg, M., Karlsson, N., Discacciati, A., Widgren, K., Weiland, O., Ekström, A. M., & Hammarberg, A. (2020). Significant decrease in injection risk behaviours among participants in a needle exchange programme. *Infectious Diseases*, 52(5), 336-346. <https://doi.org/10.1080/23744235.2020.1727002>
- Kabiru, C. W., Beguy, D., Crichton, J., & Zulu, E. M. (2011). HIV/AIDS among youth in urban informal (slum) settlements in Kenya: what are the correlates of and motivations for HIV testing?. *BMC Public Health*, 11(1), 1-12. <https://doi.org/10.1186/1471-2458-11-685>
- Kader, R., Seedat, S., Govender, R., Koch, J. R., & Parry, C. D. (2014). Hazardous and harmful use of alcohol and/or other drugs and health status among South African patients attending HIV clinics. *AIDS and Behavior*, 18(3), 525-534. <https://doi.org/10.1007/s10461-013-0587-9>
- Kafaar, Z., Swartz, L., Kagee, A., Lesch, A., & Jaspan, H. (2007). Adolescent participation in HIV vaccine trials: Cognitive developmental considerations. *South African Journal of Psychology*, 37(3), 576-594. <https://doi.org/10.1177/008124630703700312>
- Kagee, A. (2006). Where is the Evidence in South African Clinical Psychology? *South African Journal of Psychology*, 36(2), 233–248. <https://doi.org/10.1177/008124630603600201>
- Kagee, A., Remien, R. H., Berkman, A., Hoffman, S., Campos, L., & Swartz, L. (2011). Structural barriers to ART adherence in Southern Africa: challenges and potential ways forward. *Global public health*, 6(1), 83-97. <https://doi.org/10.1080/17441691003796387>
- Kahneman, D., & Tversky, A. (1979). Prospect theory of decisions under risk. *Econometrica*, 47(2), 1156-67. <https://doi.org/10.2307/1914185>
- Kaida, A., Dietrich, J. J., Laher, F., Beksinska, M., Jaggernath, M., Bardsley, M., Smith, P., Cotton, L., Chitneni, P., Closson, K., Lewis, D. A., Smit, J. A., Ndung'u, T., Brockman, M., & Gray, G. (2018). A high burden of asymptomatic genital tract infections undermines the syndromic management approach among adolescents and young adults in South Africa: implications for HIV prevention efforts. *BMC Infectious Diseases*, 18(1). <https://doi.org/10.1186/s12879-018-3380-6>
- Kaiser Health News (2003, 21 March). Treatment Action Campaign Members File Manslaughter Charges Against South African Officials Over Lack of Access to AIDS Drugs. *KHN Morning Briefing*. <https://khn.org/morning-breakout/dr00016729/>

- Kalichman, S.C. (1998). Post-exposure prophylaxis for HIV infection in gay and bisexual men: implications for the future of HIV prevention. *American Journal Of Preventive Medicine*, 15(2), 120-127. [https://doi.org/10.1016/s0749-3797\(98\)00037-3](https://doi.org/10.1016/s0749-3797(98)00037-3)
- Kalichman, S. C., Benotsch, E., Suarez, T., Catz, S., Miller, J., & Rompa, D. (2000). Health literacy and health-related knowledge among persons living with HIV/AIDS. *American Journal Of Preventive Medicine*, 18(4), 325-331. [https://doi.org/10.1016/s0749-3797\(00\)00121-5](https://doi.org/10.1016/s0749-3797(00)00121-5)
- Kalichman, S. C., Carey, M. P., & Johnson, B. T. (1996). Prevention of sexually transmitted HIV infection: A meta-analytic review of the behavioral outcome literature. *Annals of Behavioral Medicine*, 18(1), 6–15. <https://doi.org/10.1007/bf02903934>
- Kalichman, S. C., Di Berto, G., & Eaton, L. (2008a). Human immunodeficiency virus viral load in blood plasma and semen: review and implications of empirical findings. *Sexually Transmitted Diseases*, 35(1), 55-60. <https://doi.org/10.1097/olq.0b013e318141fe9b>
- Kalichman, S. C., Simbayi, L. C., Vermaak, R., Cain, D., Smith, G., Mthebu, J., & Jooste, S. (2008b). Randomized Trial of a Community-based Alcohol-related HIV Risk-reduction Intervention for Men and Women in Cape Town South Africa. *Annals of Behavioral Medicine*, 36(3), 270–279. <https://doi.org/10.1007/s12160-008-9067-2>
- Kalichman, S.C., & Simbayi, L.C. (2003). HIV testing attitudes, AIDS stigma, and voluntary HIV counselling and testing in a black township in Cape Town, South Africa. *Sexually Transmitted Infections*, 79(6), 442–447. <https://doi.org/10.1136/sti.79.6.442>
- Kalichman, S. C., Simbayi, L. C., Cain, D., Jooste, S., Skinner, D., & Cherry, C. (2006). Generalizing a model of health behaviour change and AIDS stigma for use with sexually transmitted infection clinic patients in Cape Town, South Africa. *AIDS Care*, 18(3), 178–182. <https://doi.org/10.1080/09540120500456292>
- Kalichman, S. C., Simbayi, L. C., Cloete, A., Clayford, M., Arnolds, W., Mxoli, M., Smith, G., Cherry, C., Shefer, T., Crawford, M., & Kalichman, M. O. (2009). Integrated gender-based violence and HIV risk reduction intervention for South African men: Results of a quasi-experimental field trial. *Prevention Science*, 10(3), 260–269. <https://doi.org/10.1007/s11121-009-0129-x>
- Kalichman, S. C., Simbayi, L. C., Jooste, S., Cherry, C., & Cain, D. (2005a). Poverty-related stressors and HIV/AIDS transmission risks in two South African communities. *Journal of Urban Health*, 82(2), 237-249. <https://doi.org/10.1093/jurban/jti048>
- Kalichman, S. C., Simbayi, L. C., Jooste, S., Toefy, Y., Cain, D., Cherry, C., & Kagee, A. (2005b). Development of a brief scale to measure AIDS-related stigma in South Africa. *AIDS and Behavior*, 9(2), 135-143. <https://doi.org/10.1007/s10461-005-3895-x>
- Kalichman, S. C., Mathews, C., Banas, E., & Kalichman, M. O. (2019). Treatment adherence in HIV stigmatized environments in South Africa: stigma avoidance and medication management. *International journal of STD & AIDS*, 30(4), 362-370. <https://doi.org/10.1177/0956462418813047>
- Kalichman, S. C., Mathews, C., Banas, E., & Kalichman, M. O. (2020a). Alcohol-related beliefs and non-adherence to antiretroviral therapy in Cape Town, South Africa. *Journal of Behavioral Medicine*, 43(5), 764-772. <https://doi.org/10.1007/s10865-020-00135-4>

- Kalichman, S., Mathews, C., Banas, E., & Kalichman, M. (2020b). HIV status disclosure and sexual transmission risks among people who are living with HIV and receiving treatment for non-HIV sexually transmitted infections, Cape Town, South Africa. *Journal Of Acquired Immune Deficiency Syndromes (1999)*, 83(3), 223. <https://doi.org/10.1097/QAI.0000000000002256>
- Kalichman, S., Mathews, C., Kalichman, M., Eaton, L. A., & Nkoko, K. (2018). Male circumcision for HIV prevention: Awareness, risk compensation, and risk perceptions among South African women. *Global Public Health*, 13(11), 1682-1690. <https://doi.org/10.1080/17441692.2018.1427277>
- Kalichman, S. C., Pellowski, J., & Turner, C. (2011). Prevalence of sexually transmitted co-infections in people living with HIV/AIDS: Systematic review with implications for using HIV treatments for prevention. *Sexually Transmitted Infections*, 87(3), 183–190. <https://doi.org/10.1136/sti.2010.047514>
- Kanda, L., & Mash, R. (2018). Reasons for inconsistent condom use by young adults in Mahalapye, Botswana. *African Journal of Primary Health Care and Family Medicine*, 10(1), 1-7. <http://dx.doi.org/10.4102/phcfm.v10i1.1492>
- Kant, I. (1787/2008) *Critique of Pure Reason*. (Revised Edition). Penguin Classics.
- Kaplan, A. (1964/2017). *The Conduct Of Inquiry: Methodology For Behavioural Science*. Routledge.
- Kaplan, M. E., & Van Den Worm, Y. (1993). The relationship between South African adolescents' knowledge and fear of AIDS and their attitudes toward people who have AIDS. *The Journal Of Social Psychology*, 133(4), 581-583. <https://doi.org/10.1080/00224545.1993.9712185>
- Kapumba, B. M., & King, R. (2019). Perceived HIV-protective benefits of male circumcision: Risk compensatory behaviour among women in Malawi. *PLoS ONE*, 14(2), e0211015. <https://doi.org/10.1371/journal.pone.0211015>
- Kardas, P., Lewek, P., & Matyjaszczyk, M. (2013). Determinants of patient adherence: a review of systematic reviews. *Frontiers In Pharmacology*, 4, 91. <https://doi.org/10.3389/fphar.2013.00091>
- Karki, P., Shrestha, R., Huedo-Medina, T. B., & Copenhaver, M. (2016). The impact of methadone maintenance treatment on HIV risk behaviors among high-risk injection drug users: a systematic review. *Evidence-Based Medicine & Public Health*. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4824190/pdf/nihms766198.pdf>
- Karim, F., Moosa, M. Y., Gosnell, B., Sandile, C., Giandhari, J., Pillay, S., Tegally, H., Wilkinson, E., San., J.E., Msomi, N., Mlisana., K., Khan, K., Bernstein., M., Manickchund, N., Singh, L., Ramphal, U., COMMIT-KZN Team, Hanekom, W., Lessells, R.J., Sigal, A., & de Oliveira, T. (2021). Persistent SARS-CoV-2 infection and intra-host evolution in association with advanced HIV infection. *medRxiv*. <https://doi.org/10.1101/2021.06.03.21258228>
- Karim, S. S. A., Churchyard, G. J., Abdool Karim, Q. A., & Lawn, S. D. (2009). HIV infection and tuberculosis in South Africa: an urgent need to escalate the public health response. *The Lancet*, 374(9693), 921-933. [https://doi.org/10.1016/S0140-6736\(09\)60916-8](https://doi.org/10.1016/S0140-6736(09)60916-8)

- Karmen-Tuohy, S., Carlucci, P. M., Zervou, F. N., Zacharioudakis, I. M., Rebick, G., Klein, E., Reich, J., Jones, S., & Rahimian, J. (2020). Outcomes Among HIV-Positive Patients Hospitalized With COVID-19. *Journal of Acquired Immune Deficiency Syndromes (1999)*. <https://doi.org/10.1097/QAI.0000000000002423>
- Karnell, A. P., Cupp, P. K., Zimmerman, R. S., Feist-Price, S., & Bennie, T. (2006). Efficacy of an American Alcohol and HIV Prevention Curriculum Adapted for Use in South Africa: Results of a Pilot Study in Five Township Schools. *AIDS Education and Prevention, 18*(4), 295–310. <https://doi.org/10.1521/aeap.2006.18.4.295>
- Katz, E. & Lazarsfeld, P. (1955). *Personal Influence*. Free Press.
- Katz, I., & Low-Beer, D. (2008). Why has HIV stabilized in South Africa, yet not declined further? Age and sexual behavior patterns among youth. *Sexually Transmitted Diseases, 35*(10), 837-842. <https://doi.org/10.1097/OLQ.0b013e31817c0be5>
- Kaufman, C. E., & Stavrou, S. E. (2004). ‘Bus fare please’: the economics of sex and gifts among young people in urban South Africa. *Culture, health & sexuality, 6*(5), 377-391. <https://doi.org/10.1080/13691050410001680492>
- Kaufman, M. R., Cornish, F., Zimmerman, R. S., & Johnson, B. T. (2014). Health behavior change models for HIV prevention and AIDS care: practical recommendations for a multi-level approach. *Journal of Acquired Immune Deficiency Syndromes (1999)*, 66(Suppl 3), s250–s258. <https://doi.org/10.1097/QAI.0000000000000236>
- Kaufmann, D., & Pantaleo, G. (1998). CD4-cell count in HIV-1-infected individuals remaining viraemic with highly active antiretroviral therapy (HAART). *The Lancet, 351*(9104), 723-724. [https://doi.org/10.1016/s0140-6736\(98\)24010-4](https://doi.org/10.1016/s0140-6736(98)24010-4)
- Kaya, H. O., & Kau, M. (1994). Knowledge, attitudes and practice in regard to AIDS: the case of social science students at the University of Bophuthatswana. *Curationis, 17*(2), 10-14. <https://doi.org/10.4102/curationis.v17i2.1382>
- Keane, H. (2003). Critiques of harm reduction, morality and the promise of human rights. *International Journal of Drug Policy, 14*(3), 227-232. [https://doi.org/10.1016/S0955-3959\(02\)00151-2](https://doi.org/10.1016/S0955-3959(02)00151-2)
- Keat, R. (1971). Positivism, naturalism, and anti-naturalism in the social sciences. *Journal for the Theory of Social behaviour, 1*(1), 3-17. <https://doi.org/10.1111/j.1468-5914.1971.tb00163.x>
- Keat, R., & Urry, J. (1975/2011). *Social Theory as Science* (Routledge Revivals). Routledge.
- Keeney, B. P. (1983). *Aesthetics Of Change*. The Guilford Press.
- Kelly, C. A., Friedland, B. A., Morar, N. S., Katzen, L. L., Ramjee, G., Mokgatle, M. M., & Ahmed, K. (2015). To tell or not to tell: male partner engagement in a Phase 3 microbicide efficacy trial in South Africa. *Culture, Health & Sexuality, 17*(8), 1004-1020. <https://doi.org/10.1080/13691058.2015.1030451>
- Kelly, G. (1955). *The Psychology Of Personal Constructs*. Norton.
- Kelly, K., & Ntlabati, P. (2002). Early adolescent sex in South Africa: HIV intervention challenges. *Social Dynamics, 28*(1), 42–63. <https://doi.org/10.1080/02533950208458722>
- Kenyon, C., Zondo, S., & Badri, M. (2010). Determinants of self-perceived HIV risk in young South Africans engaged in concurrent sexual relationships. *African Journal Of Reproductive Health, 14*(3), 171-181. <https://www.jstor.org/stable/41329737>

- Kessi, S., & Boonzaier, F. (2018). Centre/ing decolonial feminist psychology in Africa. *South African Journal of Psychology*, 48(3), 299–309. <https://doi.org/10.1177/0081246318784507>
- Keyes, C. L. M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior*, 43(2), 207–222. <https://doi.org/10.2307/3090197>
- Kezar, A. (2006). To use or not to use theory: is that the question?. In J.C. Smart, J.C. (Eds.), *Higher Education: Handbook of Theory and Research, Volume 21*. (pp. 283-344). Springer. https://doi.org/10.1007/1-4020-4512-3_6
- KFF (2019). *The U.S. President's Emergency Plan for AIDS Relief (PEPFAR)*. <https://www.kff.org/global-health-policy/fact-sheet/the-u-s-presidents-emergency-plan-for/>
- Khamisa, N., Mokgobi, M., & Basera, T. (2020). Knowledge, attitudes and behaviours towards people with HIV and AIDS among private higher education students in Johannesburg, South Africa. *Southern African Journal of HIV Medicine*, 20(1). <https://doi.org/10.4102/sajhivmed.v21i1.991>
- Kharsany, A. B., McKinnon, L. R., Lewis, L., Cawood, C., Khanyile, D., Maseko, D. V., Goodman, T.C., Beckett, S., Govender, K., George, G., Abere Ayelew, K., & Toledo, C. (2020). Population prevalence of sexually transmitted infections in a high HIV burden district in KwaZulu-Natal, South Africa: Implications for HIV epidemic control. *International Journal of Infectious Diseases*, 98, 130-137. <https://doi.org/10.1016/j.ijid.2020.06.046>
- Khidir, H., Mosery, N., Greener, R., Milford, C., Bennett, K., Kaida, A., Psaros, C., Safren, S.A., Bangsberg, D.R., Smit, J.A., & Matthews, L. T. (2020). Sexual relationship power and periconception HIV-risk behavior among HIV-infected men in serodifferent relationships. *AIDS and Behavior*, 24(3), 881-890. <https://doi.org/10.1007/s10461-019-02536-2>
- Khumalo-Sakutukwa, G., Morin, S. F., Fritz, K., Charlebois, E. D., Van Rooyen, H., Chingono, A., Modiba, P., Mrumbi, K., Visrutaratna, S., Singh, B., Sweat, M., Celentano, D.D., & Coates, T. J. (2008). Project Accept (HPTN 043): a community-based intervention to reduce HIV incidence in populations at risk for HIV in sub-Saharan Africa and Thailand. *Journal Of Acquired Immune Deficiency Syndromes (1999)*, 49(4), 422. <https://doi.org/10.1097/QAI.0b013e31818a6cb5>
- Kidman, R., & Violari, A. (2020). Growing up positive: adolescent HIV disclosure to sexual partners and others. *AIDS Care*, 32(12), 1565-1572. <https://doi.org/10.1080/09540121.2020.1736260>
- Kiene, S. M., Fisher, W. A., Shuper, P. A., Cornman, D. H., Christie, S., MacDonald, S., Pillay, S., Mahlase, G., & Fisher, J. D. (2013). Understanding HIV transmission risk behavior among HIV-infected South Africans receiving antiretroviral therapy: An Information—Motivation—Behavioral Skills Model analysis. *Health Psychology*, 32(8), 860–868. <https://doi.org/10.1037/a0030554>
- Kilburn, K., Ranganathan, M., Stoner, M. C., Hughes, J. P., MacPhail, C., Agyei, Y., Gómez-Olivé, F.X., Kahn, K., & Pettifor, A. (2018a). Transactional sex and incident HIV infection in a cohort of young women from rural South Africa. *AIDS (London, England)*, 32(12), 1669. <https://doi.org/10.1097/QAD.0000000000001866>

- Kilburn, K. N., Pettifor, A., Edwards, J. K., Selin, A., Twine, R., MacPhail, C., Wagner, R., Hughes, J. P., Wang, J., & Kahn, K. (2018b). Conditional cash transfers and the reduction in partner violence for young women: an investigation of causal pathways using evidence from a randomized experiment in South Africa (HPTN 068). *Journal of the International AIDS Society*, 21(S1), e25043. <https://doi.org/10.1002/jia2.25043>
- Kim, M. H., Zhou, A., Mazenga, A., Ahmed, S., Markham, C., Zomba, G., Simon, K., Kazembe, P. N., & Abrams, E. J. (2016). Why Did I Stop? Barriers and Facilitators to Uptake and Adherence to ART in Option B+ HIV Care in Lilongwe, Malawi. *PLOS ONE*, 11(2), e0149527. <https://doi.org/10.1371/journal.pone.0149527>
- Kimble, G. (1989). Psychology from the standpoint of a generalist. *American Psychologist*, 44(3), 491-499. <https://doi.org/10.1037/0003-066X.44.3.491>
- Kincaid, D. L. (2002). Drama, emotion, and cultural convergence. *Communication Theory*, 12(2), 136–152. <https://doi.org/10.1111/j.1468-2885.2002.tb00263.x>
- Kirakoya-Samadoulougou, F., Yaro, S., Deccache, A., Fao, P., Defer, M.-C., Meda, N., Robert, A., & Nagot, N. (2013). Voluntary HIV testing and risky sexual behaviours among health care workers: a survey in rural and urban Burkina Faso. *BMC Public Health*, 13(1). <https://doi.org/10.1186/1471-2458-13-540>
- Kirby, D. B. (2008). The impact of abstinence and comprehensive sex and STD/HIV education programs on adolescent sexual behavior. *Sexuality Research and Social Policy*, 5(3), 18–27. <https://doi.org/10.1525/srsp.2008.5.3.18>
- Kirby, D. B., Laris, B. A., & Roller, L. A. (2007). Sex and HIV education programs: Their impact on sexual behaviors of young people throughout the world. *Journal of Adolescent Health*, 40(3), 206–217. <https://doi.org/10.1016/j.jadohealth.2006.11.143>
- Kissinger, P., & Adamski, A. (2013). Trichomoniasis and HIV interactions: A review. *Sexually Transmitted Infections*, 89(6), 426-433. <https://doi.org/10.1136/sextrans-2012-051005>
- Klein, S. B. (2014). What can recent replication failures tell us about the theoretical commitments of psychology? *Theory & Psychology*, 24(3), 326–338. <https://doi.org/10.1177/0959354314529616>
- Klein, W. M., Shepperd, J. A., Suls, J., Rothman, A. J., & Croyle, R. T. (2015). Realizing the promise of social psychology in improving public health. *Personality and Social Psychology Review*, 19(1), 77-92. <https://doi.org/10.1177/1088868314539852>
- Klochko, V. Y. (2008). Modern psychology: systems meaning of a paradigm shift. *Psychology in Russia*, 1, 25-40. <https://doi.org/10.11621/pir.2008.0002>
- Knapp, S. J. (2009). Critical theorizing: Enhancing theoretical rigor in family research. *Journal of Family Theory & Review*, 1(3), 133-145. <https://doi.org/10.1111/j.1756-2589.2009.00018.x>
- Knight, L., Schatz, E., Lewis, K. R., & Mukumbang, F. C. (2020). ‘When you take pills you must eat’: Food (in) security and ART adherence among older people living with HIV. *Global Public Health*, 15(1), 97-110. <https://doi.org/10.1080/17441692.2019.1644361>
- Knobel, G. J. (1986). AIDS-prevention through education. *South African Medical Journal*, 70(2), 119-120.

- Kohli, A., Kerrigan, D., Brahmabhatt, H., Likindikoki, S., Beckham, J., Mwampashi, A., Mbwambo, J., & Kennedy, C. E. (2017). Social and structural factors related to HIV risk among truck drivers passing through the Iringa region of Tanzania. *AIDS Care*, 29(8), 957–960. <https://doi.org/10.1080/09540121.2017.1280127>
- Körner, H., Hendry, O., & Kippax, S. (2006). Safe sex after post-exposure prophylaxis for HIV: Intentions, challenges and ambivalences in narratives of gay men. *AIDS Care*, 18(8), 879–887. <https://doi.org/10.1080/09540120500307909>
- Koss, C. A., Charlebois, E. D., Ayieko, J., Kwarisiima, D., Kabami, J., Balzer, L. B., Atukunda, M., Mwangwa, F., Peng, J., Mwinike, Y., Owaraganise, A., Chamie, G., Jain, V., Sang, N., Olilo, W., Brown, L. B., Marquez, C., Zhang, K., Ruel, T. D., & Camlin, C. S. (2020). Uptake, engagement, and adherence to pre-exposure prophylaxis offered after population HIV testing in rural Kenya and Uganda: 72-week interim analysis of observational data from the SEARCH study. *The Lancet HIV*, 7(4), e249–e261. [https://doi.org/10.1016/S2352-3018\(19\)30433-3](https://doi.org/10.1016/S2352-3018(19)30433-3)
- Kotzé, M., Visser, M., Makin, J., Sikkema, K., & Forsyth, B. (2013). The coping strategies used over a two-year period by HIV-positive women who had been diagnosed during pregnancy. *AIDS Care*, 25(6), 695–701. <https://doi.org/10.1080/09540121.2013.772277>
- Kouri, V., Khouri, R., Alemán, Y., Abrahantes, Y., Vercauteren, J., Pineda-Peña, A.-C., Theys, K., Megens, S., Moutschen, M., Pfeifer, N., Van Weyenbergh, J., Pérez, A. B., Pérez, J., Pérez, L., Van Laethem, K., & Vandamme, A.-M. (2015). CRF19_cpx is an Evolutionary fit HIV-1 Variant Strongly Associated With Rapid Progression to AIDS in Cuba. *EBioMedicine*, 2(3), 244–254. <https://doi.org/10.1016/j.ebiom.2015.01.015>
- Kowalewski, M. R., Henson, K. D., & Longshore, D. (1997). Rethinking perceived risk and health behavior: A critical review of HIV prevention research. *Health Education & Behavior*, 24(3), 313–325. <https://doi.org/10.1177/109019819702400305>
- Krakauer, M., & Newbery, J. (2007). Churches' responses to HIV/AIDS in two South African communities. *Journal Of The International Association Of Physicians In AIDS Care*, 6(1), 27–35. <https://doi.org/10.1177/1545109706297551>
- Krakower, D., Ware, N., Mitty, J. A., Maloney, K., & Mayer, K. H. (2014). HIV providers' perceived barriers and facilitators to implementing pre-exposure prophylaxis in care settings: A qualitative study. *AIDS and Behavior*, 18(9), 1712–1721. <https://doi.org/10.1007/s10461-014-0839-3>
- Krieger, N. (2001). Theories for social epidemiology in the 21st century: An ecosocial perspective. *International Journal Of Epidemiology*, 30(4), 668–677. <https://doi.org/10.1093/ije/30.4.668>
- Krieger, N. (2011). *Epidemiology and the People's Health: Theory and Context*. Oxford University Press.
- Kruglanski, A. W. (2001). That "vision thing": The state of theory in social and personality psychology at the edge of the new millennium. *Journal of Personality and Social Psychology*, 80(6), 871–875. <https://doi.org/10.1037/0022-3514.80.6.871>
- Kübler-Ross, E., & Kessler, D. (2005). *On Grief & Grieving: Finding the Meaning of Grief Through the Five Stages of Loss*. Simon & Schuster.

- Kuhn, L., Mathews, C., Fransman, D., Dikweni, L., & Hussey, G. (1999). Child feeding practices of HIV-positive mothers in Cape Town, South Africa. *Aids*, *13*(1), 144-146. https://journals.lww.com/aidsonline/Fulltext/1999/01140/Child_feeding_practices_of_HIV_positive_mothers_in.26.aspx
- Kuhn, L., Steinberg, M., & Mathews, C. (1994). Participation of the school community in AIDS education: An evaluation of a high school programme in South Africa. *AIDS Care*, *6*(2), 161-171. <https://doi.org/10.1080/09540129408258627>
- Kuhn, T. S. (1962/2012). *The Structure Of Scientific Revolutions*. University of Chicago press.
- Kularatne, R. S., Niit, R., Rowley, J., Kufa-Chakezha, T., Peters, R. P., Taylor, M. M., Johnson, L.F., & Korenromp, E. L. (2018). Adult gonorrhoea, chlamydia and syphilis prevalence, incidence, treatment and syndromic case reporting in South Africa: Estimates using the Spectrum-STI model, 1990-2017. *PLoS ONE*, *13*(10), e0205863. <https://doi.org/10.1371/journal.pone.0205863>
- Kulkarni, S. P., Shah, K. R., Sarma, K. V., & Mahajan, A. P. (2013). Clinical uncertainties, health service challenges, and ethical complexities of HIV “Test-and-Treat”: A systematic review. *American Journal of Public Health*, *103*(6), e14-e23. <https://doi.org/10.2105/AJPH.2013.301273>
- Kumpfer, K. L. (1999). Factors and processes contributing to resilience. In M. D. Glantz & J. L. Johnson (Eds.), *Resilience And Development: Positive Adaptations* (pp. 5–14). Kluwer Academic/Plenum.
- Kupa, P. M., & Geyer, L. S. (2020). A qualitative evaluation of a stress management programme for HIV and AIDS home-based care workers in Tshwane, South Africa. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, *17*(1), 1–15. <https://doi.org/10.1080/17290376.2020.1810747>
- Kurilla, B. (2015). How Many Citations Does a Typical Research Paper in Psychology Receive? *Geek Psychologist*. <http://geekpsychologist.com/how-many-citations-does-a-typical-research-paper-in-psychology-receive/>
- Kustner, H. G. V., Swanevelder, J. P., & Van Middelkoop, A. (1994). National HIV surveillance-South Africa, 1990-1992. *South African Medical Journal*, *84*(4), 195-200. <https://www.ajol.info/index.php/samj/article/view/148585/138085>
- Lachenicht, L. G. (1993). A sceptical argument concerning the value of a behavioural solution for AIDS. *South African Journal of Psychology*, *23*(1), 15-20. <https://doi.org/10.1177/008124639302300103>
- Lagarde, E., Dirk, T., Puren, A., Reathe, R. T., & Bertran, A. (2003). Acceptability of male circumcision as a tool for preventing HIV infection in a highly infected community in South Africa. *AIDS*, *17*(1), 89-95. https://journals.lww.com/aidsonline/fulltext/2003/01030/acceptability_of_male_circumcision_as_a_tool_for.12.aspx
- Laher, F., Bekker, L.-G., Garrett, N., Lazarus, E. M., & Gray, G. E. (2020). Review of preventative HIV vaccine clinical trials in South Africa. *Archives of Virology*, *165*(11), 2439–2452. <https://doi.org/10.1007/s00705-020-04777-2>

- Laher, F., Todd, C. S., Stibich, M. A., Phofa, R., Behane, X., Mohapi, L., & Gray, G. (2009). A qualitative assessment of decisions affecting contraceptive utilization and fertility intentions among HIV-positive women in Soweto, South Africa. *AIDS and Behavior*, *13*(1), 47-54. <https://doi.org/10.1007/s10461-009-9544-z>
- Lakatos, I. (1976). Falsification and the methodology of scientific research programmes. In S.G. Harding. *Can theories be refuted?* (pp. 205-259). Springer.
- Lakeh, A. B., & Ghaffarzagdegan, N. (2017). Global trends and regional variations in studies of HIV/AIDS. *Scientific Reports*, *7*(1), 1-8. <https://doi.org/10.1038/s41598-017-04527-6>
- Lallemant, C., Halembokaka, G., Baty, G., Ngo-Giang-Huong, N., Barin, F., & Le Coeur, S. (2010). Impact of HIV/Aids on Child Mortality before the Highly Active Antiretroviral Therapy Era: A Study in Pointe-Noire, Republic of Congo. *Journal of Tropical Medicine*, *2010*, 1–6. <https://doi.org/10.1155/2010/897176>
- Lampe, F. C. (2016). Sexual behaviour among people with HIV according to self-reported antiretroviral treatment and viral load status. *AIDS (London, England)*, *30*(11), 1745. <https://doi.org/10.1097/QAD.0000000000001104>
- Lampe, F. C., Rodger, A. J., Burman, W., Grulich, A., Friedland, G., Sadr, W. E., Neaton, J., Corbelli, G. M., Emery, S., Molina, J. M., Orkin, C., Gatell, J., Gerstoft, J., Ruxrungtham, K., Barbosa de Souza, M., & Phillips, A. N. (2019). Impact of early antiretroviral treatment on sexual behaviour. *AIDS*, *33*(15), 2337–2350. <https://doi.org/10.1097/qad.0000000000002359>
- Lane, T., Shade, S. B., McIntyre, J., & Morin, S. F. (2008a). Alcohol and sexual risk behavior among men who have sex with men in South African township communities. *AIDS and Behavior*, *12*(1), 78-85. <https://doi.org/10.1007/s10461-008-9389-x>
- Lane, T., Mogale, T., Struthers, H., McIntyre, J., & Kegeles, S. M. (2008b). “They see you as a different thing”: the experiences of men who have sex with men with healthcare workers in South African township communities. *Sexually transmitted infections*, *84*(6), 430-433. <http://dx.doi.org/10.1136/sti.2008.031567>
- Laszlo, A., & Krippner, S. (1998). Systems theories: Their origins, foundations, and development. In J. S. Jordan. (Ed.). *Systems Theories And A Priori Aspects Of Perception*. (pp. 47-74). Elsevier.
- Lata, S., & Verma, S. (2013). Mental health of HIV/AIDS orphans: A review. *Journal of AIDS and HIV Research*, *5*(12), 455–467. <https://doi.org/10.5897/JAHR2013.0271>
- Latifi, A., Merghati-Khoei, E., Shojaeizadeh, D., Nedjat, S., Mehri, A., & Garmaroudi, G. (2017). Theory-based interventions in STIs/HIV Prevention: A systematic review of the literature in Iran. *Medical Journal of the Islamic Republic of Iran*, *31*, 131. <https://doi.org/10.14196/mjiri.31.131>
- Lavee, Y., & Dollahite, D. C. (1991). The Linkage between theory and research in family science. *Journal of Marriage and the Family*, *53*(2), 361-373. <http://www.jstor.org/stable/352905>
- Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of Personality*, *1*(3, Spec Issue), 141–169. <https://doi.org/10.1002/per.2410010304>

- Leach, M. M., Akhurst, J., & Basson, C. (2003). Counseling Psychology in South Africa. *The Counseling Psychologist*, 31(5), 619–640. <https://doi.org/10.1177/0011000003256787>
- Leahey, T. (1992). The mythical revolutions of american psychology. *American Psychologist*, 47(2), 308-318. <https://doi.org/10.1037/0003-066X.47.2.308>
- Lebese, R. T., Davhana, M., & Obi, C. L. (2010). Sexual health dialogue between parents and teenagers: an imperative in the HIV/AIDS era. *Curationis*, 33(3), 33-42. <https://doi.org/10.10520/EJC135387>
- Leclerc-Madlala, S. (1997). Infect one, infect all: Zulu youth response to the AIDS epidemic in South Africa. *Medical Anthropology*, 17(4), 363-380. <https://doi.org/10.1080/01459740.1997.9966146>
- Leclerc-Madlala, S. (2003) Transactional sex and the pursuit of modernity. *Social Dynamics*, 29(2), 213-233. <https://doi.org/10.1080/02533950308628681>
- Leclerc-Madlala, S. (2006). 'We will eat when I get the grant': negotiating AIDS, poverty and antiretroviral treatment in South Africa. *African Journal of AIDS Research*, 5(3), 249-256. <https://doi.org/10.2989/16085900609490386>
- LeClerc-Madlala, S. (2009). Cultural scripts for multiple and concurrent partnerships in southern Africa: why HIV prevention needs anthropology. *Sexual Health*, 6(2), 103-110. <https://doi.org/10.1071/SH08032>
- Leggett, W. (2014). The politics of behaviour change: nudge, neoliberalism and the state. *Policy & Politics*, 42(1), 3–19. <https://doi.org/10.1332/030557312x655576>
- Lekganyane, R. (2020). Motivational factors for caring for people living with HIV in South Africa: home-based caregivers' experiences. *Social Work*, 56(4), 478-493. <http://dx.doi.org/10.15270/56-4-888>
- Lesch, A., Kafaar, Z., Kagee, A., & Swartz, L. (2006). Community members' perceptions of enablers and inhibitors to participation in HIV vaccine trials: health psychology. *South African Journal of Psychology*, 36(4), 734-761. <https://doi.org/10.1177/008124630603600406>
- Lesch, E., & Adams, A. R. (2016). Sexual Intimacy Constructions of Heterosexual Couples Living in a Low-Income, “Colored,” Farmworker Community in South Africa. *The Journal of Sex Research*, 53(9), 1082–1095. <https://doi.org/10.1080/00224499.2016.1144170>
- Lesch, E., & Kruger, L. M. (2004). Reflections on the sexual agency of young women in a low-income rural South African community. *South African Journal of Psychology*, 34(3), 464-486. <https://doi.org/10.1177/008124630403400308>
- Lennon, C. A., Huedo-Medina, T. B., Gerwien, D. P., & Johnson, B. T. (2012). A role for depression in sexual risk reduction for women? A meta-analysis of HIV prevention trials with depression outcomes. *Social Science & Medicine*, 75(4), 688-698. <https://doi.org/10.1016/j.socscimed.2012.01.016>
- Lenz, E. R., Suppe, F., Gift, A. G., Pugh, L. C., & Milligan, R. A. (1995). Collaborative development of middle-range nursing theories: Toward a theory of unpleasant symptoms. *Advances in Nursing Science*, 17(3), 1-13. <https://doi.org/10.1097/00012272-199503000-00003>

- Leonard, T. (2006). Eighty Scientists Condemn South Africa's AIDS Policies. *Washington Post*. <https://www.washingtonpost.com/wp-dyn/content/article/2006/09/06/AR2006090601964.html>
- Le Roux, M. (2006, 7 June). Eat garlic, beetroot and lemon, Manto repeats. *IOL News*. <https://www.iol.co.za/news/south-africa/eat-garlic-beetroot-and-lemon-manto-repeats-280721>
- Le Roux-Kemp, A. (2013). Child-headed households in South Africa: The legal and ethical dilemmas when children are the primary caregivers in a therapeutic relationship. In P. Bray, & D. Mak (Eds.), *People being Patients: International, Interdisciplinary Perspectives* (pp. 119-131). Inter-Disciplinary Press.
- Levenson, R. W. (2017). Do you believe the field of psychological science is headed in the right direction?. *Perspectives on psychological science*, 12(4), 675-679. <https://doi.org/10.1177/1745691617706507>
- Levers, M. J. D. (2013). Philosophical paradigms, grounded theory, and perspectives on emergence. *Sage Open*, 3(4), 2158244013517243. <https://doi.org/10.1177/2158244013517243>
- Levi, J., Pozniak, A., Heath, K., & Hill, A. (2018). The impact of HIV prevalence, conflict, corruption, and GDP/capita on treatment cascades: data from 137 countries. *Journal of Virus Eradication*, 4(2), 80–90. [https://doi.org/10.1016/s2055-6640\(20\)30249-1](https://doi.org/10.1016/s2055-6640(20)30249-1)
- Levy, J. A., Hoffman, A. D., Kramer, S. M., Landis, J. A., Shimabukuro, J. M., & Oshiro, L. S. (1984). Isolation of lymphocytopathic retroviruses from San Francisco patients with AIDS. *Science*, 225(4664), 840-842. <https://doi.org/10.1126/science.6206563>
- Lewin, K. (1943). Forces behind food habits and methods of change. *Bulletin of the National Research Council*, 108, 35-65. <https://www.ncbi.nlm.nih.gov/books/NBK224347/>
- Lewin, K. (1951). *Field theory in social science: selected theoretical papers* (Edited by Dorwin Cartwright.). Harper & Brothers
- Ley, C., Barrio, M. R., & Leach, L. (2015). Social-ecological, motivational and volitional factors for initiating and maintaining physical activity in the context of HIV. *The Open AIDS Journal*, 9(1), 96–103. <https://doi.org/10.2174/1874613601509010096>
- Li, J., Lau, J. T., Ma, Y. L., & Lau, M. M. (2018). Trend and factors associated with condom use among male clients of female sex workers in Hong Kong: findings of 13 serial behavioural surveillance surveys. *AIDS and Behavior*, 22(7), 2235-2247. <https://doi.org/10.1007/s10461-018-2148-8>
- Li, X., Naar-King, S., Barnett, D., Stanton, B., Fang, X., & Thurston, C. (2008). A developmental psychopathology framework of the psychosocial needs of children orphaned by HIV. *Journal of the Association of Nurses in AIDS Care*, 19(2), 147-157. <https://doi.org/10.1016/j.jana.2007.08.004>
- Liang, L., Bernhardtsson, S., Vernooij, R. W. M., Armstrong, M. J., Bussi eres, A., Brouwers, M. C., & Gagliardi, A. R. (2017). Use of theory to plan or evaluate guideline implementation among physicians: a scoping review. *Implementation Science*, 12(1). <https://doi.org/10.1186/s13012-017-0557-0>

- Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gotzsche, P. C., Ioannidis, J. P. A., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions: explanation and elaboration. *BMJ*, 339(339), b2700–b2700. <https://doi.org/10.1136/bmj.b2700>
- Libert, F., Cochaux, P., Beckman, G., Samson, M., Aksenova, M., Cao, A., & Ferrec, C. (1998). The Δ CCR5 mutation conferring protection against HIV-1 in Caucasian populations has a single and recent origin in Northeastern Europe. *Human molecular genetics*, 7(3), 399–406. <https://doi.org/10.1093/hmg/7.3.399>
- Liddell, C., Barrett, L., & Bydawell, M. (2006). Indigenous beliefs and attitudes to AIDS precautions in a rural South African community: an empirical study. *Annals of Behavioral Medicine*, 32(3), 218–225. https://doi.org/10.1207/s15324796abm3203_7
- Liddell, C., Giles, M., & Rae, G. (2008). The culture of condoms: Culturally grounded variables and their association with attitudes to condoms. *Psychosomatic Medicine*, 70(4), 496–504. <https://doi.org/10.1097/psy.0b013e31816fdf0e>
- Lilienfeld, S. O., Lynn, S. J., & Lohr, J. M. (2015). *Science And Pseudoscience In Clinical Psychology*. Guilford Press.
- Lince-Deroche, N., Shochet, T., Sibeko, J., Mdlopane, L., Pato, S., Makhubele, Q. S., & Bessenaar, T. (2018). “You can talk about condoms [with younger men] while older men ... beat you for that”: Young women’s perceptions of gender-based violence within intergenerational relationships in South Africa. *South African Medical Journal*, 108(8), 682. <https://doi.org/10.7196/samj.2018.v108i8.12794>
- Lincoln, Y. S., Lynham, S. A., & Guba, E. G. (2018). Paradigmatic Controversies, Contradictions, and Emerging Confluences, Revisited. In N.K. Denzin, & Y.S. Lincoln (Eds.), *The SAGE Handbook of Qualitative Research*, (pp. 108–150). Sage.
- Lindegger, G., Quayle, M., & Ndlovu, M. (2007). Local knowledge and experiences of vaccination: implications for HIV-preventive vaccine trials in South Africa. *Health Education & Behavior*, 34(1), 108–123. <https://doi.org/10.1177/1090198105277852>
- Link, B. G., & Phelan, J. C. (2001). Conceptualizing stigma. *Annual Review of Sociology*, 27(1), 363–385. <https://doi.org/10.1146/annurev.soc.27.1.363>
- Lippman, S. A., Neilands, T. B., MacPhail, C., Peacock, D., Maman, S., Rebombo, D., Twine, R., Selin, A., Leslie, H. H., Kahn, K., & Pettifor, A. (2017). Community Mobilization for HIV Testing Uptake: Results From a Community Randomized Trial of a Theory-Based Intervention in Rural South Africa. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 74(1), S44–S51. <https://doi.org/10.1097/qai.0000000000001207>
- Liu, S., Zhang, R. Y., & Kishimoto, T. (2020). Analysis and prospect of clinical psychology based on topic models: hot research topics and scientific trends in the latest decades. *Psychology, Health & Medicine*, 1–13. <https://doi.org/10.1080/13548506.2020.1738019>
- Lo, N. C., Lowe, A., & Bendavid, E. (2016). Abstinence funding was not associated with reductions in HIV risk behavior in sub-Saharan Africa. *Health Affairs*, 35(5), 856–863. <https://doi.org/10.1377/hlthaff.2015.0828>

- Looker, K. J., Elmes, J. A., Gottlieb, S. L., Schiffer, J. T., Vickerman, P., Turner, K. M., & Boily, M. C. (2017). Effect of HSV-2 infection on subsequent HIV acquisition: an updated systematic review and meta-analysis. *The Lancet Infectious Diseases*, 17(12), 1303-1316. [https://doi.org/10.1016/S1473-3099\(17\)30405-X](https://doi.org/10.1016/S1473-3099(17)30405-X)
- López, J. (2003). Critical Realism: The Difference that it makes, in theory. In J. Cruickshank (Ed.), *Critical Realism: The Difference It Makes* (pp.75-89) (Vol. 6). Routledge.
- Love, T. (2000). Philosophy of design: a meta-theoretical structure for design theory. *Design Studies*, 21(3), 293–313. [https://doi.org/10.1016/s0142-694x\(99\)00012-5](https://doi.org/10.1016/s0142-694x(99)00012-5)
- loveLife (n.d.). *iloveLife.mobi*. <https://lovelife.org.za/en/ilovelife/>
- loveLife (n.d.). *Overview of loveLife*. <https://lovelife.org.za/en/overview-of-lovelife/>
- Louw, J., Shisana, O., Peltzer, K., & Zungu, N. (2009). Examining the impact of HIV & AIDS on South African educators. *South African Journal of Education*, 29(2), 205-217. <https://www.ajol.info/index.php/saje/article/view/44150>
- Louwagie, G. M., Bachmann, M. O., Meyer, K., le R Booyesen, F., Fairall, L. R., & Heunis, C. (2007). Highly active antiretroviral treatment and health related quality of life in South African adults with human immunodeficiency virus infection: A cross-sectional analytical study. *BMC Public Health*, 7(1), 1-10. <https://doi.org/10.1186/1471-2458-7-244>
- Lou, J., Hu, P., Qian, H.-Z., Ruan, Y., Jin, Z., Xing, H., Shao, Y., & Vermund, S. H. (2017). Expanded antiretroviral treatment, sexual networks, and condom use: Treatment as prevention unlikely to succeed without partner reduction among men who have sex with men in China. *PLOS ONE*, 12(4), e0171295. <https://doi.org/10.1371/journal.pone.0171295>
- Low, A., Gavriilidis, G., Larke, N., B-Lajoie, M.-R., Drouin, O., Stover, J., Muhe, L., & Easterbrook, P. (2016). Incidence of Opportunistic Infections and the Impact of Antiretroviral Therapy Among HIV-Infected Adults in Low- and Middle-Income Countries: A Systematic Review and Meta-analysis. *Clinical Infectious Diseases*, 62(12), 1595–1603. <https://doi.org/10.1093/cid/ciw125>
- Lowe, E. J. (2001). Event causation and agent causation. *Grazer Philosophische Studien*, 61(1), 1-20. <https://doi.org/10.1163/18756735-061001003>
- Lukka, K. (2010). The roles and effects of paradigms in accounting research. *Management Accounting Research*, 21(2), 110–115. <https://doi.org/10.1016/j.mar.2010.02.002>
- Lurie, M., Harrison, A., Wilkinson, D., & Karim, S. A. (1997). Circular migration and sexual networking in rural KwaZulu-Natal: implications for the spread of HIV and other sexually transmitted diseases. *Health Transition Review*, 7(supp. 3), 17-27. <https://www.jstor.org/stable/40608686>
- Lurie, M., Pronyk, P., de Moor, E., Heyer, A., de Bruyn, G., Struthers, H., McIntyre, J., Gray, G., Marinda, E., Klipstein-Grobusch, K., & Martinson, N. (2008). Sexual Behavior and Reproductive Health Among HIV-Infected Patients in Urban and Rural South Africa. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 47(4), 484–493. <https://doi.org/10.1097/qai.0b013e3181648de8>

- Luseno, W. K., Rennie, S., & Gilbertson, A. (2021). A review of public health, social and ethical implications of voluntary medical male circumcision programs for HIV prevention in sub-Saharan Africa. *International Journal of Impotence Research*, 1–10. <https://doi.org/10.1038/s41443-021-00484-x>
- Lusk, J. L. (2014). Are you smart enough to know what to eat? A critique of behavioural economics as justification for regulation. *European Review of Agricultural Economics*, 41(3), 355–373. <https://doi.org/10.1093/erae/jbu019>
- Luszczynska, A., & Schwarzer, R. (2020). Changing behavior using social cognitive theory. In M. Hagger, L. D. Cameron, K. Hamilton, N. Hankonen, & T. Lintunen. (Eds.), *The Handbook of Behavior Change* (pp. 32-45). Cambridge University Press.
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71(3), 543–562. <https://doi.org/10.1111/1467-8624.00164>
- Luvuno, Z. P. B., Ncama, B., & Mchunu, G. (2019). Transgender population’s experiences with regard to accessing reproductive health care in Kwazulu-Natal, South Africa: A qualitative study. *African Journal of Primary Health Care & Family Medicine*, 11(1). <https://doi.org/10.4102/phcfm.v11i1.1933>
- Ma, H., & Loke, A. Y. (2020). A scoping review of an HIV/AIDS-related stigma-reduction intervention for professionals and students from health-related disciplines. *International Journal of Sexual Health*, 32(2), 94–129. <https://doi.org/10.1080/19317611.2020.1754317>
- Maart, S., & Jelsma, J. (2010). The sexual behaviour of physically disabled adolescents. *Disability and Rehabilitation*, 32(6), 438-443. <https://doi.org/10.3109/09638280902846368>
- Macaluso, M., Blackwell, R., Jamieson, D. J., Kulczycki, A., Chen, M. P., Akers, R., Kim, D. ., & Duerr, A. (2007). Efficacy of the male latex condom and of the female polyurethane condom as barriers to semen during intercourse: A randomized clinical trial. *American Journal of Epidemiology*, 166(1), 88–96. <https://doi.org/10.1093/aje/kwm046>
- Macapagal, K., Birkett, M., Janulis, P., Garofalo, R., & Mustanski, B. (2017). HIV prevention fatigue and HIV treatment optimism among young men who have sex with men. *AIDS Education and Prevention*, 29(4), 289-301. <https://doi.org/10.1521/aeap.2017.29.4.289>
- MacArthur, G. J., van Velzen, E., Palmateer, N., Kimber, J., Pharris, A., Hope, V., Taylor, A., Roy, K., Aspinall, E., Goldberg, D., Rhodes, T., Hedrich, D., Salminen, M., Hickman, M., & Hutchinson, S. J. (2014). Interventions to prevent HIV and Hepatitis C in people who inject drugs: A review of reviews to assess evidence of effectiveness. *International Journal of Drug Policy*, 25(1), 34–52. <https://doi.org/10.1016/j.drugpo.2013.07.001>
- Macheke, C., & Campbell, C. (1998). Perceptions of HIV/AIDS on a Johannesburg gold mine. *South African Journal of Psychology*, 28(3), 146-153. <https://doi.org/10.1177/008124639802800304>

- Macintyre, K., Andrinopoulos, K., Moses, N., Bornstein, M., Ochieng, A., Peacock, E., & Bertrand, J. (2014). Attitudes, perceptions and potential uptake of male circumcision among older men in Turkana County, Kenya using qualitative methods. *PLoS ONE*, 9(5), e83998. <https://doi.org/10.1371/journal.pone.0083998>
- Macintyre, K., Rutenberg, N., Brown, L., & Karim, A. (2004). Understanding perceptions of HIV risk among adolescents in KwaZulu-Natal. *AIDS and Behavior*, 8(3), 237–250. <https://doi.org/10.1023/b:aibe.0000044072.71361.b3>
- Mackay, N. (1979). Knowing one's motives. *Journal for the Theory of Social Behaviour*, 9(2), 125-138. <https://doi.org/10.1111/j.1468-5914.1979.tb00420.x>
- Mackay, N., & Petocz, A. (2011). Realism and the state of theory in psychology. In N. Mackay, & A. Petocz (Eds.), *Realism and Psychology: Collected Essays* (pp. 17-51). Brill
- Macleod, C. (2004). South African Psychology and “Relevance”: Continuing Challenges. *South African Journal of Psychology*, 34(4), 613–629. <https://doi.org/10.1177/008124630403400407>
- Macleod, M. R. (2018). The reproducibility opportunity. *Nature Human Behaviour*, 2(9), 616–617. <https://doi.org/10.1038/s41562-018-0398-0>
- MacPhail, C. (2003). Challenging dominant norms of masculinity for HIV prevention. *African Journal of AIDS Research*, 2(2), 141-149. <https://doi.org/10.2989/16085906.2003.9626568>
- MacPhail, C. (2006). Youth-driven HIV prevention programmes in South Africa: Social capital, empowerment and conscientisation. *Social Dynamics*, 32(2), 170-196. <https://doi.org/10.1080/02533950608628731>
- MacPhail, C. L., Sayles, J. N., Cunningham, W., & Newman, P. A. (2012). Perceptions of sexual risk compensation following posttrial HIV vaccine uptake among young South Africans. *Qualitative Health Research*, 22(5), 668-678. <https://doi.org/10.1177/1049732311431944>
- MacPhail, C., Terris-Prestholt, F., Kumaranayake, L., Ngoako, P., Watts, C., & Rees, H. (2009). Managing men: women’s dilemmas about overt and covert use of barrier methods for HIV prevention. *Culture, Health & Sexuality*, 11(5), 485–497. <https://doi.org/10.1080/13691050902803537>
- MacQueen, K. M., Dlamini, S., Perry, B., Okumu, E., Sortijas, S., Singh, C., Pillay, D., Majors, A., Jerome, S., Watson, S., Karim, S. A., Karim, Q. A., & Mansoor, L. E. (2016). Social Context of Adherence in an Open-Label 1 % Tenofovir Gel Trial: Gender Dynamics and Disclosure in KwaZulu-Natal, South Africa. *AIDS and Behavior*, 20(11), 2682–2691. <https://doi.org/10.1007/s10461-016-1339-4>
- Madiba, S., & Mokwena, K. (2012). Caregivers' barriers to disclosing the HIV diagnosis to infected children on antiretroviral therapy in a resource-limited district in South Africa: A grounded theory study. *AIDS Research And Treatment*, 2012. <https://doi.org/10.1155/2012/402403>
- Madsen, K. B. (1987). Theoretical psychology: a definition and systematic classification. In W.J. Baker, M.E. Hyland, H. Van Rappard, & A.W. Staats (Eds.), *Advances in Psychology* (Vol. 40) (pp. 165-174). North-Holland.

- Madsen, K. B. (1988). *A History Of Psychology In Metascientific Perspective*. Elsevier.
- Magazi, B., Stadler, J., Delany-Moretlwe, S., Montgomery, E., Mathebula, F., Hartmann, M., & van der Straten, A. (2014). Influences on visit retention in clinical trials: insights from qualitative research during the VOICE trial in Johannesburg, South Africa. *BMC Women's Health*, 14(1), 1-8. <https://doi.org/10.1186/1472-6874-14-88>
- Maggio, L., Dong, T., Driessen, E., & Artino Jr, A. (2019). Factors associated with scientific misconduct and questionable research practices in health professions education. *Perspectives On Medical Education*, 8(2), 74-82. <https://doi.org/10.1007/s40037-019-0501-x>
- Maharaj, P. (2004). Perception of risk of HIV infection in marital and cohabiting partnerships. *African Journal Of AIDS Research*, 3(2), 131-137. <https://doi.org/10.2989/16085900409490327>
- Maharaj, P., & Munthre, C. (2006). Coerced first sexual intercourse and selected reproductive health outcomes among young women in Kwazulu-Natal, South Africa. *Journal of Biosocial Science*, 39(2), 231. <https://doi.org/10.1017/s0021932006001325>
- Mahat, G., & Scoloveno, M. A. (2018). Effectiveness of adolescent peer education programs on reducing HIV/STI risk: an integrated review. *Research And Theory For Nursing Practice*, 32(2), 168-198. <https://doi.org/10.1891/1541-6577.32.2.168>
- Mahlalela, N. B., & Maharaj, P. (2015). Factors facilitating and inhibiting the use of female condoms among female university students in Durban, KwaZulu-Natal, South Africa. *The European Journal of Contraception & Reproductive Health Care*, 20(5), 379-386. <https://doi.org/10.3109/13625187.2015.1036415>
- Makiwane, M., & Mokomane, Z. (2010). South Africa youths' higher-risk sexual behaviour: an eco-developmental analysis. *African Journal of AIDS Research*, 9(1), 17-24. <https://doi.org/10.2989/16085906.2010.484538>
- Makola, S. (2015). The Effectiveness of a meaning-centred intervention in protecting the well-being HIV/AIDS health educators. *Systemic Practice and Action Research*, 28(1), 37-49. <https://doi.org/10.1007/s11213-014-9321-4>
- Malekzad, F., Jais, M., Hernandez, G., Kehr, H., & Quirin, M. (2022). Not self-aware? Psychological antecedents and consequences of alienating from one's actual motives, emotions, and goals. *Theory & Psychology*, 32, 1-22. <https://doi.org/10.1177/09593543221086598>
- Malherbe, N., Ratele, K., Adams, G., Reddy, G., & Suffla, S. (2021). A decolonial africa(n)-centered psychology of antiracism. *Review of General Psychology*, 25(4), 108926802110229. <https://doi.org/10.1177/1089268021102292>
- Mamabolo, M., Magagula, T., Krüger, C., & Fletcher, L. (2012). A survey of risk behaviour for contracting HIV among adult psychiatric patients. A South African study - Part 1. *African Journal of Psychiatry*, 15(5). <https://doi.org/10.4314/ajpsy.v15i5.40>
- Maman, S., Moodley, D., McNaughton-Reyes, H. L., Groves, A. K., Kagee, A., & Moodley, P. (2014a). Efficacy of enhanced HIV counseling for risk reduction during pregnancy and in the postpartum period: A randomized controlled trial. *PLoS ONE*, 9(5), e97092. <https://doi.org/10.1371/journal.pone.0097092>

- Maman, S., van Rooyen, H., Stankard, P., Chingono, A., Muravha, T., Ntrogwisangu, J., Phakathi, Z., Srirak, N., & F. Morin, S. (2014b). NIMH Project Accept (HPTN 043): Results from in-depth interviews with a longitudinal cohort of community members. *PLoS ONE*, 9(1), e87091. <https://doi.org/10.1371/journal.pone.0087091>
- Mampane, J. N. (2018). Exploring the “blesser and blessee” phenomenon: Young women, transactional sex, and HIV in rural South Africa. *SAGE Open*, 8(4), 215824401880634. <https://doi.org/10.1177/2158244018806343>
- Mandavilli, A. (2019, 4 March). H.I.V. Is Reported Cured in a Second Patient, a Milestone in the Global AIDS Epidemic. *New York Times*. <https://www.nytimes.com/2019/03/04/health/aids-cure-london-patient.html>
- Mann, J. M. (1987). The World Health Organization's global strategy for the prevention and control of AIDS. *Western Journal of Medicine*, 147(6), 732. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1025996/pdf/westjmed00148-0082.pdf>
- Mannell, J. (2016). Advancing gender equality to improve HIV prevention: A study of practice. *African Journal of AIDS Research*, 15(4), 315–323. <https://doi.org/10.2989/16085906.2016.1221837>
- Mannell, J., Willan, S., Shahmanesh, M., Seeley, J., Sherr, L., & Gibbs, A. (2019). Why interventions to prevent intimate partner violence and HIV have failed young women in southern Africa. *Journal of the International AIDS Society*, 22(8). <https://doi.org/10.1002/jia2.25380>
- Mansoor, L. E., Karim, Q. A., Werner, L., Madlala, B., Ngcobo, N., Cornman, D. H., Amico, K. R., Fisher, J., Fisher, W. A., MacQueen, K. M., & Karim, S. S. A. (2014). Impact of an adherence intervention on the effectiveness of tenofovir gel in the CAPRISA 004 trial. *AIDS and Behavior*, 18(5), 841–848. <https://doi.org/10.1007/s10461-014-0752-9>
- Mantell, J. E., Exner, T. M., Bai, D., Leu, C. S., Beksinska, M., Mabude, Z., Hoffman, S., & Smit, J. A. (2020). Perceived male partner attitudes toward the female condom predict female university students' use of the female condom. *International Journal of STD & AIDS*, 31(8), 753-762. <https://doi.org/10.1177/0956462420912986>
- Mantell, J. E., Morar, N. S., Myer, L., & Ramjee, G. (2006a). “We have our protector”: Misperceptions of protection against HIV among participants in a microbicide efficacy trial. *American Journal Of Public Health*, 96(6), 1073-1077. <https://doi.org/10.2105/ajph.2004.047514>
- Mantell, J. E., Harrison, A., Hoffman, S., Smit, J. A., Stein, Z. A., & Exner, T. M. (2006b). The Mpondombili project: Preventing HIV/AIDS and unintended pregnancy among rural south african school-going adolescents. *Reproductive Health Matters*, 14(28), 113–122. [https://doi.org/10.1016/s0968-8080\(06\)28269-7](https://doi.org/10.1016/s0968-8080(06)28269-7)
- Mantell, J. E., Smit, J. A., Exner, T. M., Mabude, Z., Hoffman, S., Beksinska, M., Kelvin, E. A., Ngoloyi, C., Leu, C.-S., & Stein, Z. A. (2015). Promoting Female Condom Use Among Female University Students in KwaZulu-Natal, South Africa: Results of a Randomized Behavioral Trial. *AIDS and Behavior*, 19(7), 1129–1140. <https://doi.org/10.1007/s10461-014-0860-6>

- Mantell, J. E., Smit, J. A., Saffitz, J. L., Milford, C., Mosery, N., Mabude, Z., Tesfay, N., Sibiya, S., Rambally, L., Masvawure, T. B., Kelvin, E. A., & Stein, Z. A. (2013). Medical male circumcision and HIV risk: perceptions of women in a higher learning institution in KwaZulu-Natal, South Africa. *Sexual Health, 10*(2), 112. <https://doi.org/10.1071/sh12067>
- Manyaapelo, T., Van den Borne, B., Ruiter, R. A. C., Sifunda, S., & Reddy, P. (2019). Effectiveness of a health behavioural intervention aimed at reduction of risky sexual behaviours among young men in the KwaZulu-Natal province, South Africa. *International Journal of Environmental Research and Public Health, 16*(11), 1938. <https://doi.org/10.3390/ijerph16111938>
- Maphumulo, W. T., & Bhengu, B. R. (2019). Challenges of quality improvement in the healthcare of South Africa post-apartheid: A critical review. *Curationis, 42*(1), a1901. <https://doi.org/10.4102/curationis.v42i1.1901>
- Marchetti-Mercer, M. C. (2003). A socio-psychological perspective on the phenomenon of infant rapes in South Africa. *African Journal of Psychiatry, 6*(4), 6-12. <https://www.ajol.info/index.php/ajpsy/article/view/96374/85704>
- Marcus, T. (1997). Interpreting the risks of AIDS: A case study of long-distance truck drivers. *Development Southern Africa, 14*(3), 425-445. <https://doi.org/10.1080/03768359708439975>
- Marcus, J., Buisker, T., Horvath, T., Amico, K., Fuchs, J., Buchbinder, S., Grant, R., & Liu, A. (2014). Helping our patients take HIV pre-exposure prophylaxis (PrEP): a systematic review of adherence interventions. *HIV Medicine, 15*(7), 385–395. <https://doi.org/10.1111/hiv.12132>
- Marcuse, H. (1964/2008). *One-Dimensional Man: Studies In The Ideology Of Advanced Industrial Society*. Routledge.
- Maree, D. J. F. (2020). *Realism in Psychological Science*. Springer International Publishing. https://doi.org/10.1007/978-3-030-45143-1_1
- Marinopoulou, A. (2019). *Critical Theory And Epistemology: The Politics Of Modern Thought And Science*. Manchester University Press.
- Marquart, K. H., Müller, H. A. G., Sailer, J., & Moser, R. (1985). Slim disease (AIDS). *The Lancet, 326*(8465), 1186-1187. [https://doi.org/10.1016/s0140-6736\(85\)92707-2](https://doi.org/10.1016/s0140-6736(85)92707-2)
- Marrazzo, J. M., Ramjee, G., Richardson, B. A., Gomez, K., Mgodhi, N., Nair, G., Palanee, T., Nakabiito, C., van der Straten, A., Noguchi, L., Hendrix, C. W., Dai, J. Y., Ganesh, S., Mkhize, B., Taljaard, M., Parikh, U. M., Piper, J., Mâsse, B., Grossman, C., & Rooney, J. (2015). Tenofovir-Based Preexposure Prophylaxis for HIV Infection among African Women. *New England Journal of Medicine, 372*(6), 509–518. <https://doi.org/10.1056/nejmoa1402269>
- Martin, J. N., Roland, M. E., Neilands, T. B., Krone, M. R., Bamberger, J. D., Kohn, R. P., Chesney, M. A., Franes, K., Kahn, J. O., Coates, T. J., & Katz, M. H. (2004). Use of postexposure prophylaxis against HIV infection following sexual exposure does not lead to increases in high-risk behavior. *AIDS, 18*(5), 787–792. <https://doi.org/10.1097/00002030-200403260-00010>

- Martins-Fonteyn, E., Loquiha, O., Baltazar, C., Thapa, S., Boothe, M., Raimundo, I., Hens, N., Aerts, M., Meulemans, H., Degomme, O., & Wouters, E. (2017). Factors influencing risky sexual behaviour among Mozambican miners: a socio-epidemiological contribution for HIV prevention framework in Mozambique. *International Journal for Equity in Health*, 16(1). <https://doi.org/10.1186/s12939-017-0674-z>
- Marx, K. (1845/1975). *Appendix A: Concerning Feuerbach*. In Marx: Early Writings, 421–423. Harmondsworth: Penguin Books.
- Mash, R., & Mash, R. J. (2012). A quasi-experimental evaluation of an HIV prevention programme by peer education in the Anglican Church of the Western Cape, South Africa. *BMJ Open*, 2(2), e000638. <https://doi.org/10.1136/bmjopen-2011-000638>
- Mashegoane, S., Moalusi, K. P., Ngoepe, M. A., & Peltzer, K. (2004). The prediction of condom use intention among South African university students. *Psychological Reports*, 95(2), 407–417. <https://doi.org/10.2466/pr0.95.2.407-417>
- Maslach, C., & Leiter, M. P. (2016). Understanding the burnout experience: recent research and its implications for psychiatry. *World Psychiatry*, 15(2), 103–111. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4911781/>
- Maslow, A. H. (1970). *Motivation and Personality* (2nd ed.). Harper & Row.
- Masten, A. S., & Obradovic, J. (2006). Competence and resilience in development. *Annals of the New York Academy of Sciences*, 1094(1), 13–27. <https://doi.org/10.1196/annals.1376.003>
- Masvawure, T. B., Mantell, J. E., Mabude, Z., Ngoloyi, C., Milford, C., Beksinska, M., & Smit, J. A. (2014). “It’s a different condom, let’s see how it works”: young men’s reactions to and experiences of female condom use during an intervention trial in South Africa. *The Journal of Sex Research*, 51(8), 841–851. <https://doi.org/10.1080/00224499.2013.814043>
- Masur, H., Michelis, M. A., Greene, J. B., Onorato, I., Stouwe, R. A., Holzman, R. S., Wormser, G., Brettman, L., Lange, M., Murray, H. W., & Cunningham-Rundles, S. (1981). An outbreak of community-acquired *Pneumocystis carinii* pneumonia: initial manifestation of cellular immune dysfunction. *The New England Journal of Medicine*, 305(24), 1431–1438. <https://doi.org/10.1056/NEJM198112103052402>
- Matarazzo, J. D. (1980). Behavioral health and behavioral medicine: Frontiers for a new health psychology. *American Psychologist*, 35(9), 807–817. <https://doi.org/10.1037/0003-066x.35.9.807>
- Mathews, C., Kuhn, L., Metcalf, C. A., Joubert, G., & Cameron, N. A. (1990). Knowledge, attitudes and beliefs about AIDS in township school students in Cape Town. *South African Medical Journal*, 78, 511. https://www.researchgate.net/profile/Carol-Metcalf/publication/20917755_Knowledge_attitudes_and_beliefs_about_AIDS_in_township_school_students_in_Cape_Town/links/0046352d6557214e0f000000/Knowledge-attitudes-and-beliefs-about-AIDS-in-township-school-students-in-Cape-Town.pdf
- Mathews, C., Aaro, L. E., Flisher, A. J., Mukoma, W., Wubs, A. G., & Schaalma, H. (2009). Predictors of early first sexual intercourse among adolescents in Cape Town, South Africa. *Health Education Research*, 24(1), 1–10. <https://doi.org/10.1093/her/cym079>

- Mathews, C., Aarø, L. E., Grimsrud, A., Flisher, A. J., Kaaya, S., Onya, H., Schaalma, H., Wubs, A., Mukoma, W., & Klepp, K.I. (2012). Effects of the SATZ teacher-led school HIV prevention programmes on adolescent sexual behaviour: cluster randomised controlled trials in three sub-Saharan African sites. *International Health*, 4(2), 111–122. <https://doi.org/10.1016/j.inhe.2012.02.001>
- Mathews, C., Eggers, S. M., Townsend, L., Aarø, L. E., de Vries, P. J., Mason-Jones, A. J., De Koker, P., McClinton Appollis, T., Mtshizana, Y., Koech, J., Wubs, A., & De Vries, H. (2016). Effects of PREPARE, a multi-component, school-based HIV and intimate partner violence (IPV) Prevention programme on adolescent sexual risk behaviour and IPV: Cluster randomised controlled trial. *AIDS and Behavior*, 20(9), 1821–1840. <https://doi.org/10.1007/s10461-016-1410-1>
- Matthews, L., & Simpson, S.A. (2020). Evaluation of behaviour change interventions. In M.S. Hagger, L.D., Cameron, K. Hamilton, N. Hankonen, & T. Lintunen (Eds.), *The Handbook of Behavior Change* (pp. 318-332). Cambridge University Press.
- Maughan-Brown, B. (2006). Attitudes towards people with HIV/AIDS: stigma and its determinants amongst young adults in Cape Town, South Africa. *South African Review of Sociology*, 37(2), 165–188. <https://doi.org/10.1080/21528586.2006.10419153>
- Maughan-Brown, B. (2010). Stigma rises despite antiretroviral roll-out: A longitudinal analysis in South Africa. *Social Science & Medicine*, 70(3), 368-374. <https://doi.org/10.1016/j.socscimed.2009.09.041>
- Maughan-Brown, B., Evans, M., & George, G. (2016). Sexual behaviour of men and women within age-disparate partnerships in South Africa: implications for young women's HIV risk. *PLoS ONE*, 11(8), e0159162. <https://doi.org/10.1371/journal.pone.0159162>
- Maughan-Brown, B., Kenyon, C., & Lurie, M. N. (2014). Partner age differences and concurrency in South Africa: implications for HIV-infection risk among young women. *AIDS and Behaviour*, 18(12), 2469-2476. <https://doi.org/10.1007/s10461-014-0828-6>
- Maughan-Brown, B., & Venkataramani, A. S. (2012). Learning that circumcision is protective against HIV: risk compensation among men and women in Cape Town, South Africa. *PLoS ONE*, 7(7), e40753. <https://doi.org/10.1371/journal.pone.0040753>
- Mavhandu-Mudzusi, A. H., & Sandy, P. T. (2015). The experiences of HIV-serodiscordant couples in Soweto, South Africa. *International Nursing Review*, 62(2), 196-202. <https://doi.org/10.1111/inr.12163>
- Mavuso, S. S., & Maharaj, P. (2015). Access to sexual and reproductive health services: Experiences and perspectives of persons with disabilities in Durban, South Africa. *Agenda*, 29(2), 79–88. <https://doi.org/10.1080/10130950.2015.1043713>
- Mayaud, P., & McCormick, D. (2001). Interventions against sexually transmitted infections (STI) to prevent HIV infection. *British Medical Bulletin*, 58(1), 129-153. <https://doi.org/10.1093/bmb/58.1.129>
- Mayer, K. H., Maslankowski, L. A., Gai, F., El-Sadr, W. M., Justman, J., Kwiecien, A., Mâsse, B., Eshleman, S. H., Hendrix, C., Morrow, K., Rooney, J. F., & Soto-Torres, L. (2006). Safety and tolerability of tenofovir vaginal gel in abstinent and sexually active HIV-infected and uninfected women. *AIDS*, 20(4), 543–551. <https://doi.org/10.1097/01.aids.0000210608.70762.c3>

- McAdams, D. P., & Pals, J. L. (2007). The role of theory in personality research. In R.W. Robins, R.C. Fraley, & R.F. Krueger (Eds.), *Handbook of research methods in personality psychology* (pp. 3-20). Guilford Press.
- McAlister, A.L., Perry, C.L., & Parcel, G.S. (2015). How individuals, environments, and health behaviors interact: The Social Cognitive Theory. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health Behavior And Health Education: Theory, Research, And Practice* (5th ed.). (pp. 169-188). Jossey-Bass.
- McCallum, E. B., & Peterson, Z. D. (2012). Investigating the impact of inquiry mode on self-reported sexual behavior: Theoretical considerations and review of the literature. *The Journal of Sex Research*, 49(2-3), 212–226.
<https://doi.org/10.1080/00224499.2012.658923>
- McClelland, R. S., Lavreys, L., Hassan, W. M., Mandaliya, K., Ndinya-Achola, J. O., & Baeten, J. M. (2006). Vaginal washing and increased risk of HIV-1 acquisition among African women: a 10-year prospective study. *Aids*, 20(2), 269-273.
<https://doi.org/10.1097/01.aids.0000196165.48518.7b>
- McDermott, M. S., Oliver, M., Simnadis, T., Beck, E. J., Coltman, T., Iverson, D., Caputi, P., & Sharma, R. (2015). The Theory of Planned Behaviour and dietary patterns: A systematic review and meta-analysis. *Preventive Medicine*, 81, 150–156.
<https://doi.org/10.1016/j.ypmed.2015.08.020>
- McEachan, R. R. C., Conner, M., Taylor, N. J., & Lawton, R. J. (2011). Prospective prediction of health-related behaviours with the Theory of Planned Behaviour: A meta-analysis. *Health Psychology Review*, 5(2), 97–144.
<https://doi.org/10.1080/17437199.2010.521684>
- McGill, E., Er, V., Penney, T., Egan, M., White, M., Meier, P., Whitehead, M., Lock, K., Anderson de Cuevas, R., Smith, R., Savona, N., Rutter, H., Marks, D., de Vocht, F., Cummins, S., Popay, J., & Petticrew, M. (2021). Evaluation of public health interventions from a complex systems perspective: A research methods review. *Social Science & Medicine*, 272, 113697. <https://doi.org/10.1016/j.socscimed.2021.113697>
- McGovern, M. E., Herbst, K., Tanser, F., Mutevedzi, T., Canning, D., Gareta, D., Pillay, D., & Bärnighausen, T. (2016). Do gifts increase consent to home-based HIV testing? A difference-in-differences study in rural KwaZulu-Natal, South Africa. *International Journal of Epidemiology*, 45(6), dyw122. <https://doi.org/10.1093/ije/dyw122>
- McGrath, N., Eaton, J. W., Newell, M. L., & Hosegood, V. (2015). Migration, sexual behaviour, and HIV risk: a general population cohort in rural South Africa. *The Lancet HIV*, 2(6), e252-e259. [https://doi.org/10.1016/S2352-3018\(15\)00045-4](https://doi.org/10.1016/S2352-3018(15)00045-4)
- McGrath, N., & Grapsa, E. (2017). Does antiretroviral therapy change partnership dynamics and HIV risk behaviours among HIV-infected adults. *AIDS (London, England)*, 31(10), 1451. <https://doi.org/10.1097/QAD.0000000000001502>
- McHugh Power, J. E., Dolezal, L., Kee, F., & Lawlor, B. A. (2018). Conceptualizing loneliness in health research: Philosophical and psychological ways forward. *Journal of Theoretical and Philosophical Psychology*, 38(4), 219.
<https://doi.org/10.1037/teo0000099>

- McIntyre, J. (1996). HIV/AIDS in South Africa – a relentless progression?. *South African medical journal*, 86(1), 27-28.
<http://archive.samj.org.za/1996%20VOL%2086%20Jan-Dec/Articles/01%20January/1.2%20HIV%20AIDS%20IN%20SOUTH%20AFRICA%20-%20A%20RELENTLESS%20PROGRESSION.%20James%20McIntyre.pdf>
- McIntyre, D., Goudge, J., Harris, B., Nxumalo, N., & Nkosi, M. (2009). Prerequisites for national health insurance in South Africa: results of a national household survey. *South African Medical Journal*, 99(10), 725-729.
<https://www.ajol.info/index.php/samj/article/viewFile/50834/39520>
- McKee, N., Bertrand, J., Becker-Benton, A., & Becker, B. L. (2004). *Strategic Communication In The HIV/AIDS Epidemic*. Sage.
- McKenna, H. (2006). *Nursing Theories And Models*. Routledge.
- McLeroy, K. R., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education Quarterly*, 15(4), 351–377.
<https://doi.org/10.1177/109019818801500401>
- McMullin, E. (1990). Can theory appraisal be quantified? *Psychological Inquiry*, 1(2), 164–166. https://doi.org/10.1207/s15327965pli0102_11
- McNeill, F. G. (2009). ‘Condoms cause AIDS’: Poison, prevention and denial in Venda, South Africa. *African Affairs*, 108(432), 353-370.
<https://www.jstor.org/stable/40388395>
- McNeil, J. (2012). *A History of Official Government HIV/AIDS Policy in South Africa – South African History Online*. <https://www.sahistory.org.za/article/history-official-government-hivaids-policy-south-africa>
- Medeossi, B. J., Stadler, J., & Delany-Moretlwe, S. (2014). ‘I heard about this study on the radio’: Using community radio to strengthen good participatory practice in HIV prevention trials. *BMC Public Health*, 14(1), 1-8. <https://doi.org/10.1186/1471-2458-14-876>
- Medicines and Related Substances Control Amendment Act (1997). *Government Gazette*. (No. 18505).
- Medicines Information Centre (2016). *New HIV Guideline: Universal Test and Treat (UTT)*. <http://www.mic.uct.ac.za/MIC/News/Sep16/UTT>
- Medley, A., Kennedy, C., O'Reilly, K., & Sweat, M. (2009). Effectiveness of peer education interventions for HIV prevention in developing countries: a systematic review and meta-analysis. *AIDS Education and Prevention*, 21(3), 181-206.
<https://doi.org/10.1521/aeap.2009.21.3.181>
- Meehl, P. E. (1978). Theoretical risks and tabular asterisks: Sir Karl, Sir Ronald, and the slow progress of soft psychology. *Journal of Consulting and Clinical Psychology*, 46(4), 806. <https://doi.org/10.1037/0022-006X.46.4.806>
- Meehl, P. E. (1990). Appraising and amending theories: The strategy of Lakatosian defense and two principles that warrant it. *Psychological Inquiry*, 1(2), 108-141.
https://doi.org/10.1207/s15327965pli0102_1
- Meehl, P. E. (1992). Cliometric metatheory: The actuarial approach to empirical, history-based philosophy of science. *Psychological Reports*, 71, 339-339.

- Mendez-Lopez, A., McKee, M., Stuckler, D., Granich, R., Gupta, S., Noori, T., & Semenza, J. C. (2019). Population uptake and effectiveness of test-and-treat antiretroviral therapy guidelines for preventing the global spread of HIV: an ecological cross-national analysis. *HIV Medicine*, 20(8), 501-512. <https://doi.org/10.1111/hiv.12750>
- Mendoza, P., Gruell, H., Nogueira, L., Pai, J. A., Butler, A. L., Millard, K., Lehmann, C., Suárez, I., Oliveira, T. Y., Lorenzi, J. C. C., Cohen, Y. Z., Wyen, C., Kümmerle, T., Karagounis, T., Lu, C.-L., Handl, L., Unson-O'Brien, C., Patel, R., Ruping, C., & Schlotz, M. (2018). Combination therapy with anti-HIV-1 antibodies maintains viral suppression. *Nature*, 561(7724), 479–484. <https://doi.org/10.1038/s41586-018-0531-2>
- Menon, T. (2015). Obituary: Roy Bhaskar. *Social Scientist*, 43(1/2), 83-86. <https://www.jstor.org/stable/24372966>
- Mensch, B. S., Hewett, P. C., & Erulkar, A. (2003). The reporting of sensitive behavior by adolescents: A methodological experiment in Kenya. *Demography*, 40(2), 247–268. <https://doi.org/10.1353/dem.2003.0017>
- Merton, R.K. (1968). *Social Theory And Social Structure*. Free Press.
- Meyer-Rath, G., Pienaar, J., Brink, B., van Zyl, A., Muirhead, D., Grant, A., Churchyard, G., Watts, C., & Vickerman, P. (2015). The Impact of Company-Level ART Provision to a Mining Workforce in South Africa: A Cost–Benefit Analysis. *PLOS Medicine*, 12(9), e1001869. <https://doi.org/10.1371/journal.pmed.1001869>
- Mfecane, S. (2013). Can women “refuse” condoms? Dilemmas of condom negotiation among men living with HIV in South Africa. *Culture, Health & Sexuality*, 15(3), 269–282. <https://doi.org/10.1080/13691058.2012.729159>
- Michie, S., & Johnston, M. (2012). Theories and techniques of behaviour change: Developing a cumulative science of behaviour change. *Health Psychology Review*, 6(1), 1–6. <https://doi.org/10.1080/17437199.2012.654964>
- Michie, S., & Prestwich, A. (2010). Are interventions theory-based? Development of a theory coding scheme. *Health Psychology*, 29(1), 1-8. <https://doi.org/10.1037/a0016939>
- Michie, S., Van Stralen, M. M., & West, R. (2011). The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation Science*, 6(1), 1-12. <https://doi.org/10.1186/1748-5908-6-42>
- Michie, S., West, R., Campbell, R., Brown, J., & Gainforth, H. (2014). *ABC of behaviour change theories*. Silverback Publishing
- Michielsen, K., Chersich, M., Temmerman, M., Dooms, T., & Van Rossem, R. (2012). Nothing as practical as a good theory? the theoretical basis of hiv prevention interventions for young people in Sub-Saharan Africa: A systematic review. *AIDS Research and Treatment*, 2012, 1–18. <https://doi.org/10.1155/2012/345327>
- Middelkoop, K., Myer, L., Smit, J., Wood, R., & Bekker, L. G. (2006). Design and evaluation of a drama-based intervention to promote voluntary counseling and HIV testing in a South African community. *Sexually Transmitted Diseases*, 33(8), 524-526. <https://doi.org/10.1097/01.olq.0000219295.50291.1d>
- Mill, J. S. (2002). *The Basic Writings Of John Stuart Mill*. Modern Library.
- Miller, N. E., & Dollard, J. (1941). *Social Learning and Imitation*. Yale University Press.

- Miller, Z. D. (2017). The enduring use of the theory of planned behaviour. *Human Dimensions of Wildlife*, 22(6), 583–590. <https://doi.org/10.1080/10871209.2017.1347967>
- Millett, G. A., Flores, S. A., Marks, G., Reed, J. B., & Herbst, J. H. (2008). Circumcision status and risk of HIV and sexually transmitted infections among men who have sex with men: a meta-analysis. *Journal of the American Medical Association*, 300(14), 1674-1684. <https://doi.org/10.1001/jama.300.14.1674>
- Mills, C. W. (1959/2000). *The Sociological Imagination*. Oxford University Press.
- Mindry, D., Maman, S., Chirowodza, A., Muravha, T., van Rooyen, H., & Coates, T. (2011). Looking to the future: South African men and women negotiating HIV risk and relationship intimacy. *Culture, Health & Sexuality*, 13(05), 589-602. <https://doi.org/10.1080/13691058.2011.560965>
- Minnis, A. M., Doherty, I. A., Kline, T. L., Zule, W. A., Myers, B., Carney, T., & Wechsberg, W. M. (2015). Relationship power, communication, and violence among couples: results of a cluster-randomized HIV prevention study in a South African township. *International Journal Of Women's Health*, 7, 517. <https://doi.org/10.2147/IJWH.S77398>
- Mirzaei, H., McFarland, W., Karamouzian, M., & Sharifi, H. (2020). COVID-19 among people living with HIV: a systematic review. *AIDS and Behavior*, 1-8. <https://doi.org/10.1007/s10461-020-02983-2>
- Mischel, W. (2005). Alternative futures for our science. *APS Observer*, 18(3). <https://www.psychologicalscience.org/observer/alternative-futures-for-our-science>
- Mkhize, N. (2004). Psychology: An African perspective. In D. Hook. (Ed.). *Critical Psychology* (pp. 24–52). UCT Press.
- Mngadi, K. T., Maarschalk, S., Grobler, A. C., Mansoor, L. E., Frohlich, J. A., Madlala, B., Ngcobo, N., Abdool Karim, S.S., & Karim, Q. A. (2014). Disclosure of microbicide gel use to sexual partners: influence on adherence in the CAPRISA 004 trial. *AIDS and Behavior*, 18(5), 849-854. <https://doi.org/10.1007/s10461-014-0696-0>
- Mnguni, L., Abrie, M., & Ebersohn, L. (2015). The relationship between scientific knowledge and behaviour: An HIV/AIDS case. *Journal of Biological Education*, 50(2), 147–159. <https://doi.org/10.1080/00219266.2015.1007888>
- Mntlangula, M. N., Khuzwayo, N., & Taylor, M. (2017). Nurses perceptions about their behavioural counselling for HIV/AIDS, STIs and TB in eThekweni Municipality clinics KwAZulu-Natal, South Africa. *Health SA*, 22, 52-60. <https://doi.org/10.1016/j.hsag.2016.09.001>
- Modjarrad, K., & Vermund, S. H. (2010). Effect of treating co-infections on HIV-1 viral load: a systematic review. *The Lancet Infectious Diseases*, 10(7), 455-463. [https://doi.org/10.1016/S1473-3099\(10\)70093-1](https://doi.org/10.1016/S1473-3099(10)70093-1)
- Moench, T. R., Chipato, T., & Padian, N. S. (2001). Preventing disease by protecting the cervix: the unexplored promise of internal vaginal barrier devices. *Aids*, 15(13), 1595-1602. <https://doi.org/10.1097/00002030-200109070-00001>

- Moetseloa, M. C. (2018). The challenges experienced by the people living with HIV on the termination of temporary disability grant in a semi-urban area in Gauteng [Masters dissertation, University of South Africa]. <https://core.ac.uk/download/pdf/162048468.pdf>
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D.G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Med* 6(7), e1000097. <https://doi.org/10.1371/journal.pmed.1000097>
- Mojola, S. A., Angotti, N., Denardo, D., Schatz, E., & Xavier Gómez Olivé, F. (2022). The end of AIDS? HIV and the new landscape of illness in rural South Africa. *Global Public Health*, 17(1), 13-25. <https://doi.org/10.1080/17441692.2020.1851743>
- Mokhobo, D. (1989). AIDS in Africa. *Nursing RSA= Verpleging RSA*, 4(3), 20-22. <https://pubmed.ncbi.nlm.nih.gov/2733760/>
- Molina, J.-M., Capitant, C., Spire, B., Pialoux, G., Cotte, L., Charreau, I., Tremblay, C., Le Gall, J.-M., Cua, E., Pasquet, A., Raffi, F., Pintado, C., Chidiac, C., Chas, J., Charbonneau, P., Delaugerre, C., Suzan-Monti, M., Loze, B., Fonsart, J., & Peytavin, G. (2015). On-Demand Preexposure Prophylaxis in Men at High Risk for HIV-1 Infection. *New England Journal of Medicine*, 373(23), 2237–2246. <https://doi.org/10.1056/nejmoal506273>
- Mols, F., Haslam, S. A., Jetten, J., & Steffens, N. K. (2015). Why a nudge is not enough: A social identity critique of governance by stealth. *European Journal of Political Research*, 54(1), 81–98. <https://doi.org/10.1111/1475-6765.12073>
- Monette, E. (2017). Reframing ABC prevention: the value of ethnographic research in creating culturally relevant HIV programs in Belize. *NEXUS: The Canadian Student Journal of Anthropology*, 25. <https://doi.org/10.15173/nexus.v25i0.1585>
- Montgomery, E. T., Mensch, B., Musara, P., Hartmann, M., Woeber, K., Etima, J., & van der Straten, A. (2016). Misreporting of Product Adherence in the MTN-003/VOICE Trial for HIV Prevention in Africa: Participants’ Explanations for Dishonesty. *AIDS and Behavior*, 21(2), 481–491. <https://doi.org/10.1007/s10461-016-1609-1>
- Montgomery, E. T., van der Straten, A., Stadler, J., Hartmann, M., Magazi, B., Mathebula, F., Laborde, N., & Soto-Torres, L. (2015). Male Partner Influence on Women’s HIV Prevention Trial Participation and Use of Pre-exposure Prophylaxis: the Importance of “Understanding.” *AIDS and Behavior*, 19(5), 784–793. <https://doi.org/10.1007/s10461-014-0950-5>
- Moodley, D., Moodley, J., Coovadia, H., Gray, G., McIntyre, J., Hofmyer, J., Nikodem, C., Hall, D., Gigliotti, M., Robinson, P., Boshoff, L., & Sullivan, John L. (2003). A Multicenter Randomized Controlled Trial of Nevirapine Versus a Combination of Zidovudine and Lamivudine to Reduce Intrapartum and Early Postpartum Mother-to-Child Transmission of Human Immunodeficiency Virus Type 1. *The Journal of Infectious Diseases*, 187(5), 725–735. <https://doi.org/10.1086/367898>
- Moodley, D., Moodley, P., Sebitloane, M., Soowamber, D., McNaughton-Reyes, H. L., Groves, A. K., & Maman, S. (2015). High prevalence and incidence of asymptomatic sexually transmitted infections during pregnancy and postdelivery in KwaZulu Natal, South Africa. *Sexually Transmitted Diseases*, 42(1), 43-47. <https://doi.org/10.1097/OLQ.0000000000000219>

- Moodley, K. (2007). Microbicide research in developing countries: have we given the ethical concerns due consideration? *BMC Medical Ethics*, 8(1). <https://doi.org/10.1186/1472-6939-8-10>
- Mooney, A. C., Campbell, C. K., Ratlhagana, M.-J., Grignon, J. S., Mazibuko, S., Agnew, E., Gilmore, H., Barnhart, S., Puren, A., Shade, S. B., Liegler, T., & Lippman, S. A. (2018). Beyond Social Desirability Bias: Investigating Inconsistencies in Self-Reported HIV Testing and Treatment Behaviors Among HIV-Positive Adults in North West Province, South Africa. *AIDS and Behavior*, 22(7), 2368–2379. <https://doi.org/10.1007/s10461-018-2155-9>
- Moore, D. M., Cui, Z., Lachowsky, N. J., Rich, A. J., Roth, E. A., Raymond, H. F., Sereda, P., Montaner, J., Wong, J., Armstrong, H. L., Hall, D., & Hogg, R. S. (2017). Increasing HIV Treatment Optimism but No Changes in HIV Risk Behavior Among Men Who Have Sex With Men in Vancouver, Canada. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 76(4), e98–e101. <https://doi.org/10.1097/qai.0000000000001542>
- Moore, G. F., Evans, R. E., Hawkins, J., Littlecott, H., Melendez-Torres, G. J., Bonell, C., & Murphy, S. (2019). From complex social interventions to interventions in complex social systems: Future directions and unresolved questions for intervention development and evaluation. *Evaluation*, 25(1), 23–45. <https://doi.org/10.1177/1356389018803219>
- Morawski, J. (2019). The replication crisis: How might philosophy and theory of psychology be of use? *Journal of Theoretical and Philosophical Psychology*, 39(4), 218–238. <https://doi.org/10.1037/teo0000129>
- Morgan, D. L. (2007). Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods. *Journal of Mixed Methods Research*, 1(1), 48-76. <https://doi.org/10.1177/2345678906292462>
- Morris, B. J. (2021). Voluntary medical male circumcision proves robust for mitigating heterosexual HIV infection. *Clinical Infectious Diseases*, 73(7), e1954–e1956. <https://doi.org/10.1093/cid/ciaa1542>
- Morris, M., Epstein, H., & Wawer, M. (2010). Timing is everything: international variations in historical sexual partnership concurrency and HIV prevalence. *PLoS ONE*, 5(11), e14092. <https://doi.org/10.1371/journal.pone.0014092>
- Morris, S. A., Yen, G., Wu, Z., & Asnake, B. (2003). Time line visualization of research fronts. *Journal of the American society for information science and technology*, 54(5), 413-422. <https://doi.org/10.1002/asi.10227>
- Morrison, D. M., Baker, S. A., & Gillmore, M. R. (1998). Condom use among high-risk heterosexual teens: A longitudinal analysis using the theory of reasoned action. *Psychology & Health*, 13(2), 207–222. <https://doi.org/10.1080/08870449808406747>
- Morojele, N. K., Kachieng'a, M. A., Mokoko, E., Nkoko, M. A., Parry, C. D., Nkowane, A. M., Moshia, K.M., & Saxena, S. (2006). Alcohol use and sexual behaviour among risky drinkers and bar and shebeen patrons in Gauteng province, South Africa. *Social Science & Medicine*, 62(1), 217-227. <https://doi.org/10.1016/j.socscimed.2005.05.031>

- Morojele, N. K., Kitleli, N., Ngako, K., Kekwaletswe, C. T., Nkosi, S., Fritz, K., & Parry, C. D. H. (2014). Feasibility and acceptability of a bar-based sexual risk reduction intervention for bar patrons in Tshwane, South Africa. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 11(1), 1–9. <https://doi.org/10.1080/17290376.2014.890123>
- Morrone, C., & Myer, L. (2014). Study design. In R. Ehrlich, & G. Joubert (Eds.), *Epidemiology: A Research Manual For South Africa* (pp. 78–97). Oxford University Press.
- Morton, P. (2006). Using critical realism to explain strategic information systems planning. *Journal of Information Technology Theory and Application*, 8(1), 3. <https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1068&context=jitta>
- Moscovici, S. (1980). Toward a theory of conversion behavior. In L. Berkowitz (Ed.), *Advances In Experimental Social Psychology* (Vol. 13, pp. 209–239). Academic Press.
- Moscovici, S. (1988). Notes towards a description of Social Representations. *European Journal of Social Psychology*, 18(3), 211–250. <https://doi.org/10.1002/ejsp.2420180303>
- Moskowitz, J. T., Hult, J. R., Bussolari, C., & Acree, M. (2009). What works in coping with HIV? A meta-analysis with implications for coping with serious illness. *Psychological Bulletin*, 135(1), 121–141. <https://doi.org/10.1037/a0014210>
- Mphatswe, W., Mate, K. S., Bennett, B., Ngidi, H., Reddy, J., Barker, P. M., & Rollins, N. (2012). Improving public health information: a data quality intervention in KwaZulu-Natal, South Africa. *Bulletin of the World Health Organization*, 90, 176-182. <https://doi.org/10.2471/BLT.11.092759>
- MSF (2019). *HIV project in South Africa reaches 90-90-90 target one year ahead of deadline*. <https://www.msf.org/hiv-project-south-africa-reaches-90-90-90-target-ahead-deadline>
- Mthiyane, N. (2020). *What is the impact of DREAMS on HSV-2 acquisition among AGYW in rural KwaZulu-Natal, South Africa?* (Abstract OAC0104) AIDS2020. <https://www.lshtm.ac.uk/media/49011>
- Mufune, P. (2015). Poverty and HIV/AIDS in Africa: Specifying the connections. *Social Theory & Health*, 13(1), 1-29. <https://doi.org/10.1057/sth.2014.14>
- Mumford, S., & Anjum, R. L. (2011). *Getting Causes From Powers*. Oxford University Press.
- Mundell, J. P., Visser, M. J., Makin, J. D., Forsyth, B. W., & Sikkema, K. J. (2012). Support group processes: Perspectives from HIV-infected women in South Africa. *Qualitative Research In Psychology*, 9(2), 173-187. <https://doi.org/10.1080/14780887.2010.500350>
- Munro, S., Lewin, S., Swart, T., & Volmink, J. (2007). A review of health behaviour theories: how useful are these for developing interventions to promote long-term medication adherence for TB and HIV/AIDS?. *BMC public health*, 7(1), 104-120. <https://doi.org/10.1186/1471-2458-7-104>
- Murphy, E. M., Greene, M. E., Mihailovic, A., & Olupot-Olupot, P. (2006). Was the “ABC” approach (abstinence, being faithful, using condoms) responsible for Uganda's decline in HIV?. *PLoS Med*, 3(9), e379. <https://doi.org/10.1371/journal.pmed.0030379>

- Murphy, J., & Callaghan, K. A. (1988). Systems theory and the family: A critique. *Early Child Development and Care*, 39(1), 163–176. <https://doi.org/10.1080/0300443880390113>
- Murphy, R. (2007). *Exploring a meta-theoretical framework for dynamic assessment and intelligence* [Doctoral dissertation, University of Pretoria]. <https://repository.up.ac.za/handle/2263/28306>
- Murray, M. (2012). Social history of health psychology: context and textbooks. *Health Psychology Review*, 8(2), 215–237. <https://doi.org/10.1080/17437199.2012.701058>
- Mutambo, C., Shumba, K., & Hlongwana, K. W. (2020). Post-training and mentorship experiences of KidzAlive-trained healthcare workers at primary healthcare facilities in KwaZulu-Natal, South Africa. *African Journal of Primary Health Care & Family Medicine*, 12(1). <https://doi.org/10.4102/phcfm.v12i1.2109>
- Muthukrishna, M., & Henrich, J. (2019). A problem in theory. *Nature Human Behaviour*, 3(3), 221-229. <https://doi.org/10.1038/s41562-018-0522-1>
- Mwatelah, R., McKinnon, L. R., Baxter, C., Abdool Karim, Q., & Abdool Karim, S. S. (2019). Mechanisms of sexually transmitted infection-induced inflammation in women: implications for HIV risk. *Journal of the International AIDS Society*, 22, e25346. <https://doi.org/10.1002/jia2.25346>
- Myburgh, J. (2007, 18 September). The Virodene affair (III). *Politicsweb*. <https://www.politicsweb.co.za/news-and-analysis/the-virodene-affair-iii>
- Myer, L. (2002). The Jaipur paradigm. *South African medical journal*, 92(2), 98-98. <http://archive.samj.org.za/2002%20VOL%2092%20Jan-Dec/Articles/02%20February/1.2%20LETTERS.pdf>
- Myer, L. (2010). Barrier methods. In S. S. Abdool Karim, & Q. Abdool Karim (Eds.), *HIV/AIDS in South Africa* (2nd ed., pp. 83-200). Cambridge University Press
- Myer, L., Seedat, S., Stein, D. J., Moomal, H., & Williams, D. R. (2009). The mental health impact of AIDS-related mortality in South Africa: a national study. *Journal of Epidemiology & Community Health*, 63(4), 293-298. <http://dx.doi.org/10.1136/jech.2008.080861>
- Nachega, J. B., Lehman, D. A., Hlatshwayo, D., Mothopeng, R., Chaisson, R. E., & Karstaedt, A. S. (2005). HIV/AIDS and antiretroviral treatment knowledge, attitudes, beliefs, and practices in HIV-Infected adults in Soweto, South Africa. *Journal of Acquired Immune Deficiency Syndromes*, 38(2), 196–201. <https://doi.org/10.1097/00126334-200502010-00011>
- Nachega, J. B., Morroni, C., Zuniga, J. M., Sherer, R., Beyrer, C., Solomon, S., Schechter, M., & Rockstroh, J. (2012). HIV-Related Stigma, Isolation, Discrimination, and Serostatus Disclosure. *Journal of the International Association of Physicians in AIDS Care*, 11(3), 172–178. <https://doi.org/10.1177/1545109712436723>
- Naidoo, S., Morar, N. S., & Ramjee, G. (2013). Participants as community-based peer educators: Impact on a clinical trial site in KwaZulu-Natal. *South African Journal of Science*, 109(7/8), 1–5. <https://doi.org/10.1590/sajs.2013/20130037>

- Naidoo, T., Tomita, A., & Paruk, S. (2020). Burnout, anxiety and depression risk in medical doctors working in KwaZulu-Natal Province, South Africa: Evidence from a multi-site study of resource-constrained government hospitals in a generalised HIV epidemic setting. *PLoS ONE*, *15*(10), e0239753. <https://doi.org/10.1371/journal.pone.0239753>
- Naidu, M. (2013). Perceptions around second-generation female condoms: Reporting on women's experiences. *Anthropological Notebooks*, *19*(1). <https://www.researchgate.net/publication/274083324>
- Nakasone, S. E., Chimbindi, N., Mthiyane, N., Nkosi, B., Zuma, T., Baisley, K., & Shahmanesh, M. (2020). "They have this not care–don't care attitude:" A mixed methods study evaluating community readiness for oral PrEP in adolescent girls and young women in a rural area of South Africa. *AIDS Research And Therapy*, *17*(1), 1-10. <https://doi.org/10.1186/s12981-020-00310-2>
- Nannozi, V., Wobudeya, E., Matsiko, N., & Gahagan, J. (2017). Motivators of couple HIV counseling and testing (CHCT) uptake in a rural setting in Uganda. *BMC Public Health*, *17*(1), 1-6. <https://doi.org/10.1186/s12889-017-4043-z>
- Napierala Mavedzenge, S. M. N., Doyle, A. M., & Ross, D. A. (2010). *HIV prevention in young people in sub-Saharan Africa: A systematic review*. https://healtheducationresources.unesco.org/sites/default/files/resources/5974_preventionYoungPeopleReview.pdf
- Nasrullah, M., Oraka, E., Chavez, P. R., Johnson, C. H., & DiNunno, E. (2017). Factors associated with condom use among sexually active US adults, national survey of family growth, 2006–2010 and 2011–2013. *The Journal Of Sexual Medicine*, *14*(4), 541-550. <https://doi.org/10.1016/j.jsxm.2017.02.015>
- Nattrass, N. (2006). Antiretroviral treatment and the problem of political will in South Africa. *Southern African Journal of HIV Medicine*, *7*(2), 29-31. <https://www.ajol.info/index.php/sajhivm/article/view/34837/6468>
- Ndabarora, E., & Mchunu, G. (2014). Factors that influence utilisation of HIV/AIDS prevention methods among university students residing at a selected university campus. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, *11*(1), 202–210. <https://doi.org/10.1080/17290376.2014.986517>
- Ndinda, C., Chimbwete, C., Mcgrath, N., Pool, R., & Mdp Group. (2007). Community attitudes towards individuals living with HIV in rural KwaZulu-Natal, South Africa. *AIDS Care*, *19*(1), 92-101. <https://doi.org/10.1080/09540120600888378>
- NDoH (1997). *Statement by Dr N.C. Zuma, Minister of Health, on Virodene, 6 February 1997*. <https://web.archive.org/web/20110604103407/http://www.info.gov.za/speeches/1997/02070x44397.htm>
- NDoH (2003). *Operational Plan for Comprehensive HIV and AIDS Care, Management and Treatment for South Africa*. https://www.gov.za/sites/default/files/gcis_document/201409/aidsoperationalplan10.pdf
- NDoH (2004). *Tshabalala-Msimang: Launch of Choice condoms (14/06/2004)*. <https://www.polity.org.za/article/tshabalalamsimang-launch-of-choice-condoms-14062004-2004-06-14>

- NDoH (2007). *Tuberculosis Strategic Plan for South Africa, 2007–2011*.
http://www.tbonline.info/media/uploads/documents/tuberculosis_strategic_plan_for_south_africa_2007-2011_%282007%29.pdf
- NDoH (2008). *South Africa – County Progress Report*.
<http://doh.gov.za/docs/reports/2008/progress/part2.pdf>
- NDoH (2011). *Zuma's response to Sarafina II*.
<https://web.archive.org/web/20110619184301/http://doh.gov.za/docs/pr/1996/pr0605.html>
- NDoH (2016). *South African national guidelines for medical male circumcision*.
https://aidsfree.usaid.gov/sites/default/files/sa_mmc_guidelines.pdf
- Ndugwa Kabwama, S., & Berg-Beckhoff, G. (2015). The association between HIV/AIDS-related knowledge and perception of risk for infection: a systematic review. *Perspectives in Public Health*, 135(6), 299–308.
<https://doi.org/10.1177/1757913915595831>
- Negash, T., & Ehlers, V. (2013). Personal Factors Influencing Patients' Adherence to ART in Addis Ababa, Ethiopia. *Journal of the Association of Nurses in AIDS Care*, 24(6), 530–538. <https://doi.org/10.1016/j.jana.2012.11.004>
- Nelson Mandela Foundation (2000). *Closing address by Nelson Mandela at 13th International Aids Conference, Durban*.
http://www.mandela.gov.za/mandela_speeches/2000/000714_aidsconf.htm
- Neuman, W.L. (2006). *Social Research Methods: Qualitative And Quantitative Approaches*. (5th ed.). Allyn & Bacon.
- Newman, P. A., Duan, N., Rudy, E. T., Roberts, K. J., & Swendeman, D. (2004). Posttrial HIV vaccine adoption: concerns, motivators, and intentions among persons at risk for HIV. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 37(3), 1393-1403.
<https://doi.org/10.1097/01.qai.0000127064.84325.ad>
- Nezu, A. M., Nezu, C. M., Geller, P. A., & Weiner, I. B. (2003). *Handbook of Psychology. Vol. 9: Health Psychology*. John Wiley & Sons.
- Nglazi, M. D., van Schaik, N., Kranzer, K., Lawn, S. D., Wood, R., & Bekker, L. G. (2012). An incentivized HIV counseling and testing program targeting hard-to-reach unemployed men in Cape Town, South Africa. *Journal Of Acquired Immune Deficiency Syndromes (1999)*, 59(3), e28.
<https://doi.org/10.1097/QAI.0b013e31824445f0>
- Nguyen, V. K., Bajos, N., Dubois-Arber, F., O'Malley, J., & Pirkle, C. M. (2011). Remedicalizing an epidemic: from HIV treatment as prevention to HIV treatment is prevention. *AIDS*, 25(3), 291-293. <https://doi.org/10.1097/QAD.0b013e3283402c3e>
- Nhassengo, P., Cataldo, F., Magaço, A., Hoffman, R. M., Nerua, L., Saide, M., Cuco, R., Hoek, R., Mbofana, F., Couto, A., Gudo, E., Chicumbe, S., & Dovel, K. (2018). Barriers and facilitators to the uptake of Test and Treat in Mozambique: A qualitative study on patient and provider perceptions. *PLOS ONE*, 13(12), e0205919.
<https://doi.org/10.1371/journal.pone.0205919>
- Niehaus, I. (2014). Treatment literacy, therapeutic efficacy, and antiretroviral drugs: notes from Bushbuckridge, South Africa. *Medical Anthropology*, 33(4), 351-366.
<https://doi.org/10.1080/01459740.2013.802319>

- NIH (2020a). *Pivotal Phase 2b/3 ALVAC/Bivalent gp120/MF59 HIV Vaccine Prevention Safety and Efficacy Study in South Africa (HVTN702)*. <https://clinicaltrials.gov/ct2/show/NCT02968849>
- NIH (2020b). *A Study to Assess the Efficacy of a Heterologous Prime/Boost Vaccine Regimen of Ad26.Mos4.HIV and Aluminum Phosphate-Adjuvanted Clade C gp140 in Preventing Human Immunodeficiency Virus (HIV) -1 Infection in Women in Sub-Saharan Africa*. <https://www.clinicaltrials.gov/ct2/show/NCT03060629>
- NIH (2020c). *A Study of Heterologous Vaccine Regimen of Adenovirus Serotype 26 Mosaic4 Human Immunodeficiency Virus(Ad26.Mos4.HIV), Adjuvanted Clade C gp140 and Mosaic gp140 to Prevent HIV-1 Infection Among Cis-gender Men and Transgender Individuals Who Have Sex With Cis-gender Men and/or Transgender Individuals (MOSAICO)*. <https://clinicaltrials.gov/ct2/show/NCT03964415>
- NIH (2020d). *The LATITUDE Study: Long-Acting Therapy to Improve Treatment Success in Daily Life*. <https://clinicaltrials.gov/ct2/show/NCT03635788?term=long+acting&cond=hiv>
- NIH (2020e). *Evaluating the Safety of and Adherence to a Vaginal Matrix Ring Containing Dapivirine and Oral Emtricitabine/Tenofovir Disoproxil Fumarate in an Adolescent and Young Adult Female Population*. <https://clinicaltrials.gov/ct2/show/NCT03593655>
- Niu, X., & Hemminger, B. M. (2012). A study of factors that affect the information-seeking behavior of academic scientists. *Journal of the American Society for Information Science and Technology*, 63(2), 336-353. <https://doi.org/10.1002/asi.21669>
- Nkonki, L. L., & Daniels, K. L. (2010). Selling a service: experiences of peer supporters while promoting exclusive infant feeding in three sites in South Africa. *International Breastfeeding Journal*, 5(1), 1-12. <https://doi.org/10.1186/1746-4358-5-17>
- Nkosishaven (2020). *Nkosi Johnson`s History*. <https://nkosishaven.org/nkosi-johnsons-history/>
- Nkwinka, E., Khoza, L. B., Lebeso, R. T., & Shilubane, H. N. (2014). Refugees' perceptions regarding HIV and AIDS in Ba-Phalaborwa Municipality in Limpopo Province. *Health SA*, 19(1), a711. <https://doi.org/10.4102/hsag.v19i1.711>
- Noar, S. M. (2007). Behavioral Interventions to Reduce HIV-related Sexual Risk Behavior: Review and Synthesis of Meta-Analytic Evidence. *AIDS and Behavior*, 12(3), 335–353. <https://doi.org/10.1007/s10461-007-9313-9>
- Noelle-Neumann, E. (1974). The spiral of silence: A theory of public opinion. *Journal of Communication*, 24(2), 43–51. <https://doi.org/10.1111/j.1460-2466.1974.tb00367.x>
- Norman, G. (2007). Editorial—How bad is medical education research anyway?. *Advances in Health Sciences Education*, 12(1), 1-5. <https://doi.org/10.1007/s10459-006-9047-x>
- Notario-Pérez, F., Ruiz-Caro, R., & Veiga-Ochoa, M. D. (2017). Historical development of vaginal microbicides to prevent sexual transmission of HIV in women: From past failures to future hopes. *Drug Design, Development And Therapy*, 11, 1767. <https://doi.org/10.2147/DDDT.S133170>

- Nöthling, J., & Kagee, A. (2013). Acceptability of routine HIV counselling and testing among a sample of South African students: Testing the Health Belief Model. *African Journal of AIDS Research*, *12*(3), 141-150. <https://doi.org/10.2989/16085906.2013.863214>
- Ntuli, B., Mokgatle, M., & Madiba, S. (2020). The psychosocial wellbeing of orphans: The case of early school leavers in socially depressed environment in Mpumalanga Province, South Africa. *PLoS ONE*, *15*(2), e0229487. <https://doi.org/10.1371/journal.pone.0229487>
- Nuthall, G. (2004). Relating classroom teaching to student learning: A critical analysis of why research has failed to bridge the theory-practice gap. *Harvard Educational Review*, *74*(3), 273-306. <https://doi.org/10.17763/haer.74.3.e08k1276713824u5>
- Nxumalo, C. T., & Mchunu, G. G. (2020). Zulu men's conceptions, understanding, and experiences of voluntary medical male circumcision in KwaZulu-Natal, South Africa. *American Journal of Men's Health*, *14*(2), 155798831989243. <https://doi.org/10.1177/1557988319892437>
- Nyamukapa, C. A., Gregson, S., Lopman, B., Saito, S., Watts, H. J., Monasch, R., & Jukes, M. C. (2008). HIV-associated orphanhood and children's psychosocial distress: theoretical framework tested with data from Zimbabwe. *American Journal of Public Health*, *98*(1), 133-141. <https://doi.org/10.2105/AJPH.2007.116038>
- Odek, W. O. (2014). Social networks and mental health among people living with human immunodeficiency virus (HIV) in Johannesburg, South Africa. *AIDS Care*, *26*(8), 1042-1049. <https://doi.org/10.1080/09540121.2014.902421>
- O'Farrell, N., Hoosen, A. A., Coetzee, K. D., & Van den Ende, J. (1992). Sexual behaviour in Zulu men and women with genital ulcer disease. *Sexually Transmitted Infections*, *68*(4), 245-248.
- O'Farrell, N., & Will, R. (1989). Sexual behaviour, knowledge, attitudes and awareness of AIDS amongst sexually transmitted disease clinic attenders in Durban following the national campaign. *South African Journal of Epidemiological Infections*, *4*, 45-9. <https://doi.org/10.1136/sti.2007.026716>
- O'Farrell, N., & Windsor, I. (1991). Sexual behavior in HIV-1-seropositive Zulu men and women in Durban, South Africa. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, *4*(12), 1258-1259. <http://dx.doi.org/10.1136/sti.68.4.245>
- Ogden, J. (1995). Changing the subject of health psychology. *Psychology & Health*, *10*(4), 257-265. <https://doi.org/10.1080/08870449508400238>
- Ogden, J. (2003). Some problems with social cognition models: A pragmatic and conceptual analysis. *Health Psychology*, *22*(4), 424-428. <https://doi.org/10.1037/0278-6133.22.4.424>
- Ogden, J. (2012). *Health Psychology: A Textbook*. McGraw-Hill.
- Ogden, J. (2014). Time to retire the theory of planned behaviour?: one of us will have to go! A commentary on Sniehotta, Pesseau and Araújo-Soares. *Health Psychology Review*, *9*(2), 165-167. <https://doi.org/10.1080/17437199.2014.898679>

- Ogunbajo, A., Kershaw, T., Kushwaha, S., Boakye, F., Wallace-Atiapah, N. D., & Nelson, L. E. (2018). Barriers, motivators, and facilitators to engagement in HIV care among HIV-infected Ghanaian men who have sex with men (MSM). *AIDS and Behavior*, 22(3), 829-839. <https://doi.org/10.1007/s10461-017-1806-6>
- Oh, J., Stewart, A. E., & Phelps, R. E. (2017). Topics in the journal of counselling psychology, 1963–2015. *Journal of Counselling Psychology*, 64, 604–615. <https://doi.org/10.1037/cou0000218>
- O’Keefe, E. A., & Wood, R. (1996). The impact of human immunodeficiency virus (HIV) infection on quality of life in a multiracial South African population. *Quality of Life Research*, 5(2), 275-280. <https://doi.org/10.1007/BF00434749>
- O’Laughlin, B. (2015). Trapped in the prison of the proximate: structural HIV/AIDS prevention in southern Africa. *Review of African Political Economy*, 42(145), 342–361. <https://doi.org/10.1080/03056244.2015.1064368>
- Önen, N. F., & Overton, E. T. (2011). A review of premature frailty in HIV-infected persons; another manifestation of HIV-related accelerated aging. *Current Aging Science*, 4(1), 33–41. <https://doi.org/10.2174/1874609811104010033>
- Onyensoh, O., Govender, I., & Tumbo, J. (2013). Knowledge of, attitudes towards, and practices of contraception in high school pupils in Tswaing subdistrict, North West province. *Southern African Journal of Epidemiology and Infection*, 28(4), 227-232. <https://doi.org/10.1080/10158782.2013.11441555>
- Open Science Collaboration. (2015). Estimating the reproducibility of psychological science. *Science*, 349(6251). https://ink.library.smu.edu.sg/cgi/viewcontent.cgi?article=6256&context=lkcsb_research
- Orbell, S., Zahid, H., & Henderson, C. J. (2020). Changing behavior using the health belief model and protection motivation theory. In M.S. Hagger, L.D., Cameron, K. Hamilton, N. Hankonen, T. Lintunen (Eds.), *The Handbook of Behavior Change* (pp.46-59). Cambridge University Press.
- Orisakwe, E. E., Ross, A. J., & Ocholla, P. O. (2012). Correlation between knowledge of HIV, attitudes and perceptions of HIV and a willingness to test for HIV at a regional hospital in KwaZulu-Natal, South Africa. *African Journal of Primary Health Care & Family Medicine*, 4(1). <https://doi.org/10.4102/phcfm.v4i1.376>
- Orne, M. T. (1962). On the social psychology of the psychological experiment: With particular reference to demand characteristics and their implications. *American Psychologist*, 17(11), 776. <https://doi.org/10.1037/h0043424>
- Ostrow, D. E., Fox, K. J., Chmiel, J. S., Silvestre, A., Visscher, B. R., Vanable, P. A., Jacobson, L. P., & Strathdee, S. A. (2002). Attitudes towards highly active antiretroviral therapy are associated with sexual risk taking among HIV-infected and uninfected homosexual men. *AIDS*, 16(5), 775–780. <https://doi.org/10.1097/00002030-200203290-00013>
- O’Sullivan, L. F., Harrison, A., Morrell, R., Monroe-Wise, A., & Kubeka, M. (2006). Gender dynamics in the primary sexual relationships of young rural South African women and men. *Culture, Health & Sexuality*, 8(02), 99-113. <https://doi.org/10.1080/13691050600665048>

- Overton, W. F. (2013). Relationism and relational developmental systems: A paradigm for developmental science in the post-Cartesian era. *Advances in Child Development and Behavior*, 44, 21-64. <http://dx.doi.org/10.1016/B978-0-12-397947-6.00002-7>
- Owczarzak, J., Broaddus, M., & Pinkerton, S. (2016). Audit culture: unintended consequences of accountability practices in evidence-based programs. *American Journal of Evaluation*, 37(3), 326-343. <https://doi.org/10.1177/1098214015603502>
- Padayachee, G. N., & Schall, R. (1990). Short-term predictions of the prevalence of human immunodeficiency virus infection among the black population in South Africa. *South African medical journal*, 77(7), 329-333. <http://archive.samj.org.za/1990%20VOL%20LXXVII%20Jan-Jun/Articles/04%20April/1.2%20SHORT-TERM%20PREDICTIONS%20OF%20THE%20PREVALENCE%20OF%20HUMAN%20IMMUNODEFICIENCY%20VIRUS%20INFECTION%20AMONG%20THE%20.pdf>
- Padian, N. S., McLoy, S. I., Balkus, J. E., & Wasserheit, J. N. (2010). Weighing the gold in the gold standard: challenges in HIV prevention research. *AIDS (London, England)*, 24(5), 621. <https://doi.org/10.1097/QAD.0b013e328337798a>
- Painter, J. E., Borba, C. P., Hynes, M., Mays, D., & Glanz, K. (2008). The use of theory in health behavior research from 2000 to 2005: A systematic review. *Annals of Behavioral Medicine*, 35(3), 358-362. <https://doi.org/10.1007/s12160-008-9042-y>
- Pallin, S.C., Meekers, D., Lupu, O., & Longfield, K. (2013). *South Africa: A Total Market Approach. PSI/UNFPA Joint Studies on the Total Market for Male Condoms in Six African Countries*. https://www.unfpa.org/sites/default/files/pub-pdf/PSI_SouthAfrica_Dec5final%5Bsmallpdf.com%5D.pdf
- Pan Africa Resources (2013). *Pan Africa Resources PLC – Integrated annual report, 2013*. <http://www.panafricanresources.com/wp-content/uploads/Integrated-Annual-Report-2013.pdf>
- Panther, L.A., & Libman, H. (2005). Medical overview. In K. Citron, M.J. Brouillette & A. Beckett (Eds.), *HIV and Psychiatry: Training and Resource Manual* (pp. 1-29). Cambridge University Press.
- Pant Pai, N., Behlim, T., Abrahams, L., Vadnais, C., Shivkumar, S., Pillay, S., Binder, A., Deli-Houssein, R., Engel, N., Joseph, L., & Dheda, K. (2013). Will an unsupervised self-testing strategy for HIV work in health care workers of South Africa? A cross sectional pilot feasibility study. *PLoS ONE*, 8(11), e79772. <https://doi.org/10.1371/journal.pone.0079772>
- Parascandola, M., & Weed, D. L. (2001). Causation in epidemiology. *Journal of Epidemiology & Community Health*, 55(12), 905-912. <https://doi.org/10.1136/jech.55.12.905>
- Parent, M. C., Moradi, B., Weis, A. S., & Ouch, S. (2021). Mapping the terrain of journal of counselling psychology: a citation network analysis. *Journal of Counselling Psychology*, 68(4), 371–389. <https://doi.org/10.1037/cou0000540>
- Parker, R., & Aggleton, P. (2003). HIV and AIDS-related stigma and discrimination: a conceptual framework and implications for action. *Social Science & Medicine*, 57(1), 13–24. [https://doi.org/10.1016/s0277-9536\(02\)00304-0](https://doi.org/10.1016/s0277-9536(02)00304-0)

- Parker, W., Dalrymple, L., & Durden, E. (2000). *Communicating beyond AIDS awareness: A manual for South Africa*. Beyond Awareness Consortium.
http://ccms.ukzn.ac.za/Libraries/articles/Communicating_Beyond_AIDS_Awareness_A_manual_for_South_Africa.sflb.ashx
- Parsons, J. T., Rendina, H. J., Lassiter, J. M., Whitfield, T. H., Starks, T. J., & Grov, C. (2017). Uptake of HIV pre-exposure prophylaxis (PrEP) in a national cohort of gay and bisexual men in the United States: the motivational PrEP cascade. *Journal Of Acquired Immune Deficiency Syndromes (1999)*, 74(3), 285.
<https://doi.org/10.1097/QAI.0000000000001251>
- Pasala, S., Barr, T., & Messaoudi, I. (2015). Impact of alcohol abuse on the adaptive immune system. *Alcohol Research: Current Reviews*, 37(2), 185.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4590616/pdf/arcr-37-2-185.pdf>
- Patel, P., Borkowf, C. B., Brooks, J. T., Lasry, A., Lansky, A., & Mermin, J. (2014). Estimating per-act HIV transmission risk: a systematic review. *AIDS (London, England)*, 28(10), 1509. <https://doi.org/10.1097/QAD.0000000000000298>
- Pawlowski, A., Jansson, M., Sköld, M., Rottenberg, M. E., & Källenius, G. (2012). Tuberculosis and HIV co-infection. *PLoS Pathogens*, 8(2), e1002464.
<https://doi.org/10.1371/journal.ppat.1002464>.
- Pawson, R., & Tilley, N. (1997). An introduction to scientific realist evaluation. In E. Chelmsky & W. R. Shadish (Eds.), *Evaluation for the 21st century: A handbook* (p. 405–418). Sage Publications. <https://doi.org/10.4135/9781483348896.n29>
- Pelders, J., & Nelson, G. (2019). Socio-demographic contributors to health and safety of mine workers in South Africa. *Work*, 64(1), 67-76.
<https://content.iospress.com/articles/work/wor192969>
- Pellowski, J. A., Price, D. M., Harrison, A. D., Tuthill, E. L., Myer, L., Operario, D., & Lurie, M. N. (2019). A systematic review and meta-analysis of antiretroviral therapy (ART) adherence interventions for women living with HIV. *AIDS and Behavior*, 23(8), 1998-2013. <https://doi.org/10.1007/s10461-018-2341-9>
- Pelto, J. P., & Pelto, G. H. (1997). Studying knowledge, culture and behaviour in Applied Medical Anthropology. *Medical Anthropology Quarterly*, 11, 147–163.
<https://doi.org/10.1525/maq.1997.11.2.147>
- Peltzer, K., Cherian, L., & Cherian, V. I. (2000). Knowledge, self-efficacy and behavioural intent towards AIDS prevention behaviours among culturally diverse secondary school pupils in South Africa. *East African Medical Journal*, 77(5).
<https://doi.org/10.4314/eamj.v77i5.46633>
- Peltzer, K., Friend-du Preez, N., Ramlagan, S., Fomundam, H., & Anderson, J. (2010). Traditional complementary and alternative medicine and antiretroviral treatment adherence among HIV patients in Kwazulu-Natal, South Africa. *African Journal of Traditional, Complementary and Alternative Medicines*, 7(2), 125 – 137.
<https://doi.org/10.4314/ajtcam.v7i2.50871>
- Peltzer, K., & Mpofu, E. (2002). The factor structure of the HIV antibody testing attitude scale in four African countries. *Eastern Journal of Medicine*, 7(2), 27-30.
https://jag.journalagent.com/z4/download_fulltext.asp?pdire=ejm&plng=tur&un=EJM-38440

- Peltzer, K., & Oladimeji, Y. (2004). Some Factors in Condom Use Amongst First-Year Nigerian University Students and Black and White South Africans. *Psychological Reports, 94*(2), 583–586. <https://doi.org/10.2466/pr0.94.2.583-586>
- Peltzer, K., & Pengpid, S. (2019). Prevalence and associated factors of enacted, internalized and anticipated stigma among people living with HIV in South Africa: results of the first national survey. *HIV/AIDS (Auckland, NZ), 11*, 275-285. <https://doi.org/10.2147/HIV.S229285>
- Peltzer, K., & Promtussananon, S. (2003). Evaluation of Soul City school and mass media life skills education among junior secondary school learners in South Africa. *Social Behavior And Personality: An International Journal, 31*(8), 825-834. <https://doi.org/10.2224/sbp.2003.31.8.825>
- Peltzer, K., Simbayi, L., Banyini, M., & Kekana, Q. (2012a). HIV Risk Reduction Intervention Among Medically Circumcised Young Men in South Africa: A Randomized Controlled Trial. *International Journal of Behavioral Medicine, 19*(3), 336–341. <https://doi.org/10.1007/s12529-011-9171-8>
- Peltzer, K., Ramlagan, S., Jones, D., Weiss, S. M., Fomundam, H., & Chanetsa, L. (2012b). Efficacy of a lay health worker led group antiretroviral medication adherence training among non-adherent HIV-positive patients in KwaZulu-Natal, South Africa: Results from a randomized trial. *SAHARA-J: Journal of Social Aspects of HIV/AIDS, 9*(4), 218–226. <https://doi.org/10.1080/17290376.2012.745640>
- Peltzman, S. (1975). The effects of automobile safety regulation. *Journal of Political Economy, 83*(4), 677-725. <https://www.jstor.org/stable/1830396>
- Penn, C., & Evans, M. (2009). Recommendations for communication to enhance informed consent and enrolment at multilingual research sites. *African Journal of AIDS Research, 8*(3), 285-294. <https://doi.org/10.2989/AJAR.2009.8.3.5.926>
- PEPFAR (2009). *Indicators Reference Guide*. <https://www.measureevaluation.org/resources/training/capacity-building-resources/hiv-english/session-6-indicators-1/PEPFAR%20Indicator%20Reference%20Guidance.doc>
- Peragallo, N., Gonzalez-Guarda, R. M., McCabe, B. E., & Cianelli, R. (2012). The efficacy of an HIV risk reduction intervention for Hispanic women. *AIDS and Behavior, 16*(5), 1316-1326. <https://doi.org/10.1007/s10461-011-0052-6>
- Perazzo, J., Reyes, D., & Webel, A. (2017). A systematic review of health literacy interventions for people living with HIV. *AIDS and Behavior, 21*(3), 812-821. <https://doi.org/10.1007/s10461-016-1329-6>
- Perkins, D. D., & Zimmerman, M. A. (1995). Empowerment theory, research, and application. *American Journal of Community Psychology, 23*(5), 569–579. <https://doi.org/10.1007/bf02506982>
- Peterman, T. A., Newman, D. R., Maddox, L., Schmitt, K., & Shiver, S. (2015). Risk for HIV following a diagnosis of syphilis, gonorrhoea or chlamydia: 328,456 women in Florida, 2000–2011. *International Journal of STD & AIDS, 26*(2), 113-119. <https://doi.org/10.1177/0956462414531243>

- Petersen, I., Bhagwanjee, A., Bhana, A., & Mahintsho, Z. (2004). The development and evaluation of a manualised participatory HIV/AIDS risk reduction programme (Sex and Risk) for tertiary level learners: a pilot study. *African Journal of AIDS Research*, 3(1), 93–100. <https://doi.org/10.2989/16085900409490322>
- Petersen, I., Bhana, A., Myeza, N., Alicea, S., John, S., Holst, H., McKay, M., & Mellins, C. (2010). Psychosocial challenges and protective influences for socio-emotional coping of HIV+ adolescents in South Africa: a qualitative investigation. *AIDS care*, 22(8), 970-978. <https://doi.org/10.1080/09540121003623693>
- Petitions.net (2019). *The eThekweni Declaration 2019: A Radical Call to Action - Reinvigorating and Revolutionizing the HIV Response*. https://www.petitions.net/the_ethekweni_declaration_2019_a_radical_call_to_action_-_reinvigorating_and_revolutionizing_the_hiv_response
- Pettifor, A., Measham, D. M., Rees, H. V., & Padian, N. S. (2004). Sexual power and HIV risk, South Africa. *Emerging Infectious Diseases*, 10(11), 1996–2004. <https://doi.org/10.3201/eid1011.040252>
- Pettifor, A., MacPhail, C., Selin, A., Gómez-Olivé, F. X., Rosenberg, M., Wagner, R. G., Mabuza, W., Hughes, J. P., Suchindran, C., Piwowar-Manning, E., Wang, J., Twine, R., Daniel, T., Andrew, P., Laeyendecker, O., Agyei, Y., Tollman, S., & Kahn, K. (2016a). HPTN 068: A Randomized Control Trial of a Conditional Cash Transfer to Reduce HIV Infection in Young Women in South Africa—Study Design and Baseline Results. *AIDS and Behavior*, 20(9), 1863–1882. <https://doi.org/10.1007/s10461-015-1270-0>
- Pettifor, A., MacPhail, C., Hughes, J. P., Selin, A., Wang, J., Gómez-Olivé, F. X., Eshleman, S. H., Wagner, R. G., Mabuza, W., Khoza, N., Suchindran, C., Mokoena, I., Twine, R., Andrew, P., Townley, E., Laeyendecker, O., Agyei, Y., Tollman, S., & Kahn, K. (2016b). The effect of a conditional cash transfer on HIV incidence in young women in rural South Africa (HPTN 068): a phase 3, randomised controlled trial. *The Lancet. Global Health*, 4(12), e978–e988. [https://doi.org/10.1016/S2214-109X\(16\)30253-4](https://doi.org/10.1016/S2214-109X(16)30253-4)
- Pettifor, A., Lippman, S. A., Gottert, A., Suchindran, C. M., Selin, A., Peacock, D., Maman, S., Rebombo, D., Twine, R., Gómez-Olivé, F. X., Tollman, S., Kahn, K., & MacPhail, C. (2018). Community mobilization to modify harmful gender norms and reduce HIV risk: results from a community cluster randomized trial in South Africa. *Journal of the International AIDS Society*, 21(7), e25134. <https://doi.org/10.1002/jia2.25134>
- Pettifor, A., Rees, H., & Steffenson, A. (2004a). *HIV and sexual behaviour among young South African a national survey of 15–24-year-olds*. Reproductive Health Research Unit. <http://rhru.co.za/images/Docs/Fact%20Sheet.pdf>
- Phaswana-Mafuya, N., Peltzer, K., & Petros, G. (2009). Disability grant for people living with HIV/AIDS in the Eastern Cape of South Africa. *Social Work In Health Care*, 48(5), 533-550. <https://doi.org/10.1080/00981380802595156>
- Philander, J. H., & Swartz, L. (2006). Needs, barriers, and concerns regarding HIV prevention among South Africans with visual impairments: A key informant study. *Journal of Visual Impairment & Blindness*, 100(2), 111-115. <https://doi.org/10.1177/0145482X0610000206>
- Phili, R. (2014). Health workers' perspectives on implementation of an integrated medical male circumcision strategy in KwaZulu-Natal, South Africa. *Health SA*, 19(1). <https://doi.org/10.4102/hsag.v19i1.810>

- Phillips, A. N., Cambiano, V., Nakagawa, F., Brown, A. E., Lampe, F., Rodger, A., Miners, A., Elford, J., Hart, G., Johnson, A. M., Lundgren, J., & Delpech, V. C. (2013). Increased HIV Incidence in Men Who Have Sex with Men Despite High Levels of ART-Induced Viral Suppression: Analysis of an Extensively Documented Epidemic. *PLoS ONE*, 8(2), e55312. <https://doi.org/10.1371/journal.pone.0055312>
- Pias, C., & Von Foerster, H. (2016). *Cybernetics : The Macy Conferences 1946-1953: The Complete Transactions*. Diaphanes.
- Pillay, S. R. (2017). Cracking the fortress: can we really decolonize psychology?. *South African Journal of Psychology*, 47(2), 135-140. <https://doi.org/10.1177/0081246317698059>
- Pillay-van Wyk, V., Msemburi, W., Laubscher, R., Dorrington, R. E., Groenewald, P., Glass, T., Nojilana, B., Joubert, J. D., Matzopoulos, R., Prinsloo, M., Nannan, N., Gwebushe, N., Vos, T., Somdyala, N., Sithole, N., Neethling, I., Nicol, E., Rossouw, A., & Bradshaw, D. (2016). Mortality trends and differentials in South Africa from 1997 to 2012: second National Burden of Disease Study. *The Lancet Global Health*, 4(9), e642–e653. [https://doi.org/10.1016/s2214-109x\(16\)30113-9](https://doi.org/10.1016/s2214-109x(16)30113-9)
- Piot, P., Taelman, H., Minlangu, K. B., Mbendi, N., Ndangi, K., Kalambayi, K., Bridts, C., Quinn, T.C., Feinsod, F.M., Wobin, O., Mazebo, P., Stevens, W., Mitchell, S. & McCormick, J.B. (1984). Acquired immunodeficiency syndrome in a heterosexual population in Zaire. *The Lancet*, 324(8394), 65-69. [https://doi.org/10.1016/s0140-6736\(84\)90241-1](https://doi.org/10.1016/s0140-6736(84)90241-1)
- Pitpitan, E. V., Kalichman, S. C., Eaton, L. A., Sikkema, K. J., Watt, M. H., Skinner, D., & Pieterse, D. (2016). Men’s Behavior Predicts Women’s Risks for HIV/AIDS: Multilevel Analysis of Alcohol-Serving Venues in South Africa. *Prevention Science*, 17(4), 472–482. <https://doi.org/10.1007/s1121-015-0629-9>
- Pitpitan, E. V., Kalichman, S. C., Garcia, R. L., Cain, D., Eaton, L. A., & Simbayi, L. C. (2015). Mediators of behavior change resulting from a sexual risk reduction intervention for STI patients, Cape Town, South Africa. *Journal of Behavioral Medicine*, 38(2), 194–203. <https://doi.org/10.1007/s10865-014-9591-4>
- Platt, L., Minozzi, S., Reed, J., Vickerman, P., Hagan, H., French, C., Jordan, A., Degenhardt, L., Hope, V., Hutchinson, S., Maher, L., Palmateer, N., Taylor, A., Bruneau, J., & Hickman, M. (2018). Needle and syringe programmes and opioid substitution therapy for preventing HCV transmission among people who inject drugs: findings from a Cochrane Review and meta-analysis. *Addiction*, 113(3), 545–563. <https://doi.org/10.1111/add.14012>
- Pleck, J. H. (1981). *The Myth Of Masculinity*. MIT Press.
- Pleck, J. H. (1995). The gender role strain paradigm: An update. In R. F. Levant & W. S. Pollack. (Eds.). *A New Psychology Of Men*. Basic Books.
- Poitrow, P., Kincaid, D., Rimon, J., & Rinehart, W. (1997). *Health Communication*. Praeger Publishers.
- Poucher, Z. A., Tamminen, K. A., Caron, J. G., & Sweet, S. N. (2020). Thinking through and designing qualitative research studies: A focused mapping review of 30 years of qualitative research in sport psychology. *International Review of Sport and Exercise Psychology*, 13(1), 163-186. <https://doi.org/10.1080/1750984X.2019.1656276>
- Popper, K. R. (1935/2002). *The Logic of Scientific Discovery*. Routledge.

- Popper, K. R. (1963). Science as falsification. *Conjectures and refutations*, 1, 33-39. <https://staff.washington.edu/lynnhank/Popper-1.pdf>
- Porter, R. (1986). The scientific revolution, a spoke in the wheel? In R. Porter & M. Teich (Eds.), *Revolutions in history* (pp. 290-316). Cambridge University Press.
- Porter, S., & Ryan, S. (1996). Breaking the boundaries between nursing and sociology: A critical realist ethnography of the theory-practice gap. *Journal of Advanced Nursing*, 24(2), 413-420. <https://doi.org/10.1046/j.1365-2648.1996.19126.x>
- Potts, M., Halperin, D. T., Kirby, D., Swidler, A., Marseille, E., Klausner, J. D., Hearst, N., Wamai, R. G., Kahn, J. G., & Walsh, J. (2008). Reassessing HIV Prevention. *Science*, 320(5877), 749–750. <https://doi.org/10.1126/science.1153843>
- Pouris, A., & Pouris, A. (2011). Scientometrics of a pandemic: HIV/AIDS research in South Africa and the World. *Scientometrics*, 86(2), 541–552. <https://doi.org/10.1007/s11192-010-0277-6>
- Pouvreau, D., & Drack, M. (2007). On the history of Ludwig von Bertalanffy's "General Systemology", and on its relationship to cybernetics: Part I: elements on the origins and genesis of Ludwig von Bertalanffy's "General Systemology". *International Journal of General Systems*, 36(3), 281-337.
- Powers, K. A., Ghani, A. C., Miller, W. C., Hoffman, I. F., Pettifor, A. E., Kamanga, G., Martinson, F. E., & Cohen, M. S. (2011). The role of acute and early HIV infection in the spread of HIV and implications for transmission prevention strategies in Lilongwe, Malawi: a modelling study. *The Lancet*, 378(9787), 256–268. [https://doi.org/10.1016/s0140-6736\(11\)60842-8](https://doi.org/10.1016/s0140-6736(11)60842-8)
- Preiser, R., Schlüter, M., Biggs, R., García, M.M., Haider, J., Hertz, T., & Klein, L. (2021). Complexity-based social- ecological systems research: Philosophical foundations and practical implications. In R. Biggs, A. De Vos, R. Preiser, H. Clements, K. Maciejewski, & M. Schlüter. (Eds.), *The Routledge Handbook Of Research Methods For Social-Ecological Systems* (pp. 27-46). Taylor & Francis.
- Premachandra, B., & Lewis Jr, N. (2020). Do we report the information that is necessary to give psychology away? A scoping review of the psychological intervention literature 2000-2018. *Perspectives on Psychological Science*. <https://psyarxiv.com/nr8kh>
- Prestage, G., Mao, L., Kippax, S., Jin, F., Hurley, M., Grulich, A., Imrie, I., Kaldor, J., & Zablotska, I. (2009). Use of viral load to negotiate condom use among gay men in Sydney, Australia. *AIDS and Behavior*, 13(4), 645-651. <https://doi.org/10.1007/s10461-009-9527-0>
- Prestwich, A., Sniehotta, F. F., Whittington, C., Dombrowski, S. U., Rogers, L., & Michie, S. (2014). Does theory influence the effectiveness of health behavior interventions? Meta-analysis. *Health Psychology*, 33(5), 465-474. <https://doi.org/10.1037/a0032853>
- Prestwich, A., Webb, T. L., & Conner, M. (2015). Using theory to develop and test interventions to promote changes in health behaviour: Evidence, issues, and recommendations. *Current Opinion in Psychology*, 5, 1-5. <https://doi.org/10.1016/j.copsyc.2015.02.011>
- Pribram, V. (2011). Introduction to nutrition and HIV. In V. Pribram (Ed.), *Nutrition and HIV* (pp. 18-29). John Wiley & Sons.

- Price, D. M., Howell, J. L., Gesselman, A. N., Finneran, S., Quinn, D. M., & Eaton, L. A. (2019). Psychological threat avoidance as a barrier to HIV testing in gay/bisexual men. *Journal of Behavioral Medicine*, *42*(3), 534-544. <https://doi.org/10.1007/s10865-018-0003-z>
- Prilleltensky, I. (2001). Value-based praxis in community psychology: moving toward social justice and social action. *American Journal of Community Psychology*, *29*(5), 747–778. <https://doi.org/10.1023/a:1010417201918>
- Prilleltensky, I., Nelson, G., & Peirson, L. (2001). The role of power and control in children’s lives: an ecological analysis of pathways toward wellness, resilience and problems. *Journal of Community & Applied Social Psychology*, *11*(2), 143–158. <https://doi.org/10.1002/casp.616>
- Prinsloo, C. D., Greeff, M., Kruger, A., & Ellis, S. (2016). Psychosocial well-being of people living with HIV and the community before and after a HIV stigma-reduction community “hub” network intervention. *African Journal of AIDS Research*, *15*(3), 261–271. <https://doi.org/10.2989/16085906.2016.1200640>
- Prior, C. R., & Buckle, G. C. (1990). Blood donors with antibody to the human immunodeficiency virus-the Natal experience. *South African medical journal*, *77*(12), 623-625. <https://www.ncbi.nlm.nih.gov/pubmed/2360117>
- Prochaska, J. O., & Velicer, W. F. (1997). The transtheoretical model of health behavior change. *American journal of health promotion*, *12*(1), 38-48. <https://doi.org/4278/0890-1171-12.1.38>
- Pronyk, P. M., Hargreaves, J. R., Kim, J. C., Morison, L. A., Phetla, G., Watts, C., Busza, J., & Porter, J. D. (2006). Effect of a structural intervention for the prevention of intimate-partner violence and HIV in rural South Africa: a cluster randomised trial. *The Lancet*, *368*(9551), 1973–1983. [https://doi.org/10.1016/s0140-6736\(06\)69744-4](https://doi.org/10.1016/s0140-6736(06)69744-4)
- Pronyk, P. M., Harpham, T., Busza, J., Phetla, G., Morison, L. A., Hargreaves, J. R., Kim, J. C., Watts, C. H., & Porter, J. D. (2008). Can social capital be intentionally generated? A randomized trial from rural South Africa. *Social Science & Medicine*, *67*(10), 1559–1570. <https://doi.org/10.1016/j.socscimed.2008.07.022>
- Protogerou, C., & Johnson, B. T. (2014). Factors underlying the success of behavioral hiv-prevention interventions for adolescents: A meta-review. *AIDS and Behavior*, *18*(10), 1847–1863. <https://doi.org/10.1007/s10461-014-0807-y>
- Proulx, T., & Morey, R. D. (2021). Beyond statistical ritual: Theory in psychological science. *Perspectives on Psychological Science*, *16*(4), 671–681. <https://doi.org/10.1177/17456916211017098>
- Prudden, H. J., Hamilton, M., Foss, A. M., Adams, N. D., Stockton, M., Black, V., & Nyblade, L. (2017). Can mother-to-child transmission of HIV be eliminated without addressing the issue of stigma? Modeling the case for a setting in South Africa. *PLoS ONE*, *12*(12), e0189079. <https://doi.org/10.1371/journal.pone.0189079>
- Pryor, J. B., & Reeder, G. D. (1993). Collective and individual representations of HIV/AIDS stigma. In J. B. Pryor & G. D. Reeder (Eds.), *The Social Psychology of HIV Infection* (pp. 263–286). Lawrence Erlbaum Associates.
- Pryor, J. B., & Reeder, G. D. (2011). HIV-related stigma. In J.C. Hall, B.J. Hall & C.J. Cockerell (Eds.), *HIV/AIDS in the Post-HAART Era: manifestations, treatment, and Epidemiology* (pp. 790-806). PMPH-USA.

- Psaki, S. R., Ayivi-Guedehoussou, N., & Halperin, D. T. (2013). Leveraging changing gender norms to address concurrency: focus group findings from South African university students. *Sexual Health, 10*(4), 369-376. <https://doi.org/10.1071/SH12209>
- Psaros, C., Smit, J., Mosery, N., Bennett, K., Coleman, J., Bangsberg, D., & Safren, S. (2020). PMTCT Adherence in pregnant South African women: The role of depression, social support, stigma, and structural barriers to care. *Annals Of Behavioral Medicine, 54*(9), 626-636. <https://doi.org/10.1093/abm/kaaa005>
- Psillos, S. (2007). Causality. In M. Hartwig (Ed.), *Dictionary of Critical Realism* (pp. 57–61). Routledge.
- Puce, L. (2017). The rise of behavioural economics. *Nature Human Behaviour, 1*(11), 767–767. <https://doi.org/10.1038/s41562-017-0252-9>
- Putnam, R. D. (2000). *Bowling Alone: The Collapse And Revival Of American Community*. Simon and Schuster.
- Quaife, M., MacGregor, L., Ong, J. J., Gafos, M., Torres-Rueda, S., Grant, H., Terris-Prestholt, F., & Vickerman, P. (2020). Risk compensation and STI incidence in prep programmes. *The Lancet HIV, 7*(4), e222-e223. [https://doi.org/10.1016/s2352-3018\(19\)30333-9](https://doi.org/10.1016/s2352-3018(19)30333-9)
- Rabinow, P., & Sullivan, W. M. (1979). *Interpretive Social Science: A Reader*. University of California Press.
- RADAR (2002). *Social Interventions for HIV/AIDS. Intervention with Microfinance for AIDS and Gender Equity. Acornhoek, South Africa: Evaluation Monograph Number 1*. <https://www.datafirst.uct.ac.za/dataportal/index.php/catalog/468/download/6196>
- Ramjee, G., Karim, S. S. A., Morar, N., Gwamanda, Z., Xulu, G., Ximba, T., & Gouws, E. (1999). Acceptability of a vaginal microbicide among female sex workers. *South African Medical Journal, 89*(6), 673-676.
- Ramjee, G., van der Straten, A., Chipato, T., de Bruyn, G., Blanchard, K., Shiboski, S., Cheng, H., Montgomery, E., & Padian, N. (2008). The Diaphragm and Lubricant Gel for Prevention of Cervical Sexually Transmitted Infections: Results of a Randomized Controlled Trial. *PLoS ONE, 3*(10), e3488. <https://doi.org/10.1371/journal.pone.0003488>
- Ramjee, G., Weber, A. E., & Morar, N. S. (1999). Recording sexual behavior: comparison of recall questionnaires with a coital diary. *Sexually Transmitted Diseases, 26*(7), 374-380. https://journals.lww.com/stdjournal/fulltext/1999/08000/recording_sexual_behavior_comparison_of_recall.2.aspx
- Ranganathan, M., Heise, L., MacPhail, C., Stöckl, H., Silverwood, R. J., Kahn, K., Selin, A., Xavier Gómez-Olivé, F., Watts, C., & Pettifor, A. (2018). “It’s because I like things... it’s a status and he buys me airtime”: exploring the role of transactional sex in young women’s consumption patterns in rural South Africa (secondary findings from HPTN 068). *Reproductive Health, 15*(1). <https://doi.org/10.1186/s12978-018-0539-y>
- Ranganathan, M., MacPhail, C., Pettifor, A., Kahn, K., Khoza, N., Twine, R., Watts, C., & Heise, L. (2017). Young women’s perceptions of transactional sex and sexual agency: a qualitative study in the context of rural South Africa. *BMC public health, 17*(1), 1-16. <https://doi.org/10.1186/s12889-017-4636-6>

- Ras, G.J., Simson, I.W., Anderson, R., Prozesky, O.W., & Hamersma, T. (1983). Acquired immunodeficiency syndrome—a report of 2 South African cases. *South African Medical Journal*, 64(4), 140-142. https://journals.co.za/doi/pdf/10.10520/AJA20785135_10199
- Ratele, K. (2017). Frequently asked questions about African psychology. *South African Journal of Psychology*, 47(3), 273-279. <https://doi.org/10.1177/0081246317703249>
- Rautenbach, C., Lindegger, G., Slack, C., Wallace, M., & Newman, P. (2015). I’m positive, but I’m negative: competing voices in informed consent and implications for HIV vaccine trials. *Journal of Empirical Research on Human Research Ethics*, 10(2), 151-156. <https://doi.org/10.1177/1556264615575509>
- Rawlings, K. (2016). *FTC/TDF (Truvada) for HIV pre-exposure prophylaxis (PrEP) utilization in the United States: 2013–2015*. 21st International AIDS Conference, Durban, abstract TUAX0105LB.
- Raymond, J. M., & Zolnikov, T. R. (2018). Aids-affected orphans in sub-saharan africa: a scoping review on outcome differences in rural and urban environments. *AIDS and Behavior*, 22(10), 3429-3441. <https://doi.org/10.1007/s10461-018-2134-1>
- Redd, A. D., Collinson-Streng, A., Martens, C., Ricklefs, S., Mullis, C. E., Manucci, J., Tobian, A.A.R., Selig, E.J., Laeyendecker, O., Sewankambo, N., Gray, R.H., Serwadda, D., Wawer, M.J., Porcella, S.F., & Quinn, T.C. (2011). Identification of HIV superinfection in seroconcordant couples in Rakai, Uganda, by use of next-generation deep sequencing. *Journal of Clinical Microbiology*, 49(8), 2859–2867. <https://doi.org/doi:10.1128/jcm.00804-11>
- Reeves, S., Albert, M., Kuper, A., & Hodges, B. D. (2008). Why use theories in qualitative research?. *BMJ*, 337. <https://doi.org/10.1136/bmj.a949>
- Regenauer, K. S., Myers, B., Batchelder, A. W., & Magidson, J. F. (2020). “That person stopped being human”: Intersecting HIV and substance use stigma among patients and providers in South Africa. *Drug and Alcohol Dependence*, 216, 108322. <https://doi.org/10.1016/j.drugalcdep.2020.108322>
- Relf, M. V., Laverriere, K., Devlin, C., & Salerno, T. (2009). Ethical beliefs related to HIV and AIDS among nursing students in South Africa and the United States: A cross-sectional analysis. *International Journal of Nursing Studies*, 46(11), 1448-1456. <https://doi.org/10.1016/j.ijnurstu.2009.05.001>
- Remien, R. H., Mellins, C. A., Robbins, R. N., Kelsey, R., Rowe, J., Warne, P., Chowdhury, J., Lalkhen, N., Hoppe, L., Abrams, E. J., El-Bassel, N., Witte, S., & Stein, D. J. (2013). Masivukeni: development of a multimedia based antiretroviral therapy adherence intervention for counselors and patients in South Africa. *AIDS and Behavior*, 17(6), 1979–1991. <https://doi.org/10.1007/s10461-013-0438-8>
- Remy, L., & Enriquez, M. (2019). Behavioral interventions to enhance PrEP uptake among black men who have sex with men: a review. *The Journal of the Association of Nurses in AIDS Care*, 30(2), 151. <https://doi.org/10.1097/JNC.0000000000000015>
- Rennie, D. L., Watson, K. D., & Monteiro, A. M. (2002). The rise of qualitative research in psychology. *Canadian Psychology/Psychologie Canadienne*, 43(3), 179. <https://doi.org/10.1037/h0086914>

- Rennie, S., Perry, B., Corneli, A., Chilungo, A., & Umar, E. (2015). Perceptions of voluntary medical male circumcision among circumcising and non-circumcising communities in Malawi. *Global Public Health*, 10(5-6), 679-691. <https://doi.org/10.1080/17441692.2015.1004737>
- Rerks-Ngarm, S., Pitisuttithum, P., Nitayaphan, S., Kaewkungwal, J., Chiu, J., Paris, R., Premisri, N., Namwat, C., de Souza, M., Adams, E., Benenson, M., Gurunathan, S., Tartaglia, J., McNeil, J. G., Francis, D. P., Stablein, D., Birx, D. L., Chunsuttiwat, S., Khamboonruang, C., & Thongcharoen, P. (2009). Vaccination with ALVAC and AIDSVAX to Prevent HIV-1 Infection in Thailand. *New England Journal of Medicine*, 361(23), 2209–2220. <https://doi.org/10.1056/nejmoa0908492>
- Retief, A. (1986). The need for theory development in psychology. Some case studies. *South African Journal of Psychology*, 16(3), 71-78. <https://doi.org/10.1177/008124638601600301>
- Reynolds, P.D. (1971/2007). *A Primer in Theory Construction*. (Custom Edition). Pearson.
- Rhodes, R. E., McEwan, D., & Rebar, A. L. (2019). Theories of physical activity behaviour change: A history and synthesis of approaches. *Psychology of Sport and Exercise*, 42, 100-109. <https://doi.org/10.1016/j.psychsport.2018.11.010>
- Rich, A., Brandes, K., Mullan, B. A., & Hagger, M. S. (2015). Theory of planned behavior and adherence in chronic illness: A meta-analysis. *Journal of Behavioral Medicine*, 38(4), 673-688. <https://doi.org/10.1007/s10865-015-9644-3>
- Richard, L., Gauvin, L., & Raine, K. (2011). Ecological models revisited: Their uses and evolution in health promotion over two decades. *Annual Review of Public Health*, 32(1), 307–326. <https://doi.org/10.1146/annurev-publhealth-031210-101141>
- Richter, L. M., & Swart-Kruger, J. (1995). AIDS-risk among street children and youth: implications for intervention. *South African Journal of Psychology*, 25(1), 31-38. <https://doi.org/10.1177/008124639502500105>
- Riffe, H., & Fouche, C. (2007). Does Anyone Die from AIDS in South Africa? *Journal of HIV/AIDS & Social Services*, 6(4), 23–36. https://doi.org/10.1300/j187v06n04_03
- Rifkin, S. B. (1996). Paradigms lost: Toward a new understanding of community participation in health programmes. *Acta Tropica*, 61(2), 79–92. [https://doi.org/10.1016/0001-706x\(95\)00105-n](https://doi.org/10.1016/0001-706x(95)00105-n)
- Rigby, S. W., & Johnson, L. F. (2017). The relationship between intimate partner violence and HIV: A model-based evaluation. *Infectious Disease Modelling*, 2(1), 71–89. <https://doi.org/10.1016/j.idm.2017.02.002>
- Right to Care (2020). *About us*. <https://www.righttocare.org/about-us/>
- Rispel, L. C., Cloete, A., & Metcalf, C. A. (2015). 'We keep her status to ourselves': experiences of stigma and discrimination among HIV-discordant couples in South Africa, Tanzania and Ukraine. *SAHARA: Journal of Social Aspects of HIV/AIDS Research Alliance*, 12(1), 10-17. <https://hdl.handle.net/10520/EJC174432>
- Rispel, L. C., Cloete, A., Metcalf, C. A., Moody, K., & Caswell, G. (2012). “It [HIV] is part of the relationship”: exploring communication among HIV-serodiscordant couples in South Africa and Tanzania. *Culture, Health & Sexuality*, 14(3), 257–268. <https://doi.org/10.1080/13691058.2011.621448>

- Rispel, L. C., Peltzer, K., Nkomo, N., & Molomo, B. (2010). Evaluating an HIV and AIDS Community Training Partnership Program in five diamond mining communities in South Africa. *Evaluation and Program Planning*, 33(4), 394-402. <https://doi.org/10.1016/j.evalprogplan.2010.02.001>
- Ritzer, G. (1975). Sociology: A multiple paradigm science. *The American Sociologist*, 156-167. <https://www.jstor.org/stable/27702185>
- Ritzer, G. (1988). Sociological metatheory: a defense of a subfield by a delineation of its parameters. *Sociological Theory*, 6(2), 187-200. <http://www.jstor.org/stable/202115>
- Ritzer, G. (1989). Sociology of work: A metatheoretical analysis. *Social Forces*, 67(3), 593-604. <https://doi.org/10.2307/2579530>
- Ritzer, G. (1990a). A Metatheoretical Analysis of Socioeconomics. *Mid-American Review of Sociology*, 14(1/2), 27-43. <https://www.jstor.org/stable/23252903>
- Ritzer, G. (1990b). Metatheorizing in sociology. *Sociological Forum*, 5(1), 3-15. <https://www.jstor.org/stable/684578?seq=1>
- Ritzer, G., & Stepnisky, J. (2021). *Sociological theory*. (8th ed.). SAGE Publications.
- Roberts, S. T., Nair, G., Baeten, J. M., Palanee-Philips, T., Schwartz, K., Reddy, K., Kabwigu, S., Matovu Kiweewa, F., Govender, V., Gaffoor, Z., Singh, N., Siva, S., Naidoo, K., & Montgomery, E. T. (2019). Impact of Male Partner Involvement on Women's Adherence to the Dapivirine Vaginal Ring During a Phase III HIV Prevention Trial. *AIDS and Behavior*, 24(5), 1432-1442. <https://doi.org/10.1007/s10461-019-02707-1>
- Robila, M., & Taylor, A. C. (2001). The recent use of theory within stepparent and adolescent relationship research. *Journal of Divorce & Remarriage*, 35(3-4), 81-92. https://doi.org/10.1300/J087v35n03_05
- Robins, R. W., Gosling, S. D., & Craik, K. H. (1999). An empirical analysis of trends in psychology. *American Psychologist*, 54(2), 117-128. <https://doi.org/10.1037/0003-066X.54.2.117>
- Robinson, D. N. (1995). *An Intellectual History of Psychology*. (3rd Ed.). University of Wisconsin Press.
- Rocca, E., & Anjum, R. L. (2020). Causal evidence and dispositions in medicine and public health. *International Journal Of Environmental Research And Public Health*, 17(6), 1813. <https://doi.org/10.3390/ijerph17061813>
- Rochat, T. J., Arteché, A. X., Stein, A., Mitchell, J., & Bland, R. M. (2015). Maternal and child psychological outcomes of HIV disclosure to young children in rural South Africa: the Amagugu intervention. *AIDS (London, England)*, 29, S67-79. <https://doi.org/10.1097/QAD.0000000000000668>
- Rodriguez, V. J., Shaffer, A., Lee, T. K., Peltzer, K., Weiss, S. M., & Jones, D. L. (2020). Psychological and physical intimate partner violence and maternal depressive symptoms during the pre-and post-partum period among women living with HIV in rural South Africa. *Journal Of Family Violence*, 35(1), 73-83. <https://doi.org/10.1007/s10896-018-0027-8>

- Rodger, A. J., Cambiano, V., Bruun, T., Vernazza, P., Collins, S., van Lunzen, J., Corbelli, G. M., Estrada, V., Geretti, A. M., Beloukas, A., Asboe, D., Viciano, P., Gutiérrez, F., Clotet, B., Pradier, C., Gerstoft, J., Weber, R., Westling, K., Wandeler, G., & Prins, J. M. (2016). Sexual Activity Without Condoms and Risk of HIV Transmission in Serodifferent Couples When the HIV-Positive Partner Is Using Suppressive Antiretroviral Therapy. *JAMA*, *316*(2), 171. <https://doi.org/10.1001/jama.2016.5148>
- Rodger, A. J., Cambiano, V., Bruun, T., Vernazza, P., Collins, S., Degen, O., Corbelli, G. M., Estrada, V., Geretti, A. M., Beloukas, A., Raben, D., Coll, P., Antinori, A., Nwokolo, N., Rieger, A., Prins, J. M., Blaxhult, A., Weber, R., Van Eeden, A., & Brockmeyer, N. H. (2019). Risk of HIV transmission through condomless sex in serodifferent gay couples with the HIV-positive partner taking suppressive antiretroviral therapy (PARTNER): final results of a multicentre, prospective, observational study. *The Lancet*, *393*(10189). [https://doi.org/10.1016/s0140-6736\(19\)30418-0](https://doi.org/10.1016/s0140-6736(19)30418-0)
- Rogers, C. R. (1961). *On Becoming A Person*. Houghton Mifflin.
- Rogers, E. M. (2010). *Diffusion Of Innovations*. Simon and Schuster.
- Romer, D., & Hornik, R. (1992). HIV education for youth: The importance of social consensus in behaviour change. *AIDS Care*, *4*(3), 285–303. <https://doi.org/10.1080/09540129208253100>
- Romero-Daza, N., & Himmelgreen, D. (2018). More than money for your labor. Migration and the political economy of AIDS in Lesotho. In M. Singer (Ed.), *The Political Economy of AIDS* (pp. 185-204). Routledge.
- Rosa, E. M., & Tudge, J. (2013). Urie Bronfenbrenner's Theory of Human Development: Its Evolution From Ecology to Bioecology. *Journal of Family Theory & Review*, *5*(4), 243–258. <https://doi.org/10.1111/jftr.12022>
- Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health Education Monographs*, *2*(4), 328-335. <https://doi.org/10.1177/109019817400200403>
- Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1994). The health belief model and HIV risk behavior change. In R.J. DiClemente, & J.L. Peterson, *Preventing AIDS: Theories And Methods Of Behavioural Interventions* (pp. 5-24). Springer.
- Rothman, A. J. (2000). Toward a theory-based analysis of behavioral maintenance. *Health Psychology*, *19*(1S), 64. <https://doi.org/10.1037/0278-6133.19.suppl1.64>
- Rothman, A. J. (2004). "Is there nothing more practical than a good theory?": Why innovations and advances in health behavior change will arise if interventions are used to test and refine theory. *International Journal of Behavioral Nutrition and Physical Activity*, *1*(1), 11. <https://doi.org/10.1186/1479-5868-1-11>
- Rothman, K. J. (1976). Causes. *American Journal Of Epidemiology*, *104*(6), 587-592. <https://doi.org/10.1093/oxfordjournals.aje.a112335>
- Rothman, K. J. (2012). *Epidemiology: An Introduction*. Oxford university press.
- Rotter, J. B. (1954). *Social Learning And Clinical Psychology*. Prentice-Hall.
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, *80*(1), 1–28. <https://doi.org/10.1037/h0092976>
- Rountree, J. H. (1977). Systems thinking—Some fundamental aspects. *Agricultural Systems*, *2*(4), 247–254. [https://doi.org/10.1016/0308-521x\(77\)90019-1](https://doi.org/10.1016/0308-521x(77)90019-1)

- Royce, J. R. (1978). How we can best advance the construction of theory in psychology. *Canadian Psychological Review/Psychologie Canadienne*, 19(4), 259–276. <https://doi.org/10.1037/h0081480>
- Royce, J. R. (1987). A strategy for developing unifying theory in psychology. In A.W. Staats, L.P. Mos (Eds.), *Annals of Theoretical Psychology* (pp. 275-285). Springer.
- Ruiz-Perez, I., Murphy, M., Pastor-Moreno, G., Rojas-García, A., & Rodríguez-Barranco, M. (2017). The effectiveness of HIV prevention interventions in socioeconomically disadvantaged ethnic minority women: a systematic review and meta-analysis. *American Journal Of Public Health*, 107(12), e13-e21. <https://doi.org/10.2105/AJPH.2017.304067>
- Ruthven, J. S. (2016). “Making it personal”: ideology, the arts, and shifting registers in health promotion. *AIDS Care*, 28(sup4), 72–82. <https://doi.org/10.1080/09540121.2016.1195485>
- Rutter, M. (1990). Psychosocial resilience and protective mechanism. In J. Rolf, A. S. Masten, D. Chicchetti, K. H. Nuechterlein, S. Weintraub (Eds.), *Risk And Protective Factors In The Development Of Psychopathology: Vol. III: Social Competence In Children* (pp. 49-74). University Press.
- Rutter, H., Savona, N., Glonti, K., Bibby, J., Cummins, S., Finegood, D. T., Greaves, F., Harper, L., Hawe, P., Moore, L., Petticrew, M., Rehfuss, E., Shiell, A., Thomas, J., & White, M. (2017). The need for a complex systems model of evidence for public health. *The Lancet*, 390(10112), 2602–2604. [https://doi.org/10.1016/s0140-6736\(17\)31267-9](https://doi.org/10.1016/s0140-6736(17)31267-9)
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069–1081. <https://doi.org/10.1037/0022-3514.57.6.1069>
- Saal, W., & Kagee, A. (2011). The applicability of the Theory of Planned Behaviour in predicting adherence to ART among a South African sample. *Journal of Health Psychology*, 17(3), 362–370. <https://doi.org/10.1177/1359105311416875>
- Sadie, Y. (1992). Policy cycle in a transitional society: the national AIDS strategy in South Africa. *Plural Societies*, 22(1-2), 172-194.
- Sahasrabudde, V. V., & Vermund, S. H. (2009). Current and future trends: implications for HIV prevention. In K.H. Mayer, H.F. Pizer (Eds.), *HIV Prevention: A Comprehensive Approach* (pp. 11-30). Academic Press.
- Saleh-Onoya, D., Braxton, N. D., Sifunda, S., Reddy, P., Ruiter, R., van den Borne, B., Walters, T. P., Lang, D., & Wingood, G. M. (2008). SISTA South Africa: The adaptation of an efficacious HIV prevention trial conducted with African-American women for isiXhosa-speaking South African women. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 5(4), 186–191. <https://doi.org/10.1080/17290376.2008.9724918>
- Salia, S., Hussain, J., Tingbani, I., & Kolade, O. (2018). Is women empowerment a zero sum game? Unintended consequences of microfinance for women’s empowerment in Ghana. *International Journal of Entrepreneurial Behavior & Research*, 24(1), 273–289. <https://doi.org/10.1108/ijebr-04-2017-0114>
- Sallis, J. F., Owen, N., & Fisher, E. (2015). Ecological models of health behavior. In K. Glanz, B.K. Rimer, & K. Viswanath (Eds.), *Health Behavior And Health Education: Theory, Research, And Practice* (5th ed.). (pp. 465-485). Jossey-Bass.

- Salmon, J., Hesketh, K. D., Arundell, L., Downing, K. L., & Biddle, S. J. (2020). Changing behaviour using ecological models. In M. Hagger, L. D. Cameron, K. Hamilton, N. Hankonen, & T. Lintunen. (Eds.). (pp. 237-250). *The Handbook of Behavior Change*. Cambridge University Press.
- Saloner, R., & Cysique, L. A. (2017). HIV-associated neurocognitive disorders: a global perspective. *Journal of the International Neuropsychological Society*, 23(9-10), 860-869. <https://doi.org/10.1017/S1355617717001102>
- Salway, S., & Green, J. (2017). Towards a critical complex systems approach to public health. *Critical Public Health*, 27(5), 523–524. <https://doi.org/10.1080/09581596.2017.1368249>
- SANAC (2000). *HIV/AIDS/STD National Strategic Plan for South Africa 2000-2005*. <https://sanac.org.za/wp-content/uploads/2019/02/NSP-2000-2005.pdf>
- SANAC (2007). *HIV/AIDS/STD National Strategic Plan for South Africa 2007-2011*. http://data.unaids.org/pub/externaldocument/2007/20070604_sa_nsp_final_en.pdf
- SANAC (2011). *HIV/AIDS/STD National Strategic Plan for South Africa 2012-2016*. <http://www.health.gov.za/index.php/shortcodes/2015-03-29-10-42-47/2015-04-30-08-18-10/2015-04-30-08-21-56?download=579:hiv-national-strategic-plan-on-hiv-stis-and-tb-2012-2016-summary>
- SANAC (2017). *HIV/AIDS/STD National Strategic Plan for South Africa 2017-2022*. https://www.gov.za/sites/default/files/gcis_document/201705/nsp-hiv-tb-stia.pdf
- Sandfort, T., Bos, H., Knox, J., & Reddy, V. (2016). Gender Nonconformity, Discrimination, and Mental Health Among Black South African Men Who Have Sex with Men: A Further Exploration of Unexpected Findings. *Archives of Sexual Behavior*, 45(3), 661–670. <https://doi.org/10.1007/s10508-015-0565-6>
- Sani, A. S., Abraham, C., Denford, S., & Ball, S. (2016). School-based sexual health education interventions to prevent STI/HIV in sub-Saharan Africa: a systematic review and meta-analysis. *BMC Public Health*, 16(1), 1-26. <https://doi.org/10.1186/s12889-016-3715-4>
- Santelli, J. S., Kantor, L. M., Grilo, S. A., Speizer, I. S., Lindberg, L. D., Heitel, J., Schalet, A. T., Lyon, M. E., Mason-Jones, A. J., McGovern, T., Heck, C. J., Rogers, J., & Ott, M. A. (2017). Abstinence-Only-Until-Marriage: An Updated Review of U.S. Policies and Programs and Their Impact. *Journal of Adolescent Health*, 61(3), 273–280. <https://doi.org/10.1016/j.jadohealth.2017.05.031>
- Santelli, J. S., Speizer, I. S., & Edelstein, Z. R. (2013). Abstinence promotion under PEPFAR: The shifting focus of HIV prevention for youth. *Global Public Health*, 8(1), 1-12. <https://doi.org/10.1080/17441692.2012.759609>
- Santiago, M. L., Range, F., Keele, B. F., Li, Y., Bailes, E., Bibollet-Ruche, F., Fruteau, C., Noe, R., Peeters, M., Brookfield, J. F. Y., Shaw, G. M., Sharp, P. M., & Hahn, B. H. (2005). Simian Immunodeficiency Virus Infection in Free-Ranging Sooty Mangabeys (*Cercocebus atys atys*) from the Tai Forest, Cote d'Ivoire: Implications for the Origin of Epidemic Human Immunodeficiency Virus Type 2. *Journal of Virology*, 79(19), 12515–12527. <https://doi.org/10.1128/jvi.79.19.12515-12527.2005>

- Saul, J., Bachman, G., Allen, S., Toiv, N. F., Cooney, C., & Beamon, T. A. (2018). The DREAMS core package of interventions: a comprehensive approach to preventing HIV among adolescent girls and young women. *PloS ONE*, *13*(12), e0208167. <https://doi.org/10.1371/journal.pone.0208167>
- Sawaya, G. F., Chirenje, M. Z., Magure, M. T., Tuveson, J. L., Ma, Y., Shiboski, S. C., Da Costa, M. M., Palefsky, J. M., Moscicki, A.-B., Mutasa, R. M., Chipato, T., & Smith-McCune, K. K. (2008). Effect of diaphragm and lubricant gel provision on human papillomavirus infection among women provided with condoms. *Obstetrics & Gynecology*, *112*(5), 990–997. <https://doi.org/10.1097/aog.0b013e318189a8a4>
- Sawers, L., & Stillwaggon, E. (2010). Concurrent sexual partnerships do not explain the HIV epidemics in Africa: a systematic review of the evidence. *Journal of the International AIDS Society*, *13*(1), 34–34. <https://doi.org/10.1186/1758-2652-13-34>
- Sayer, A. (1997). Critical realism and the limits to critical social science. *Journal For The Theory Of Social Behaviour*, *27*(4), 473-488. <https://doi.org/10.1111/1468-5914.00052>
- Sayer, A. (2000). *Realism and Social Science*. Sage.
- Sayer, A. (2010). *Method In Social Science: A Realist Approach* (Revised 2nd ed.). Routledge.
- Schaaf, H. S. (2004). Human immunodeficiency virus infection and child sexual abuse. *South African Medical Journal*, *94*(9), 782-785. <https://www.ajol.info/index.php/samj/article/download/134579/124212>
- Schaalma, H., Aarø, L. E., Flisher, A. J., Mathews, C., Kaaya, S., Onya, H., Ragnarson, A., & Klepp, K.-I. (2009). Correlates of intention to use condoms among Sub-Saharan African youth: The applicability of the theory of planned behaviour. *Scandinavian Journal of Public Health*, *37*(2_suppl), 87–91. <https://doi.org/10.1177/1403494808090632>
- Schatz, E., Houle, B., Mojola, S. A., Angotti, N., & Williams, J. (2019). How to “live a good life”: Aging and HIV testing in rural South Africa. *Journal Of Aging And Health*, *31*(4), 709-732. <https://doi.org/10.1177/0898264317751945>
- Scheel, A. M., Tiokhin, L., Isager, P. M., & Lakens, D. (2021). Why hypothesis testers should spend less time testing hypotheses. *Perspectives on Psychological Science*, *16*(4), 744–755. <https://doi.org/10.1177/1745691620966795>
- Scheel, M. J., Berman, M., Friedlander, M. L., Conoley, C. W., Duan, C., & Whiston, S. C. (2011). Whatever happened to counseling in counseling psychology? *The Counseling Psychologist*, *39*, 673–692. <https://doi.org/10.1177/0011000010380278>
- Schechter, M., Do Lago, R. F., Mendelsohn, A. B., Moreira, R. I., Moulton, L. H., Harrison, L. H., & Praca Onze Study Team. (2004). Behavioral impact, acceptability, and HIV incidence among homosexual men with access to postexposure chemoprophylaxis for HIV. *Journal of Acquired Immune Deficiency Syndromes*, *35*(5), 519-525. <https://doi.org/10.1097/00126334-200404150-00010>
- Scheibe, A. P., Duby, Z., Brown, B., Sanders, E. J., & Bekker, L.-G. (2017). Attitude shifts and knowledge gains: Evaluating men who have sex with men sensitisation training for healthcare workers in the Western Cape, South Africa. *Southern African Journal of HIV Medicine*, *18*(1). <https://doi.org/10.4102/sajhivmed.v18i1.673>

- Schlebusch, L., Bedford, R., Bosch, B. A., & du Preez, M. R. (1991). Health care professionals' knowledge about AIDS, prejudice and attitudes towards AIDS. *South African Journal of Psychology*, 21(4), 247-254. <https://doi.org/10.1177/008124639102100408>
- Schlebusch, L., & Cassidy, M. J. (1995). Stress, social support and biopsychosocial dynamics in HIV-AIDS. *South African Journal of Psychology*, 25(1), 27-30. <https://doi.org/10.1177/008124639502500104>
- Schoon, M., & van der Leeuw, S. (2015). The shift toward social-ecological systems perspectives: insights into the human-nature relationship. *Natures Sciences Sociétés*, 23(2), 166–174. <https://doi.org/10.1051/nss/2015034>
- Schoub, B. D., Lyons, S. F., McGillivray, G. M., Smith, A. N., Johnson, S., & Fisher, E. L. (1987). Absence of HIV infection in prostitutes and women attending sexually-transmitted disease clinics in South Africa. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 81(5), 874-5. [https://doi.org/10.1016/0035-9203\(87\)90057-5](https://doi.org/10.1016/0035-9203(87)90057-5)
- Schoub, B. D., Smith, A.M., Lyons, S. F., Johnson, S., Martin, D.J., McGillivray, G. M., Padayachee, G.N., Naidoo, S., Fisher, E. L., & Hurwitz, H.S. (1988). Epidemiological considerations of the present status and future growth of the acquired immunodeficiency syndrome epidemic in South Africa. *SAMJ*, 74(20), 153-157. https://journals.co.za/docserver/fulltext/m_samj/74/4/8724.pdf?expires=1578054779&id=id&accname=guest&checksum=D65040864068F9E9A85309CD3CCDE79B
- Schriver, B., Mandal, M., Muralidharan, A., Nwosu, A., Dayal, R., Das, M., & Fehringer, J. (2016). Gender counts: A systematic review of evaluations of gender-integrated health interventions in low- and middle-income countries. *Global Public Health*, 12(11), 1335–1350. <https://doi.org/10.1080/17441692.2016.1149596>
- Schultz, D. P., & Schultz, S. E. (2011). *A History Of Modern Psychology*. (10th ed.). Cengage Learning.
- Scott, B. E., Weiss, H. A., & Viljoen, J. I. (2005). The acceptability of male circumcision as an HIV intervention among a rural Zulu population, Kwazulu-Natal, South Africa. *AIDS Care*, 17(3), 304-313. <https://doi.org/10.1080/09540120412331299744>
- Scott-Sheldon, L. A., Carey, K. B., Johnson, B. T., & Carey, M. P. (2017). Behavioral interventions targeting alcohol use among people living with HIV/AIDS: a systematic review and meta-analysis. *AIDS and Behavior*, 21(2), 126-143. <https://doi.org/10.1007/s10461-017-1886-3>
- Section27 (2018). *Standing Up for Our Lives: A History of The Access To Medicines Movement in South Africa*. <https://standingupforourlives.section27.org.za/>
- Sedyaningsih-Mamahit, E., Schinaia, N., Lazzari, S., Walker, N., & Vercauteren, G. (2004). The use of blood donor data for HIV surveillance purposes. *Aids*, 18(13), 1849-1851. <https://doi.org/10.1097/00002030-200409030-00016>
- Seedat, M. (1998). A Characterisation of South African Psychology (1948–1988): The Impact of Exclusionary Ideology. *South African Journal of Psychology*, 28(2), 74–84. <https://doi.org/10.1177/008124639802800204>

- Seeley, J., Watts, C. H., Kippax, S., Russell, S., Heise, L., & Whiteside, A. (2012). Addressing the structural drivers of HIV: a luxury or necessity for programmes?. *Journal of the International AIDS Society*, 15, (Suppl. 1), 17397. <https://doi.org/10.7448/IAS.15.3.17397>
- Seidel, G. (2004). Decisions and advice about infant feeding: findings from sociological work in KwaZulu-Natal, South Africa. *African Journal of AIDS Research*, 3(2), 167-177. <https://doi.org/10.2989/16085900409490331>
- Sekaly, R. P. (2008). The failed HIV Merck vaccine study: a step back or a launching point for future vaccine development?. *Journal of Experimental Medicine*, 205(1), 7-12. <https://doi.org/10.1084/jem.20072681>
- Sekgobela, C. B., Peu, D., & de Waal, M. (2020). Roles of role players in the implementation of school-based human immunodeficiency virus and acquired immunodeficiency syndrome prevention programmes in local high school settings. *Health SA*, 25. <https://doi.org/10.4102/hsag.v25i0.1301>
- Selesho, J. M. (2012). "Poverty and HIV/AIDS": Are they related? An ecological issue. *Journal of Human Ecology*, 37(1), 9-12. <https://doi.org/10.1080/09709274.2012.11906443>
- Seligman, M. E. P. (1998). Positive social science. *The APA Monitor Online* 29,(4), <http://www.apa.org/monitor/apr98/pres.html>
- Serovich, J. M. (2001). A test of two HIV disclosure theories. *AIDS Education and Prevention*, 13(4), 355–364. <https://doi.org/10.1521/aeap.13.4.355.21424>
- Serwadda, D., Mugerwa, R. D., Sewankambo, N. K., Lwegaba, A., Carswell, J. W., Kirya, G. B., Bayley, A. C., Downing, R. G., Tedder, R. S., Clayden, S. A., Weiss, R. A., & Dalglish, A. G. (1985). Slim disease: a new disease in Uganda and its association with HTLV-III infection. *Lancet (London, England)*, 2(8460), 849–852. [https://doi.org/10.1016/S0140-6736\(85\)90122-9](https://doi.org/10.1016/S0140-6736(85)90122-9)
- Shaffer, N., Chuachoowong, R., Mock, P. A., Bhadrakom, C., Siriwasin, W., Young, N. L., Chotpitayasunondh, T., Chearskul, S., Roongpisuthipong, A., Chinayon, P., Karon, J., Mastro, T. D., & Simonds, R. (1999). Short-course zidovudine for perinatal HIV-1 transmission in Bangkok, Thailand: a randomised controlled trial. *The Lancet*, 353(9155), 773–780. [https://doi.org/10.1016/s0140-6736\(98\)10411-7](https://doi.org/10.1016/s0140-6736(98)10411-7)
- Shattock, R. J., & Rosenberg, Z. (2011). Microbicides: Topical Prevention against HIV. *Cold Spring Harbor Perspectives in Medicine*, 2(2), a007385–a007385. <https://doi.org/10.1101/cshperspect.a007385>
- Shaw, M., & Costanzo, P. (1982). *Theories of Social Psychology*. McGraw-Hill.
- Sheeran, P. (2002). Intention-behavior relations: A conceptual and empirical review. In W. Stroebe & M. Hewstone (Eds.), *European Review Of Social Psychology* (Vol. 12, pp. 1–36). Wiley.
- Shelton, J. D. (2011). ARVs as HIV prevention: a tough road to wide impact. *Science*, 334(6063), 1645-1646. <https://doi.org/10.1126/science.1212353>
- Shelton, J. D., Halperin, D. T., Nantulya, V., Potts, M., Gayle, H. D., & Holmes, K. K. (2004). Partner reduction is crucial for balanced "ABC" approach to HIV prevention. *BMJ*, 328(7444), 891-893. <https://doi.org/10.1136/bmj.328.7444.891>

- Sherr, L., Christie, G., Sher, R., & Metz, J. (1989). Evaluation of the effectiveness of AIDS training and information courses. *South African medical journal*, 76(7), 358-362. <https://europepmc.org/article/med/2799582>
- Sherr, L., Croome, N., Clucas, C., & Brown, E. (2014). Differential effects of single and double parental death on child emotional functioning and daily life in South Africa. *Child Welfare*, 93(1), 149. <https://www.jstor.org/stable/48623424>
- Sherr, L., Macedo, A., Tomlinson, M., Skeen, S., & Cluver, L. D. (2017). Could cash and good parenting affect child cognitive development? A cross-sectional study in South Africa and Malawi. *BMC Pediatrics*, 17(1). <https://doi.org/10.1186/s12887-017-0883-z>
- Shinde, V., Bhikha, S., Hoosain, Z., Archary, M., Borhat, Q., Fairlie, L., Lalloo, U., Masilela, M. S. L., Moodley, D., Hanley, S., Fouche, L., Louw, C., Tameris, M., Singh, N., Goga, A., Dheda, K., Grobbelaar, C., Kruger, G., Carrim-Ganey, N., & Baillie, V. (2021). Efficacy of NVX-CoV2373 Covid-19 Vaccine against the B.1.351 Variant. *New England Journal of Medicine*, 384(20), 1899–1909. <https://doi.org/10.1056/nejmoa2103055>
- Shirley, A. (2010). *Theoretical and method trends guiding community psychology based HIV research and implications for marginalised groups* [Masters dissertation, University of the Witwatersrand]. <http://hdl.handle.net/10539/11264>
- Shisana, O., Rehle, T., Simbayi, L.C., Parker, W., Zuma, K., Bhana, A., Connolly, C., Jooste, S., Pillay, V. (2005). *South African National HIV Prevalence, HIV Incidence, Behaviour and Communication Survey*. HSRC Press. <https://www.hsrcpress.ac.za/books/south-african-national-hiv-prevalence-hiv-incidence-behaviour-and-communication-survey-2005>
- Shisana, O., Rehle, T., Simbayi, L.C., Zuma, K., Jooste, S., Zungu, N., Labadarios, D., Onoya, D., Ramlagan, S., Mbelle, N., Van Zyl, J., Davids, A. & Wabiri, N. (2014). *HSRC report: South African National HIV Prevalence, Incidence and Behaviour Survey, 2012*. HSRC Press. <https://www.hsrcpress.ac.za/books/south-african-national-hiv-prevalence-incidence-and-behaviour-survey-2012>
- Sidley, P. (2000). Mbeki dismisses “Durban declaration”. *BMJ*, 321(7253), 67. <https://doi.org/10.1136/bmj.321.7253.67/a>
- Siegal, F. P., Lopez, C., Hammer, G. S., Brown, A. E., Kornfeld, S. J., Gold, J., Hassett, J., Hirschman, S. Z., Cunningham-Rundles, C., Adelsberg, B. R., Parham, D. M., Siegal, M., Cunningham-Rundles, S., & Armstrong, D. (1981). Severe Acquired Immunodeficiency in Male Homosexuals, Manifested by Chronic Perianal Ulcerative Herpes Simplex Lesions. *New England Journal of Medicine*, 305(24), 1439–1444. <https://doi.org/10.1056/nejm198112103052403>
- Sigel, K., Swartz, T., Golden, E., Paranjpe, I., Somani, S., Richter, F., De Freitas, J. K., Miotto, R., Zhao, S., Polak, P., Mutetwa, T., Factor, S., Mehandru, S., Mullen, M., Cossarini, F., Bottinger, E., Fayad, Z., Merad, M., Gnjjatic, S., & Aberg, J. (2020). Coronavirus 2019 and People Living With Human Immunodeficiency Virus: Outcomes for Hospitalized Patients in New York City. *Clinical Infectious Diseases*, 71(11), 2933–2938. <https://doi.org/10.1093/cid/ciaa880>

- Simbayi, L. C., Kalichman, S. C., Skinner, D., Jooste, S., Cain, D., Cherry, C., Mathiti, V., Dlakulu, R., Unddermans, N., Bruinders, V., Jacobs, C., van Wyk, R., Arendse, C., Croome, J., & Bok, W. (2004). Theory-Based HIV Risk Reduction Counseling for Sexually Transmitted Infection Clinic Patients in Cape Town, South Africa. *Sexually Transmitted Diseases*, 31(12), 727–733. <https://doi.org/10.1097/01.olq.0000145849.35655.f1>
- Simbayi, L.C., Zuma, K., Zungu, N., Moyo, S., Marinda, E., Jooste, S., Mabaso, M., Ramlagan, S., North, A., van Zyl, J., Mohlabane, N., Dietrich, C., Naidoo, I., & the SABSSM V Team (2019) *South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, 2017*. <https://www.hsrbpress.ac.za/books/south-african-national-hiv-prevalence-incidence-behaviour-and-communication-survey-2017>
- Simelela, N. P., & Venter, W. D. F. (2014). A brief history of South Africa's response to AIDS. *South African Medical Journal*, 104(3), 249-251. <https://doi.org/10.7196/samj.7700>
- Simmons, J., Nelson, L. D., & Simonsohn, U. (2011). False-positive psychology: Undisclosed flexibility in data collection and analysis allows presenting anything as significant. *Psychological Science*, 22(11), 1359-1366. <https://doi.org/10.1177/0956797611417632>
- Simmons, J., Nelson, L., & Simonsohn, U. (2021). Pre-registration: Why and How. *Journal of Consumer Psychology*, 31(1), 151–162. <https://doi.org/10.1002/jcpy.1208>
- Simon, F., Maucière, P., Roques, P., Loussert-Ajaka, I., Müller-Trutwin, M. C., Saragosti, S., Georges-Courbot, M. C., Barré-Sinoussi, F., & Brun-Vézinet, F. (1998). Identification of a new human immunodeficiency virus type 1 distinct from group M and group O. *Nature Medicine*, 4(9), 1032–1037. <https://doi.org/10.1038/2017>
- Simoni, J. M., Nelson, K. M., Franks, J. C., Yard, S. S., & Lehavot, K. (2011). Are Peer Interventions for HIV Efficacious? A Systematic Review. *AIDS and Behavior*, 15(8), 1589–1595. <https://doi.org/10.1007/s10461-011-9963-5>
- Singer, M. (1996). A dose of drugs, a touch of violence, a case of AIDS: conceptualizing the SAVA syndemic. *Free Inquiry in Creative Sociology*, 24(2), 99–110. <http://156.110.192.75/ojs-2.4.8/index.php/FICS/article/view/1346>
- Sithole, E. (2000, 4 July). South African AIDS panel to validate HIV tests. *Reuters*. <https://web.archive.org/web/20080828194331/http://www.aegis.com/news/re/2000/RE000702.html>
- Skhosana, N. L., Struthers, H., Gray, G. E., & McIntyre, J. A. (2006). HIV disclosure and other factors that impact on adherence to antiretroviral therapy: the case of Soweto, South Africa. *African Journal of AIDS Research*, 5(1), 17-26. <https://doi.org/10.2989/16085900609490363>
- Skinner, D., Metcalf, C. A., Seager, J. R., De Swardt, J. S., & Laubscher, J. A. (1991). An evaluation of an education programme on HIV infection using puppetry and street theatre. *AIDS Care*, 3(3), 317-329. <https://doi.org/10.1080/09540129108253079>
- Skyttner, L. (2008). *General Systems Theory: Problems, Perspectives, Practice*. World Scientific.

- Slife, B. D., O'Grady, K. A., & Kosits, R. D. (2017). Introduction to Psychology's Worldviews. In B. D. Slife, K. A. O'Grady, & R. D. Kosits (Eds.), *The Hidden Worldviews of Psychology's Theory, Research, and Practice* (pp. 1–8). Routledge.
- Slife, B. D., & Williams, R. N. (1997). Toward a theoretical psychology: Should a subdiscipline be formally recognized? *American Psychologist*, *52*(2), 117–129. <https://doi.org/10.1037/0003-066x.52.2.117>
- Small, H., & Greenlee, E. (1989). A co-citation study of AIDS research. *Communication Research*, *16*(5), 642–666. <https://doi.org/10.1177/009365089016005006>
- Smit, J., Beksinska, M., Vijayakumar, G., & Mabude, Z. (2006a). Short-term acceptability of the Reality® polyurethane female condom and a synthetic latex prototype: a randomized crossover trial among South African women. *Contraception*, *73*(4), 394–398. <https://doi.org/10.1016/j.contraception.2005.10.019>
- Smit, J., Middelkoop, K., Myer, L., Seedat, S., Bekker, L.-G., & Stein, D. J. (2006b). Willingness to participate in HIV vaccine research in a peri-urban South African community. *International Journal of STD & AIDS*, *17*(3), 176–179. <https://doi.org/10.1258/095646206775809259>
- Smit, J., Middelkoop, K., Myer, L., Seedat, S., Wood, R., Stein, D. J., & Bekker, L. G. (2006c). Sexual risk factors associated with volunteering for HIV vaccine research in South Africa. *AIDS Care*, *18*(6), 569–573. <https://doi.org/10.1080/09540120500274976>
- Smith, K. E., & Pollak, S. D. (2021). Rethinking concepts and categories for understanding the neurodevelopmental effects of childhood adversity. *Perspectives on psychological science*, *16*(1), 67–93. <https://doi.org/10.1177/1745691620920725>
- Smith, M. J., & Liehr, P. R. (2014). *Middle Range Theory For Nursing*. (3rd Ed.). Springer.
- Sniehotta, F. F., Presseau, J., & Araújo-Soares, V. (2014). Time to retire the theory of planned behaviour. *Health Psychology Review*, *8*(1), 1–7. <https://doi.org/10.1080/17437199.2013.869710>
- Snow, R. C., Madalane, M., & Poulsen, M. (2010). Are men testing? Sex differentials in HIV testing in Mpumalanga Province, South Africa. *AIDS Care*, *22*(9), 1060–1065. <https://doi.org/10.1080/09540120903193641>
- Snyder, K., Wallace, M., Duby, Z., Aquino, L. D. H., Stafford, S., Hosek, S., Futterman, D., & Bekker, L.G. (2014). Preliminary results from Hlanganani (Coming Together): A structured support group for HIV-infected adolescents piloted in Cape Town, South Africa. *Children and Youth Services Review*, *45*, 114–121. <https://doi.org/10.1016/j.childyouth.2014.03.027>
- Sommerland, N., Masquillier, C., Rau, A., Engelbrecht, M., Kigozi, G., Pliakas, T., Janse van Rensburg, A., & Wouters, E. (2020). Reducing HIV- and TB-Stigma among healthcare co-workers in South Africa: Results of a cluster randomised trial. *Social Science & Medicine*, *266*, 113450. <https://doi.org/10.1016/j.socscimed.2020.113450>
- Soul City Institute (2018). *From “Health And Development” To Gender Justice*. <https://www.soulcity.org.za/about-us/history>
- Soul City Institute (2019a). *Soul City television series*. <https://www.soulcity.org.za/media/soul-city-series>

- Soul City Institute (2019b). *Soul Buddyz television series - Tomorrow is ours*.
<https://www.soulcity.org.za/media/soul-buddyz-tv>
- Soul City Institute (2019c). *Rise Young Women's Clubs*.
<https://www.soulcity.org.za/mobilisation/rise>
- South African Government Information (2000). *Speech of the President of South Africa, Thabo Mbeki, at the Opening Session of the 13th International Aids Conference, Durban, 9 July 2000*.
<https://web.archive.org/web/20110604103303/http://www.info.gov.za/speeches/2000/000714451p1001.htm>
- Sprangers, M.A.G., & Schwartz, C.E. (1999). Integrating response shift into health-related quality of life research: A theoretical model. *Social Science & Medicine*, 48, 1507-1515. [https://doi.org/10.1016/s0277-9536\(99\)00045-3](https://doi.org/10.1016/s0277-9536(99)00045-3)
- Stangl, A. L., Pliakas, T., Mainga, T., Steinhaus, M., Mubekapi-Musadaidzwa, C., Viljoen, L., Dunbar, R., Schaap, A., Floyd, S., Mandla, N., Virginia, B., Hoddinott, G., Fidler, S., Hayes, R., Ayles, H., Bock, P., Donnell, D., & Hargreaves, J. R. (2020). The effect of universal testing and treatment on HIV stigma in 21 communities in Zambia and South Africa. *AIDS*, 34(14), 2125-2135.
<https://doi.org/10.1097/QAD.0000000000002658>
- Stewart, G. T. (2000). The Durban Declaration is not accepted by all. *Nature*, 407(6802), 286. <https://doi.org/10.1038/35030200>
- Stats SA (2000). *Quantitative research findings on rape in South Africa*.
<http://www.statssa.gov.za/publications/Rape/Rape.pdf>
- Stats SA (2018). *Mortality and causes of death in South Africa, 2016: Findings from death notification*. <http://www.statssa.gov.za/publications/P03093/P030932016.pdf>
- Stats SA (2020). *Mid-year population estimates – 2020*.
<http://www.statssa.gov.za/publications/P0302/P03022020.pdf>
- Stats SA (2022a). *Mid-year population estimates – 2022*.
<https://www.statssa.gov.za/publications/P0302/P03022022.pdf>
- Stats SA (2022b). *General Household Survey, 2018*.
<https://www.statssa.gov.za/publications/P0318/P03182021.pdf>
- Steenberg, B. (2020). Patients and personhood: Perceptions of HIV in Mozambican immigrants in South Africa. *Medical Anthropology*, 39(3), 211–224.
<https://doi.org/10.1080/01459740.2019.1677646>
- Steenberg, B. (2020). Patients and Personhood: Perceptions of HIV in Mozambican Immigrants in South Africa. *Medical Anthropology*, 39(3), 211-224.
<https://doi.org/10.1080/01459740.2019.1677646>
- Stein, Z. A. (1990). HIV prevention: the need for methods women can use. *American Journal of Public Health*, 80(4), 460-462. <https://doi.org/10.2105/AJPH.80.4.460>
- Stein, J., Lewin, S., & Fairall, L. (2007). Hope is the pillar of the universe: health-care providers' experiences of delivering anti-retroviral therapy in primary health-care clinics in the Free State province of South Africa. *Social Science & Medicine*, 64(4), 954-964. <https://doi.org/10.1016/j.socscimed.2006.10.028>

- Stephenson, R., Bratcher, A., Mimiaga, M. J., Garofalo, R., Hidalgo, M. A., Hoehnle, S., & Sullivan, P. S. (2020). Brief Report. *Journal of Acquired Immune Deficiency Syndromes*, 83(3), 210–214. <https://doi.org/10.1097/qai.0000000000002240>
- Stephenson, R., de Voux, A., & Sullivan, P. S. (2011). Intimate partner violence and sexual risk-taking among men who have sex with men in South Africa. *Western Journal of Emergency Medicine*, 12(3), 343. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3117611/pdf/wjem12_3p0343.pdf
- Sternberg, R. J., Grigorenko, E. L., & Kalmar, D. A. (2001). The role of theory in unified psychology. *Journal of Theoretical and Philosophical Psychology*, 21(2), 99–117. <https://doi.org/10.1037/h0091200>
- Steyn, F., & Klopper, H. (2015). Ubi vuimus, quo vadimus Acta Criminologica?. *Acta Criminologica: African Journal of Criminology & Victimology*, 2015(sed-5), 1-18. <http://dx.doi.org/10.10520/EJC189475>
- Stinson, K., & Myer, L. (2012). Barriers to initiating antiretroviral therapy during pregnancy: a qualitative study of women attending services in Cape Town, South Africa. *African Journal of AIDS research*, 11(1), 65-73. <http://dx.doi.org/10.2989/16085906.2012.671263>
- Stokols, D. (1992). Establishing and maintaining healthy environments: Toward a social ecology of health promotion. *American Psychologist*, 47(1), 6–22. <https://doi.org/10.1037/0003-066x.47.1.6>
- Stokols, D. (1996). Translating Social Ecological Theory into Guidelines for Community Health Promotion. *American Journal of Health Promotion*, 10(4), 282–298. <https://doi.org/10.4278/0890-1171-10.4.282>
- Stoneburner, R. L., & Low-Beer, D. (2004). Population-level HIV declines and behavioral risk avoidance in Uganda. *Science*, 304(5671), 714-718. <https://doi.org/10.1126/science.1093166>
- Stoner, M. C. D., Kilburn, K., Godfrey-Faussett, P., Ghys, P., & Pettifor, A. E. (2021). Cash transfers for HIV prevention: A systematic review. *PLOS Medicine*, 18(11), e1003866. <https://doi.org/10.1371/journal.pmed.1003866>
- Strathdee, S. A., Hallett, T. B., Bobrova, N., Rhodes, T., Booth, R., Abdool, R., & Hankins, C. A. (2010). HIV and risk environment for injecting drug users: the past, present, and future. *The Lancet*, 376(9737), 268-284. [https://doi.org/10.1016/S0140-6736\(10\)60743-X](https://doi.org/10.1016/S0140-6736(10)60743-X)
- Strebel, A. (1992). “There's absolutely nothing I can do, Just believe in God”: South African women with AIDS. *Agenda*, 8(12), 50-62. <https://doi.org/10.1080/10130950.1992.9675179>
- Strumpf, D. (2006, 8 April). South Africa's Zuma Testimony pushes back AIDS battle. *Mail & Guardian*. http://www.natap.org/2006/newsUpdates/041106_05.htm
- Stryker, S. (2008). *Transgender History: The Roots Of Today's Revolution*. Seal Press.
- Stuart, G. S., & Grimes, D. A. (2009). Social desirability bias in family planning studies: a neglected problem. *Contraception*, 80(2), 108–112. <https://doi.org/10.1016/j.contraception.2009.02.009>
- Su, Y. Y. (2010). The failure of the American ABC HIV prevention model in Botswana. *SURG Journal*, 4(1), 93–100. <https://doi.org/10.21083/surg.v4i1.1278>

- Sullivan, G. B. (2008). What is the status of theoretical psychology in Australia and New Zealand? An investigation of contemporary teaching and research issues. *Australian Psychologist*, 43(1), 61–73. <https://doi.org/10.1080/00050060701537915>
- Surkan, P. J., Li, Y., Jacobson, L. P., Cox, C., Silvestre, A., Gorbach, P., Teplin, L., & Plankey, M. (2016). Unsafe Sexual Behavior Among Gay/Bisexual Men in the Era of Combination Antiretroviral Therapy (cART). *AIDS and Behavior*, 21(10), 2874–2885. <https://doi.org/10.1007/s10461-016-1614-4>
- Sussman, R., & Gifford, R. (2018). Causality in the Theory of Planned Behavior. *Personality and Social Psychology Bulletin*, 45(6), 920–933. <https://doi.org/10.1177/0146167218801363>
- Swart-Kruger, J., & Richter, L. M. (1997). AIDS-related knowledge, attitudes and behaviour among South African street youth: reflections on power, sexuality and the autonomous self. *Social Science & Medicine*, 45(6), 957–966. [https://doi.org/10.1016/S0277-9536\(96\)00417-0](https://doi.org/10.1016/S0277-9536(96)00417-0)
- Swartz, L., Kagee, A., Kafaar, Z., Smit, J., Bhana, A., Gray, G., Lesch, A., Lindegger, G., Milford, C., Richter, L., Seedat, S., Skhosana, N., & Stein, D. J. (2005). Social and behavioral aspects of child and adolescent participation in HIV vaccine trials. *Journal of the International Association of Physicians in AIDS Care*, 4(4), 89–92. <https://doi.org/10.1177/1545109705285033>
- Sweeney, P., Gardner, L. I., Buchacz, K., Garland, P. M., Mugavero, M. J., Bosshart, J. T., Shouse, R. L., & Bertolli, J. (2013). Shifting the Paradigm: Using HIV Surveillance Data as a Foundation for Improving HIV Care and Preventing HIV Infection. *Milbank Quarterly*, 91(3), 558–603. <https://doi.org/10.1111/milq.12018>
- Sweeny, K., Melnyk, D., Miller, W., & Shepperd, J. A. (2010). Information Avoidance: Who, What, When, and Why. *Review of General Psychology*, 14(4), 340–353. <https://doi.org/10.1037/a0021288>
- Sweileh, W. M. (2019). Bibliometric analysis of literature in AIDS-related stigma and discrimination. *Translational Behavioral Medicine*, 9(4), 617–628. <https://doi.org/10.1093/tbm/iby072>
- Swenson, R. R., Rizzo, C. J., Brown, L. K., Payne, N., DiClemente, R. J., Salazar, L. F., Vanable, P. A., Carey, M. P., Valois, R. F., Romer, D., & Hennessy, M. (2009). Prevalence and Correlates of HIV Testing Among Sexually Active African American Adolescents in 4 US Cities. *Sexually Transmitted Diseases*, 36(9), 584–591. <https://doi.org/10.1097/olq.0b013e3181b4704c>
- Szreter, S., & Woolcock, M. (2004). Health by association? Social capital, social theory, and the political economy of public health. *International Journal of Epidemiology*, 33(4), 650–667. <https://doi.org/10.1093/ije/dyh013>
- ‘t Hoen, E. (2002). TRIPS, pharmaceutical patents, and access to essential medicines: a long way from Seattle to Doha. *Chicago Journal of International Law*, 3(27), 27–46. <https://doi.org/10.4324/9781315254227-25>
- TAC (n.d.) *About*. <https://tac.org.za/category/about/>
- Tadesse, K., Haile, F., & Hiruy, N. (2014). Predictors of Mortality among Patients Enrolled on Antiretroviral Therapy in Aksum Hospital, Northern Ethiopia: A Retrospective Cohort Study. *PLoS ONE*, 9(1), e87392. <https://doi.org/10.1371/journal.pone.0087392>

- Tajfel, H. (1974). Social identity and intergroup behaviour. *Social Science Information*, 13(2), 65–93. <https://doi.org/10.1177/053901847401300204>
- Tajfel, H. (1982). Social Psychology of Intergroup Relations. *Annual Review of Psychology*, 33(1), 1–39. <https://doi.org/10.1146/annurev.ps.33.020182.000245>
- Tarimo, E. A., Francis, J. M., Kakoko, D., Munseri, P., Bakari, M., & Sandstrom, E. (2012). The perceptions on male circumcision as a preventive measure against HIV infection and considerations in scaling up of the services: a qualitative study among police officers in Dar es Salaam, Tanzania. *BMC Public Health*, 12(1), 529. <https://doi.org/10.1186/1471-2458-12-529>
- Tavory, I., & Swidler, A. (2009). Condom semiotics: Meaning and condom use in rural Malawi. *American Sociological Review*, 74(2), 171-189. <https://doi.org/10.1177/000312240907400201>
- Taylor, A. C., & Bagd, A. (2005). The lack of explicit theory in family research. In V.L. Bengston, A.C. Acock, K.R. Allen, P. Dilworth-Anderson, & D.M. Klein (Eds.), *Sourcebook of Family Theory & Research* (pp. 22-25). Sage.
- Taylor, M., Dlamini, S. B., Meyer-Weitz, A., Sathiparsad, R., Jinabhai, C. C., & Esterhuizen, T. (2010). Changing sexual behaviour to reduce HIV transmission – a multi-faceted approach to HIV prevention and treatment in a rural South African setting. *AIDS Care*, 22(11), 1395–1402. <https://doi.org/10.1080/09540121003720960>
- Taylor, S.E. (2003). *Health Psychology*. McGraw-Hill
- Tebit, D. M., & Arts, E. J. (2011). Tracking a century of global expansion and evolution of HIV to drive understanding and to combat disease. *The Lancet Infectious Diseases*, 11(1), 45–56. [https://doi.org/10.1016/s1473-3099\(10\)70186-9](https://doi.org/10.1016/s1473-3099(10)70186-9)
- Tenkorang, E. Y. (2013). A Multilevel Path Analysis of Risk Perception and Risky Sexual Behavior Under the Framework of the Health Belief Model. *Journal of HIV/AIDS & Social Services*, 12(2), 125–145. <https://doi.org/10.1080/15381501.2013.764489>
- Tenkorang, E. Y. (2014). Perceived vulnerability and HIV testing among youth in Cape Town, South Africa. *Health Promotion International*, 31(2), 270–279. <https://doi.org/10.1093/heapro/dau113>
- Terblanche, J., & van der Merwe, C. A. (1988). AIDS: an opinion survey of dentists in the Republic of South Africa. *The Journal of the Dental Association of South Africa*, 43(9), 405-408.
- Thairu, L. N., Peltó, G. H., Rollins, N. C., Bland, R. M., & Ntshangase, N. (2005). Sociocultural influences on infant feeding decisions among HIV-infected women in rural Kwa-Zulu Natal, South Africa. *Maternal and Child Nutrition*, 1(1), 2–10. <https://doi.org/10.1111/j.1740-8709.2004.00001.x>
- Thaler, R. H., & Sunstein, C. R. (2009). *Nudge: Improving Decisions About Health, Wealth, And Happiness*. Penguin
- The Durban Declaration (2000). *Nature*, 406, 15–16. <https://doi.org/10.1038/35017662>
- The Global Fund (2019). *Global Fund overview*. <https://www.theglobalfund.org/en/overview/>
- The Lancet HIV. (2015). PrEP: why are we waiting? *The Lancet HIV*, 2(10), e401. [https://doi.org/10.1016/s2352-3018\(15\)00185-x](https://doi.org/10.1016/s2352-3018(15)00185-x)

- The Lancet HIV. (2017). U=U taking off in 2017. *The Lancet HIV*, 4(11), e475.
[https://doi.org/10.1016/s2352-3018\(17\)30183-2](https://doi.org/10.1016/s2352-3018(17)30183-2)
- The Latin Dictionary (2010). *Lente*. <http://latindictionary.wikidot.com/adverb:lente>
- The New Humanitarian (2002). *Focus on the virgin myth and HIV/AIDS*.
<http://www.thenewhumanitarian.org/feature/2002/04/25/focus-virgin-myth-and-hivaids-0>
- Thembisa (n.d.). *The origin of the Thembisa model*. <https://www.thembisa.org/about>
- Thibaut, J., & Kelley, H. (1959). *The Social Psychology of Groups*. Wiley.
- Thigpen, M. C., Kebaabetswe, P. M., Paxton, L. A., Smith, D. K., Rose, C. E., Segolodi, T. M., Henderson, F. L., Pathak, S. R., Soud, F. A., Chillag, K. L., Mutanhaurwa, R., Chirwa, L. I., Kasonde, M., Abebe, D., Buliva, E., Gvetadze, R. J., Johnson, S., Sukalac, T., Thomas, V. T., & Hart, C. (2012). Antiretroviral Preexposure Prophylaxis for Heterosexual HIV Transmission in Botswana. *New England Journal of Medicine*, 367(5), 423–434. <https://doi.org/10.1056/nejmoa1110711>
- Thomas, L. S., & Valli, A. (2006). Levels of occupational stress in doctors working in a South African public-sector hospital: issues in medicine: SAMJ forum. *South African Medical Journal*, 96(11), 1162-1168. <https://hdl.handle.net/10520/EJC68626>
- Thupayagale-Tshweneagae, G. (2011). Development and implementation of a peer-based mental health support programme for adolescents orphaned by HIV/AIDS in South Africa. *Journal of Child & Adolescent Mental Health*, 23(2), 129–141.
<https://doi.org/10.2989/17280583.2011.634554>
- Thupayagale-Tshweneagae, G., & Mokomane, Z. (2012). Discrimination against South African adolescents orphaned by AIDS. *Journal Of Psychosocial Nursing And Mental Health Services*, 50(1), 26-31. <https://doi.org/10.3928/02793695-20111213-01>
- Thurman, A. R., & Doncel, G. F. (2011). Innate immunity and inflammatory response to trichomonas vaginalis and bacterial vaginosis: Relationship to HIV acquisition. *American Journal of Reproductive Immunology*, 65(2), 89
<https://doi.org/10.1111/j.1600-0897.2010.00902.x>
- Thurman, T. R., Brown, L., Richter, L., Maharaj, P., & Magnani, R. (2006). Sexual risk behavior among South African adolescents: is orphan status a factor?. *AIDS and Behavior*, 10(6), 627-635. <https://doi.org/10.1007/s10461-006-9104-8>
- Thurman, T. R., Nice, J., Taylor, T. M., & Luckett, B. (2017). Mitigating depression among orphaned and vulnerable adolescents: a randomized controlled trial of interpersonal psychotherapy for groups in South Africa. *Child and Adolescent Mental Health*, 22(4), 224–231. <https://doi.org/10.1111/camh.12241>
- Tibbits, M. K., Smith, E. A., Caldwell, L. L., & Flisher, A. J. (2011). Impact of HealthWise South Africa on polydrug use and high-risk sexual behavior. *Health Education Research*, 26(4), 653–663. <https://doi.org/10.1093/her/cyr024>
- Tilson, H. H. (2004). Adherence or compliance? Changes in terminology. *Annals of Pharmacotherapy*, 38(1), 161-162. <https://doi.org/10.1345/aph.1D207>
- Tomlinson, M., Rohleder, P., Swartz, L., Drimie, S., & Kagee, A. (2010). Broadening Psychology's contribution to addressing issues of HIV/AIDS, poverty and nutrition. *Journal of Health Psychology*, 15(7), 972–981.
<https://doi.org/10.1177/1359105310371399>

- Topazian, H. M., Stoner, M. C., Edwards, J. K., Kahn, K., Gómez-Olivé, F. X., Twine, R., Hughes, J.P., Cohen, M.S., & Pettifor, A. (2020). Variations in HIV risk by young women's age and partner age-disparity in rural South Africa (HPTN 068). *Journal Of Acquired Immune Deficiency Syndromes (1999)*, 83(4), 350. <https://doi.org/10.1097/QAI.0000000000002270>
- Townsend, L., & Dawes, A. (2007). Intentions to care for children orphaned by HIV/AIDS: A test of the Theory of Planned Behavior. *Journal of Applied Social Psychology*, 37(4), 822–843. <https://doi.org/10.1111/j.1559-1816.2007.00188.x>
- Traeder, C., Kowoll, S., & Arastéh, K. (2008). Candida infection in HIV positive patients 1985-2007. *Mycoses*, 51, 58–61. <https://doi.org/10.1111/j.1439-0507.2008.01574.x>
- Traeger, M. W., Schroeder, S. E., Wright, E. J., Hellard, M. E., Cornelisse, V. J., Doyle, J. S., & Stoové, M. A. (2018). Effects of pre-exposure prophylaxis for the prevention of human immunodeficiency virus infection on sexual risk behavior in men who have sex with men: a systematic review and meta-analysis. *Clinical Infectious Diseases*, 67(5), 676-686. <https://doi.org/10.1093/cid/ciy182>
- Treichler, P.A. (1999). *How to Have Theory in an Epidemic*. Duke University Press.
- Treves-Kagan, S., El Ayadi, A. M., Pettifor, A., MacPhail, C., Twine, R., Maman, S., ... & Lippman, S. A. (2017). Gender, HIV testing and stigma: the association of HIV testing behaviors and community-level and individual-level stigma in rural South Africa differ for men and women. *AIDS and Behavior*, 21(9), 2579-2588. <https://doi.org/10.1007/s10461-016-1671-8>
- Trinitapoli, J. (2009). Religious teachings and influences on the ABCs of HIV prevention in Malawi. *Social Science & Medicine*, 69(2), 199-209. <https://doi.org/10.1016/j.socscimed.2009.04.018>
- Tsai, A. C. (2012). A typology of structural approaches to HIV prevention: A commentary on Roberts and Matthews. *Social Science & Medicine*, 75(9), 1562–1567. <https://doi.org/10.1016/j.socscimed.2012.06.033>
- Tsampiras, C. (2015). From ‘dark country’ to ‘dark continent’: AIDS, ‘race’, and medical research in the South African Medical Journal, 1980–1995. *Journal of Southern African Studies*, 41(4), 773-796. <http://dx.doi.org/10.1080/03057070.2015.1051334>
- Tucker, A., de Swardt, G., Struthers, H., & McIntyre, J. (2013). Understanding the needs of township men who have sex with men (MSM) health outreach workers: exploring the interplay between volunteer training, social capital and critical consciousness. *AIDS and Behavior*, 17(1), 33-42. <https://doi.org/10.1007/s10461-012-0287-x>
- Tudge, J. R., Mokrova, I., Hatfield, B., & Karnik, R. B. (2009). Uses and misuses of Bronfenbrenner's bioecological theory of human development. *Journal of Family Theory and Review*, 1, 198–210. <https://doi.org/10.1111/j.1756-2589.2009.00026.x>
- Tudge, J. R., Payir, A., Merçon-Vargas, E., Cao, H., Liang, Y., Li, J., & O'Brien, L. (2016). Still misused after all these years? A reevaluation of the uses of Bronfenbrenner's bioecological theory of human development. *Journal of Family Theory & Review*, 8(4), 427-445. <https://doi.org/10.1111/jftr.12165>
- Turner, J.C. (1982) Towards a cognitive redefinition of the social group. In H. Tajfel (Ed.), *Social Identity and Intergroup Relations* (pp. 15-40). Cambridge University Press.

- Turner, G., & Shepherd, J. (1999). A method in search of a theory: peer education and health promotion. *Health Education Research*, 14(2), 235-247.
<https://doi.org/10.1093/her/14.2.235>
- UN (1982). *International Year of Mobilization for Sanctions against South Africa*.
<https://digitallibrary.un.org/record/611117?ln=en>
- UN (2016). *Political Declaration on HIV and AIDS: on the fast-track to accelerate the fight against HIV and to end the AIDS epidemic by 2030*.
https://www.unaids.org/sites/default/files/media_asset/2016-political-declaration-HIV-AIDS_en.pdf
- UNAIDS (2002). *Report on the global HIV/AIDS epidemic*.
http://data.unaids.org/pub/report/2002/brglobal_aids_report_en_pdf_red_en.pdf
- UNAIDS (2003). *AIDS epidemic update*.
http://data.unaids.org/pub/report/2003/2003_epiupdate_en.pdf
- UNAIDS (2006). *In message to observe world aids day, Secretary-General calls halting spread of disease prerequisite for attaining other millennium goals*.
<https://press.un.org/en/2006/sgsm10775.doc.htm>
- UNAIDS (2007). *Practical guidelines for intensifying HIV prevention: Towards universal access*.
http://data.unaids.org/pub/manual/2007/20070306_prevention_guidelines_towards_universal_access_en.pdf
- UNAIDS (2008). *UNAIDS: The first 10 years*.
http://data.unaids.org/pub/report/2008/jc1579_first_10_years_en.pdf
- UNAIDS (2009). *Talking about OneLove in Southern Africa*.
<https://www.unaids.org/en/resources/presscentre/featurestories/2009/february/20090206onelovesafrica>
- UNAIDS (2010). *Combination HIV Prevention: Tailoring and Coordinating Biomedical, Behavioural and Structural Strategies to Reduce New HIV Infections – An UNAIDS discussion paper*.
http://files.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/20111110_JC2007_Combination_Prevention_paper_en.pdf
- UNAIDS (2011). *World AIDS Day Report 2011*.
http://www.unaids.org/sites/default/files/en/media/unaids/contentassets/documents/unaidspublication/2011/JC2216_WorldAIDSday_report_2011_en.pdf
- UNAIDS (2014). *Fast-Track - Ending the AIDS epidemic by 2030*.
https://www.unaids.org/sites/default/files/media_asset/JC2686_WAD2014report_en.pdf
- UNAIDS (2015a). *How AIDS changed everything — MDG6: 15 years, 15 lessons of hope from the AIDS response*.
https://www.unaids.org/sites/default/files/media_asset/MDG6Report_en.pdf
- UNAIDS (2015b). *UNAIDS 2016–2021 Strategy: On the fast-track to end AIDS*.
https://www.unaids.org/sites/default/files/media_asset/20151027_UNAIDS_PCB37_15_18_EN_rev1.pdf

- UNAIDS (2017). *Ending AIDS: Progress towards the 90-90-90 targets*.
https://www.unaids.org/sites/default/files/media_asset/Global_AIDS_update_2017_en.pdf
- UNAIDS (2018). *Miles to go—closing gaps, breaking barriers, righting injustices*.
https://www.unaids.org/sites/default/files/media_asset/miles-to-go_en.pdf
- UNAIDS (2020a). *HVTN 702 clinical trial of an HIV vaccine stopped*.
https://www.unaids.org/en/resources/presscentre/pressreleaseandstatementarchive/2020/february/20200204_vaccine
- UNAIDS (2020b). *UNAIDS Data 2020*.
https://www.unaids.org/sites/default/files/media_asset/2020_aids-data-book_en.pdf
- UNAIDS (2022a). *UNAIDS Data 2021*.
https://www.unaids.org/sites/default/files/media_asset/JC3032_AIDS_Data_book_2021_En.pdf
- UNAIDS (2022b). *Fact sheet - Latest global and regional statistics on the status of the AIDS epidemic*. https://www.unaids.org/en/resources/documents/2022/UNAIDS_FactSheet
- UNAIDS (2022c). *In Danger: UNAIDS Global AIDS Update 2022*.
<https://www.unaids.org/en/resources/documents/2022/in-danger-global-aids-update>
- Underhill, K., Montgomery, P., & Operario, D. (2007). Sexual abstinence only programmes to prevent HIV infection in high income countries: systematic review. *BMJ*, 335(7613), 248. <https://doi.org/10.1136/bmj.39245.446586.BE>
- Ungar, M. (2012) Social ecologies and their contribution to resilience. In M. Ungar (Ed.), *The Social Ecology of Resilience*. Springer.
- UNICEF (2015). *Biennial Report South Africa, 2014-2015*.
https://www.unicef.org/southafrica/SAF_resources_biennialreport2014_2015.pdf
- Unsworth, K. (2001). Unpacking creativity. *Academy of Management Review*, 26(2), 289-297. <https://doi.org/10.5465/amr.2001.4378025>
- Upham, S. P., & Small, H. (2010). Emerging research fronts in science and technology: Patterns of new knowledge development. *Scientometrics*, 83(1), 15-38.
<https://doi.org/10.1007/s11192-009-0051-9>
- USAID (1997). *Children on the Brink: Strategies to support children isolated by HIV/AIDS*.
https://childhub.org/es/system/tdf/library/attachments/usaids_1997_children_on_the_brick.pdf?file=1&type=node&id=16746
- USAID (2001, 31 July). South Africa Launches AIDS Helpline. *All Africa*.
<https://allafrica.com/stories/200107310405.html>
- USAID (2012). *Office of HIV/AIDS timeline*.
<https://www.usaid.gov/sites/default/files/documents/1864/OHAtimeline.pdf>
- USAID (2019). *DREAMS: Partnership to reduce hiv/aids in adolescent girls and young women*. <https://www.usaid.gov/global-health/health-areas/hiv-and-aids/technical-areas/dreams>
- Uys, L. R. (2000). Confidentiality and HIV/AIDS in South Africa. *Nursing Ethics*, 7(2), 158-166. <https://doi.org/10.1177/096973300000700209>

- Uwah, C. (2014). Creating a culturally inclusive intervention mechanism for HIV/AIDS education in South Africa. *Journal of Human Ecology*, 46(2), 103-111. <https://doi.org/10.1080/09709274.2014.11906711>
- Uwah, C. (2015). Misplaced theories (?): Applied theatre intervention in the fight against HIV/AIDS in South Africa. *Journal of Communication*, 6(1), 145-151. <https://doi.org/10.1080/0976691X.2015.11884857>
- Vance, M. A. (2019). Conflicting views in narratives on HIV transmission via medical care. *Journal of the International Association of Providers of AIDS Care*, 18, 1-9. <https://doi.org/10.1177/2325958218821961>
- Van Damme, L., Ramjee, G., Alary, M., Vuylsteke, B., Chandeying, V., Rees, H., Sirivongrangson, P., Tshibaka, L. M., Ettiègne-Traoré, V., Uaheowitchai, C., Karim, S. S. A., Mâsse, B., Perriens, J., & Laga, M. (2002). Effectiveness of COL-1492, a nonoxynol-9 vaginal gel, on HIV-1 transmission in female sex workers: a randomised controlled trial. *The Lancet*, 360(9338), 971–977. [https://doi.org/10.1016/s0140-6736\(02\)11079-8](https://doi.org/10.1016/s0140-6736(02)11079-8)
- Van Damme, L., Corneli, A., Ahmed, K., Agot, K., Lombaard, J., Kapiga, S., Malahleha, M., Owino, F., Manongi, R., Onyango, J., Temu, L., Monedi, M. C., Mak’Oketch, P., Makanda, M., Reblin, I., Makatu, S. E., Saylor, L., Kiernan, H., Kirkendale, S., & Wong, C. (2012). Preexposure Prophylaxis for HIV Infection among African Women. *New England Journal of Medicine*, 367(5), 411–422. <https://doi.org/10.1056/nejmoa1202614>
- Van Den Berg, W., Hendricks, L., Hatcher, A., Peacock, D., Godana, P., & Dworkin, S. (2013). “One Man Can”: shifts in fatherhood beliefs and parenting practices following a gender-transformative programme in Eastern Cape, South Africa. *Gender & Development*, 21(1), 111–125. <https://doi.org/10.1080/13552074.2013.769775>
- Van Den Boom, W., Stolte, I. G., Witlox, R., Sandfort, T., Prins, M., & Davidovich, U. (2013). Undetectable viral load and the decision to engage in unprotected anal intercourse among HIV-positive MSM. *AIDS and Behavior*, 17(6), 2136-2142. <https://doi.org/10.1007/s10461-013-0453-9>
- Van De Perre, P., Lepage, P., Kestelyn, P., Hekker, AntonC., Rouvroy, D., Bogaerts, J., Kayihigi, J., Butzler, J.-P., & Clumeck, N. (1984). Acquired Immunodeficiency Syndrome in Rwanda. *The Lancet*, 324(8394), 62–65. [https://doi.org/10.1016/s0140-6736\(84\)90240-x](https://doi.org/10.1016/s0140-6736(84)90240-x)
- Van der Snoek, E. M., de Wit, J. B., Götz, H. M., Mulder, P. G., Neumann, M. H., & van der Meijden, W. I. (2006). Incidence of sexually transmitted diseases and HIV infection in men who have sex with men related to knowledge, perceived susceptibility, and perceived severity of sexually transmitted diseases and HIV infection: Dutch MSM-cohort study. *Sexually Transmitted Diseases*, 33(3), 193-198. <https://doi.org/10.1097/01.olq.0000194593.58251.8d>
- Van Dulmen, S., Sluijs, E., Van Dijk, L., de Ridder, D., Heerdink, R., & Bensing, J. (2007). Patient adherence to medical treatment: a review of reviews. *BMC Health Services Research*, 7(1), 55-68. <https://doi.org/10.1186/1472-6963-7-55>
- Van Dyk, A. C. (2007). Occupational stress experienced by caregivers working in the HIV/AIDS field in South Africa. *African Journal of AIDS Research*, 6(1), 49–66. <https://doi.org/10.2989/16085900709490399>

- Van Dyk, A. C. (2010). Treatment adherence following national antiretroviral rollout in South Africa. *African Journal of AIDS Research*, 9(3), 235–247. <https://doi.org/10.2989/16085906.2010.530177>
- Van Dyk, A. C., & Van Dyk, P. J. (2003). “What is the point of knowing?”: psychosocial barriers to HIV/AIDS voluntary counselling and testing programmes in South Africa. *South African Journal of Psychology*, 33(2), 118-125. <https://doi.org/10.1177/008124630303300207>
- Van Eck, N. J., & Waltman, L. (2014). *Systematic Retrieval of Scientific Literature based on Citation Relations: Introducing the CitNetExplorer Tool*. BIR@ ECIR (pp. 13-20). <http://ceur-ws.org/Vol-1143/paper2.pdf>
- Van Elsland, S. L., Peters, R. P., Grobbelaar, C., Ketelo, P., Kok, M. O., Cotton, M. F., & Van Furth, A. (2019). Disclosure of human immunodeficiency virus status to children in South Africa: A comprehensive analysis. *Southern African Journal Of HIV Medicine*, 20(1), 1-10. <http://dx.doi.org/10.4102/sajhivmed.v20i1.884>
- Van Graan, A., Van der Walt, E., & Watson, M. (2007). Community-based care of children with HIV in Potchefstroom, South Africa. *African Journal of AIDS Research*, 6(3), 305–313. <https://doi.org/10.2989/16085900709490426>
- Van Griensven, F., Thienkrua, W., Sukwicha, W., Wimonsate, W., Chaikummao, S., Varangrat, A., & Mock, P. A. (2010). Sex frequency and sex planning among men who have sex with men in Bangkok, Thailand: implications for pre-and post-exposure prophylaxis against HIV infection. *Journal of the International AIDS Society*, 13(1), 13. <https://doi.org/10.1186/1758-2652-13-13>
- Vanley, G., Huberman, R., & Lufkin, R. (1982). Atypical *Pneumocystis carinii* pneumonia in homosexual men with unusual immunodeficiency. *American Journal of Roentgenology*, 138(6), 1037–1041. <https://doi.org/10.2214/ajr.138.6.1037>
- Van Loggerenberg, F., Grant, A. D., Naidoo, K., Murrman, M., Gengiah, S., Gengiah, T. N., Fielding, K., & Abdool Karim, S. S. (2015). Individualised motivational counselling to enhance adherence to antiretroviral therapy is not superior to didactic counselling in south african patients: Findings of the CAPRISA 058 randomised controlled trial. *AIDS and Behavior*, 19(1), 145–156. <https://doi.org/10.1007/s10461-014-0763-6>
- Van Luenen, S., Garnefski, N., Spinhoven, P., Spaan, P., Dusseldorp, E., & Kraaij, V. (2018). The benefits of psychosocial interventions for mental health in people living with HIV: a systematic review and meta-analysis. *AIDS and Behavior*, 22(1), 9-42. <https://doi.org/10.1007/s10461-017-1757-y>
- Van Noorden, R. (2015). Interdisciplinary research by the numbers. *Nature*, 525(7569), 306-307. <https://www.nature.com/news/interdisciplinary-research-by-the-numbers-1.18349>
- Van Staden, F., & Visser, D. (1990). Analysis of themes and statistical techniques: A review of the past decade of the South African Journal of Psychology. *South African Journal of Psychology*, 20(1), 47-55. <https://doi.org/10.1177/008124639002000107>
- van Vlaenderen, H., & Neves, D. (2004). Participatory Action Research and local knowledge in community contexts. In D. Hook. (Ed.). *Critical Psychology* (pp. 445–464). UCT Press.

- Varga, C., & Brookes, H. (2008). Factors influencing teen mothers' enrollment and participation in prevention of mother-to-child HIV transmission services in Limpopo Province, South Africa. *Qualitative Health Research, 18*(6), 786-802. <https://doi.org/10.1177/1049732308318449>
- Velasco-Hernandez, J. X., Gershengorn, H. B., & Blower, S. M. (2002). Could widespread use of combination antiretroviral therapy eradicate HIV epidemics?. *The Lancet Infectious Diseases, 2*(8), 487-493. [https://doi.org/10.1016/S1473-3099\(02\)00346-8](https://doi.org/10.1016/S1473-3099(02)00346-8)
- Velloza, J., Khoza, N., Scorgie, F., Chitukuta, M., Mutero, P., Mutiti, K., Mangxilana, N., Nobula, L., Bulterys, M.A., Atujuna, M., Hosek, S., Heffron, R., Bekker, L.G., Mgodini, N., Chirenje, M., Celum, C., Delany-Moretlwe, S., & HPTN 082 Study Group. (2020). The influence of HIV-related stigma on PrEP disclosure and adherence among adolescent girls and young women in HPTN 082: a qualitative study. *Journal of the International AIDS Society, 23*(3), e25463. <https://doi.org/10.1002/jia2.25463>
- Ven, P. V. de, Mao, L., Fogarty, A., Rawstorne, P., Crawford, J., Prestage, G., Grulich, A., Kaldor, J., & Kippax, S. (2005). Undetectable viral load is associated with sexual risk taking in HIV serodiscordant gay couples in Sydney. *AIDS, 19*(2), 179–184. <https://doi.org/10.1097/00002030-200501280-00010>
- Vickerman, P., Quaife, M., Kilbourne-Brook, M., Mvundura, M., Eakle, R., & Terris-Prestholt, F. (2020). HIV prevention is not all about HIV – using a discrete choice experiment among women to model how the uptake and effectiveness of HIV prevention products may also rely on pregnancy and STI protection. *BMC Infectious Diseases, 20*(1). <https://doi.org/10.1186/s12879-020-05399-4>
- Vincent, S., & O'Mahoney, J. (2018). Critical realism and qualitative research: An introductory overview. In C. Cassell, A. L. Cunliffe, & G. Grandy (Eds.), *The Sage handbook of qualitative business and management research methods: History and traditions* (pp. 201-216). Sage Publications.
- Visser, M. (1996). Evaluation of the First AIDS Kit, the AIDS and lifestyle education programme for teenagers. *South African Journal of Psychology, 26*(2), 103-113. <https://doi.org/10.1177/008124639602600206>
- Visser, M. (2018). Change in HIV-related stigma in South Africa between 2004 and 2016: a cross-sectional community study. *AIDS Care, 30*(6), 734–738. <https://doi.org/10.1080/09540121.2018.1425365>
- Visser, M., & Hlungwani, A. J. (2020). Maternal HIV status disclosure to young uninfected children: Psychological variables of the mother. *African Journal of AIDS Research, 19*(1), 48-56. <https://doi.org/10.2989/16085906.2019.1681481>
- Visser, M. J., Kershaw, T., Makin, J. D., & Forsyth, B. W. (2008). Development of parallel scales to measure HIV-related stigma. *AIDS and Behavior, 12*(5), 759-771. <https://doi.org/10.1007/s10461-008-9363-7>
- Visser, M. J., Makin, J. D., & Lehobye, K. (2006). Stigmatizing attitudes of the community towards people living with HIV/AIDS. *Journal of Community & Applied Social Psychology, 16*(1), 42-58. <https://doi.org/10.1002/casp.836>
- Visser, M., & Sipsma, H. (2013). The experience of HIV-related stigma in South Africa. In P. Liamputtong (Ed.), *Stigma, discrimination and living with HIV/AIDS* (pp. 205-227). Springer.

- Visser, M., Zungu, N., & Ndala-Magoro, N. (2015). ISIBINDI, creating circles of care for orphans and vulnerable children in South Africa: Post-programme outcomes. *AIDS Care*, 27(8), 1014-1019. <https://doi.org/10.1080/09540121.2015.1018861>
- Vivien, B.A. (2014). Methodological considerations in constructing a theoretical framework of terminological awareness in healthcare communication. *Working Papers in Language Pedagogy*, 9, 23-40. <http://langped.elte.hu/WoPaLParticles/W8Bako.pdf>
- Von Bertalanffy, L. V. (1968). *General system theory: Foundations, development, applications*. G. Braziller.
- Volberding, P. A., Lagakos, S. W., Grimes, J. M., Stein, D. S., Balfour, H. H., Reichman, R. C., & Fischl, M. A. (1994). The duration of zidovudine benefit in persons with asymptomatic HIV infection: prolonged evaluation of protocol 019 of the AIDS Clinical Trials Group. *Jama*, 272(6), 437-442. <https://doi.org/10.1001/jama.1994.03520060037029>
- Vujovic, M., Struthers, H., Meyersfeld, S., Dlamini, K., & Mabizela, N. (2014). Addressing the sexual and reproductive health needs of young adolescents living with HIV in South Africa. *Children and Youth Services Review*, 45, 122-128. <https://doi.org/10.1016/j.chilyouth.2014.03.028>
- Wagemans, J. (2015). Historical and conceptual background: Gestalt theory. In J. Feldman, & J. Wagemans (Eds.), *The Oxford Handbook of Perceptual Organization* (pp. 3-20). Oxford.
- Walker, L. O., & Avant, K. C. (2011). *Strategies For Theory Construction In Nursing* (5th Ed.). Pearson/Prentice Hall.
- Wallerstein, N. (1992). Powerlessness, empowerment, and health: implications for health promotion programs. *American Journal of Health Promotion*, 6(3), 197-205. <https://doi.org/10.4278/0890-1171-6.3.197>
- Wallerstein, N. (1993). Empowerment and health: The theory and practice of community change. *Community Development Journal*, 28(3), 218-227. <https://doi.org/10.1093/cdj/28.3.218>
- Ward, H., & Rönn, M. (2010). The contribution of STIs to the sexual transmission of HIV. *Current Opinion in HIV and AIDS*, 5(4), 305. <https://doi.org/10.1097/COH.0b013e32833a8844>
- Ware, N. C., Wyatt, M. A., Haberer, J. E., Baeten, J. M., Kintu, A., Psaros, C., Safren, S., Tumwesigye, E., Celum, C. L., & Bangsberg, D. R. (2012). What's Love Got to Do With It? Explaining Adherence to Oral Antiretroviral Pre-Exposure Prophylaxis for HIV-Serodiscordant Couples. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 59(5), 463-468. <https://doi.org/10.1097/qai.0b013e31824a060b>
- Warner, L., & Stone, K. M. (2007). Male condoms. In S.O. Aral, J.M. Douglas, & J.A. Lipshutz (pp. 232-247). *Behavioral Interventions for Prevention and Control of Sexually Transmitted Diseases*. Springer.
- Watanabe, T. (2010). Metascientific foundations for pluralism in psychology. *New Ideas in Psychology*, 28(2), 253-262. <https://doi.org/10.1016/j.newideapsych.2009.09.019>
- Watermeyer, J. (2015). 'Are we allowed to disclose?': a healthcare team's experiences of talking with children and adolescents about their HIV status. *Health Expectations*, 18(4), 590-600. <https://doi.org/10.1111/hex.12141>

- Wasti, S. P., Van Teijlingen, E., Simkhada, P., Randall, J., Baxter, S., Kirkpatrick, P., & Gc, V. S. (2012). Factors influencing adherence to antiretroviral treatment in Asian developing countries: a systematic review. *Tropical Medicine & International Health*, 17(1), 71-81. <https://doi.org/10.1111/j.1365-3156.2011.02888.x>
- Wawrzyniak, A. J., Ownby, R. L., McCoy, K., & Waldrop-Valverde, D. (2013). Health literacy: impact on the health of HIV-infected individuals. *Current HIV/AIDS Reports*, 10(4), 295-304. <https://doi.org/10.1007/s11904-013-0178-4>
- Waxman, A. M., Humphries, H., Frohlich, J., Dlamini, S., & Ntombela, F. (2016). Young women's life experiences and perceptions of sexual and reproductive health in rural KwaZulu-Natal South Africa. *Culture, Health & Sexuality*, 18(10), 1122–1136. <https://doi.org/10.1080/13691058.2016.1182215>
- Webb, S. (2000). Feminist methodologies for social researching. In D. Burton. (Ed.), *Research Training For Social Scientists: A Handbook For Postgraduate Researchers*. (pp. 33-48). Sage.
- Webb, T. L., Joseph, J., Yardley, L., & Michie, S. (2010). Using the internet to promote health behavior change: A systematic review and meta-analysis of the impact of theoretical basis, use of behavior change techniques, and mode of delivery on efficacy. *Journal of Medical Internet Research*, 12(1), e4. <https://doi.org/10.2196/jmir.1376>
- Wechsberg, W. M., Bonner, C. P., Zule, W. A., van der Horst, C., Ndirangu, J., Browne, F. A., Kline, T. L., Howard, B. N., & Rodman, N. F. (2019). Addressing the nexus of risk: Biobehavioral outcomes from a cluster randomized trial of the Women's Health CoOp Plus in Pretoria, South Africa. *Drug and Alcohol Dependence*, 195, 16–26. <https://doi.org/10.1016/j.drugalcdep.2018.10.036>
- Wechsberg, W. M., Jewkes, R., Novak, S. P., Kline, T., Myers, B., Browne, F. A., Carney, T., Morgan Lopez, A. A., & Parry, C. (2013a). A brief intervention for drug use, sexual risk behaviours and violence prevention with vulnerable women in South Africa: a randomised trial of the Women's Health CoOp. *BMJ Open*, 3(5). <https://doi.org/10.1136/bmjopen-2013-002622>
- Wechsberg, W. M., Myers, B., Reed, E., Carney, T., Emanuel, A. N., & Browne, F. A. (2013b). Substance use, gender inequity, violence and sexual risk among couples in Cape Town. *Culture, Health & Sexuality*, 15(10), 1221–1236. <https://doi.org/10.1080/13691058.2013.815366>
- Wechsberg, W. M., Ndirangu, J. W., Speizer, I. S., Zule, W. A., Gumula, W., Peasant, C., Browne, F.A., & Dunlap, L. (2017). An implementation science protocol of the Women's Health CoOp in healthcare settings in Cape Town, South Africa: A stepped-wedge design. *BMC Women's Health*, 17(1), 1-11. <https://doi.org/10.1186/s12905-017-0433-8>
- Wechsberg, W. M., Zule, W. A., El-Bassel, N., Doherty, I. A., Minnis, A. M., Novak, S. D., Myers, B., & Carney, T. (2016). The male factor: Outcomes from a cluster randomized field experiment with a couples-based HIV prevention intervention in a South African township. *Drug and Alcohol Dependence*, 161, 307–315. <https://doi.org/10.1016/j.drugalcdep.2016.02.017>
- Weine, S. M., & Kashuba, A. B. (2012). Labor migration and HIV risk: a systematic review of the literature. *AIDS and Behavior*, 16(6), 1605-1621. <https://doi.org/10.1007/s10461-012-0183-4>

- Weinrib, R., Browne, E. N., Shapley-Quinn, M. K., van der Straten, A., Beksinska, M., Mgodhi, N., Musara, P., Mphili, N., Schwartz, J.L., Ju, S., Hanif, H., & Montgomery, E. T. (2020). Perspectives from young south African and Zimbabwean women on attributes of four (placebo) vaginal microbicide delivery forms. *AIDS and Behavior*, 24(2), 637-647. <https://doi.org/10.1007/s10461-019-02576-8>
- Weiser, S. D., Young, S. L., Cohen, C. R., Kushel, M. B., Tsai, A. C., Tien, P. C., Hatcher, A.M., Frongillo, E.A., & Bangsberg, D. R. (2011). Conceptual framework for understanding the bidirectional links between food insecurity and HIV/AIDS. *The American Journal Of Clinical Nutrition*, 94(6), 1729S-1739S. <https://doi.org/10.3945/ajcn.111.012070>
- Weller, S., & Davis, K. (2001). Condom Effectiveness in Reducing Heterosexual HIV Transmission. *The Cochrane Database Of Systematic Reviews*, 3, CD003255. <https://doi.org/10.1002/14651858.CD003255>
- Wertheim, J. O., & Worobey, M. (2009). Dating the age of the SIV lineages that gave rise to HIV-1 and HIV-2. *PLoS Computational Biology*, 5(5). <https://doi.org/10.1371/journal.pcbi.1000377>
- Wertz, F. J. (2001). Humanistic psychology and the qualitative research tradition. In K.J. Schneider, J.F.T. Bugental, J. F. Pierson (Eds.), *The handbook of humanistic psychology: Leading edges in theory, research, and practice* (pp. 231-245). Sage Publications.
- Western Cape Government (2016). *Choice condoms go to the Max*. <https://www.westerncape.gov.za/general-publication/choice-condoms-go-max>
- Whitley, B. E., Kite, M. E., & Adams, H. L. (2013). *Principles Of Research In Behavioral Science*. Routledge.
- Whittington, R. (1988). Environmental structure and theories of strategic choice. *Journal Of Management Studies*, 25(6), 521-536. <https://doi.org/10.1111/j.1467-6486.1988.tb00045.x>
- WHO (1986). *The Ottawa Charter*. https://www.euro.who.int/data/assets/pdf_file/0004/129532/Ottawa_Charter.pdf
- WHO (1990). Interim proposal for a WHO staging system for HIV infection and disease. *Weekly Epidemiological Record*, 65(29), 221-224. <https://doi.org/10.1371/journal.pcbi.1000377>
- WHO (2002). *Scaling up antiretroviral therapy in resource-limited settings*. https://www.who.int/hiv/pub/prev_care/en/ScalingUp_E.pdf?ua=1
- WHO (2003a). *World Health Organization says failure to deliver AIDS medicines is a global health emergency*. <https://www.who.int/mediacentre/news/releases/2003/pr67/en/>
- WHO (2003b). *Treating 3 million by 2005: making it happen: The WHO strategy*. <https://www.who.int/3by5/publications/documents/en/3by5StrategyMakingItHappen.pdf>
- WHO (2003c). *Message on World AIDS Day 2002 by Kofi Annan*. http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S0256-95742015000900005

- WHO (2004). *Scaling up antiretroviral therapy in resource-limited settings: treatment guidelines for a public health approach—2003 revision*.
http://www.who.int/hiv/pub/prev_care/en/arvrevision2003en.pdf
- WHO (2007). *Guidance on provider-initiated HIV testing and counselling in health facilities*.
https://apps.who.int/iris/bitstream/handle/10665/43688/9789241595568_eng.pdf;jsessionid=C0CC546DD64B34C7FE5FFC07D89D4D33?sequence=1
- WHO (2008). *Closing the gap in a generation: health equity through action on the social determinants of health - Final report of the commission on social determinants of health*. <https://apps.who.int/iris/rest/bitstreams/65985/retrieve>
- WHO (2009). *World Health Assembly, 62. Reducing health inequities through action on the social determinants of health*. <https://apps.who.int/iris/handle/10665/2257>
- WHO (2010a). *Screening donated blood for transfusion-transmissible infections: Recommendations*.
<https://www.who.int/bloodsafety/ScreeningDonatedBloodforTransfusion.pdf>
- WHO (2010b). *Adherence to longterm therapies: Evidence for action*.
http://www.who.int/chp/knowledge/publications/adherence_report/en/
- WHO (2012a). *Antiretroviral Treatment as Prevention (TasP) of HIV and TB*.
https://apps.who.int/iris/bitstream/handle/10665/70904/WHO_HIV_2012.12_eng.pdf;jsessionid=1A74DDECB37A31D745FBF706D992F133?sequence=1
- WHO (2012b). *Technical guide for countries to set targets for universal access to HIV prevention, treatment and care for injecting drug users*.
https://apps.who.int/iris/bitstream/handle/10665/77969/9789241504379_eng.pdf?ua=1
- WHO (2015). *Guideline on when to start antiretroviral therapy and on pre-exposure prophylaxis for HIV*.
https://apps.who.int/iris/bitstream/handle/10665/186275/9789241509565_eng.pdf;jsessionid=89D05EA93910389A12AE3D54325983C2?sequence=1
- WHO (2016a). *WHO validates countries' elimination of mother-to-child transmission of HIV and syphilis*. <https://www.who.int/news/item/08-06-2016-who-validates-countries-elimination-of-mother-to-child-transmission-of-hiv-and-syphilis>
- WHO (2016b). *Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations – 2016 update*.
<https://apps.who.int/iris/bitstream/handle/10665/246200/9789241511124-eng.pdf?sequence=1>
- WHO (2018). *Report on global sexually transmitted infection surveillance 2018*.
<https://apps.who.int/iris/bitstream/handle/10665/277258/9789241565691-eng.pdf?ua=1>
- WHO (2018). *Viral suppression for HIV treatment success and prevention of sexual transmission of HIV*. <https://www.who.int/hiv/mediacentre/news/viral-suppression-hiv-transmission/en/>
- WHO & UNAIDS (2006). *Progress on global access to HIV antiretroviral therapy: a report on "3 by 5" and beyond*. https://www.who.int/hiv/fullreport_en_highres.pdf
- Wiener, N. (1948/2019). *Cybernetics or Control and Communication in the Animal and the Machine*. MIT press.

- Wiggins, B. J., & Christopherson, C. D. (2019). The replication crisis in psychology: An overview for theoretical and philosophical psychology. *Journal of Theoretical and Philosophical Psychology*, 39(4), 202–217. <https://doi.org/10.1037/teo0000137>
- Wight, D., Wimbush, E., Jepson, R., & Doi, L. (2014). Six Steps in Quality Intervention Development (6SQUID). *European Journal of Public Health*, 24(suppl_2). <https://doi.org/10.1093/eurpub/cku161.114>
- Wilde, G. J. S. (1982). The Theory of Risk Homeostasis: Implications for Safety and Health. *Risk Analysis*, 2(4), 209–225. <https://doi.org/10.1111/j.1539-6924.1982.tb01384.x>
- Wilde, G. J. S. (1998). Risk homeostasis theory: an overview. *Injury Prevention*, 4(2), 89-91. <https://doi.org/10.1136/ip.4.2.89>
- Wilkinson, D., Karim, S. A., Harrison, A., Lurie, M., Colvin, M., Connolly, C., & Sturm, A. W. (1999). Unrecognized sexually transmitted infections in rural South African women: a hidden epidemic. *Bulletin of the World Health Organization*, 77(1), 22. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2557569/>
- Wilkinson, D., & Wilkinson, N. (2001). Acceptability of prenatal, voluntary HIV counselling and testing and interventions to reduce mother-to-child transmission of HIV infection in rural South Africa. *South African Medical Journal*, 91(1), 48-49. <https://www.researchonline.mq.edu.au/vital/access/services/Download/mq:28394/DS01>
- Williams, B., & Campbell, C. (1996). Mines, migrancy and HIV in South Africa – managing the epidemic. *South African Medical Journal*, 86(10), 1249-1251.
- Williams, B., & Campbell, C. (1998). Understanding the epidemic of HIV in South Africa. *South African Medical Journal*, 88(3), 247-250. <https://www.ajol.info/index.php/samj/article/viewFile/148939/138441>
- Williams, B., MacPhail, C., Campbell, C., Taljaard, D., Gouws, E., Moema, S., Mzaidume, Z., & Rasego, B. (2000). The Carletonville-Mothusimpilo Project: limiting transmission of HIV through community-based interventions. *South African Journal of Science*, 96(6), 351-359. <http://hdl.handle.net/10204/1918>
- Williams, B. G., Taljaard, D., Campbell, C. M., Gouws, E., Ndhlovu, L., van Dam, J., Caraël, M., & Auvert, B. (2003). Changing patterns of knowledge, reported behaviour and sexually transmitted infections in a South African gold mining community. *AIDS*, 17(14), 2099–2107. <https://doi.org/10.1097/00002030-200309260-00011>
- Willy, R. (1899). *Die krisis in der psychologie [The crisis in psychology]*. O.R. Reiland.
- Wilson, D., & Lavelle, S. (1993). AIDS prevention in South Africa: A perspective from other African countries. *South African Medical Journal*, 83(9), 668-674. <https://www.ajol.info/index.php/samj/article/view/158061/147660>
- Wilson, D., & Whiteside, A. (2016). AIDS at 35: A midlife crisis. *African Journal of AIDS Research*, 15(4), iii-vi. <https://doi.org/10.2989/16085906.2016.1254374>
- Wilson, D. P., Donald, B., Shattock, A. J., Wilson, D., & Fraser-Hurt, N. (2015). The cost-effectiveness of harm reduction. *International Journal of Drug Policy*, 26, S5-S11. <https://doi.org/10.1016/j.drugpo.2014.11.007>
- Wilson, E. O. (1999). *Consilience: The Unity Of Knowledge*. Vintage.

- Wines, M. (2005, 6 January). Breaking Taboo, Mandela Reveals Son Died of AIDS. *The New York Times*. <https://www.nytimes.com/2005/01/06/international/africa/breaking-taboo-mandela-reveals-son-died-of-aids.html>
- Wingood, G. M., & DiClemente, R. J. (2000). Application of the theory of gender and power to examine HIV-related exposures, risk factors, and effective interventions for women. *Health Education & Behavior*, 27(5), 539-565. <https://doi.org/10.1177/109019810002700502>
- Wingood, G. M., & DiClemente, R. J. (2008). The ADAPT-ITT Model: A novel method of adapting evidence-based HIV Interventions. *Journal of Acquired Immune Deficiency Syndromes* (1999), 47 Suppl 1, S40–S46. <https://doi.org/10.1097/QAI.0b013e3181605df1>
- Wingood, G. M., Reddy, P., Lang, D. L., Saleh-Onoya, D., Braxton, N., Sifunda, S., & DiClemente, R. J. (2013). Efficacy of SISTA South Africa on sexual behavior and relationship control among isiXhosa women in South Africa: results of a randomized-controlled trial. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 63, S59-S65. <https://doi.org/10.1097/QAI.0b013e31829202c4>
- Witten, J. A., Thomas, K. G., Westgarth-Taylor, J., & Joska, J. A. (2015). Executive dyscontrol of learning and memory: findings from a Clade C HIV-positive South African sample. *The Clinical Neuropsychologist*, 29(7), 956-984. <https://doi.org/10.1080/13854046.2015.1108455>
- Wittgenstein, L. (1953/1986). *Philosophical Investigations*. Blackwell.
- Wiyeh, A. B., Mome, R. K., Mahasha, P. W., Kongnyuy, E. J., & Wiysonge, C. S. (2020). Effectiveness of the female condom in preventing HIV and sexually transmitted infections: a systematic review and meta-analysis. *BMC Public Health*, 20(1), 1-17. <https://doi.org/10.1186/s12889-020-8384-7>
- Wodak, A., & Maher, L. (2010). The effectiveness of harm reduction in preventing HIV among injecting drug users. *New South Wales Public Health Bulletin*, 21(4), 69-73. <https://doi.org/10.1071/NB10007>
- Woldesenbet, S.A., Kufa, T., Lombard, C., Manda, S., Ayalew, K., Cheyip, M., & Puren, A. (2019). *The 2017 National Antenatal Sentinel HIV Survey, South Africa, National Department of Health*. http://www.nicd.ac.za/wp-content/uploads/2019/07/Antenatal_survey-report_24July19.pdf
- Wong, I. Y., Lawrence, N. V., Struthers, H., McIntyre, J., & Friedland, G. H. (2006). Development and Assessment of an Innovative Culturally Sensitive Educational Videotape to Improve Adherence to Highly Active Antiretroviral Therapy in Soweto, South Africa. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 43(Supplement 1), S142–S148. <https://doi.org/10.1097/01.qai.0000248345.02760.03>
- Wong, L. H., Van Rooyen, H., Modiba, P., Richter, L., Gray, G., McIntyre, J. A., Schetter, C.D., & Coates, T. (2009). Test and tell: correlates and consequences of testing and disclosure of HIV status in South Africa (HPTN 043 Project Accept). *Journal Of Acquired Immune Deficiency Syndromes* (1999), 50(2), 215. <https://doi.org/10.1097/QAI.0b013e3181900172>

- Wong, M. L., Lubek, I., Dy, B. C., Pen, S., Kros, S., & Chhit, M. (2003). Social and behavioural factors associated with condom use among direct sex workers in Siem Reap, Cambodia. *Sexually Transmitted Infections*, 79(2), 163-165. <https://doi.org/10.1136/sti.79.2.163>
- Wood, G., Phan, P. H., & Wright, M. (2018). The problems with theory and new challenges in theorizing. *Academy of Management Perspectives*, 32(4), 405-411. <https://doi.org/10.5465/amp.2018.0123>
- Wood, K., & Lambert, H. (2008). Coded talk, scripted omissions: The micropolitics of AIDS talk in an affected community in South Africa. *Medical Anthropology Quarterly*, 22(3), 213-233. <https://doi.org/10.1111/j.1548-1387.2008.00023.x>
- World Bank. (2019). World Development Indicators Statistical Table 2.12. Health Systems [Data file]. <http://wdi.worldbank.org/table/2.12>
- Wouters, E., Meulemans, H., Van Rensburg, H. C. J., Heunis, J. C., & Mortelmans, D. (2007). Short-term physical and emotional health outcomes of public sector ART in the Free State province of South Africa. *Quality of Life Research*, 16(9), 1461-1471. <https://doi.org/10.1007/s11136-007-9260-y>
- Wouters, E., Sommerland, N., Masquillier, C., Rau, A., Engelbrecht, M., Van Rensburg, A. J., Kigozi, G., Ponnet, K., & Van Damme, W. (2020). Unpacking the dynamics of double stigma: how the HIV-TB co-epidemic alters TB stigma and its management among healthcare workers. *BMC Infectious Diseases*, 20(1), 1-12. <https://doi.org/10.1186/s12879-020-4816-3>
- Xu, R., Lakeh, A. B., & Ghaffarzadegan, N. (2021). Examining the characteristics of impactful research topics: A case of three decades of HIV-AIDS research. *Journal of Informetrics*, 15(1), 101122. <https://doi.org/10.1016/j.joi.2020.101122>
- Yako, E. M., & Nzama, N. P. (2013). Maintenance of the selected infant feeding methods amongst postnatal mothers at risk of HIV in the Eastern Cape Province, South Africa. *Health SA*, 18(1), 1-7. <https://doi.org/10.4102/hsag.v18i1.585>
- Yearby, R. (2021). Structural racism and health disparities: reconfiguring the social determinants of health framework to include the root cause. *The Journal of Law, Medicine & Ethics*, 48(3), 518–526. <https://doi.org/10.1177/1073110520958876>
- Yen, J. (2016). Psychology and health after apartheid: Or, Why there is no health psychology in South Africa. *History of Psychology*, 19(2), 77–92. <https://doi.org/10.1037/hop0000025>
- Yen, J., & Vaccarino, O. (2018). ‘Health psychology’ or ‘psychology for health’? A history of psychologists’ engagement with health in South Africa. *Journal Of Health Psychology*, 23(3), 408-424. <https://doi.org/10.1177/1359105317708201>
- Yende, N., Van Rie, A., West, N. S., Bassett, J., & Schwartz, S. R. (2017). Acceptability and Preferences among Men and Women for Male Involvement in Antenatal Care. *Journal of Pregnancy*, 2017, 4758017. <https://doi.org/10.1155/2017/4758017>
- Yin, L., Wang, N., Vermund, S. H., Shepherd, B. E., Ruan, Y., Shao, Y., & Qian, H. Z. (2014). Sexual risk reduction for HIV-infected persons: A meta-analytic review of “positive prevention” randomized clinical trials. *PLoS ONE*, 9(9), e107652. <https://doi.org/10.1371/journal.pone.0107652>

- Ying, R., Granich, R. M., Gupta, S., & Williams, B. G. (2016). CD4 cell count: Declining value for antiretroviral therapy eligibility. *Clinical Infectious Diseases*, 62(8), 1022-1028. <https://doi.org/10.1093/cid/civ1224>
- Yuan, T., Fitzpatrick, T., Ko, N.-Y., Cai, Y., Chen, Y., Zhao, J., Li, L., Xu, J., Gu, J., Li, J., Hao, C., Yang, Z., Cai, W., Cheng, C.-Y., Luo, Z., Zhang, K., Wu, G., Meng, X., Grulich, A. E., & Hao, Y. (2019). Circumcision to prevent HIV and other sexually transmitted infections in men who have sex with men: a systematic review and meta-analysis of global data. *The Lancet Global Health*, 7(4), e436–e447. [https://doi.org/10.1016/S2214-109X\(18\)30567-9](https://doi.org/10.1016/S2214-109X(18)30567-9)
- Yudkin, P. L., Burger, E. H., Bradshaw, D., Groenewald, P., Ward, A. M., & Volmink, J. (2009). Deaths caused by HIV disease under-reported in South Africa. *Aids*, 23(12), 1600-1602. <https://doi.org/10.1097/QAD.0b013e32832d4719>
- Zachariah, R., Harries, A. D., Philips, M., Arnould, L., Sabapathy, K., O'Brien, D. P., Ferreyra, C., & Balkan, S. (2010). Antiretroviral therapy for HIV prevention: many concerns and challenges, but are there ways forward in sub-Saharan Africa? *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 104(6), 387–391. <https://doi.org/10.1016/j.trstmh.2010.01.004>
- Zagaria, A., & Zennaro, A. (2020). Psychology: A giant with feet of clay. *Integrative Psychological and Behavioral Science*, 54(3), 521-562. <https://doi.org/10.1007/s12124-020-09524-5>
- Zani, B., Fairall, L., Petersen, I., Folb, N., Bhana, A., Thornicroft, G., Hanass-Hancock, J., Lund, C., Bachmann, M., & CobALT Research Team. (2020). Predictors of receiving a diagnosis, referral and treatment of depression in people on antiretroviral therapy in South African primary care: a secondary analysis of data from a randomised trial. *Tropical Medicine & International Health*, 25(12), 1450-1466. <https://doi.org/10.1111/tmi.13495>
- Zappe, S. E. (2018). Avoiding construct confusion: An attribute-focused approach to assessing entrepreneurial mindset. *Advances in Engineering Education*, 7(1), n1. <https://eric.ed.gov/?id=EJ1199590>
- Zembe, Y. Z., Townsend, L., Thorson, A., & Ekström, A. M. (2013). “Money talks, bullshit walks” interrogating notions of consumption and survival sex among young women engaging in transactional sex in post-apartheid South Africa: a qualitative enquiry. *Globalization And Health*, 9(1), 1-16. <https://doi.org/10.1186/1744-8603-9-28>
- Zicari, S., Sessa, L., Cotugno, N., Ruggiero, A., Morrocchi, E., Concato, C., Rocca, S., Zangari, P., Manno, E.C., & Palma, P. (2019). Immune activation, inflammation, and non-AIDS co-morbidities in HIV-infected patients under long-term ART. *Viruses*, 11(3), 200. <https://doi.org/10.3390/v11030200>
- Zimmer, Z. (2009). Household Composition Among Elders in Sub-Saharan Africa in the Context of HIV/AIDS. *Journal of Marriage and Family*, 71(4), 1086-1099. <https://doi.org/10.1111/j.1741-3737.2009.00654.x>
- Zimmerman, M. A. (2013). Resiliency theory. *Health Education & Behavior*, 40(4), 381–383. <https://doi.org/10.1177/1090198113493782>
- Zimmerman, M.A. (2000). Empowerment theory: Psychological, organizational and community levels of analysis. In Rappaport, J., & Seidman, E. (Eds.). *Handbook of community psychology* (pp 43–63). Kluwer Academic/Plenum.

- Zuma, K., Shisana, O., Rehle, T. M., Simbayi, L. C., Jooste, S., Zungu, N., Labadarios, D., Onoya, D., Evans, M., Moyo, S., & Abdullah, F. (2016). New insights into HIV epidemic in South Africa: key findings from the National HIV Prevalence, Incidence and Behaviour Survey, 2012. *African Journal of AIDS Research*, 15(1), 67–75.
<https://doi.org/10.2989/16085906.2016.1153491>
- Zwi, A., & Bachmayer, D. (1990). HIV and AIDS in South Africa: what is an appropriate public health response?. *Health Policy and Planning*, 5(4), 316-326.
<https://doi.org/10.1093/heapol/5.4.316>

Appendices

Appendix A: Timeline of some of the most noteworthy events in the global HIV epidemic (1981-2020)

1981	The first clinical report on AIDS is published by the CDC (CDC, 1981).
1982	The CDC officially adopts the term AIDS (CDC, 1982b)
1983	Isolation of HIV-1 (Barré-Sinoussi et al., 1983)
1984	First official clinical reports of AIDS in the Democratic Republic of Congo and Rwanda (Piot et al., 1984; Van de Perre et al., 1984) CD4 T lymphocytes are identified as the main receptors of HIV (Dalglish et al., 1984)
1985	The first International AIDS Conference is held in Atlanta in, the USA, and has become an annual event to bring together scientists in the HIV field (IAS, 2020). The first enzyme-linked immunosorbent assay (ELISA) test for HIV is approved for use (Alexander, 2016).
1986	Isolation of HIV-2 (Clavel et al., 1987) USAID launches its first program to address HIV and AIDS with \$2 million (USAID, 2012)
1987	Azidothymidine (AZT), also known as Zidovudine, the first ARV ever developed, is approved by the United States Food and Drug Administration (FDA) (AIDSinfo, 2019a) WHO establishes the Special Programme on AIDS (Mann, 1987) USAID funding for HIV and AIDS increases to \$16.9 million (USAID, 2012)
1988	World AIDS day is commemorated for the first time on 1 December 1988.
1989	A second ARV, Didanosine, is approved by the FDA (AIDSinfo, 2019a)
1990	First report of a divergent form (sub-group) of HIV-1 (De Leys et al., 1990) A full-genomic sequence of an HIV-related virus in chimpanzees is created for the first time (Huet et al., 1990) Two ARVs, Zidovudine and Didanosine, are used in combination for the first time (AIDSinfo, 2019a) The WHO publishes the first guidelines on the clinical treatment of HIV that is based on disease staging (WHO, 1990)
1991	The red ribbon becomes the international symbol of AIDS awareness (APA, 2019)
1993	The FDA approves the first female condom (APA, 2019)

1994	The FDA approves the first non-blood-based antibody test for HIV (APA, 2019)
1996	HAART is introduced for the first time (Cooper & Merigan, 1996)
	The FDA approves the first HIV home testing kit (APA, 2019)
	UNAIDS is launched (UNAIDS, 2018)
	The International AIDS Vaccine Initiative (IAVI) is launched (IAVI, 2019)
1997	USAID (with support from UNAIDS and UNICEF) releases the first in a series of reports on children orphaned by AIDS, entitled “Children on the Brink” (USAID, 1997)
1999	First evidence that HIV-1 originated from SIVcpzPtt19 (Gao et al., 1999)
	Clinical trials confirm that a single dose of Nevirapine can reduce MTCT of HIV (Guay et al., 1999)
2000	USAID launches its regional HIV/AIDS program for Southern Africa (USAID, 2012)
2002	WHO releases its first comprehensive set of guidelines on HIV treatment (WHO, 2002)
	HIV becomes the main global cause of death in the age group 15 to 59 (USAID, 2012)
	The Global Fund to Fight AIDS, Tuberculosis and Malaria is founded (The Global Fund, 2019)
	The UNAIDS announces that young women between the ages of 15 and 24 who reside in sub-Saharan Africa account for almost half of all HIV cases (UNAIDS, 2002).
2003	President George W. Bush launches the President's Emergency Plan For AIDS Relief (PEPFAR) (KFF, 2019)
	Of the 4.1 million HIV-positive people who live in sub-Saharan Africa, only 1% are receiving ART. The WHO states that the inability to provide ART to most people in developing countries living with HIV and AIDS is a global emergency (WHO, 2003a).
	UNAIDS estimates that over 40 million people (2.5 million of whom are children) are HIV-positive. UNAIDS describes the attempts to stem the spread of the disease as completely insufficient (UNAIDS, 2003).
	The WHO and UNAIDS launch the <i>3 by 5</i> initiative – a global ART target of providing at least 3 million HIV-positive people who live in low- and middle-income countries with ART by the end of 2005 (WHO, 2003b).

2004	WHO releases its updated HIV treatment guidelines (WHO, 2004). Researchers find that Uganda has managed to decrease its HIV prevalence rate by 70% from the early 1990s to 2004. The reduction is thought to be a result of a strong focus on the reduction of multiple concurrent partners, effective community-level interventions which utilise local religious and NGO networks, as well as the lack of stigma that surrounds the disease in the country (Stoneburner, & Low-Beer, 2004).
2005	The ANRS 1265 Trial becomes the first clinical trial to demonstrate the protective benefits of male circumcision (Auvert et al., 2005).
2006	The International Epidemiology Databases to Evaluate AIDS (IeDEA) is established by the National Institute of Allergy and Infectious Diseases (USA) to collect international HIV and AIDS-related data through regional data centres (IeDEA, n.d.). An evaluation of the 3 by 5 initiative shows that the number of HIV-positive people in LIMC who receive ART has only increased by 400 000 to a total of 1.3 million by the end of 2005 (WHO & UNAIDS, 2006).
2007	WHO recommends provider-initiated HIV testing and counselling (WHO, 2007) Timothy Ray Brown, known as the <i>Berlin Patient</i> becomes the first person to be cured of HIV through a bone marrow transplant from a donor with a CCR5 mutation ¹¹⁹ (Cohen, 2011). The Centre for the AIDS Programme of Research in South Africa (CAPRISA) 004 clinical trial on the effectiveness of a microbicide for HIV prevention commences in the KwaZulu-Natal province of South Africa (Mayer et al., 2006).
2009	The RV114 trial in Thailand demonstrates that the combination of two vaccines (canarypox ALVAC-HIVvCP1521 and AIDSVAX B/E gp120) has a modest effect and offers scientists a proof-of-concept that an effective HIV vaccine can be designed (Rerks-Ngarm et al., 2009).
2010	The CAPRISA 004 clinical trial, which studied the efficacy of a microbicide which contained 1% Tenofovir, releases its findings – the microbicide was 35% effective in preventing HIV infection in South African women aged 18 to 40 years. In participants who maintained a high adherence level, the efficacy of the microbicide was 54% (Abdool Karim et al., 2010)

¹¹⁹ The CCR5 mutation is a genetic mutation that renders those who have it resistant to HIV infection (Libert et al., 1998).

Preexposure Prophylaxis Initiative (iPrEx) study assessed the effectiveness of the daily oral use of TDF–FTC as a PrEP for HIV infection in 2499 HIV-negative men, transgender women and MSM in Brazil, Ecuador, Peru, South Africa, Thailand and the USA (Grant et al., 2010). The study found that TDF-FTC reduced the likelihood of HIV infection by 44% and, if adherence to the PrEP was maintained at 90%, the TDF-FTC regime could reduce the likelihood of HIV infection by up to 73% (Grant et al., 2010).

2011 Preliminary findings from the HIV Prevention Trials Network (HPTN) 052 trial that was conducted in Malawi, Zimbabwe, South Africa, Botswana, Kenya, Thailand, India, Brazil, and the United States indicate that early initiation of ART contributed to a relative reduction of 96% in HIV infections in serodiscordant heterosexual couples (Cohen et al., 2011).

2012 The Pre-Exposure Prophylaxis to Prevent HIV-1 Acquisition Within HIV-1 Discordant Couples (Partners PrEP) study examined whether a daily dose of TDF-only or a daily dose of TDF-FTC is effective at preventing HIV infection in HIV-negative individuals in serodiscordant heterosexual couples in Kenya and Uganda. The TDF-only regime was found to reduce the likelihood of HIV infection by 67%, while the TDF-FTC regimen reduced the likelihood of HIV infection by 75% (Baeten et al., 2012).

The FDA approves tenofovir disoproxil fumarate and emtricitabine (TDF–FTC) (truvada) for the purposes of PrEP (AIDSinfo, 2012). The FDA made this decision based on the results from the iPrEx (Grant et al., 2010) and the Partners PrEP (Baeten et al., 2012) studies (FDA, 2012).

2014 The Joint United Nations Programme on HIV/AIDS (UNAIDS) launches the *90-90-90 Fast Track Targets* initiative in 2014 (UNAIDS, 2014). The initiative includes the following three targets: diagnosing at least 90% of all HIV-positive people; delivering ART to 90% of all HIV-positive individuals; and attaining viral suppression in 90% of those on ART (UNAIDS, 2014).

2015 WHO releases updated treatment guidelines which recommend ART for all HIV-positive persons regardless of disease stage and that individuals who are at a high risk of contracting HIV should be offered PrEP as an HIV prevention strategy (WHO, 2015)

UNAIDS announces that the HIV targets of the sixth Millennium Development Goal have been achieved six months earlier than expected. From 2000 until 2015,

global new HIV infections decreased by 15%, and AIDS-related deaths decreased during that same time period by 41% (UNAIDS, 2015a).

The UN General Assembly sets the Sustainable Development Goals. As part of these goals, the UNAIDS releases their 2016-2021 strategy, which entails accelerating the global response to HIV and the ultimate eradication of AIDS by 2030 (UNAIDS, 2015b).

Scientists discover an aggressive, novel HIV-1 strain in Cuba which is believed to cause rapid progress to AIDS (Kouri et al., 2015).

The WHO validates Cuba as the first country to eradicate the MTCT of HIV and Syphilis (Caffe et al., 2016).

The Vaginal and Oral Interventions to Control the Epidemic (VOICE) clinical trial (MTN-003), which studied the efficacy of a microbicide with 1% Tenofovir in preventing HIV infection in women in South Africa, Uganda and Zimbabwe, releases its findings. The results indicate that the microbicide was not effective at preventing HIV infection and that overall adherence to using the microbicide gel was low (Marrazzo et al., 2015).

The National Agency of Research on AIDS and Viral Hepatitis (ANRS)'s *Intervention Préventive de l'Exposition aux Risques avec et pour les Gays* (IPERGAY) trial which assessed the efficacy of TDF- FTC as a PrEP for MSM in France and Canada releases its findings. The results indicate that TDF- FTC offer an 86% relative reduction in HIV infection risk (Molina et al., 2015).

Findings from the *Strategic Timing of Anti-Retroviral Treatment* (START) study reveal that the risk for HIV disease progression is considerably reduced when ART is introduced before a patient's CD4-count decreases, thereby providing further support for the immediate initiation of ART in HIV-positive patients (National Institute for Health, 2015).

2016 The UN General Assembly presents the Political Declaration on Ending AIDS: on the Fast-Track to Accelerate the Fight against HIV and to End the AIDS Epidemic by 2030. The declaration committed member states to double the number of people on ART, fast-tracking prevention outreach initiatives, the renewed focus on women, adolescent girls, young people, gender equality and human rights (UN, 2016).

The WHO validates Thailand and Belarus as being the second and third countries to eliminate the MTCT of HIV and Syphilis. The WHO also validates Armenia for

eradicating the MTCT of HIV and the Republic of Moldova for eradicating the MTCT of Syphilis (WHO, 2016a).

The HVTN702 clinical trial launches in South Africa. It aims to test the efficacy, safety and tolerability of an HIV vaccine (ALVAC/Bivalent gp120/MF59) on women aged 18 to 35 (NIH, 2020a).

Results from two clinical trials on the effectiveness of a silicone vaginal ring which releases dapivirine prophylactically to prevent HIV infection, the Study to Prevent Infection with a Ring for Extended Use (MTN-020–ASPIRE) trial and the International Partnership for Microbicides (IPM) 027 trial (the Ring Study), indicate that the monthly use of the vaginal ring can reduce HIV infection by up to 37% (Baeten et al., 2016).

Findings from the HIV Prevention Trials Network (HPTN) 052 trial that was conducted in Malawi, Zimbabwe, South Africa, Botswana, Kenya, Thailand, India, Brazil, and the United States are released. The results indicate that early initiation of ART can prevent 96% of HIV infections in serodiscordant heterosexual couples (Cohen et al., 2016).

The PARTNER clinical trial findings suggest that, if viral load is suppressed with ART, condomless sex poses no HIV infection risk for serodiscordant heterosexual and MSM couples (Rodger et al., 2016).

The slogan *Undetectable=Untransmissible* is initiated by the Prevention Access Campaign to attract attention to the growing body of research which suggests that ART can lead to undetectable viral loads in HIV-positive people and thereby can prevent the transmission of HIV (The Lancet HIV, 2017).

2017 The Alternative Dosing to Augment PrEP pill Taking (ADAPT) (HPTN 067) clinical trial in Cape Town releases its findings. It studied the acceptability and feasibility of daily versus non-daily (event-driven) PrEP dosing in women aged 18 years or older. The results from the trial indicated that daily PrEP dosing brought about greater coverage of sex events and resulted in increased adherence. The study, therefore, lends support to the daily use of PrEP for key populations as opposed to using PrEP on an event-driven basis (Bekker et al., 2018).

UNAIDS announces that more than half the global HIV-positive population (19.5 million people) are receiving ARVs (UNAIDS, 2017).

The global AIDS mortality rate declined from its highest in 2004 at 1.9 million deaths to 940 000 deaths in 2017 (UNAIDS, 2018).

The Imbokodo study (HPX2008/HVTN 705) is launched. It aims to study the efficacy of an HIV vaccine (Ad26.Mos4.HIV and aluminum-phosphate adjuvanted Clade C gp 140) on women between the ages of 18 and 35. The study sites include Malawi, Mozambique, South Africa, Zambia and Zimbabwe. Results from the study are expected in 2022 (NIH, 2020b).

Research into the development of reservoir-style, subcutaneous implants for sustained release of ARVs for the purposes of PrEP gain momentum and receive growing financial support from PEPFAR and the Bill and Melinda Gates Foundation (Johnson et al., 2019).

2018 UNAIDS announces that as many as 75% of all HIV-positive people now know their HIV status (UNAIDS, 2018).

Findings from the PARTNER 2 clinical trial reveal that sexual activity without condoms poses no risk for HIV transmission if viral load is kept undetectable in serodiscordant MSM relationships (Rodger et al., 2019).

2019 Scientists develop a tool that allows researchers who are doing HIV cure research to count the number of intact proviruses¹²⁰ in the HIV reservoir. Accurate measures such as this have not been available before, and it is hoped that this will accelerate the pursuit of finding a cure for HIV infection (Bruner et al., 2019).

Adam Castillejo, known as the *London Patient* becomes the second person to be cured of HIV through a bone marrow transplant from a CCR5 mutation donor (Mandavilli, 2019).

The Mosaico trial (HPX3002/HVTN 706) is launched. It aims to test whether a HIV vaccine (Ad26.Mos4.HIV and Adjuvanted Clade C gp140 and Mosaic gp140) is effective in reducing immune response in various HIV strains amongst cisgender men and transgender people who have sex with other cisgender men or transgender people. The study participants are aged between 18 and 60 and study sites are located in the USA, Mexico, Peru, Argentina, Spain, Italy and Poland. Results from the trial are expected to be released by 2024 (NIH, 2020c).

The National Institute of Allergy and Infectious Diseases (NIAID) launches the Long-Acting Therapy to Improve Treatment sUccess in Daily lifE (LATITUDE) clinical trial to study the efficacy of the use of a combination of injectable ARTs in maintaining HIV viral load suppression. The trial is expected to be completed by 2025 (NIH, 2020d).

¹²⁰ A provirus is HIV's genetic material which is integrated into the DNA of host cells in the human body.

The REACH (Reversing the Epidemic in Africa with Choices in HIV prevention) trial launches in South Africa, Kenya, Uganda and Zimbabwe. The trial aims to collect safety and adherence data on the use of two PrEP methods, namely the daily use of oral emtricitabine/tenofovir tablets and the use of a silicone vaginal matrix ring which contains dapivirine. The study participants are HIV-negative women between the ages of 16 and 21. The study is expected to be completed by 2021 (NIH, 2020e).

- 2020 The NIH decides to conclude its HVTN702 clinical HIV vaccine trial in South Africa prematurely due to growing evidence that, while the vaccine is not harmful, it is not effective (UNAIDS, 2020a).
-

The novel coronavirus SARS-CoV2 of 2019 (COVID-19) spreads throughout the world. Early research on the vulnerability of people who are living with HIV to COVID-19 produced conflicting results – while some studies found that HIV significantly increased COVID-19 mortality risk (Dandachi et al., 2020; Davies, 2020; Mirzaei et al., 2020), others found no significant differences in clinical outcomes between HIV-positive and HIV-negative COVID-19 patients (Karmen-Tuohy et al., 2020; Sigel et al., 2020). There is evidence to suggest that superimposed bacterial pneumonia (Cooper et al., 2020), older age, other comorbidities and a low CD4 count (Dandachi et al., 2020; Mirzaei et al., 2020) could place people who are living with HIV at greater risk for developing COVID-19-related complications. Further research in 2021 also suggests that people who are living with HIV who test positive for COVID-19, may remain COVID-19 positive for longer and that the virus may mutate more frequently in an HIV-positive “host”, which could contribute to the development of mutations in the SARS-CoV2 virus (Karim et al., 2021). Moreover, clinical trials on the safety and efficacy of COVID-19 vaccines suggest that people who are living with HIV may receive less protective benefit from a vaccine due to suboptimal antibody responses and that more breakthrough cases may appear amongst vaccinated people who are living with HIV compared to the rest of the (HIV-negative) population (Shinde et al., 2021).

Appendix B: Timeline of some of the noteworthy events in the South African HIV epidemic (1982-2020)

1982	The first cases of HIV in South Africa are identified (Ras et al., 1983).
1985	The South African AIDS Advisory Group is founded to collect surveillance data on the disease (Kustner et al., 1994)
1987	AIDS is added to the official South African list of communicable diseases (Kustner et al., 1994)
1988	The South African Advisory Group outlines a plan to: improve the surveillance of HIV; identify high-risk groups and develop appropriate interventions for them; promote and expand health education; provide health services to HIV-positive people; and assess HIV-testing laboratories (Advisory Group on AIDS, 1988).
1990	The National HIV Surveillance Programme is established and conducts its first national antenatal survey. The survey reveals that 0.76% of pregnant women who visit public health facilities are HIV-positive (DNHPD, 1990).
1991	The Networking HIV and AIDS Community of South Africa (NACOSA) is founded with the aim of supporting the government in creating better HIV and AIDS policies (McNeil, 2012).
	Research determines that the number of HIV-positive people who contracted the virus through heterosexual sex is now equal to the number of AIDS cases contracted through homosexual sex in South Africa. From this point forward, the heterosexual transmission of HIV becomes the most common mode of HIV transmission in the country (McNeil, 2012).
1992	The NDoH starts to provide male condoms to the public free of charge (Beksinska et al., 2012).
	The Soul City Institute is established (Soul City Institute, 2018).
	The AIDS national helpline is launched for the first time (Grünkemeier, 2013).
1994	The first democratic election is held, and Nelson Mandela becomes the president of South Africa.
	NACOSA releases the National AIDS Plan for South Africa. The plan highlights public education initiatives, the provision of treatment, care and support to reduce HIV infections, and the mobilisation of resources on all levels (local to international) to effectively address HIV (McNeil, 2012).

	<p>HIV and AIDS are included in the government's Reconstruction and Development Programme; it recommends the development of an HIV/AIDS and STD Advisory Group, a committee on the funding for non-governmental organisations, and a committee for the research of HIV/AIDS and STIs (McNeil, 2012).</p>
	<p>The Soul City television series premieres for the first time on SABC 1. It heightens its focus on HIV and AIDS in the second season in 1996 and extends to radio, print and social mobilisation initiatives (Soul City Institute, 2019a).</p>
1995	<p>The 7th Annual International Conference for People Living with HIV and AIDS is held in Cape Town (McNeil, 2012).</p>
	<p>Sarafina II, a play to help spread HIV awareness (particularly amongst the youth), premiered for the first time. The play cost over R 14 million to produce and was widely criticised by HIV activists for being inappropriate and vague, and by AIDS organisations for not being included in the development of the initiative. After an investigation by the public protector, government funding for the play was discontinued and it was ultimately cancelled by 1996 (Grünkemeier, 2013; NDoH, 2011).</p>
1996	<p>Health Minister Nkosazana Dlamini-Zuma speaks at the 11th International Conference on AIDS in Vancouver, Canada. She emphasised that, while most people who are affected by HIV and AIDS live in Africa, ART remains too expensive for the continent (Brown, 1996).</p>
	<p>The Lesedi Project is launched by Family Health International and, in collaboration Harmony Gold Mining. The project's purpose was to decrease STI prevalence and, in so doing, also reduce the spread of HIV amongst miners and their partners (McKee et al., 2004).</p>
1997	<p>The Constitution of the Republic of South Africa came into effect on 4 February 1997. It is guided by equality and non-discrimination and upholds the right to human dignity and health care (Constitution of the Republic of South Africa Act No. 108 of 1996, 1996).</p>
	<p>Researchers who designed the locally developed drug, Virodene, make a presentation to the cabinet. The NDoH states its support for the drug and the Minister of Health, Nkosazana Dlamini-Zuma affirms that Virodene promises to be a low-cost alternative to the ARVs that are currently on offer (NDoH, 1997).</p>
	<p>The Medicines Control Council (MCC) bans the use and human trials of Virodene, as it is found to be toxic and unsafe for human use (Myburgh, 2007).</p>

The Inter-Ministerial Committee on AIDS is launched and the Deputy-President, Thabo Mbeki, is appointed as the committee's chair (McNeil, 2012).

The NDoH releases the National AIDS Control Programme. It aims to reduce HIV and STI infection rates through behaviour change initiatives, mass media education, the protection of HIV-positive people's human rights and community support and the effective use and consolidation of resources (McNeil, 2012).

The government passes the Medicines and Related Substances Control Amendment Act of 1997 with the aim of increasing availability while also reducing the cost of medication (Medicines and Related Substances Control Amendment Act, 1997).

The NDoH launches the *Beyond Awareness* communication campaign (1997-2000), aiming to promote social change through various mass media communication strategies (Parker et al., 2000).

1998 The Pharmaceutical Manufacturers Association of South Africa (PMA) and forty South African and multinational pharmaceutical companies filed a lawsuit against the South African government, claiming that the Medicines and Related Substances Control Amendment Act of 1997 (especially Section 15C of the Act) was in violation of their patent rights agreement on Trade-Related Aspects of Intellectual Property Rights. The US government and the European Communities supported the PMA and the pharmaceutical companies, going so far as to threaten South Africa with possible sanctions if they persisted with the Medicines and Related Substances Control Amendment Act of 1997 (Section27, 2018; 't Hoen, 2002).

HIV activists embark on a near-decade-long struggle to convince the government to offer ARVs to pregnant women in order to prevent mother-to-child HIV transmission. The Minister of Health, Nkosazana Dlamini-Zuma considers the provision of ART as too costly and maintains that the government will focus on HIV prevention rather than treatment (McNeil, 2012).

The authorities record a significant surge in the number of child rape cases across the country (Stats SA, 2000), sparking fears that the virgin cleansing myth – the belief that having sex with a virgin will cure you of HIV – could be behind this alarming trend (The New Humanitarian, 2002). Subsequent research suggests that although the myth is prevalent in certain, particularly rural communities, the number of child rape cases that can be attributed to belief is largely unknown and that various other factors contribute to the phenomenon (such as taking revenge on the child's mother) (Marchetti-Mercer, 2003). While some researchers maintained that

there is a causal link between the virgin cleansing myth and the rise in child rape incidents (Bowley & Pitcher, 2002), others disputed this and maintained that there is no conclusive evidence to support this claim (Jewkes et al., 2002). Given the lack of research on the topic and the challenges with establishing the exact point at which a child may have become infected with HIV, it is hard to know precisely to what extent the myth encouraged the perpetration of child sexual abuse in the country (Schaaf, 2004).

The Treatment Action Campaign (TAC), led by prominent AIDS activist, Zackie Achmat, is formed (TAC, n.d.).

The government distributed a total of 150 million condoms in 1998 (Myer, 2010).

The Carletonville-Mothusimpilo project is launched in the mining community of Carletonville and Khutsong township. The project not only focused on STI and HIV prevention and care amongst miners, but also amongst young women and sex workers (Williams et al., 2000).

1999 Thabo Mbeki becomes the second democratically elected president of South Africa. He appoints Manto Tshabalala-Msimang as his Minister of Health and Jacob Zuma as his Deputy President.

A month after President Thabo Mbeki calls on the country to break the silence about AIDS, the AIDS activist, Gugu Dlamini, is beaten to death by her neighbours shortly after disclosing her HIV-positive status on television (Baleta, 1999b).

The organisation, LoveLife, is launched and aims to raise HIV awareness and promote health and well-being amongst South African youth (loveLife, n.d.).

2000 President Thabo Mbeki writes a letter to prominent world leaders, amongst others, President Bill Clinton and the UN Secretary-General Kofi Annan, sharing with them his belief that the AIDS epidemic in Africa should be addressed with African wisdom and experiences and that Western learnings cannot simply be applied to this “uniquely African catastrophe”. He also defends scientists who are not aligned with the conventional scientific understanding of HIV and AIDS and says that silencing or prohibiting others from engaging with them is akin to the tyrannous apartheid regime (Gellman, 2000).

In parliament and during interviews, President Thabo Mbeki, reiterates his doubts about the link between HIV and AIDS and the effectiveness of ART. Although convinced that AIDS is a serious problem in the country and that HIV may be one possible cause of AIDS, Mbeki maintains that various other factors could also

contribute to AIDS and that ART is an overly limited response to a disease that should be treated more holistically (De Vos, 2009; Harvey, 2000).

The Presidential Advisory Panel on HIV and AIDS – a high-level panel discussion led by Thabo Mbeki that consists of members from both the South African and international scientific community – meets for the first time. The panel consists of a number of known AIDS denialists, including Peter Duesberg, a professor of molecular and cell biology at the University of California, Berkeley (Sithole, 2000). The panel produces a report that reveals a stark difference in opinion amongst the panel members – some accept the conventional scientific belief that HIV causes AIDS and that ART is the best way to treat the disease, while others (the AIDS denialists) believe that the cause of AIDS is poverty and poor health and that the disease should be treated with supplements and food that strengthen the immune system (e.g. garlic and Chinese cucumber) and detoxification practices (e.g. yoga and musical therapy). The NDoH states that despite the ambiguous report, it will continue to work from the assumption that HIV causes AIDS (Barrow, 2001).

The 13th International AIDS Conference is held in Durban. President Thabo Mbeki opens the conference and hints in his opening address toward the HIV denialist notion that HIV does not cause AIDS, but rather that extreme poverty is the more likely culprit (South African Government Information, 2000). The young AIDS activist Nkosi Johnson, also spoke at the opening event, calling on the government to give HIV-positive mothers AZT and for the public to have more compassion for those living with the disease (Johnson, 2000).

In his closing address at the 13th International AIDS Conference, Nelson Mandela calls for urgent action to prevent the spread of HIV, the aggressive treatment of opportunistic infections, an end to the silence that surrounds the disease and increased support for families who are affected by HIV (Nelson Mandela Foundation, 2000).

Over 5 000 local and international scientists, including eleven Nobel laureates, sign the Durban Declaration – a statement that affirms that HIV causes AIDS. The declaration, published in the journal *Nature*, also called for the development of ARVs that are cheaper, easier to use and have fewer side effects (The Durban Declaration, 2000). President Thabo Mbeki responded that the declaration “belongs in the dustbin” (Sidley, 2000), while scientists who sided with the AIDS denialist view drafted a counter-response in the same journal (Stewart, 2000).

President Thabo Mbeki acknowledges at an ANC national executive committee meeting that he created confusion around HIV and AIDS in the country, and announced that he will henceforth not partake in the public debate on the relationship between HIV and AIDS (Cherry, 2000).

The Soul Buddyz, television and radio series, is aired for the first time. The programme focuses on promoting the health and wellness of children aged 8 to 12 (Soul City Institute, 2019b).

The TAC launches its Defiance Campaign against the pharmaceutical company, Pfizer, who developed Fluconazole, a drug that treats opportunistic infections associated with AIDS. The TAC demanded that Pfizer lower the price of Fluconazole, or allow voluntary licensing of the patent. Pfizer eventually concedes and starts to donate Fluconazole to the government (Section27, 2018).

The Inter-Ministerial Committee on AIDS is replaced by the South African National AIDS Council (SANAC) in order to unite political leadership and civil society. Health Minister, Manto Tshabalala-Msimang is appointed as chair of SANAC (McNeil, 2012).

The National Integrated Plan for children infected and affected by HIV and AIDS is initiated through collaboration between the national departments of Social Development, Education and Health (McNeil, 2012).

The HIV/AIDS/STD National Strategic Plan for South Africa 2000-2005 is launched. The plan had two goals: a.) reducing the number of new HIV infections, and b.) lessening the impact that HIV and AIDS have on South African individuals, families and communities (SANAC, 2000).

The government distributed a total of 250 million condoms in 2000 (Myer, 2010).

In an effort to address the stigma associated with HIV and AIDS, the internationally acclaimed photographer Gisèle Wulfsohn, unveils her *Living Openly* project. The photographic exhibition showcased portraits of 31 HIV-positive South Africans. The project was on display at various AIDS conference halls and art galleries, and later turned into a television programme (McKee, et al., 2004).

2001 Due to mounting resistance and criticism from national and international HIV and human rights organisations, the PMA decides to drop the lawsuit against the South African government over the Medicines and Related Substances Control Amendment Act of 1997 ('t Hoen, 2002).

The WHO recommends that the ARV, Nevirapine, must be administered to HIV-positive women and their infants at the time of birth. The South African MCC declares Nevirapine as safe and effective (Annas, 2003).

The government opts for a phased piloting approach to study the introduction of PMTCT ART at 18 sites across the country (two sites in each province) before making the treatment available at all public health facilities. The government believed a staged approach was necessary in order to ensure that operational challenges related to the implementation of PMTCT could be assessed. The TAC condemns this decision, maintaining that in a country where close to 70 000 infants contract HIV from their mothers annually, the government's slow response constitutes an infraction of the bill of rights (Annas, 2003; Simelela & Venter, 2014).

Nkosi Johnson passes away at the age of 12 – making him the longest surviving child who was born HIV-positive at the time (Nkosishaven, 2020).

The NGO, Right to Care is launched in South Africa (Right to Care, 2020).

A modernised version of the national AIDS helpline is launched by the Minister of Health, funded by USAID (USAID, 2001).

The Commuter AIDS Information Project is launched in an effort to promote dialogue about HIV and AIDS, distribute condoms, and spread awareness through HIV-positive peer educators (McKee et al., 2004).

2002 The South Africa High Court orders the government to offer Nevirapine to all HIV-positive pregnant women (Das, 2002). Yet roll-out of the drug is delayed until 2003 (Section27, 2018).

Considering the high rates of TB and HIV coinfection, the NDoH implements a policy that all newly diagnosed HIV-positive individuals should also be tested for TB (NDoH, 2008).

The popular children's programme Takalani Sesame, introduces a new character Kami, who is HIV-positive. Kami shares age-appropriate information about HIV and AIDS and how to treat people who are living with the disease (McKee et al., 2004).

2003 The first South African AIDS conference is held in Durban (Dira Sengwe, 2003).

The TAC files manslaughter charges against Health Minister Manto Tshabalala-Msimang and Trade and Industry Minister Alec Erwin, for not ensuring that HIV-positive South Africans are able to access ART. The TAC maintained that the

	<p>Minister of Health is playing a key role in preventing ARVs from being made available at public healthcare facilities and that the Minister of Trade and Industry is forestalling the production of ARVs in the country (Kaiser Health News, 2003).</p>
	<p>In November 2003, the cabinet approves the National Operational Plan on Comprehensive Care and Treatment for HIV that allows for the national roll-out of ART, including PMTCT ART (NDoH, 2003).</p>
2004	<p>South Africa launches its national ARV treatment plan as per the National Operational Plan on Comprehensive Care and Treatment for HIV in April 2004. ART initiation is limited to those with a CD4 count of 200 or less (NDoH, 2003).</p>
	<p>The NDoH launches the Choice condom – a locally produced condom that would be available at no cost at public facilities (NDoH, 2004).</p>
2005	<p>Former President Nelson Mandela discloses that his son died of AIDS at the age of 54. Mandela calls on South Africans to talk more openly about HIV and AIDS and to conquer the stigma associated with the disease (Wines, 2005).</p>
	<p>The government launches the Khomanani (Caring Together) HIV awareness media campaign, aimed at promoting awareness about HIV and AIDS and how to treat and support people who are living with the disease. The campaign is later re-launched in 2007 (Aulette-Root, 2010).</p>
2006	<p>The Southern African Development Community and the UNAIDS declares that low male circumcision rates and infrequent condom use, particularly when coupled with multiple concurrent sexual partnerships, are key drivers behind the spread of HIV in the Southern African region (Epstein & Morris, 2011).</p>
	<p>Jacob Zuma is on trial for the alleged rape of an HIV-positive woman. During the trial, Zuma recalls that he showered after having sex with the woman as he believed that it would lower his chances of getting infected. He was ultimately found not guilty of rape but his views on HIV prevention, having multiple concurrent sexual partners and given that he chaired both SANAC and the Moral Regeneration Campaign at the time, elicited widespread criticism from HIV activists (Strumpf, 2006).</p>
	<p>Minister of Health Manto Tshabalala-Msimang continues to promote a healthy lifestyle and the consumption of traditional African foods and other immune-boosting herbs, fruits, vegetables and condiments such as lemon, garlic, beetroot and olive oil as alternatives to ART. She also continues to make statements that devalue the efficacy of ARVs, such as that they are toxic (Le Roux, 2006).</p>

A group of more than 80 international scientists, including David Baltimore and Robert Gallo, sends a letter to President Thabo Mbeki, calling for the removal of Manto Tshabalala-Msimang and Minister of Health while calling South Africa's AIDS policies disastrous and pseudoscientific (Leonard, 2006).

2007 The HIV/AIDS/STD National Strategic Plan for South Africa 2007-2011 is launched. It focused on a.) prevention, b.) treatment, care and support – especially increased ARV provision, c.) human and legal rights, and d.) the improved monitoring, research and surveillance of HIV (SANAC, 2007).

The largest (at the time) HIV vaccine trial in Africa, the phase 2b HVTN 503/Phambili study (a two-arm, double-blind, placebo-controlled randomised clinical trial) starts in five South African sites in January 2007, with the aim of testing the efficacy of the Merck Ad5 gag/pol/nef subtype B HIV-1 preventive vaccine. The study formed part of a larger, multi-national vaccine trial, named the STEP study, which started earlier in 2005. However, by September 2007, interim analyses reveal that the vaccine carries no protective benefit, and that it may even enhance HIV infection risk in participants who had prior immunity against the adenovirus vector that was used in the vaccine. This led to the immediate unblinding and termination of the study (Gray et al., 2010; Sekaly, 2008).

The government recalls over 20 million locally produced condoms that were found to be faulty (Felix, 2007).

2008 President Thabo Mbeki resigns and is replaced by interim President Kgalema Motlanthe. Manto Tshabalala-Msimang is replaced as Minister of Health by Barbara Hogan.

The Scrutinize campaign is launched by USAID and the John Hopkins University HIV Communication Programme. The campaign used mass media communication (mostly television advertisements) as a vehicle to promote awareness about risky sexual practices amongst South African youth. The campaign made several returns to the media in subsequent years (e.g., during the 2010 Soccer World Cup) (JHHESA, 2013).

The OneLove campaign is launched by the Soul City Institute – a five-year Southern African regional programme, focusing on raising awareness around the risk of having multiple concurrent sexual partnerships (Jana et al., 2014).

The government distributes over 300 million condoms in 2008 (Pallin et al., 2013).

2009	Jacob Zuma becomes the fourth post-apartheid president of South Africa and appoints Dr. Aaron Mostoaldi as his Minister of Health and Baleka Mbete as Deputy President.
2010	The government launches an HIV Counselling and Testing media campaign, which also included counselling at clinics, billboards with HIV testing promotion messages and door-to-door awareness raising (UNAIDS, 2009). The government starts recommending medical male circumcision as a complimentary HIV prevention method for the first time (NDoH, 2016).
2011	The HIV/AIDS/STD National Strategic Plan for South Africa 2012-2016 is unveiled. The plan emphasises: a.) halving the number of new HIV infections, b.) providing ART to at least 80% of HIV-positive people who are eligible for ART, c.) cutting the number of new TB infections and deaths in half, d.) reducing the stigma associated with HIV and TB (SANAC, 2011). The government distributes close to 500 million condoms in 2011 (Pallin et al., 2013).
2012	The HSRC's South African National HIV Prevalence, Incidence, Behaviour and Communication Survey reveals that, from 2008 to 2012, there has been a pronounced decrease in knowledge about HIV prevention and HIV modes of transmission, particularly amongst men, black African males between the ages of 25 and 49 as well as recreational drug users and high-risk alcohol users (Shisana et al., 2014). After the testing of condoms that were distributed at the ANC's centenary celebrations reveal that some of them were defective, the government recalls over 1.35 million condoms (Associated Press, 2012).
2013	The CD4-count threshold for ART initiation is adjusted from 200 to 350 and less (Simelela & Venter, 2014).
2014	The Soul City Institute launches the RISE Young Women's clubs – a peer-support programme that aims to promote social cohesion, self-efficacy and resilience amongst young women and girls aged 15 to 24. A talk show, smartphone application and magazine are developed as part of the programme (Soul City Institute, 2019c). Health Minister Aaron Motsoaledi announces that free colourful and flavoured condoms will be made available at tertiary education and other training institutions in order to promote enthusiasm about government-sponsored condoms and to

	address the so-called “condom fatigue” phenomenon amongst the youth (ENCA, 2014).
2015	<p>USAID launches the Determined, Resilient, Empowered, AIDS-free, Mentored and Safe (DREAMS) Public/Private Partnership in ten sub-Saharan countries, including South Africa. The programme is aimed at reducing the HIV infection rate amongst adolescents, girls and young women (AGYW) (USAID, 2019).</p> <p>The B-WISE mobile site is launched by the NDoH, with funding from PEPFAR. The site aims to promote awareness amongst the youth about HIV, substance abuse and other health-related issues (CDC, 2015).</p> <p>loveLife launches the iloveLife.mobi mobile site – aimed at promoting healthy living and reducing HIV infections amongst young people between the ages of 12 and 24 (loveLife, n.d.).</p> <p>By the end of 2015, the government had distributed over 800 million condoms (Western Cape Government, 2016).</p>
2016	<p>The Second Durban Declaration is released, aiming to highlight five key scientific advances that can serve to end the epidemic and five key structural barriers that hamper the fight against HIV. The key scientific advances include: ensuring ART access to all HIV-positive people; expanding HIV combination packages (e.g., PrEP); treating and managing co-infections and co-morbidities; enhancing cure and vaccine research; and optimising implementation research. The key structural barriers were identified as being: increased HIV services access for key populations; gender inequality; laws, policies and practices that stigmatise and discriminate against HIV-positive people and key populations; greater investment in community-based and civil society initiatives; and improving the capacity of frontline healthcare workers (IAS, 2016).</p> <p>The South African government adopts TasP (Undetectable=Untransmissible) on 1 September 2016 – specifying that all HIV-positive individuals should be initiated on ART, prioritising those with a CD4 \leq 350 and pregnant or breastfeeding women (Medicines Information Centre, 2016).</p> <p>The NDoH rebrands the government-issued <i>Choice</i> condoms after research indicated that the South African public does not find them appealing nor safe. The new brand is called <i>Max</i> and features a range of scents and colours (Western Cape Government, 2016).</p>

2017 The HIV/AIDS/STD National Strategic Plan for South Africa 2017-2022 is launched. It places a strong emphasis on the prevention and treatment of both HIV and TB. It aims to: a.) reduce the new number reduce of infections and the overall morbidity and mortality rates of HIV, TB and STIs, b.) focus more strongly on geographic areas and populations where HIV and TB are most prevalent, c.) focus on the social and structural drivers of HIV, TB and STIs, d.) base the response to HIV, TB and STIs on human rights principles, e.) ensure that the country's response to HIV, TB and STIs is characterised by strong leadership and shared accountability, f.) strengthen information systems and mobilise resources to ensure sustainability (SANAC, 2017).

The CAPRISA 018 randomised controlled clinical trial launches in South Africa, aimed at testing the safety, acceptability, tolerability and pharmacokinetics of a sustained-release tenofovir alafenamide sub-dermal implant for HIV prevention in young South African women. The trial is expected to continue until 2022 and will be conducted in the KwaZulu-Natal province (Abdool Karim et al., 2019).

2018 After President Jacob Zuma resigns from office, Cyril Ramaphosa becomes South Africa's fifth post-apartheid president of South Africa. Deputy-President, David Mabuza, is appointed as the new chairperson of SANAC.

2019 Dr. Zweli Mkhize replaces Dr. Aaron Mokoale Oledi as Minister of Health.

The eThekweni declaration is presented at the 9th South African AIDS Conference in Durban. The declaration recognised the great advances that had been made to ensure improved access to HIV care, treatment and support, however, it highlighted that a sense of complacency had slowly started to emerge and that the HIV epidemic was no longer being viewed in a serious light. The declaration, therefore, called for HIV to be seen as an urgent public health matter that requires emergency-level responses. In addition, while the HIV incidence rate was steadily decreasing in the country, the incidence rate amongst young women and adolescent girls remained high (Petitions.net, 2019).

The government releases the fixed-dose combination ARV, tenofovir/lamivudine/dolutegravir (TLD), and plans to migrate all ARV users over to the new drug by 2021 (Hodal, 2019).

A community-based HIV/TB project in Eshowe, KwaZulu Natal, that is run by Medicines Sans Frontiers (MSF), becomes the first site in South Africa to reach the 2020 90-90-90 Fast Track Targets (MSF, 2019).

2020 COVID-19 spreads rapidly throughout South Africa. Strict lockdown measures, including social distancing regulations and community containment, have inadvertently caused ARV treatment and care interruptions for many South Africans who are living with HIV and lead to a marked decrease in HIV and TB testing in the country (Abdool Karim & Abdool Karim, 2020).

Appendix C: Ethics Approval Letter



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities
Research Ethics Committee

2 July 2018

Dear Ms Kotze

Project: A critical examination of the theorizing in the study of the behaviour and social aspects of HIV and AIDS in South Africa
Researcher: M Kotze
Supervisor: Prof DJF Maree
Department: Psychology
Reference number: 04310861 (GW20180619HS)

Thank you for the application that was submitted for ethical consideration.

The **Research Ethics Committee** notes that this is a literature-based study and no human subjects are involved. The application has been **approved** on 28 June 2018 along these guidelines, data collection may therefore commence.

Please note that this approval is based on the assumption that the research will be carried out along the lines laid out in the proposal. However, should the actual research depart significantly from the proposed research, a new research proposal and application for ethical clearance will have to be submitted for approval.

The Committee requests you to convey this approval to the researcher.

We wish you success with the project.

Sincerely

PS: **Prof Maxi Schoeman**
Deputy Dean: Postgraduate Studies and Research Ethics
Faculty of Humanities
UNIVERSITY OF PRETORIA
e-mail: tracey.andrew@up.ac.za

CC: Prof DJF Maree(Supervisor)
Prof T Guse (HoD)

Research Ethics Committee Members: Prof MME Schoeman (Deputy Dean); Prof KL Harris; Dr L Blokland; Ms A dos Santos; Dr R Fasselt; Ms KT Govinder; Dr E Johnson; Dr C Panebianco; Dr C Puttergill; Dr D Reyburn; Dr M Taub; Prof GM Spies; Prof E Tajjard; Ms B Tsebe; Dr E van der Klashorst; Dr G Wolmarans; Ms D Mokalapa

Appendix D: PRISMA Checklist

<i>Section/ topic</i>	<i>#</i>	<i>Checklist item</i>	<i>Reported on page #</i>
ABSTRACT			
Structured summary	1	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	Abstract p. iv
INTRODUCTION			
Rationale	2	Describe the rationale for the review in the context of what is already known.	Chapter 1 pp. 2-10
Objectives	3	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	Chapter 6 pp. 240-241
METHODS			
Eligibility criteria	4	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	Chapter 6 pp. 242-244
Information sources	5	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	Chapter 6 pp. 244
Search	6	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Chapter 6 pp. 244-245
Study selection	7	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	Chapter 6 pp. 245-250
Data collection process	8	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	Chapter 6 pp. 250-258
RESULTS			
Study selection	9	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	Chapter 7 pp. 261-263

Appendix E: Behavioural and Social Aspects of HIV Keyword List

1. Abandon* - abandon, abandonment
2. Abstin* - abstinence, abstain
3. Acceptance
4. Acceptib* - acceptability, acceptable
5. Accessib* - accessibility, accessible
6. Adhere* - adhere, adherence
7. Agency
8. Anthropolog* - anthropology, anthropological, anthropologic
9. Anxi* - anxiety, anxious
10. Aspiration* - aspiration(s), aspirational
11. Attitud* - attitude(s), attitudinal
12. Autonom* - autonomy, autonomous
13. Aware* - aware, awareness
14. Behav* - behaviour(s), behavioural, behavior, behavioral
15. Belief* - belief(s)
16. Bereave* - bereavement, bereaved
17. Blam* - blame, blaming
18. Choice* - choice(s)
19. Coerci* - coercion, coercive
20. Cognit* - cognition, cognitive
21. Communicat* - communication(s), communicate, communicative
22. Conception* - conception(s)
23. Conceptual framework
24. Condom use
25. Consent
26. Coping
27. Denial* - denial, denialism, denialist
28. Depress* - depression, depressive, antidepressant, depress(ed)
29. Desire
30. Disclos* - disclosure, disclose
31. Discourse* - discourse(s)

32. Discursive
33. Education
34. Edutain* - edutain, edutainment
35. Emoti* - emotion(s), emotive, emotional, emotionality
36. Engagement
37. Entertainment Ethic* - ethic(s), ethical
38. Experience* - experience(s), experiencing
39. Faith* - faith, faithfulness, faith-based
40. Fatalis* - fatalistic, fatalism
41. Fatherhood
42. Fear* - fear(s), fearful, fearing
43. Feeling* - feeling(s)
44. Femini* - feminine, feminist, femininity, feminisation
45. Gender
46. Grief
47. Habit* - habit(s), habitual
48. Health literacy
49. Hegemon* - hegemonic, hegemony
50. Helplessness
51. Hermeneutic
52. Hope
53. Identity / identities
54. Incentive
55. Informat* - information, informative
56. Intent* - intent, intention(s), intentional, unintentional
57. Intergen* - intergenerational
58. Knowledge
59. Laugh* - laugh, laughing, laughter
60. Life skill* - life skills, life skill training
61. Lifestyle* / life style* - lifestyle(s), life style(s)
62. Locus of control
63. Lov* - love(d), loving, beloved
64. Masculin* - masculine, masculinity

65. Mass Media
66. Mental Health
67. Message* - message(s)
68. Mobilization / mobilisation
69. Mood* - mood(s)
70. Moral* - moral(s), immoral, morality, immorality
71. Motherhood
72. Motivation* - motivation(s), motivational
73. Narrative* - narrative(s)
74. Negotia* - negotiate, negotiation(s)
75. Normative
76. Norms
77. Opinion* - opinion(s)
78. Parenting
79. Partner* - partner(s), partnership
80. Peer
81. Perce* - (mis)perception(s), perceive
82. Perspective* - perspective(s)
83. Persua* - persuasive, persuade
84. Phenomen* - phenomenological, phenomenology, phenomenon
85. Photo* - photovoice, photo comics, photopgraphy
86. Preference* – preference(s)
87. Promotion
88. Psychiatr* - psychiatric, psychiatry
89. Psycho* - psychology, psycho-, psychological
90. PTSD
91. Punish* - punish, punishment(s)
92. QOL – QOL, HRQOL, WHOQOL
93. Qualitative
94. Quality of life
95. Readiness
96. Reasoned
97. Reasoning

98. Recreation* - recreational, recreation
99. Reflection* - reflection(s)
100. Relig* - religious, religiosity, religion
101. Remind* - remind, reminder
102. Resilien* - resilience, resilient, resiliency
103. Reward
104. Risk practice* - risk practice(s)
105. Roman* - romance, romantic
106. Satisfaction* - satisfaction, dissatisfaction
107. Self* - self, self-esteem, self-concept, self-efficacy, self-awareness, self-care
108. Sense
109. Sexual* - sexual, sexuality
110. Sham* - shame, shaming, ashamed(d)
111. Social* - social, socialisation, anti-social
112. Socio* - sociology, socio-ecological
113. Spirit* - spirit, spiritual, spirituality
114. Stereotyp* - stereotype(s), stereotypical
115. Stigma* - stigma(s), stigmatising, stigmatisation, stigmatic
116. Stress* - stress, distress, eustress, stressor(s), stressful
117. Subjective* - subjective, subjectivity(ies)
118. Suicide* - suicide(s), suicidal
119. Support
120. Symbol* - symbol(s), symbolic
121. Theor* - theory, theoretical, theoretically, theorem
122. Thought* - thought(s)
123. Transaction* - transactional
124. Trauma* - trauma, traumatic, traumatising, posttraumatic
125. Trust* - trust, mistrust, distrust, trustful
126. Usability
127. Users
128. View* - view(s), viewpoint(s)
129. Wellbeing, Well-being
130. Willingness

131. Wish* - wish(es), wishing
132. Worr* - worry, worries

Appendix F: Structured Review Guide

Article Reference	Publication Year	Journal Discipline	Overarching Thematic Category ^a	Keywords ^b	Research Methodological Approach / Design ^c	Theory Visibility ^d	Theoretical Contribution ^e	
							Theory Testing	Theory Building
<p>^a Overarching Thematic Category: Prevention; Testing and Treatment; Care and Support; Living with HIV; Impact of HIV and AIDS.</p> <p>^b Keywords: Keywords for each study that served as codes for the thematic research theme analysis.</p> <p>^c Research Methodological Approach / Design: Literature Reviews, Critical Reviews and Analyses, Quantitative, Qualitative, Mixed Methods.</p> <p>^d Theory Visibility: Seemingly absent, Implied, Partially Applied, Retrospectively Applied, Consistently Applied (based on the categories that were recreated by Bradbury-Jones et al. (2014))</p> <p>^e Classify the article according to the extent that it tested and generated theory, using Colquitt and Zapata-Phelan's (2007) theoretical contribution taxonomy for empirical articles</p>								

Appendix G: Structured Theory Usage Review Guide

Article Reference	Explicit (direct or vague) or implicit theory use ^a	Name of theory/theories ^b	Discipline-specific and/or cross-cutting paradigm ^c	Reason for theory choice ^d
<p>^a Articles which were initially coded as consistently, partially or retrospectively applying theory was labelled either as “explicit - direct” or “explicit - vague”, depending on how clearly they articulated their theory use. Articles that were initially coded as using theory in an implied manner were labelled as “implicit”.</p> <p>^b Name of theory/theories explicitly or implicitly mentioned in the article.</p> <p>^c The discipline-specific and/or cross-cutting paradigm to which the theory belongs. More than one paradigm can be chosen if the study used more than one theory from different conceptual perspectives.</p> <p>^d The specific (explicitly stated or implied) reason a theory was chosen.</p>				