

Developing predictive models for depression and risk-taking behavior among people living with HIV and AIDS (PLWHA): A focus on the construction of the Self and Implicative Dilemmas

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HIV

Hospital Anxiety and Depression Scale

Implicative Dilemmas

Kelly's Personal Construct Theory

Mental Health

Non-Adherence

Risk-taking Behaviour

Self-concept

Self-Esteem

Unprotected Sex



DECLARATION

I wish to declare that this thesis is submitted by me to the Department of Psychology in the Faculty of Community and Health Sciences of the University of the Western Cape, South Africa, in fulfillment of the requirements for a Doctor in Philosophy. It is the author's original work and has not been previously submitted for a degree or qualification of any other institution or examining body.



Signature:

Date 20th December 2016

Naeema Yusuf Hoosain

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ABBREVIATIONS AND ACRONYMS

AIDS: Acquired Immunodeficiency Syndrome

APA: American Psychiatric Association

ART: Antiretroviral Therapy

ARV: Antiretroviral

BDI-II: Beck's Depression Inventory

CDC: Centers for Disease Control and Prevention

CCT: City of Cape Town

CI: Confidence Intervals

CT: Cape Town

DV: Dependent Variable

DSM-IV: Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition

DSM-V: Diagnostic and Statistical Manual of Mental Disorders - Fifth Edition

DoH: Department of Health

GAD: Generalised Anxiety Disorder

HADS: Hospital Anxiety and Depression Scale

HIV: Human Immunodeficiency Virus

HRSD: Hamilton Rating Scales for Depression

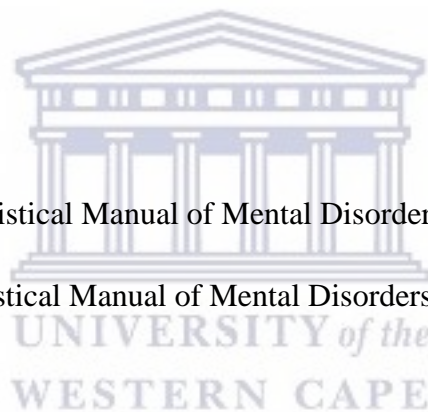
HSRC: Human Sciences Research Council's

HST: Health Systems Trust

ID: Implicative Dilemmas

IV: Independent Variable

KZN: KwaZulu-Natal



LMIC: Low - and - Middle - Income Countries

LTBI: Latent Tuberculosis Infection

MD: Major Depression

MDP: Multi-Centre Dilemma Project

MHaPP: The Mental Health and Poverty Project

MV: Mediator Variable

NSP: National Strategic Plan

OR: Odds Ratio

PCT: Personal Construct Theory

PHC: Primary Health care

PID: Presence of Implicative Dilemmas

PLWH: People Living with HIV

PLWHAs: People Living with HIV and AIDs

PTSD: Post-traumatic stress disorder

PVFF: Percentage of Variance explained by the First Factor

Q-LES: Quality of Life Enjoyment and Satisfaction Scale

RRR: Relative Risk Ratio

RepGrid: Repertory Grid

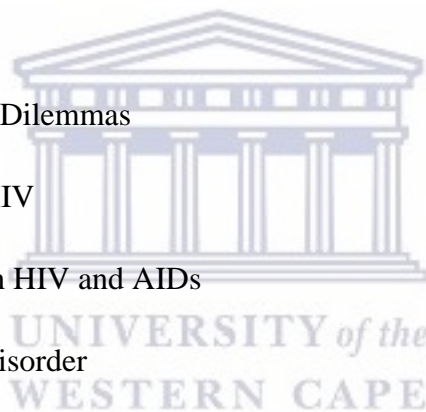
RGT: Repertory Grid Technique

SA: South Africa

SADAG: South African Depression and Anxiety Group

SASH: South African Stress and Health

SEI: Self-Esteem Index



SES: Self-Esteem Scale

SD: Standard Deviation

SPSS: Statistical Package for Social Sciences

Statssa: Statistics South Africa

s-SA: sub-Saharan Africa

TB: Tuberculosis

TSCS: Tennessee Self-Concept Scale

UNAIDS: United Nations Programme on HIV/AIDS

UNFPA: United Nations Population Fund

US: United States

USA: United States of America

UTT: Universal Test and Treat

UWC: University of Western Cape

WC: Western Cape

WHO: World Health Organisation

WHO-WMH-CIDI: World Health Organization World Mental Health Composite
International Diagnostic Interview

XBDI-II: IsiXhosa version of the BDI-II



ABSTRACT

Due to the chronicity of the HIV infection, substantial changes may occur in the life of people living with HIV and AIDS (PLWHAs), emerging new needs must be understood and dealt with, enhancing the already existing ones. Understanding the self-concept of PLWHAS is essential and was situated within Kelly's Personal Construct Theory. Increased self-concept makes the individual living with HIV perceive him/herself in a positive way; on the other hand, those with affected self-concept and implicative dilemmas may see themselves as more limited and discouraged, with great implications for mental health. Given the circumstances, the present study aims were to evaluate the sociodemographic, disease, psychosocial factors, as well as cognitive factors such as self-concept and implicative dilemmas and to relate it to depression and risk-taking behaviours in PLWHAs. This quantitative study administered a battery of questionnaires namely, the 1.) Personal and Demographic Questionnaire, 2.) Beck's Depression Inventory (BDI-II), 3.) Hospital Anxiety and Depression Scale (HADS), and the Repertory Grid to 142 adults living with HIV and AIDS who were attending a public health clinic in a resource-constrained area in the Cape Metropole Region. A purposive sampling strategy was used to recruit participants into the study. Data analysis included descriptive and inferential statistics using SPSS Version 13 to test the hypotheses. Of the total sample (N=110), 77.5% were females. The final multivariate regression model predicted for Aim One used all the mediating variables (MVs) which were significantly associated with depression in the bivariate multinomial regression model and all the independent variables (IVs). The final model showed that Stage 4 of the disease ($p=0.02$) and moderate to severe anxiety ($p=0.025$) was significantly associated with mild depression while having a co-existing medical condition ($p=0.027$), mild anxiety ($p=0.011$) and moderate/severe anxiety ($p=0.001$) was significantly associated with moderate/severe depression. With regard to Aim Two, the final multivariate regression model for unprotected sex used all the mediating

variables which were significantly associated with unprotected sex and all the IVs and predicted age group 25-34 years ($p=0.005$), age group 35-54 years ($p=0.01$), unemployment ($p=0.031$) and the Others-Ideal relationship ($p=0.012$) to be significantly associated with unprotected sex. The final multivariate regression model for non-adherence to HIV medication used all the IVs which were significantly associated with the non-adherence to HIV medication and all the MVs and predicted a co-existing medical condition ($p=0.019$) and unknown CD4 count ($p=0.012$) to be significantly associated with non-adherence to HIV medication. With regard to cognitive variables, the mean 'current self' and 'ideal self' discrepancy score (0.27), the mean 'current self' and 'others' discrepancy score (0.20), and the mean 'Others' and 'Ideal Self' discrepancy score (0.30) were all close to zero suggesting that PLWHAs in this study had a high self-esteem, showed a degree of similarity to others around them, and were satisfied with the people that surrounded them, respectively. The Others-Ideal relationship ($OR=0.25$, $CI = 0.09-0.73$, $p=0.011$) was significantly related to both unprotected sex and non-adherence to HIV medication. This implied that participants who were able to identify more closely with others were less prone to risk-taking behaviours. Even though the relationship was not significant, the odds of having depression increased in those with implicative dilemmas. Overall, this study updates research with regards to the various predictors of depression and risk-taking behaviour in PLWHAs. It also adds to research in South Africa (SA) on depression and anxiety as a co-morbid disorder and high risk-taking behaviours that exist in PLWHAs. Some of the recommendations were that intervention programmes must take on a gendered perspective. PLWHAs that experience intense anxiety may require supportive psychological interventions early on in treatment to prevent depression from developing. All of the cognitive variables deserve further examination such that when they (e.g., implicative dilemmas) are found to be relevant for a given patient, it is integrated into an individualized treatment package for that patient.

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1. The Global and sub-Saharan HIV/AIDS and Tuberculosis (TB) epidemiology and comorbidity

Human Immunodeficiency Virus (HIV), the virus that causes Acquired Immunodeficiency Syndrome (AIDS), is one of the world's most serious health and development challenges. HIV and AIDS are found in all parts of the world; however, some countries are more affected than others. According to the World Health Organisation (WHO) (2016), HIV continues to be a major global public health issue, having claimed more than 35 million lives so far. At the end of 2015, there were approximately 36.7 (34.0 – 39.8) million people living with HIV (PLWH), 2 (1.9 - 2.2) million people becoming newly infected with HIV globally and 1.1 (940 000–1.3 million) million people died from HIV-related causes globally (WHO, 2016). Of the 36.7 million PLWH globally, sub-Saharan Africa (s-SA) was the most affected region, with 25.6 (23.1–28.5) million PLWH in 2015. These statistics accounts for almost two-thirds of the global total of new HIV infections (WHO, 2016). This region includes only 11 percent of the world's population. Nearly one in 10 adults between the ages of 15 and 49 are already living with the virus throughout the sub-continent. In Africa, women are harder hit than men, the opposite of what is found on all other continents. The differences between men and women are most pronounced in those under age 25 (Lampsey & Gayle, 2001).

The global burden of HIV has also had an impact on the epidemiology of TB (Corbet, Watt, Walker, Maher, William, Raviglione, et al., 2003), one of the most common opportunistic infections affecting HIV-seropositive individuals (AIDSCAP, 1996). The firm association between HIV and TB in s-SA is responsible for the massive surge in the incidence of TB observed in the region in the last 20 years (Adeiza, Abba & Okpapi, 2016). In developing

countries especially, TB has remained a significant public health problem, exacerbated in the last decade by poverty, war, demographic changes and the rapid spread of HIV with case rates increasing by an average of 7% per year after 1985 in 20 s-SA countries (Cantwell & Binkin, 1996). In 2013, s-SA carried the greatest proportion of new cases per population with 280 cases per 100 000 population (WHO, 2013).

In 2013, an estimated 9.0 million people developed TB, and 1.5 million died from the disease, 360 000 of whom were HIV-positive (WHO, 2014). Over 95% of TB deaths occur in low - and middle - income countries (LMIC), and it is among the top five causes of death for women aged 15 to 44 years (Hubers, 2016). TB is a leading killer of HIV-positive individuals causing one fourth of all HIV-related deaths, despite the fact that it is curable (WHO, 2016).

WHO/United Nations Programme on HIV/AIDS (UNAIDS) approximates that one-third of the 40 million people living with HIV and AIDS worldwide are co-infected with TB (UNAIDS, 2016). The interaction between HIV and TB in persons co-infected with them is bi-directional and synergistic; each accentuates progression of the other (Sharma et al. cited in Gangadhara & Ramesh, 2014). HIV-positive people are up to 50 times more likely to develop TB than HIV-negative people. In 2013, approximately 1.1 million (13%) of the 9 million inhabitants who worldwide developed active TB disease were infected (Lawn, Harries, Anglaret, Myer & Wood, 2008). Of those individuals who were HIV negative an estimated 1.14 million died from TB disease, and a further 360 000 (24%) deaths occurred from HIV and TB co-infection (Ramaseri et al., 2012).

1.2. The epidemiological pattern of HIV and AIDS in South Africa (SA)

In the mid-1980s, HIV and AIDS were almost unheard of in southern Africa. According to (UNAIDS, 2013), it is now the worst affected region and widely regarded as the 'epicenter' of

the global HIV epidemic. HIV prevalence also varies considerably between regions in s-SA (UNAIDS, 2013). With a prevalence of 17.9 percent - South Africa (SA) has the largest HIV epidemic in any country. The remaining countries in southern Africa such as Namibia, Zimbabwe, Botswana, Swaziland and Lesotho (Lamprey & Gayle, 2001) have an HIV prevalence between 10 and 15 percent (UNAIDS, 2013).

According to the Human Sciences Research Council's (HSRC) National HIV Prevalence, Incidence and Behaviour Survey of 2012 (Shisana, Rehle, Simbayi, Zuma, Jooste, Zungu, Labadarios, Onoya et al., 2014), the proportion of South Africans infected with HIV increased from 10.6% in 2008 to 12.2% in 2012. The total number of infected South Africans now stands at 6.4-million; 1.2-million more than in 2008 (Shisana et al., 2014).

The rate of HIV prevalence and incidence in SA is said to be of concern. The HSRC survey highlighted that HIV *prevalence* in young women between the ages 20 - 24 years is at 17.4% which is three times higher than in men of the same age (5.1%) (United Nations Population Fund (UNFPA), 2015). Within the 25 - 29 year age group HIV prevalence amongst women is higher (28.4%) than men of the same age group (17.3%) (UNFPA, 2015). Thirty-six percent of women between the ages 30 to 34 years and 28.8% males between the ages 35 to 39 years had the highest HIV infection rates (Shisana et al., 2014). The survey further highlighted that Black African female between the ages 20 to 34 years documented the highest *incidence* of HIV among all the analysed population groups (Shisana et al., 2014). With over 400 000 new HIV infections occurring in 2012, SA currently ranks first in HIV incidence globally (Shisana et al., 2014).

Within SA, provincially, KwaZulu-Natal (KZN) has the highest HIV prevalence (16.9%) while the Western Cape (WC) has the lowest HIV prevalence (5%) (Shisana et al., 2014). The challenge of HIV and AIDS is the fact that the pandemic is embedded deeply in the

conditions of poverty under which most of our people live (Office of The Premier, 2012). The majority of those affected in the WC are in the townships (Shisana & Simbayi, 2002). In SA, a township denotes an urban area, which in the apartheid era was set aside for Black (non-white) people. These areas are located on the periphery of towns or cities. Urban informal areas are under-resourced and lack some of the necessities such as formal housing, water, sanitation and access to preventative health services (Shisana et al., 2014). In such resource - limited settings, the needs of PLWHAs and TB too often go unmet (National Strategic Plan (NSP) for HIV, STIs, and TB 2012-2016). The stresses and losses associated with HIV disease are profound and often compounded by societal stigmatisation (Cochran & Mays cited Murdaugh, 1998). SA also experiences problems such as the lack of HIV/AIDS knowledge and education, a low rate of condom use in monogamous relationships, early sexual debut and HIV-related risk behaviour (Aggarwal, Arora & Nagpal, 2005). The psychological or internal challenges a person with HIV/AIDS faces vary from individual to individual. Each HIV/AIDS situation is as unique as the people involved (Watstein & Chandler, 1998). The success with which PLWHAs meet these challenges influences both the progression of the disease and the quality of their lives (Murdaugh, 1998).

Even with the challenges above, the majority of individuals diagnosed with HIV disease are now living longer with their condition (Reiter cited Murdaugh, 1998), as advances in antiretroviral therapy (ART) are more widely available, control of opportunistic infections continue to improve, and medical breakthroughs occur (Murdaugh, 1998). Living longer with HIV and AIDS means that one has to put up with other aspects of the disease such as the biological, social, behavioural and psychological aspects of disease which are known to be inextricably linked and ultimately depend on the individual's circumstances (Sikkema, Watt, Drabkin, Meade, Hansen & Pence, 2010).

1.3. The epidemiological pattern of HIV/AIDS, TB and co-morbid conditions

According to the WHO Global TB report for 2014, SA is ranked number six among the 22 WHO-determined high-burden countries, with an estimated 461 000 new cases reported each year (CDC, 2011) and an estimated TB incidence (HIV and TB) of 520/100 000. With a high co-infection of TB in adults with HIV and AIDS in South Africa (Brannon & Feist, 2000; Middelkoop, Whitelaw, Ntutela, Vogt, Kreiswirth, Wood, & Bekker, 2004; Naidoo, 2009), it is clear that the battle against TB will never be won unless the war against HIV is won (CDC, 2011). There is also a wide variation in HIV and TB prevalence across age, race, gender, socio-economic status and geographical location.

Poor adherence worsens the TB epidemic as a result of patients either not starting treatment, or not completing their course of treatment (Kanabus, 2016). As a result, they develop resistance to the “normal” treatments such as the emergence of drug - resistant strains of TB, with almost 7,386 laboratories confirmed MDR - TB cases and 741 confirmed cases of extensively drug-resistant TB (XDR-TB) in 2010 (Kanabus, 2016), which are more challenging and very expensive to treat (South African Dept of Health (DoH) Annual Performance Plan 2014/15 – 2016/17).

According to the WHO, approximately 1% of the South African population develops TB disease every year (Kanabus, 2016), and an estimated 80% of the South African population has latent TB (Kanabus, 2016). The WHO (2016) definition of latent tuberculosis infection (LTBI) is a state of persistent immune response to stimulation by *Mycobacterium tuberculosis* antigens without evidence of clinically manifested active TB. The highest prevalence of latent TB infection, estimated at 88% has occurred among people in the age group 30-39 years in townships and informal settlements. The number of cases detected for all forms of TB has steadily increased to 401,048 in 2010 (Kanabus, 2016), except for the

number of new smear - positive cases which have remained stable during the period from 2004 to 2010 (Kanabus, 2016).

TB remains the leading cause of death among HIV-infected individuals in SA (CDC, 2011). According to the WHO in 2013, 89 000 people died from TB in SA (Kanabus, 2016). These numbers was a significant reduction from the 119 000 people who died in 2012 (Kanabus, 2016). However, according to the South Africa Mortality and Causes of Death Report for 2013, TB mortality is much lower than the WHO estimates and is decreasing.

According to Statistics South Africa (Statssa) in 2013, TB was the leading cause of death in South Africa with over 40 542 deaths notified. These numbers were, however, a decrease from 2012 when 48 409 deaths were notified, and 2011 when 55 102 deaths were notified. These figures exclude deaths from TB and HIV co-infection which are internationally classified as HIV deaths (Statssa, 2013).

According to the South African causes of death report in 2011, TB was the leading cause of death in SA among both men and women at 30 807 (11.8%) and 23 112 (9.5%), respectively (Statssa, 2013). On age, there were 1 426 deaths due to TB (3.1%) among those aged 0-14, 36 728 (18.1) among those 15-49, 10 983 (10.6%) among those 50-64 and 4 771 among those 65 years and older (Statssa, 2013). There was also in 2013 a much higher number of deaths in men, 23 791 (9.9%) as compared with women 16 582 (7.6%) (www.tbfacts.org). These high statistics may well be because of the numbers of miners who die from TB (Statssa, 2013).

As was highlighted above, the discrepancy in both the numbers and the trends in TB mortality between the different sources are probably due to various factors (www.tbfacts.org), such as differences in the data sources and estimation methods. It is likely that this will become clearer over the next few years.

The full cost of the HIV-TB epidemic in SA is rarely appreciated and, is often aptly described as the “cursed duet” (Sharma et al., 2005). HIV and TB are intricately linked to malnutrition, unemployment, alcoholism, drug abuse, poverty and homelessness (Sharma et al., 2005) among other factors. HIV and AIDS and TB have reached epidemic proportions costing the health care system millions of rand. Also, it is becoming increasingly difficult to provide quality health care to people using public health services due to the overburden on the services among other challenges. Psychosocial factors such as stigma and denial related to suspected infection cause many people to delay or refuse to test; fear and despair often follow diagnosis, due to poor-quality counselling and lack of support; and long waiting lists for antiretroviral (ARV) treatment programmes and eligibility criteria for access to ARVs treatment. These challenges mean that many people become seriously ill before accessing treatment (AFSA, 2014). At the end of the day, the direct monetary costs of diagnosis and treatment are borne by health services and by patients and their families (Russel, 2004; Sadoh & Oviawe, 2007).

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In countries where the population is severely afflicted with HIV and AIDS and TB, where AIDS has become a common cause of death in one’s social network, and where the perceived risk of being infected is high among the general population, the concern for population mental health (Hsieh, 2010) should be addressed. For example, in Naidoo and Mwaba’s (2010) study, a high percentage of participants infected with TB who were co-infected with HIV, were more susceptible to developing a mood disorder, such as depression, because they were experiencing the double burden of disease. It is evident that HIV and AIDS and TB do not only bring health complications and inevitable death, it also brings enormous psychosocial effects. Hence, PLWHA must now learn to adapt to a disease that promises multiple changes in every aspect of their lives.

One of the main challenges of having a disease, such as TB, is the need to adhere strictly to recommended treatment regimens because of the highly contagious nature of the disease. Establishing the state of well-being of a person infected with TB is critical to the overall management of the disease because it stands to reason that if the person's psychosocial functioning is adequate, it is more likely that she/he will be able to maintain a better quality of life (Naidoo & Mwaba, 2010). The social determinants of health, such as continued anxiety, insecurity, low self-esteem, social isolation, lack of control over one's home and working life, and so on are well established (Wilkinson & Marmot, 2003). People who have a lifelong or infectious disease and who have limited social, psychological and economic resources find it extremely difficult to maintain a reasonable quality of life (Naidoo & Mwaba, 2010).

Ross and Devereil (2004) identified depression as one of the emotional reactions to a physical disorder. Individuals may develop depression because of a continued sense of helplessness about their poor quality of life (Naidoo & Mwaba, 2010). Thus helplessness and depression are integrally linked and impact negatively on an individual's health outcome. Limited social support or negative social support (Revenson, 1990) is also known to reduce an individual's well-being and is positively associated with depression (i.e., the higher the level of negative support, the higher the level of depression) (Naidoo & Mwaba, 2010).

Psychological factors are often neglected in HIV research, although psychological distress is common in LMIC countries, such as SA (Nduna, Jewkes, Dunkle, Nwabisa, Shai & Colman, 2010). There is a need to deepen researchers and public or mental health specialists understanding of the role of mental health in the HIV epidemic (Sikkema, Watt, Drabkin, Meade, Hansen & Pence, 2010).

While the search to find the cure for HIV and AIDS continues, preserving the quality of life of individuals afflicted with the disease remains the focus of much research. Current research trends in the area of HIV and AIDS is increasingly focused on the importance of both sociodemographic and psychosocial factors in disease outcome (Holm, Rogers & Kwoh, 1998). Conducting this study in a lower socio-economic group in South Africa, therefore, adds value to an existing body of knowledge in this field. This psychosocial study was conducted on a sample of Black African and Coloured South Africans of low socio-economic status. The reason was that they are the two dominant race groups in the greater Cape Metropole area in the province of the WC, SA (Statssa, 2012). This sample is unique in the sense that it has unique cultural practices, religious beliefs, sociological patterns around the family structure, and economic disparity between different groups of people, which differs from a sample based in a developed country, for example.

1.4. The global mental health landscape

Mental disorders are estimated to increase in the next two decades. Depression is a common mental disorder and one of the leading causes of disability worldwide. According to WHO (2016), globally, an estimated 350 million people are affected by depression. More women are affected by depression than men. In 2001, depression was the fourth leading cause of morbidity and estimates indicate that, by 2020, it could rise to second place, after cardiovascular diseases (Sayers, 2001; Üstün & Kessler, 2002). Nowadays, depression is considered to present a predominantly continuous evolution with recurring episodes, and it attains such levels of severity that seriously compromises one's quality of life (Feixas et al., 2013). Reported prevalence rates have ranged from 1.9% to 35% in clinical samples and from 30% to 60% in community samples (Bing et al., 2001). The lifetime prevalence of depression in PLWHAs is estimated at 20 to 45% (Perry, 1994; Penzak, Reddy, & Grimsley, 2000; Ciesla & Roberts, 2001; Mello & Malbergier, 2006; Rabkin, 2008).

Studies that have documented the interaction between HIV and AIDS and mental health problems suggest that HIV and mental health may, in fact, exacerbate one another (Freeman, Nkomo, Kafaar & Kelly, 2008). In both developed (Baingana, Thomas & Comblain, 2005) and developing (Collins, Holman, Freeman & Patel, 2006) countries HIV-positive people are more likely to have depression than the general population. In addition to depression, many HIV-positive people have co-existing mental health problems, such as mood and anxiety disorders. Mood disorders, such as depression and anxiety, may predispose patients to other high-risk behaviours such as drug and alcohol abuse and have a direct effect on immunological markers (Evan, Ten Have & Douglas, et al., 2002), potentially even influencing disease progression and survival (Ickovics, Hamburger & Vlahov, et al., 2001). Anxiety can develop because of a person's uncertainty about HIV infection and treatment.

Regarding gender differences, women are at increased risk of developing depression and anxiety disorders, whereas men are at higher risk of developing substance use disorders. United States (US) studies have reported gender differences in prevalence with approximately 30% to 40% of HIV-positive men and 40% to 60% of HIV-positive women experiencing significant depression (Ciesla & Roberts, 2001; Cohen et al., 2002; Ickovics et al., 2001). Many factors appear to affect the prevalence of depression in patients with chronic disease such as HIV and AIDS, the nature of the underlying illness, the treatment administered when the patient was assessed, social support, gender, race, and age all may affect mental status (Gottlieb et al., 2004).

1.5. The epidemiological pattern of mental disorders in SA

As many as one in six South Africans suffer from anxiety, depression or substance use problems (and this does not even include more severe conditions such as bipolar disorder or schizophrenia), according to statistics released by the South African Depression and Anxiety

Group (SADAG) (SACAP, 2013). Furthermore, research reveals that over 40% of people living with HIV in SA have a diagnosable mental disorder. A study done by Department of Psychiatry and Mental Health indicates that, in low-income and informal settlements surrounding Cape Town (CT), one in three women suffers from postnatal depression (SACAP, 2013). Research from rural KZN shows that 41% of pregnant women are depressed – more than three times higher than the prevalence in developed countries (SACAP, 2013).

The South African Stress and Health (SASH) Study of 2009 described the first large-scale population-based study of common mental disorders in the country (Herman, Stein, Seedat, Heeringa, Moomal & Williams, 2009). It found the lifetime prevalence of any disorder was 30.3% (i.e. just under a third) and the most prevalent 12-month and lifetime disorders were anxiety disorders, with the highest lifetime and 12-month prevalence rates occurring in the WC (The Daily Maverick, 2013). The Mental Health and Poverty Project (MHaPP), based at the department of psychiatry and mental health at UCT, in turn, found that in South Africa, there is a link between poverty and mental disorders (The Daily Maverick, 2013). Unfortunately, this means that resources are most constrained where they are needed most (Herman et al., 2009). According to a study by Lund et al. (2011), 75% of people who live with a mental disorder in SA do not receive the care they need. The MHaPP study further found that instances of maternal mental illness are particularly high in low-income areas – three times greater than in developed countries. Forty-one percent of pregnant women are depressed (The Daily Maverick, 2013). Health24 gives a sobering overview of psychiatry in SA: “In SA, it is currently estimated that between four-and-a-half to five million people are suffering from a psychiatric disorder (The Daily Maverick, 2013). If one were to include alcohol and drug abuse in this figure, it rockets to a frightening 15 million people.

There are several reasons to believe that the prevalence of psychiatric disorders in SA would be relatively high (Stein, Seedat, Herman, Moomal, Heeringa, Kessler and Williams, 2008). Stressors such as racial discrimination and political violence have been perennial in the past, and high rates of gender inequality and criminal violence are reportedly a feature in the present (Hirschowitz & Orkin, 1997; Dunkle, Jewkes, Brown, Gray, McIntyre & Harlow, 2004). Poverty remains a significant problem and is likely to contribute to vulnerability to common psychiatric disorders in low-income countries (Patel & Kleinman, 2003). On the other hand, features of South African society may predict a more complex picture. The country's socioeconomic history has resulted in different ethnic groups having distinct socioeconomic profiles, with the White population advantaged, and the Black population disadvantaged. Socioeconomic privilege might protect against stressors and reduce the prevalence of psychiatric disorder (Stein et al., 2008).

The concern in SA is that although the mental health care policies are progressive, these are not filtering down. For instance, SADAG found that hospitals frequently don't have the staff or capacity to provide the care required. Patients end up being admitted to general wards, which adds to the stigma of their illness (The Daily Maverick, 2013). Furthermore, there are not currently resources available for education to reduce stigma. Stigmas surrounding mental health pose a major stumbling block when it comes to treating the disease in SA. "In Zulu, there is not even a word for 'depression' – it is not deemed a real illness in the African culture. As a result, sufferers are afraid of being discriminated against should they admit to having a problem. Because there is often an absence of physical symptoms with mental illness, it is considered 'not real,' a figment of the imagination."

The MHaPP study also found that public attitudes toward mental health and treatment are negative, despite a supportive and progressive policy framework for mental health. Sadly,

despite the legislative developments, the study also found that mental health has never given the priority it needed in SA, remaining “low on the public sector agenda” (The Daily Maverick, 2013). Subsequently, if this grief is not addressed or given priority as the situation stands currently, it can lead to feelings of helplessness, continuation with high-risk behaviour, a lack of follow-through with medical care and acting out with intense emotions. The inability to cope with rising stress can also lead to a loss of self-esteem (Valente, 2003). PLWHAs often experience a drop in self-esteem because of the stigma associated with HIV being a sexually transmitted disease (APA, 2000).

The physical or medical impacts of HIV and AIDS regarding opportunistic infections may not be as debilitating as the psychological impact; this may be because the opportunistic infections can be adequately treated while antiretroviral drugs can be taken to reduce viral load (Olapegba, 2005). Whereas psychological impacts are more difficult to handle, these come in forms of societal stigmatisation, inadequate social support and lowered self-esteem. This is confirmed by the findings of Perry, Jacobsberg, and Fishman (1990) that the psychological assessment of physically asymptomatic people at risk of AIDS both before and after serological notification had significant decreases in multiple measures of distress after notification among seronegative individuals (Olapegba, 2005).

Much information about HIV/ AIDS prevention efforts and awareness campaigns against the spread of HIV infection is already abundantly available for PLWHA and the general public (Gerbi, Habtemariam, Robnett, Nganwa & Tameru, 2012). From a public health perspective, even though health literacy is imparted to PLWHA; these individuals continue to make poor health decisions such as wanting to engage in risk-taking behaviours, and not adhering to ARVs and acting on them. This schism between what an individual knows to be health - enhancing behaviours and not following through on these behaviours implies the individual is

in a 'conflict position' or is experiencing an implicative dilemma and consequently may not always make a decision that is beneficial to him/her or to others.

Despite their relevance to many problems involving decision making, the notions of cognitive conflicts and dilemmas are scarcely investigated (Feixas & Saul, 2004). From a psychological perspective, the relationship between self-concept and depression has never been considered in PLWHA before. Therefore, a gap in the literature exists in determining whether socio-demographic factors, disease characteristics, psychosocial factors and especially cognitive factors (namely self-concept and implicative dilemmas) predict depression and risk-taking behaviour in PLWHAs.

From a mental health perspective, the project on which this thesis is based conceptualises the self as a cognitive structure, which contains various attributes or representations of the self. 'Self-concept' and 'self-esteem' are often used interchangeably (Tatlow-Golden & Guerin, 2010). While most self-research accesses self-esteem the researcher's interest is, however, in illuminating the self-concept. Essentially, the self-concept or self-construction of an HIV positive person is presumed to influence the processing of personally relevant information, such that information related to self or others may be filtered or distorted, resulting in depression. Depression, in turn, is known to lead to risk-taking behaviours (defined in this study as sexual risk behaviour, non-adherence to ARVs, substance and alcohol abuse, and lack of knowledge of factors fuelling the disease).

1.6. The Multi-Centre Dilemma Project (MDP)

The MDP was launched as an international collaborative research project in 1999 to study the role of dilemmas in different mental and physical health problems and to devise and implement therapeutic methods focused on resolving those dilemmas (Feixas, Saúl, Ávila-Espada & Sánchez, 2001; Feixas, Saul & Sánchez, 2000). Currently, various universities and

clinical centres, mainly from Spain, but also from the Italy, Portugal, United Kingdom, and South America are involved, at different levels (Feixas, Saúl & Ávila-Espada, 2009). The last step of the project, however, is to develop a protocol for intervening in implicative dilemmas (Saúl, 2005, p, 199) (Feixas et al., 2009).

One of the difficulties with theories about implicative dilemmas is finding a way to define them in operational terms (Feixas et al., 2009). That is, certainly, a crucial issue for the development of research programs to investigate the nature and influence of implicative dilemmas on human behaviour (Feixas et al., 2009). In sum, it is argued that the notion of implicative dilemmas be central to human functioning, as recognised by various psychological theories, even though the inherent nature of conflict makes it difficult to identify and measure (Feixas et al., 2009). For the most part, the notion of implicative dilemmas must be framed in the context of a wider psychological theory capable of providing more accurate terms and instruments to assess it (Feixas et al., 2009).

Like the MDP, this thesis is based on Kelly's (1955, 2001) Personal Construct Theory (PCT) and is applied in this study as a way of studying implicative dilemmas in more detail. PCT argues that to understand a person it is necessary to know how that person views the world, and more specifically what personal constructs that person uses to view the self and others (Hewstone, Hooper & Miller, 1981).

From the theory, Kelly derived a method or technique called The Repertory Grid Technique (RGT) that helped his patients to uncover their own "constructs"(Feixas & Saul, 2004). The repertory grid (RepGrid) data informs us about the subject's areas of congruence and incongruence. Congruence is when the subject's "present self" and his "ideal self" are at the same pole of the construct and area of incongruence is when the subject's "present self" and his "ideal self" are at opposite poles.

Projects have consistently called for innovative and creative ways to apply the theoretical constructs underpinning personal dilemmas to various target groups, including those suffering ill health (Feixas et al., 2009). The proposal presented for this study is framed within this last objective of the larger study (Feixas et al., 2009). Moreover, this project, introduced by Prof Pamela Naidoo, is the first known study, within the larger study, both in SA and internationally, to focus on the concept of implicative dilemmas in PLWHA specifically. It is also what encompasses and is the crux of the researcher's PhD studies (Feixas et al., 2009). It is proposed that understanding the implicative dilemmas that PLWHA face will facilitate particular therapeutic modalities to improve the health status of PLWHA in SA (Feixas et al., 2009).

1.7. The aims of the study are:

The first aim is to construct a model that examines selected sociodemographic factors, disease characteristics, psychosocial (such as anxiety), and cognitive factors (such as self-concept & implicative dilemmas) and risk-taking behaviours as predictors of clinical depression in PLWHA.

The second aim is to construct a model that examines selected sociodemographic factors, disease characteristics, psychosocial (such as anxiety), and cognitive factors (such as self-concept & implicative dilemmas) and depression as predictors of risk-taking behaviours in PLWHA.

1.7.1. The objectives for the first aim are:

- To establish the relationship between sociodemographic factors such as gender, age, marital status, employment status, financial and social support status (defined by

government financial aid, financial dependency status, and living arrangement) and depression in PLWHAs.

- To establish the relationship between selected disease characteristics (defined by co-existing medical conditions, CD4 count, AIDS diagnosis) and depression in PLWHAs.
- To determine the relationship between psychosocial factors (anxiety) and depression in PLWHAs.
- To determine the relationship between psychosocial factors such as self-concept (identified by the RGT cognitive variables, namely Self-Ideal, Self-Others, Ideal-Others, Percentage variance of the first factor (PVFF) and Polarisation), Presence of implicative dilemmas and depression in PLWHAs.
- To determine the relationship between risk-taking behaviour (unprotected sex, ART non-adherence) and depression in PLWHAs.
- To build a model examining the significant factors that predict depression as a measure of health outcome in PLWHAs.

1.7.2. The objectives for the second aim are:

- To establish the relationship between sociodemographic factors and risk-taking behaviour in PLWHAs.
- To determine the relationship between selected disease characteristics and risk-taking behaviour in PLWHAs.

- To determine the relationship between psychosocial factors and risk-taking behaviour in PLWHAs.
- To determine the relationship between depression and risk-taking behaviour in PLWHAs.
- To construct a model examining the significant factors that predicts risk-taking behaviour as a measure of health outcome.

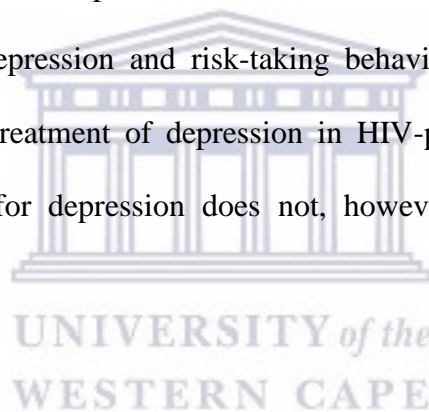
While most of the studies quoted in the literature were conducted on Western, Caucasian, middle-class samples, this cross-sectional study has been carried out on a lower socio-economic, clinic-based, group of PLWHAs in a developing country. It was designed to provide a comprehensive profile of a sample of South African patients who are either HIV-positive or who have AIDS and to examine predictors of disease outcome which in this case is depression and risk-taking behaviour. Specifically, the predictive roles of sociodemographic variables, disease characteristics, as well as the moderating role of psychosocial and cognitive factors on depression and risk-taking behaviour in PLWHAs were explored. The results obtained helped to clarify the role the variables above played in managing individuals with the disease and highlighted the contribution of those factors to the quality of life of individuals with HIV and AIDS.

1.8. Rationale for doing this study

Research in the area of HIV and AIDS is highly prioritised to improve population health outcomes for this life-long disease condition. Identification of predictors of outcome is useful because they provide clues to the aetiology of depression and its pathogenesis (Hirschfeld,

2000). They are also useful clinically because they enable the health professional to formulate a more accurate prognosis (Hirschfeld, 2000).

The motivation for this study is that the literature (Walkup, Sambamoorthi & Crystal, 2008) explains that the relationships between high-risk factors such as sexual risk behaviour and non-adherence to medication and their relationship to depression in HIV patients. The study intends to utilise the data collected to explore and establish the association between selected socio-demographic factors, disease characteristics and psycho-social factors, namely self-concept, implicative dilemmas and anxiety that predict depression and risk-taking behaviour in PLWHAs. With a particular emphasis on the psychosocial factors, the ultimate goal of this study is to aid in the development of predictive models that will aim at informing individuals of the factors involved in depression and risk-taking behaviour, and treatment programs aimed at the diagnosis and treatment of depression in HIV-positive adults. Developing a putative treatment program for depression does not, however, form part of the current objectives of the study.



1.9. The hypotheses for this study

The study tests the following hypotheses:

1.) **H₀:** There is no difference in the Self-Ideal relationship between people who are depressed and people who are not depressed.

H₁: The Self-Ideal relationship is more negatively correlated with higher levels of depression (Those who are depressed perceive themselves more negatively)

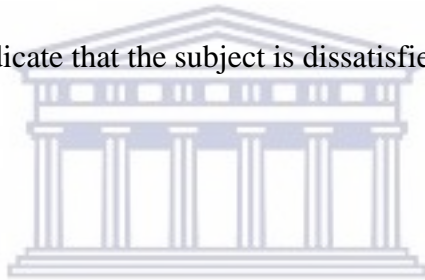
2.) **H₀:** There is no difference in the Self-Others relationship between people who are

depressed and people who are not depressed.

H1: The Self-Others relationship is more negatively correlated with higher levels of depression. (Those who are depressed perceive themselves different from others).

3.) **H0:** There is no difference in the Ideal-Others relationship between people who are depressed and people who are not depressed.

H1: The Ideal-Others relationship is more negatively correlated with higher levels of depression. (Those who are depressed perceive others different from themselves. A strong negative correlation can indicate that the subject is dissatisfied with the people that surround him/her).



4.) **H0:** There is no difference in the number of constructs between depressed and not depressed people

H1: Those who are depressed have a lower number of constructs compared to people who are not depressed.

5.) **H0:** There was no difference in the PVFF between people who are depressed and people who are not depressed

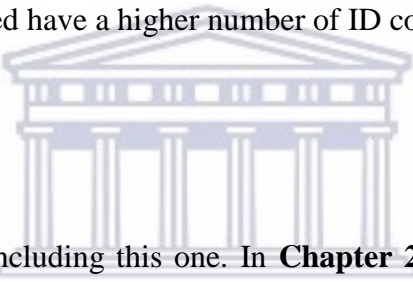
H1: Those who are depressed have a higher PVFF compared to those who are not depressed. (In other words, individuals who are depressed tend to perceive the self and others in a more uni-dimensional manner in contrast to individuals who are not depressed.

6.) **Ho:** There is no difference in polarised construing between people who are depressed and people who are not depressed

H1: Those who are depressed have higher polarisation compared to those who are not depressed.

7.) **Ho:** There is no difference in the number of implicative dilemmas between people who are depressed and people who are not depressed

H1: Those who are depressed have a higher number of ID compared to people who are not depressed.



This thesis has five chapters including this one. In **Chapter 2**, the theoretical basis for the study is outlined, **Chapter 3** the pertinent literature in this field of study are reviewed. **Chapter 4** gives a description of the research design and methodology followed. **Chapter 5** presents the results and provides discussions. The results describe the kind of data collected, and what statistical procedures were used to answer the research questions. **Chapter 6** gives a discussion of the results and cover the potential impact of this research by demonstrating how the study's findings contribute in a meaningful way to an existing body of literature by presenting the conclusion and recommendations. The strengths and the limitations of the research are also discussed. Based on the results and conclusions of this study, the researcher makes recommendations for future mental health research aimed at depression and risk-taking behaviour in PLWHAs. It is envisaged that these recommendations will provide direction for future research intended to understanding how mental health treatment providers

could add potential value to HIV prevention. Finally, a list of references and appendices are provided.

Please note that to avoid the use of sexist language, the terms referring to gender (e.g. his and her) alternate throughout the thesis. Thus, there is no bias of males or females in the writing of this document.



CHAPTER TWO

THEORETICAL FRAMEWORK

2.1. Introduction

This chapter introduces the theoretical framework which establishes what theories currently exist and to what extent these theories have been considered or are related to the study. The theoretical framework also provided a basis for providing definitions and concepts underlying the theories, models, approaches, and frameworks discussed.

Regarding the conceptual framework, the Biopsychosocial Model was what positioned the groundwork for the introduction of the conceptual model that guided the study overall. In the literature review section, the Biopsychosocial Model highlights a host of factors, namely biological, psychological, social as well as behavioural factors that influence depression and risk-taking behaviour in PLWHAs.

Since this is a study about depression and risk-taking behaviour, two theories, namely, Bandura's Social Cognitive Theory of Depression and Beck's Cognitive Theory of Depression serve as a lens through which to review depression as well as understand and determine why people participate in high-risk behaviours.

In the psychological arena specifically, the literature addressing cognitive aspects of depressive disorders, in particular, has so far grown rapidly. Most studies have focused on Beck's and colleagues' original descriptions of depressive cognitions (Beck, 1967; Beck, Rush, Shaw & Emery, 1979). However, the systematic study of the subjective experience of depression (for instance, how patients particularly construe their selves and significant others) has received less attention (Montesano, Feixas, Saúl, Caicedo, Dada & Winter, 2014). To date, there have been no studies which have looked at how PLWHAs, in particular, construe

their selves and significant others. This chapter, therefore, highlights this gap in research by building upon existing studies that find self-concept and depression correlated (Cole et al., 1999; Cole & Jordan, 1995; Cole et al., 1998; Hoffman et al., 2000; McCauley et al., 1988; Tram & Cole, 2000). It leads researcher's closer to identifying self-concept and the associated cognitive conflicts as an indicator that is predictive of the development of depression. Cognitive conflicts, in the traditional application of Kelly's Personal Construct Theory (PCT), are identified by a correlation between elements of self-concept (also known as self-constructs).

There are three different types of cognitive conflicts, namely Triadic Conflicts, Dilemmatic Constructs and Implicative Dilemmas. For the purpose of this study, the researcher only concentrated on implicative dilemmas. The notion of conflict and the concept of implicative dilemmas are central to PCT (Kelly, 1955). Since PCT is a rather in-depth theory involving various concepts, some of which are beyond the scope of this study, only the concepts relevant to the study will be discussed. Furthermore, personality theories such as Festinger's (1957) Theory of Cognitive Dissonance and Heider's (1958) Balance Theory is also considered to understand the notion of cognitive dilemmas or internal conflicts (Senra, Feixas & Fernandes, 2006) in more detail.

Psychologists Carl Rogers and Abraham Maslow theories are briefly mentioned as they were the first to establish the notion of self-concept. Epstein's Attribution Perspective (1973), Wilson & Ross's Temporal Self-appraisal Theory (2001) and Turner's Self-Categorization Theory (1985) are also discussed briefly to expand one's understanding of self-concept as well as validating the notion of self-concept and implicative dilemmas in relation to depression.

2.2. Mental health and HIV

Health, as defined by the WHO, is “a state of complete physical, mental and social well-being” (Sayers, 2001). Mental health, in particular, is a complex multi-factorial reality and a complicated interaction of physical, social and psychological factors (Kazdin, 1993). Therefore, factors that impinge upon and affect mental health can be related to issues from the emotional, social, psychological and behavioural domains (Kim, 2003). In particular, mental health problems may be caused by negative psychological propensities, such as low self-esteem and self-efficacy and loss of ability to control health (Hurrelman & Losel, 1990). Mental health, therefore, is a fundamental element of health and is crucial to the overall well-being of individuals and society. Mental health is defined as “the successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adapt to change and to cope with adversity. From early childhood until later life, mental health is the springboard of thinking and communication skills, learning, emotional growth, resilience, and self-esteem” (National Institute of Mental Health, 2015).

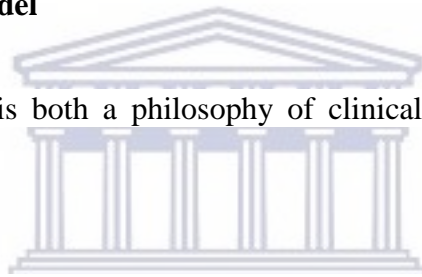
Traditionally, issues concerning mental health have been focused on providing information, education, and counselling programmes without considering fully the psychological constructs (Kim, 2003). As a result, it is time to rethink the concept of mental health and consider this as part of a comprehensive approach to health care for all (Kim, 2003). As South Africa is a country with a “quadruple disease burden,” (Coovadia, Jewkes, Barron, Sanders & McIntyre, 2009) mental ill-health features prominently in its high level of comorbidity with infectious diseases, such as HIV/AIDS and tuberculosis (Prince et al., 2007); its association with the growing burden of non-communicable diseases, such as cardiovascular disease and diabetes mellitus (Prince et al., 2007; Mayosi, Flisher, Lalloo, Sitas, Tollman & Bradshaw, 2009); high levels of violence and injury (Seedat, Van Niekerk, Jewkes, Suffla &

Ratele, 2009); and maternal and child illness (Chopra, Daviaud, Pattinson, Fonn & Lawn, 2009). Research in South Africa shows that with a high prevalence of both mental illness and HIV, the two co-exist in a complex relationship (Ciesla & Roberts, 2001). Mental health impacts on and is exacerbated by the HIV/AIDS epidemic.

This chapter began with a discussion of the relationship between mental health and HIV, as well as set the context for mental health and HIV in South Africa. Next, the researcher takes a closer look at the theory behind the Biopsychosocial Model (Engel, 1977) which was the conceptual model that guided the study overall.

2.3. The Biopsychosocial Model

The Biopsychosocial Model is both a philosophy of clinical care and a practical clinical guide.



Philosophically, it is a way of understanding how suffering, disease, and illness are affected by multiple levels of the organisation, from the societal to the molecular. The implication of this is that a disturbance in any area of human functioning will affect all the areas (Novack et al., 2007). It is based on the *general systems paradigm/theory*. One of the fundamental assumptions of this theory is that systems exist within systems (Sheridan & Radmacher, 1992). A system is a dynamic entity that is comprised of components that are continuously interrelated. A person is viewed as being a system in itself, as well as part of other systems, such as his family, and society in which he lives. These systems all affect and are affected by each other (Sarafino, 2002).

At the practical level, it was a way of understanding the patient's subjective experience as a vital contributor to accurate diagnosis, health outcomes, and humane care (Borrell-Carrió, Suchman & Epstein, 2004).

Engel (1977) believed that to understand and respond adequately to patients' suffering and to give them a sense of being understood - clinicians must attend simultaneously to the biological, psychological, and social dimensions of illness. He offered a holistic alternative to the prevailing Biomedical Model that had dominated industrialised societies since the mid-20th century (Engel, 1977). He formulated the biopsychosocial model at a time when science itself was evolving from an exclusively analytic, reductionistic, and specialised endeavour to become more contextual and cross-disciplinary (von Bertalanffy, 1975; Kiel & Elliot, 1996; Minuchin, Rosman & Baker, 1978). Engel did not deny that the mainstream of biomedical research had fostered significant advances in medicine, but he criticised its excessively narrow (biomedical) focus for leading clinicians to regard patients as objects and for ignoring the possibility that the subjective experience of the patient was amenable to scientific study. Engel championed his ideas not only as a scientific proposal but also as a fundamental ideology that tried to reverse the dehumanisation of medicine and disempowerment of patients. His model struck a resonant chord with those sectors of the medical profession that wished to bring more empathy and compassion into medical practice (Borrell-Carrió et al., 2004).

The biopsychosocial model signified an attempt to integrate the psychological (*psycho*) and the environmental (*social*) factors into the already established biomedical (*bio*) model of health (Ogden, 2004). The model proposes that all three factors affect and are affected by an individual's health (Sarafino, 2002). The factors that contribute to the *bio* element include genetics, viruses, bacteria and structural defects that are involved in health and illness (Ogden, 2004). Essentially, they are the aspects of a person's physiological functioning (Sarafino, 2002). The *psycho* aspects of health and illness are described regarding cognitions (e.g. expectations of health), emotions (e.g. fear of treatment), and behaviours (e.g. smoking, diet, exercise) (Ogden, 2004). Finally, the *social* sphere is comprised of social norms of

conduct, pressures to change behaviour, social values on health, social class, and ethnicity (Ogden, 2012). By including psychosocial factors in the biomedical model, a treatment approach can be developed that acknowledges the human qualities of both the patient and the physician (Sheridan & Radmacher, 1992).

The practical application of the biopsychosocial model is described in more detail in the literature review chapter, whereby it explains the biological, psychological and social factors best-causing depression and risk-taking behaviour in PLWHAs in more detail. For the purpose of this chapter, the researcher focused on the definition, diagnosis, and theories of depression.

2.4. Definition of Depression

Depression can be defined as an affective state characterised by low mood and aversion to activity that can affect a person's thoughts, behaviour, feelings and sense of well-being (Salmans, 1997; American Psychiatric Association (APA) 2013). When used to describe a mood, the term conveys a temporary state of dysphoria that may last a few moments, hours or even a few days. As such, it is usually a normal reaction to an upsetting event, or even an exaggerated description of a typical event (Hammen, 2005). People with a depressed mood can feel various emotions such as sad, anxious, empty, hopeless, helpless, worthless, guilty, irritable, ashamed or restless. They may lose interest in activities that were once pleasurable, experience loss of appetite or overeating, have problems concentrating, remembering details or making decisions, and may contemplate, attempt or commit suicide. Insomnia, excessive sleeping, fatigue, aches, pains, digestive problems or reduced energy may also be present (NIMH, 2015).

Depression affects cognition (Leahy & Holland, 2000). The individual's beliefs and assumptions impact their perspectives as well as the way in which they interpret events or the way they can assess a possible traumatic setback, for example being diagnosed with HIV/AIDS. Individual may feel helpless to manage their lives and resolve problems (Deb & Bhattacharjee, 2009). When receiving an HIV-positive diagnosis, for example, they may view their lives and future as bleak and unrewarding, feeling that changes are not only pointless but also essentially unattainable (Deb & Bhattacharjee, 2009). There are varying degrees of depression. Some are mild, some quite severe and debilitating. The most serious of all is the level of depression, which leaves the sufferer feeling alone, lost, and without hope for extended periods of time culminating in suicide the only way out the sufferer can see (Deb & Bhattacharjee, 2009).

Depressed mood is a feature of some psychiatric syndromes such as major depressive disorder (APA, 2013). Even without the presence of any real illness, major depression robs one off all self-worth, self-esteem, self-confidence and self-image (Deb & Bhattacharjee, 2009). Major depression frequently co-occurs with other psychiatric problems and worsens the chance of recovery (Moussavi et al., 2007).

2.5. Diagnosis of Depression

The Diagnostic and Statistical Manual of Mental Disorders - Fifth Edition (DSM-V) (APA, 2013) is the current reference used by mental health professionals and physicians to diagnose mental disorders. The APA began publishing the DSM in 1952, and it has since gone through several revisions before the most recent version, the latest edition was published in 2000. The current DSM-V lists over 200 mental health conditions and the criteria required for each one in making an appropriate diagnosis (APA, 2013).

Diagnostic criteria for mental disorders are essentially descriptions of symptoms that fall into one of four categories. In major depressive disorder, for example, affective or mood symptoms include depressed mood and feelings of worthlessness or guilt. Behavioural symptoms include social withdrawal and agitation. Cognitive symptoms or problems in thinking include difficulty with concentration or making decisions. Finally, somatic or physical symptoms include insomnia or hypersomnia (sleeping too much) (APA, 2013).

The clinical usefulness of the DSM-V is much more than a tool for making diagnoses. It is used by mental health professionals and physicians as a guide for communicating about mental health conditions. When two clinicians discuss a diagnosis such as “major depressive disorder, single episode, severe with psychotic features,” they both have the same conceptualization of various aspects of the illness. Without the DSM-V, the two clinicians might have very different perceptions of the condition. The DSM-V also allows mental health professionals to reach consensus on which symptoms or groups of symptoms should define which disorders. Such decisions are based on empirical evidence (research results), usually by a multidisciplinary staff of professionals. Further, the DSM-V is used as an educational tool and a reference for conducting all types of research (e.g., clinical trials, prevalence studies, outcome research) (APA, 2013).

The DSM-V is not used to categorise people, but to categorise conditions or disorders that people have. This may be a subtle distinction, but it is a crucial one. One does not say that a person is cancer, or is heart disease, or is an illness. One says that a person has an illness. Likewise, one should not say that a person is a depressive, but that a person has clinical depression. Along the same lines, the value of diagnostic labels is often debated among mental health professionals and the general public. On the downside, some people believe that making a diagnosis is simply the act of labelling a person. Once a person is labelled he or she may have difficulty overcoming the label, may lose hope of recovery, or may come

to believe that he or she is the label. On the positive side, some people are relieved when they finally learn that the symptoms they are experiencing have a name. This often offers them a sense of hope and personal control over the illness as more can be learned about its treatment, causes, and outcome (APA, 2013).

Since this is a study of depression and risk-taking behaviour; two theories namely, 1.) Beck's (1979) Cognitive Theory of Depression and, 2.) Bandura's (1986) Social Cognitive Theory of Depression serves as a lens through which to review depression as well as understand and determine why people participate in high-risk behaviours.

2.6. Beck's (1979) Cognitive Theory of Depression

Beck explains that depression is often maintained because of the cognitive triad which triggers depression. Beck's cognitive triad represents three types of negative thoughts present in depression, as proposed by Beck (1976). The triad forms part of his Cognitive Theory of Depression (Beck et al., 1979).

The triad involves negative thoughts about 1.) The self (i.e., the self is worthless), 2.) The world/environment (i.e., the world is unfair), and 3.) The future (i.e., the future is hopeless) (Beck et al., 1979).

To understand the cause of the problem from a cognitive perspective, depressive disorders are characterised by people's dysfunctional negative views of themselves, their life experience (and the world in general), and their future - the cognitive triad (Beck et al., 1979).

For example, PLWHA could have a perception of the world that is negative, and this could impede the facilitation of social and interpersonal interactions. Also, the individual could

perceive of themselves as not being accepted by their family members and loved ones thus their evaluation of the situation is negative. The person's negative view of themselves also possibly could lead to a heightened sense of self-blame, self-criticism which could negatively impede on the individual's life and having this negative view of self often also leads to negating positive characteristics about themselves (Songprakun, 2010).

Depressed patients often view themselves as deficient, helpless and/or unlovable. They tend to attribute their unpleasant experiences to their presumed physical, mental, and/or moral deficits. They tend to feel excessively guilty, believing that they are worthless, blameworthy, and rejected by self and others. They may have a tough time viewing themselves as people who could ever succeed, be accepted, or feel good about themselves. Some of the most striking manifestations of this area of cognitive bias are such patients' propensity for overlooking their positive attributes, disqualifying their accomplishments as being minor or meaningless, and misinterpreting the care, good will, and concern for others as being based on pity or susceptible to being lost easily if those others knew the "real" patient (Beck et al., 1979).

Depressed patients view their lives as devoid of pleasure or reward, presenting insuperable obstacles to achieving their important goals. Everything seems and feels "too hard to manage," and other people are seen as punishing (or potentially so) (Beck et al., 1979). They believe that their troubles will continue indefinitely and that the future will only bring further hardship, deprivation, and frustration. "Paralysis of the will" results from the depressed patients' pessimism and hopelessness. Expecting their efforts to end in failure, they are reluctant to commit themselves to growth-oriented goals, and their activity level drops. Believing that they cannot affect the outcome of various situations, they experience a desire to avoid such situations (Beck et al., 1979).

2.7. Bandura's (1986) Social Cognitive Theory of Depression

Bandura's Social Cognitive Theory of Depression (1986) states that individuals are occupied with feelings of self-recrimination and self-blame, as well as tend to have low levels of self-efficacy (Nemade, Reiss & Dombeck, 2008). Bandura's theory suggests that "people are shaped by the interactions between their behaviours, thoughts, and environmental events" (Nemane, Reiss & Dombeck, 2008, pg. 2). According to Nemane et al. (2008) individuals who are depressed blame themselves for everything bad that happens to them. Therefore, the Social Cognitive Theory is aimed at explaining how individuals acquire and maintain specific behaviours and also focuses on the perceived self-efficacy of the individual, which is concerned with the individuals' beliefs in which they can apply control over their motivation, thoughts, emotions, and patterns of behaviour (Bandura, 1994). If their perceived self-efficacy is weak, the more social and affective factors can increase the likelihood of high-risk behaviours (Bandura, 1994).

Contrary to this, those individuals who have a high self-efficacy have control over their behaviour with regards to sexual matters and protective sexual methods (Bandura, 1994). In other words, individuals would show responsible behaviour by using protection when sexually active as well as avoiding high-risk behaviours. Therefore, in managing high-risk behaviours such as sexual risk behaviour, substance use, and non-adherence to medication, individuals have to exercise influence over themselves as well as over others. This requires self-regulating skills in motivating and guiding one's actions (Bandura, 1994). "Self-regulation forms a part of risk reduction as it partly determines the social situations in which people get themselves into, evaluating how well they find their way through them and how effectively they can resist social inducements to potential risk behaviour" (Bandura, 1994, pg. 3). When people believe they can affect and change their situations,

they have an internal locus of control and a reasonably high sense of self-efficacy (Bandura, 1994). However, if they feel that they are mostly at the mercy of the environment and cannot change their situation, they have an external locus of control and a low sense of self-efficacy (Bandura, 1994). Therefore, “depressed people tend to have an external locus of control, a low sense of self-esteem and low levels of self-efficacy” (Nemanda et al., 2008, pg. 2).

The cognitive models discussed above as well other theories not mentioned here have contributed significantly to the understanding of unipolar depression and its psychological treatment. However, success is only partial, and many authors affirm the need to improve these models and also the treatment programs derived from them. Since its inception (Beck et al., 1979), cognitive therapy for depression was based on the identification of a systematic and persistent negativity in the cognitive processes of depressed patients. Thus, the determination of the negative thoughts which invade the patient’s consciousness in an automatic fashion is central to this therapeutic approach. In particular, contributions that allow a better explanation of the difficulties (resistance, relapse, recurrence) encountered in the process of change be needed, difficulties which are also common in other mental disorders or health problems. Thus, these contributions might also be useful for the understanding and treatment of a variety of clinical conditions in which change is difficult to achieve (Feixas et al., 2013).

One aspect which has not been considered in the cognitive models of depression even though they have been quite a common notion in psychology for more than a century (Feixas et al., 2013), and which could contribute to explaining the difficulties of these patients achieving change, concerns the cognitive processes related to identity of conflicts. Recently, one particular group of researchers has been working for years with a

methodology capable of assessing these conflicts viewed as personal dilemmas according to Kelly's (1955) Personal Construct Theory (PCT) which is discussed in more detail later. The group led by Feixas et al. (2013), uses novel methods for identifying those conflicts using the repertory grid technique (RGT). Preliminary results from one of their studies with depressive patients show that about 90% of them have one or more of those conflicts. This fact might explain the blockage and the difficult progress of these patients, especially the more severe and/or chronic. These results justify the need for targeted interventions focused on the resolution of these internal conflicts (Feixas et al., 2013).

Empirical research on this topic is necessary to clarify to what extent cognitive conflicts might play a role in the onset and maintenance of psychological disorders, and whether they could be important in explaining some patients' difficulties for change (Michalak, Heidenreich, & Hoyer, 2011). Similarly, in this study, the researcher wanted to clarify to what extent cognitive conflicts might play a role in the onset and maintenance of depression in PLWHAs, and whether they could be important in explaining some patients' difficulties for change (for example, making poor health decisions such as continuing to want to engage in risk-taking behaviours, and not adhering to ARVs). Before doing so, however, it is essential that the researcher clarifies what the notion of conflicts means.

2.8. The Notion of Conflict

Theorists in psychology have long recognised internal conflicts as central to the development and maintenance of personal identity and as a potential source of distress. Starting with psychoanalysis, a variety of theories have suggested the existence of internal conflicts which drive people to gruelling internal struggles blocking their development and creating suffering and symptoms. Piaget (1975) uses the term "cognitive conflict" to refer to the contradictions the child encounters when trying to explain events. These conflicts cause disequilibrium, and

the child is forced to reorganise his intellectual processes to rid him or herself of the conflict which is causing the trouble; hence the following intellectual change. Freud (1923) conceptualised the human psyche as comprised of three components, the id, the ego, and the superego, which Bettelheim (1982) referred to as the “it,” the “I,” and the “Upper-I.” Intrapsychic conflict in which the “I” functions as mediator between the base instincts of the “it,” and the lofty moral demands of the “Upper-I,” are said to lead not only to various and sundry symptoms but also to the development, and in fact, betterment of both individuals and society (Freud, 1961). One’s “ego defences” then, commonly solely understood as the source of unpleasant symptoms, are one and the same as one’s “ego strengths.”

The entanglement of internal conflict and identity is seen throughout the writings of two social cognitivists in particular, Festinger (1957) and Heider (1958), both “go-to” theorists in the area of internal conflicts.

2.9. Festinger’s (1957) Theory of Cognitive Dissonance

Festinger’s (1957) theory of Cognitive Dissonance is at heart, a recognition that personal identity develops and changes in and through the resolution of internal conflicts as a means of protecting the coherence of the Self. If for instance, a man finds that he is engaging in behaviours that are contrary to the behaviours in which he should engage based upon how he perceives himself, he will be compelled to change either his behaviour or his self-perception (Festinger & Carlsmith, 1959). A change in attitude, often easier to implement than a change in behaviour, provides a means for escape from the distress of this conflict.

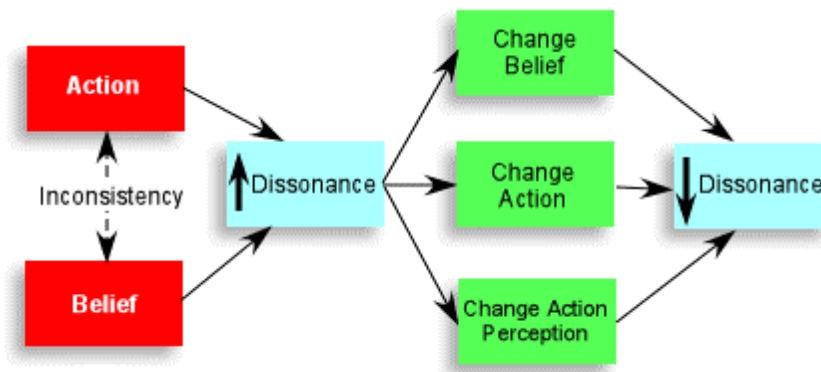


Figure 1. Cognitive Dissonance Theory

Source: Festinger, L. (1957). *A theory of cognitive dissonance*, Evanston, IL: Row & Peterson.

2.10. Heider's (1958) Balance Theory

Likewise, Heider's (1958) Balance Theory observes that humans are more comfortable when there is no conflict between love and hate, between for and against. If a person holds a favourable attitude towards another person, for example, he or she will be more comfortable when the other person holds a similar attitude towards a third object/person (given the salience of the object). A contradiction calls into question either the person's attitude of the other person or the person's attitude of the object/person at hand, both parts of the former person's self-identity. To reach a level of maximum comfort, one or the other must be altered, thus altering personal identity to some degree. In Heider's published notes, he denounces the term balance as a concept in which tension is often implicit (Benesh-Weiner, 1989). While balance or striking some compromise between the two attitudes might preserve the coherence of identity, it does not provide maximum comfort but exacts some cost.

Both of these theories postulated a tendency to avoid contradictory cognitions about social reality. However, the tension arising from imbalanced, incongruent or dissonant beliefs is conceived as a motivational force in human behaviour. Cognitive balance or congruity has

been shown to be related to a variety of social decision-making theories. Thus, although these dissonances or conflicts are recognised to be unpleasant experiences, they have not been related to unhealthy states or psychopathology. On the contrary, cognitive conflicts are seen as a central aspect of human motivation and growth (Feixas et al., 2002).

Despite widespread acknowledgement of internal conflicts as threats to identity coherence, and thus a source of psychological distress, work in this area has remained largely theoretical, and definitions of internal conflicts vague. Personal Construct Theory (PCT) developed by American theorist George Kelly (1955), provides a means for operationalizing/identifying internal conflicts, making the concept accessible for use in various modes and manners of research and is discussed next.

2.11. Kelly's Personal Construct Theory

Personal Construct Theory (PCT) provides an ideal conceptual and methodological framework for the study of cognitive conflicts. Far from being anchored in the rich initial formulations of its creator (Kelly, 1955), PCT has undergone considerable development (see, for example, Fransella's extensive compilation (Fransella, 2003) or Walker and Winter's review (Walker & Winter, 2007)). Similar to subsequent cognitive therapies, PCT propounds that the process of attributing meaning to experience is the most important activity of human psychological functioning (Üstün & Kessler, 2002).

As a precursor of cognitive approaches to therapy, Kelly's (1955; 1991) claim on depression is that we should study the subjective experience of the depressed person, the personal constructs he or she applies to him or herself and others. Addressing these personal constructions offers the potential to reconstruct or recreate the person's own experience of events, to create alternative future possibilities, and to liberate her or him from becoming a

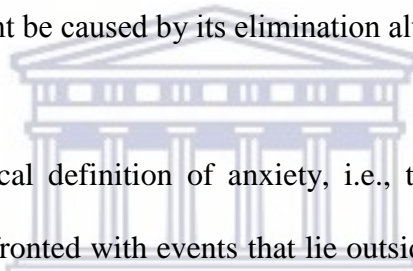
“victim of either his past history or of his present circumstances” (Kelly, 1995; Kelly, 1991, p, 30).

In Kelly’s view; we strive to give meaning to our universe, ourselves and the ongoing experience of everyday life. To this end, humans create an evolving theoretical framework. Just as scientific theories are made of theoretical constructs, personal theories are composed of what Kelly termed “personal constructs.” They represent bipolar dimensions of meaning which are organised in a hierarchical and (more or less) complex network system. In short, the personal construct system comprises the specific subjective way in which each person construes experience (Fernández, 2007).

PCT emerges from a proactive view of human beings as active agents (as later did Bandura (Bandura, 1989)) who regulate their motivational and emotional processes as well as their actions, based on the congruence or discrepancy between their construction of “self” and “ideal self” (coinciding with Carver & Scheier, 1998; Cervone & Shoda, 1999; Higgins, 1987). However, the self-ideal discrepancy is not necessarily a conflict.

Kelly (1955) proposes a fundamental postulate and eleven corollaries which essentially form the pillars of PCT. For the purpose of this study, the researcher only applied the fundamental postulate and the fragmentation corollary. The fundamental postulate states that although objective reality exists, people do not experience this reality directly but interpret or construe their experiences in the world. To evaluate how people construe significant others or experiences in their lives Kelly developed the Role Construct Repertory Test (repertory grids) (Bell, 1988) which is discussed in extensive detail in the methods chapter and was one of the instruments used in this study (Buckley-Walker, Crowe, & Caputi, 2010). The fragmentation corollary states that for conceptualising conflicts, PCT acknowledges that humans may

employ a variety of constructions which are inferentially incompatible with each other. From this perspective, it is likely that dilemmas arise when a person has to reconcile the self with personally held values in a decision-making process (although the person might not be consciously aware of those conflicts). For example, Fransella (1970), in her study with individuals who stutter, suggested that symptoms could end up being a way of life for the client by becoming a central structure in his/her construction system or identity. In this situation, abandoning the symptoms would involve abandoning a core meaning structure which could be essential for making sense of oneself and the world. Lack of predictability within the construction system would be experienced as anxiety by the person. According to Kelly (1955), “even an obviously invalid part of a construction system may be preferable to the void of anxiety which might be caused by its elimination altogether” (p. 831).



Kelly's (1955, 1969) theoretical definition of anxiety, i.e., the loss of cognitive structure experienced when we are confronted with events that lie outside the range of convenience of our constructs (that is, “being caught with our constructs down”). Indeed, the role of anxiety is of fundamental importance in personal construct theory, which implies that people always attempt to move away from ultimate anxiety (maximum uncertainty) toward making more and more of their experience predictable (Adams-Webber, 1989). “From the standpoint of the psychology of personal constructs, anxiety, per se, is not to be classified as either good or bad. It represents the awareness that one's construction system does not apply to the events at hand. It is, therefore, a precondition for making revisions” (Kelly, 1955, p.498). Depression is often comorbid with anxiety (Belzer & Schneier, 2004).

Older observers of depression (Abramson, Seligman, & Teasdale, 1978; Beck, 1967; Lewinsohn, Mischel, Chaplin, & Barton, 1980) have drawn attention to the critical role in the development and maintenance of depression played by cognitive mediators. Beck

conceptualised these cognitive mediators as cognitive "schemas," Abramson et al. interpreted them as causal attributions of aversive outcomes, and Lewinsohn and his colleagues (1980) interpreted them as self-deprecatory biases. In this study, cognitive mediators were defined by self-concept which is made up of one's self-schemas and interacts with self-esteem, self-knowledge, and the social self to form the self as a whole.

2.12. Differentiating between Self-concept and Self-esteem

Where self-concept and self-esteem are concerned, terminological disagreement is rife, and the use of definitions which are informal rather than precise and explicit is widespread (Butler and Gasson, 2005). This can lead to confusion in interpreting the literature. For example, 'self-esteem' and 'self-concept' are often used interchangeably (Tatlow-Golden & Guerin, 2010).

There is little consensus in psychology or sociology about what the term self-concept means, but it is useful to think of the self-concept in terms of two major dimensions: identities and self-esteem (Tatlow-Golden & Guerin, 2010).

Identity focuses on the meanings comprising the self as an object, gives structure and content to self-concept, and anchors the self to social systems.

Self-esteem deals with the evaluative and emotional dimensions of the self-concept. In essence, these two aspects of the self-concept are closely interrelated: Self-evaluations are typically based on substantive aspects of self-concept, and identities typically have evaluative components.

Within social psychology, these two dimensions involve largely separate literature. Self-evaluation or self-esteem refers to the evaluative and affective aspects of the self-concept

(Wells & Marwell 1976; Shibutani 1961). Most research on the self-concept focuses on this dimension so that sometimes self-concept is equated with self-esteem (Wells & Marwell 1976). The reader finds that self-esteem, being a more recognisable term, is, however, utilised more often than self-concept in general as well as in this study. While most self-research accesses self-esteem, the researcher's interest is in illuminating the self-concept (Tatlow-Golden & Guerin, 2010).

2.13. Differentiating between Self and Self-concept

Much confusion in social psychology over whether the self is a process or a structure stems from the failure to distinguish between "self" and "self-concept" (Gecas, 1982). The concept of self-provides the philosophical underpinning for social-psychological inquiries into the self-concept but is itself not accessible to empirical investigation. The "self-concept," on the other hand, is a product of this reflexive activity. It is the concept the individual has of himself as a physical, social, and spiritual or moral being (Gecas, 1982).

The self-concept has and still is undergoing something of a renaissance in contemporary social psychology. Much of this revitalization of interest in self- phenomena (e.g. self-awareness, self-esteem, self-image, self-evaluation) is due to the "cognitive revolution" in psychology (Dember 1974; Manis 1977), generally at the expense of behaviourism. As a result, the self-concept has become conspicuous in areas and traditions that were previously considered alien terrain: within behaviourism via Bem's (1972) theory of self-attribution; within social learning theory via Bandura's (1977) focus on self-efficacy; and within cognitive dissonance theory via Aronson's (1968) and Bramel's (1968) reformulations. It is also increasingly evident in theories of attitude and value formation and change (Rokeach

1973, 1979), in attribution theory (Epstein 1973; Bowerman 1978), and in various other recent theories of cognitive processes (Wegner & Vallacher 1980).

Rosenberg defines the self-concept broadly as “the totality of an individual’s thoughts and feelings having reference to himself as an object” (1979:7). Similarly broad is Snygg & Combs’s statement that “the phenomenal self includes all those parts of the phenomenal field which the individual experiences as part or characteristic of himself” (1949:58). A more accurate definition is provided by Turner: “Typically my self-conception is a vague but vitally felt idea of what I am like in my best moments, of what I am striving toward and have some encouragement to believe I can achieve, or of what I can do when the situation supplies incentives for unqualified effort” (1968:98). In Turner's (1968, 1976) formulation, the self-concept also involves (to some extent) the sense of spatial and temporal continuity, a distinction of essential self from mere appearance and behaviour (which he terms “self-image”), and the identification of the person in qualitative and locational terms as well as in evaluative terms.

Baumeister (1999) provides the following self-concept definition: “the individual’s belief about himself or herself, including the person's attributes and who and what the Self is.” Also, self-concept is distinguishable from self-awareness, which refers to the extent to which self-knowledge is defined, consistent, and currently applicable to one's attitudes and dispositions (Ayduk, Ozlem, Gyurak, Anett, Luerssen & Anna, 2009). It is used to refer to how someone thinks about or perceives themselves, and a person’s perception of himself is believed to influence the way he behaves (Shavelson *et al.*, 1976). Self-concept is a cognitive or descriptive component of one’s self (e.g. “I am a fast runner”), while self-esteem is evaluative and opinionated (e.g. “I feel good about being a fast runner”).

One's self-concept (also called self-construction, self-identity, self-perspective or self-structure) is a collection of beliefs about oneself (Leflot, Geertje; Onghena, Patrick; Colpin & Hilde, 2010; Flook, Lisa; Repetti, Rena; Ullman & Jodie, 2005) that includes elements such as academic performance (Bong, Mimi, Clark & Richard, 1999; Byrne & Barbara, 1984; Byrne, Barbara, Gavin, Darlene & Worth, 1996; Shavelson, Richard, Bolus & Roger, 1982; Shavelson, Hubner & Stanton, 1976) gender roles and sexuality, (Hoffman, Rose Marie; Hattie, John, Borders & Dianne, 2005; Wade & Jay, 1998; Hoffman & Rose Marie, 2004) and racial identity (Aries, Olver, Blount, Christaldi, Fredman & Lee, 1998). Self-concept embodies the answer to "Who am I?" (Myers & David, 2009).

2.14. Theories of Self-Concept

Perhaps the most original conceptualization of the self-concept is offered by Epstein (1973). From an Attribution perspective, Epstein suggests that the self-concept can best be viewed as a theory that a person holds about himself as an experiencing, functioning being in interaction with the world. Despite his overemphasis on knowledge and beliefs as the foundation for self-concept (rather than on values, attitudes, and motivations), Epstein's interesting formulation accounts for many of the recurring features of the self-concept in the social-psychological literature.

The perception people have about their past, or future selves are related to the perception of their current selves. The Temporal Self-appraisal Theory (Wilson & Ross, 2001) argues that people have a tendency to maintain a positive self-evaluation by distancing themselves from their negative self and paying more attention to their positive one. In addition, people have a tendency to perceive the past selfless favorably (Ross, Michael; Wilson & Anne, 2002) (e.g. "I'm better than I used to be") and the future self more positively (Wilson, Anne, Buehler,

Roger; Lawford, Heather, Schmidt, Colin; Yong & An Gie, 2012) (e.g. “I will be better than I am now”).

Psychologists Carl Rogers (1961) and Abraham Maslow (1954) were the first to establish the notion of self-concept. According to Rogers (1961), everyone strives to become more like his or her “ideal self.” The closer one is to their ideal self; the happier one will be. Rogers (1961) theory states further that a person’s ideal self may not be consistent with what happens in life and experiences of the person currently. Hence, a difference may exist between a person’s current self and ideal-self resulting in an incongruence or dilemma, also exemplified as a negative self-concept. Where a person’s current-self and ideal-self are consistent or very similar; a state of congruence exists, also exemplified as a positive self-concept. Similarly, in this study, the researcher takes into account the way in which an HIV-infected person constructs his current-self (the self as constituted as an infected person) and how he defines his ideal-self (how an infected person would like to be). According to Schweitzer et al. (2010), an infected person is most likely to encounter a negative self-concept when they find out that they are HIV-positive and/or may have an altered self-concept (an incongruence between a person’s ideal self and actual self) assumingly during different stages of HIV progression.

Rogers also hypothesised that psychologically healthy people actively move away from roles created by others’ expectations, and instead look within themselves for validation. On the other hand, unstable people have “self-concepts that do not match their experiences. They are afraid to accept their experiences as valid, so they distort them, either to protect themselves or to win approval from others” (Aronson, Wilson & Akert, 2007). Rogers (1959) believes that the self-concept has three different components: 1.) The view you have of yourself (Self-

image); 2.) How much value do you place on yourself (Self-esteem or self-worth); and 3.) What you wish you were really like (Ideal-self).

These three components are discussed in more detail below:

1. Self-image (what you see in yourself)

This does not necessarily have to reflect reality. Indeed a person with anorexia who is thin may have a self-image in which the person believes they are fat. A person's self-image is affected by many factors, such as parental influences, friends, the media, etc.

2. Self-esteem and Self-worth (the extent to which you value yourself)

Self-esteem refers to the degree to which we like to accept or approve of ourselves or how much we value ourselves. Self-esteem always involves a degree of evaluation, and we may have either a positive or a negative view of ourselves.

High self-esteem is when we have a positive view of ourselves. This tends to lead to confidence in our abilities, self-acceptance, not worrying about what others think, and optimism

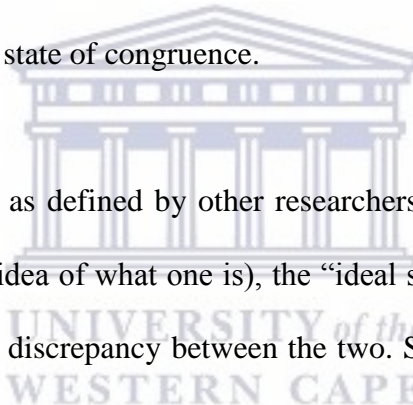
Low self-esteem is when we have a negative view of ourselves. This tends to lead to lack of confidence, want to be/look like someone else, always worrying what others might think, and pessimism

Even though self-esteem might fluctuate, there are times when we continue to believe good things about ourselves even when evidence to the contrary exists. This is known as the perseverance effect.

3. Ideal Self (what you would like to be)

If there is a mismatch between how you see yourself (e.g. your self-image) and what you would like to be (e.g. your ideal self) then this is likely to affect how much you value yourself. Therefore, there is an intimate relationship between self-image, ego-ideal and self-esteem. A person's ideal self may not be consistent with what happens in life and experiences of the person. Hence, a difference may exist between a person's ideal self and experience. This is called incongruence.

Where a person's ideal self and experience are consistent or very similar, a state of congruence exists. Rarely, if ever does a total state of congruence exist; all people experience a certain amount of incongruence. The development of congruence is dependent on unconditional positive regard. Roger believed that for a person to achieve self-actualization they must be in a state of congruence.

The logo of the University of the Western Cape, featuring a classical building with columns and a pediment, with the text 'UNIVERSITY of the WESTERN CAPE' below it.

The construct of self-concept, as defined by other researchers (Cantor & Kihlstrom, 1987), includes the “real self” (one's idea of what one is), the “ideal self” (a realistic image of what one would like to be), and the discrepancy between the two. Self-concept discrepancy, then, is where one stands (real self) in relation to where one would like to be (ideal self). It has been suggested both that this discrepancy can motivate self-improvement (to reduce the gap between real and ideal self) and that it can cause sadness or disappointment (Higgins, 1987). In fact, a significant discrepancy between actual and ideal self-concepts has been linked to depression among college students (Blatt et al., 1976; Higgins, Bond, Klein & Strauman., 1986). Bong and Skaalvik (2003) describe how one's self-concept evolves through the comparison of peers. A person's self-concept will include views of him/herself as a whole depending on how one functions comparatively to others in his/her environment. Low self-concept is closely related to depressive symptoms. McCauley, Mitchell, Burke and Moss (1988) report that children and adolescents with a low self-concept (measured with Piers-

Harris Children's Self-Concept Scale) tend to have higher rates of depression. Those with more negative views of themselves and the future were found to be clinically depressed.

2.15. Negative Self-concept versus Depression

The negative self-concept is a fundamental construct in cognitive theories of depression, but one which has been more or less taken for granted. Far greater theoretical interest is centered on the information processing believed to emanate from and be organised by, the cognitive self-structures of which the negative self-concept is part (Beck 1967, 1976). In cognitive theory, information processing is hypothesised to become temporarily faulty when the negative self-concept is activated. Once this activation has taken place, information that is self-devaluative is more rapidly and efficiently processed by the brain than would be the case under normal circumstances, causing depression to surface. Cognitive research on depression has similarly tended to focus on demonstrating and further elucidating distorted information processing in depressed persons and, in the case of cognitive therapy, on understanding how the dysfunctional information processing might be corrected.

With emphasis thus directed toward mechanistic or individualistic processes and away from social context, several criticisms of cognitive theories of depression related to the undervaluing of context have emerged.

First, cognitive theories are seen by some as in need of refinement because they fail to reflect observations that the lives of depressed persons do in fact contain more "negative realities" than is the case for non-depressed persons (Krantz, 1985). For instance, depressed people have impoverished interpersonal relationships and experience more stressful life events than do non-depressed people. Instead of dismissing depressed people's negative observations about their lives as erroneous, Krantz recommends that theorists try to understand how the

increased frequency of negative experiences which affect depressed persons' lives has led to a weakening of their positive beliefs about themselves.

Second, cognitive theories of depression have come under attack for making invisible the social context of women's lives (e.g., their lesser status, power, and resources) which may account for the higher prevalence of women among the depressed. Stoppard (1989), for example, challenges the adequacy of cognitive theories to understand depression in women. Unfortunately, the frustration with the failure of traditional theories is that they assume that women possess an inherent, essential difference (i.e., their relational capacity) which often leads to depression because their difference is devalued by the patriarchal society in which they live. As is the case with other traditional theories, these theories of depression from women's perspective are individualistic in nature. That is, they continue to understand depression as a negative state or self-devaluing process occurring within the self, but one which has been brought about by "real" events rather than by a distorted sense of reality. Interestingly, the notion of women's essential difference has itself been contested because it is empirically unproven and because it oversimplifies women's experience (Lott, 1985).

Studies indicate that depressive symptoms and self-concept are strongly correlated (Cole, Martin, Powers & Truglio 1996; Cole et al., 1999; Tram & Cole 2000). Bong and Skaalvik (2003) find that this general perception of the self influences many areas in a person's life including mental health. Their study indicates that self-concept has a role in the development of mental health or illness. This may signify that there is a need to study what contribution self-concept can have in providing information to indicate a risk of developing a mental illness.

2.16. Self-Discrepancies and Self-Concept negativity (or Low self-esteem)

Self-esteem is widely considered to be a key indicator of mental health (Knapen et al., 2007). Positive self-esteem is not only seen as a basic feature of mental health but also as a protective factor that contributes to better health and positive social behaviour through its role as a buffer against the impact of negative influences (Mann et al., 2004). It is seen to actively promote healthy functioning as reflected in life aspects such as achievements, success, satisfaction, and the ability to cope with diseases like cancer and heart disease. Conversely, an unstable self-concept and poor self-esteem can play a critical role in the development of an array of mental disorders and social problems, such as depression, anorexia nervosa, bulimia, anxiety, violence, substance abuse and high-risk behaviours (Mann et al., 2004). These conditions not only result in a high degree of personal suffering but also impose a considerable burden on society. To summarise, self-esteem is considered as an influential factor both in physical and mental health and therefore should be an important focus in health promotion; in particular, mental health promotion (Mann et al., 2004).

Stamatakis et al. (2003) reported that lower self-esteem was found to be associated with many socioeconomic, behavioural, psychosocial and disease characteristics. The impact of self-esteem is also evident in risk behaviour and physical health (Fathi-Ashtiani et al., 2007). For example, in a longitudinal study, Rouse (Rouse, 1998) observed that resilient adolescents had higher self-esteem than their non-resilient peers and that they were less likely to initiate a variety of risk behaviours (Mann et al., 2004). Improvement of self-esteem has therefore regularly been described as one of the main treatment aims for patients (Knapen et al., 2005).

Empirical evidence suggests that positive self-esteem can also lead to behaviour which is protective against contracting AIDS, while low self-esteem contributes to vulnerability to HIV/ AIDS (Rolf & Johnson, 1992; Somali et al., 2001). The risk level increases in cases where subjects have low self-esteem and where their behaviour reflects efforts to be accepted

by others or to gain attention, either positively or negatively (Reston, 1991). Lower self-esteem was also related to sexual risk-taking and needle sharing among homeless ethnic-minority women recovering from drug addiction (Nyamathi, 1991). Abel (1998) observed that single females whose partners did not use condoms had lower self-esteem than single females whose partners did use condoms. In a study of gay and/or bisexual men, low self-esteem proved to be one of the factors that made it difficult to reduce sexual risk behaviour (Paul et al., 1993). Rogers (1961) theory stated earlier that a person's ideal self might not be consistent with what happens in life and experiences of the person currently. Hence, a difference may exist between a person's current self and ideal-self resulting in an incongruence or dilemma, also exemplified as a negative self-concept.

2.17. Defining Implicative Dilemmas

Implicative dilemmas are relationships between an individual's constructs which present that person with a dilemma or conflict. Cognitive conflicts, in the traditional application of PCT, are identified by a correlation between elements of self-concept (also known as self-constructs), which is a discrepant construct and a congruent construct (Feixas, Saúl, Avila-Espada & Sánchez, 2001; Feixas, Saul & Sánchez, 2000). Implicative dilemmas may be identified from repertory grids, and some computer programs have been devised for this purpose (Slade & Sheehan, 1979; Bassler et al., 1992; Feixas & Cornejo, 1996), although in some cases a high level of conflict suggested by such an analysis may reflect a loosely organised construct system (Winter, 1983).

Operationally, two types of personal constructs are involved in an ID as previously mentioned.

On the one hand, discrepant constructs are those in which the person perceives a significant discrepancy between the ‘current self’ and the ‘ideal self’ so that one pole of the construct describes the current and the other pole the ideal self. They typically signify areas of malaise, such as symptoms in which change from one pole to the opposite one is desired. On the other hand, congruent constructs represent areas of self-satisfaction (as indicated by the similarity between the present and the ideal self, both described by one construct pole) which might be connected to personal values or beliefs.

In the example illustrated in **Figure 2** below, the participant considered herself as being the kind of person who ‘does not love herself’ (left pole), but she would like to start ‘loving herself’ (right pole of the discrepant construct). At the same time, in congruency with her ideal self, she considered herself as being ‘protective’ (left pole) and did not want to become ‘unemotional’ (right pole of the congruent construct; note that all these constructs are personal, i.e., in her words). The RGT allows for the calculation of correlations among all the constructs elicited from the interviewee. So, whenever an association is found between the desired pole of the discrepant construct (‘love herself’) and the undesirable pole of the congruent construct (‘unemotional’), an implicative dilemma is identified. Therefore, discrepant constructs per se do not represent a conflict but just a discrepancy, a goal that should be attained. Rather, it is the conflictive association between a discrepant and a congruent construct which causes conflict. In these cases, the need for change (she wants to love herself) might be hindered by the need for self-ideal congruency (continue being protective). What an implicative dilemma tells us is that the need for change expressed by the discrepant construct is in conflict with the need for coherence voiced by the congruent construct. Thus, the patient unwittingly hesitates in taking a clear course of action because striving for loving herself has negative implications for her identity. Given such a dilemma,

change may be less likely to occur because abandoning the symptoms would result in invalidation of core aspects of the self.

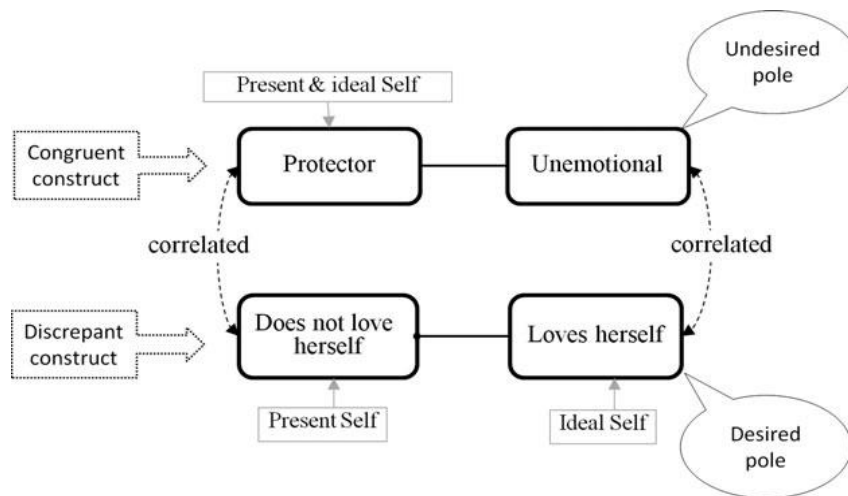


Figure 2. An implicative dilemma of a depressed patient from a clinical sample

Source: Montesano, Gonçalves & Feixas (2015).

The measure of implicative dilemmas is both standardised and quantifiable in structure and idiographic in content. It is also relevant for explaining both symptom maintenance and ambivalence towards change. Also, it lessens the effect of social desirability given that conflicting constructs are detected from grid data using a structured computerised procedure which is not evident to the subject and does not employ any explicit question about conflicts. Thus, this method of using implicative dilemmas could constitute an integration of the advantages of the approaches above considering that it assesses conflict in a way which is not based on the explicit wording of contradiction or conflict by the interviewees but using more implicit associations among their specific self-generated goals (personal constructs).

2.18. The Self-Categorization Theory

The Self-Categorization Theory developed by John Turner (1985) states that the self-concept consists of at least two "levels": a personal identity and a social one. In other words, one's

self-evaluation relies on self-perceptions and how *others* perceive them. Self-concept can alternate rapidly between the personal and social identity (Guimond et al., 2006). Children and adolescents begin integrating social identity into their self-concept in elementary school by assessing their position among peers (Trautwein et al., 2009). By age five, acceptance from peers has a significant impact on children's self-concept, affecting their behaviour and academic success (Gest et al., 2008).

That our self-concepts reflect the responses and appraisals of others is the dominant proposition in the sociology of self. Grounded in Cooley's (1902) influential concept of the "looking-glass self" and Mead's theory (1934) that the self-concept develops through the process of role-taking others, the process of reflected appraisals is the cornerstone of the symbolic interactionist perspective on self-concept formation (Rosenberg 1979:64). Given its widespread acceptance within sociology and even psychology, one would think this proposition had been demonstrated empirically beyond question; but this is hardly the case. To be sure, many (especially symbolic interactionists) have investigated the relationship between others' appraisals and the individual's self-concept (Quarantelli & Cooper 1966). However, the power of the opinions of others to initiate and/or affect the development of the self-concept is still in doubt. Shrauger & Schoeneman (1979) examined the empirical evidence for the "looking-glass self" in over fifty studies. They observe that: (a) People's self-perceptions agree substantially with the way they think others perceive them. However, (b) there is very little agreement between people's self-perceptions and how others view them. Shrauger & Schoeneman conclude that "there is no clear indication that self-evaluations are influenced by the feedback received from others in naturally occurring situations" (1979:549). There are some reasons why the reader should not be surprised at the disparity between self-concepts and the appraisals of others. One is the difficulty of getting honest feedback from others, especially if it is negative (Felson 1980). The norms of adult social

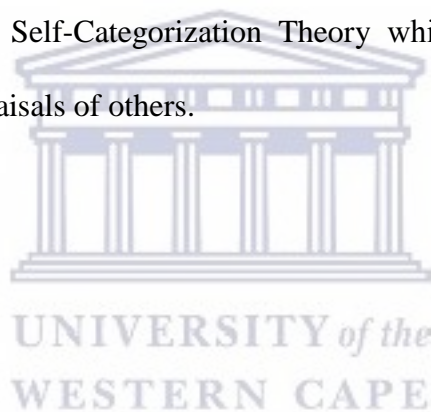
interaction in our culture, which Goffman (1959) examined with such insight, inhibit honest appraisal of others, substituting "tact" and proper "deference and demeanour" to protect self-esteem. As a result, one may often be unaware of what others think of us. Another reason for the mismatch between self-concept and others' appraisals is that not all others are equally significant to us.

2.19. Conclusion

The Biopsychosocial Model (Engel, 1977) was the model that guided the study overall. The model highlighted those patients suffering should be understood within the biological, psychological, and social dimensions of illness. Psychological illness, specifically regarding depression was explored using two theories, namely Bandura's Social Cognitive Theory of Depression and Beck's Cognitive Theory of Depression. Cognitive conflicts are one aspect, however, which has not been considered in cognitive models of depression even though they have been quite a common notion in psychology (Feixas et al., 2013), and which could contribute to explaining the difficulties of patients achieving change.

Kelly's Personal Construct Theory (PCT) provided an ideal conceptual and methodological framework for the study of cognitive conflicts. To further clarify the term internal conflicts, two social cognitive theories, namely Festinger's (1957) Theory of Cognitive Dissonance and Heider's (1958) Balance Theory were discussed briefly. Beck, furthermore, conceptualised cognitive mediators as cognitive "schemas," also known as self-concept which is made up of one's self-schemas and interacts with self-esteem. In light of these concepts, the difference between the Self, Self-concept, and Self-esteem was also considered. Theories of Self-concept were offered such as Epstein's (1973) Attribution perspective and a more recent theory by Wilson and Ross (2001) which is the Temporal Self-appraisal Theory. Rogers (1961) and Maslow (1954) were also mentioned as they were the first theorists to establish

the notion of self-concept. Rogers (1961) theory states further that a person's ideal self may not be consistent with what happens in life and experiences of the person currently. Hence, a difference may exist between a person's current self and ideal-self resulting in an incongruence or dilemma, also exemplified as a negative self-concept. The negative self-concept is a fundamental construct in cognitive theories of depression, but one which has been more or less taken for granted, and therefore was explored in a bit more detail. The researcher also provided empirical evidence which suggests that positive self-esteem leads to behaviour which is protective against contracting AIDS, while low self-esteem contributes to vulnerability to HIV/AIDS and is also related to risk-taking behaviours. Finally, we defined what we meant by dilemmas, specifically implicative dilemmas and concluded by highlighting Turner's (1985) Self-Categorization Theory which suggests that one's self-concept is reliable on the appraisals of others.



CHAPTER THREE

REVIEW OF THE LITERATURE

3.1. Introduction

While the Background and Introduction Chapter started off by examining relevant worldwide and South African statistics on HIV/AIDS, and mental health, this chapter provides an overview of previous research that comprises the main focus of the research in light of the Biopsychosocial model. The focus is to integrate, synthesise and critically evaluate the relevant literature on factors such as socio-demographic variables, disease characteristics, psychosocial variables (anxiety), risk-taking behaviour variables and cognitive (RGT) variables as predictors of depression in PLWHA. In doing so, the attempt will be to build the argument and highlight the gap in research, which is, that the cognitive variables, namely self-concept and implicative dilemmas may have been well-researched have been under-researched and may be significant predictors of depression and risk-taking behaviour in PLWHAs.

3.2. The relationship between HIV/AIDS and mental health

Early in the HIV/AIDS epidemic, researchers began to describe the sequelae of psychiatric comorbidities among individuals living with HIV infection (Dew et al., 1997; Evans et al., 1998; Lyon & Munro, 2001; Mills et al., 2004). Studies reported that although various psychiatric comorbidities such as anxiety disorders and adjustment disorders were associated with HIV infection, depression was the most frequently reported Axis I disorder for HIV-infected individuals (Berg, Mimiaga, & Safren, 2004; Orlando, Tucker, Sherbourne, & Burnam, 2005; Rabkin, Ferrando, Jacobsberg, & Fishman, 1997; Tate et al., 2003). For

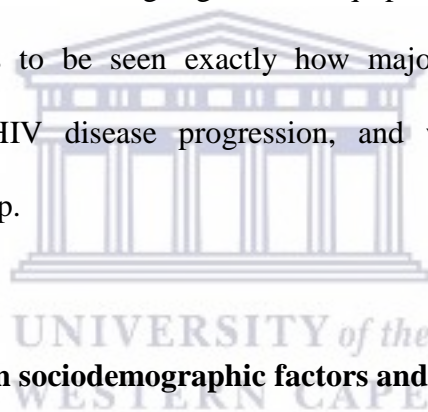
example, studies of people living with HIV (PLWH) have documented elevated rates of depression (Sivasubramanian et al., 2011). In South Africa, 41% of a sample of 900 PLWH reported mild to major depression (Freeman, Nkomo, Kafaar, & Kelly, 2008), indicating that as many as 3.8 million people in South Africa may suffer from this double-disease burden. Among PLWH, depression has been linked to suboptimal adherence to antiretroviral therapy (ART) regimens (DiMatteo, Lepper, & Croghan, 2000), which has been associated with accelerated disease progression (Leserman et al., 2002).

South Africa is considered to be one of the countries worst affected by HIV/AIDS in the world. The reasons for this are complex. Many people live for numerous years after being diagnosed with HIV or AIDS. However, no cure has been discovered yet, and the cost regarding human lives is significant. This increase in life expectancy has, however, largely been a result of the availability of antiretroviral (ARV) therapy, which has significantly extended the lives of PLWHAs (Oguntibeju, 2012). However, living longer means that HIV infection and AIDS, like other life-threatening illness such as cancer and heart disease, exact a tremendous physical and psychological price for their victims and others who are in the victim's social network.

Most experts believe that both biological and psychosocial factors play a role in causing depression, often understood within the context of the "biopsychosocial model." Associated factors tend to overlap and interact, so the causes ultimately depend on the individual's circumstances. Social, psychological and biological factors have all been suggested as possible causes (Judd et al., 2005). However, 80% of investigations on the causes of depression provide conflicting results (Grohol, 2013). As stated by Rabkin (2008, p.166), it remains to be determined "whether depression puts HIV infected persons at greater risk for disease progression, or whether changes in disease may be associated

with increased risk of depression.” In a study done that reviewed articles written in Africa on the subject of depression and HIV and AIDS, it has shown that people that are diagnosed with the disease are more than likely to experience depression (Olley, Seedat, Nel & Stein, 2004). Depression can thus be seen as further complicating the disease of HIV/AIDS (Olley et al., 2004).

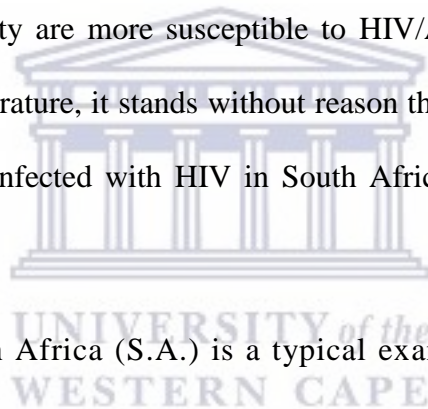
Atkinson et al. (2008) on the hand found in his study that after two years of follow-up of HIV-positive men who were symptomatic and those with AIDS that progressed to AIDS over the two-year follow-up was not associated with a diagnosis of major depression. Empirical evidence supports the fact that mental illness can be a result of the HIV or AIDS, as well as be a consequence of the disease leaving significant equipoise in the literature (Loonat, 2009). Therefore, it remains to be seen exactly how major depression and depressive symptomatology relate to HIV disease progression, and what other factors may be contributing to this relationship.



3.3. The relationship between sociodemographic factors and depression in PLWHAs

The causal pathway between social influences in particular and HIV transmission is complex and non-linear (Auerbach, Parkhurst, & Càceres, 2011). The literature reviewed thus far indicates that “gender inequality” and poverty, the major social drivers of HIV vulnerability among young women in s-SA, are examples of this complexity (Naidoo, Chirinda, Mchunu, Swartz & Anderson, 2014). The fact that there are countries outside s-SA with greater poverty and gender inequalities with different gender differentials in HIV infection as compared to s-SA (Mishra et al., 2007; Obermeyer, 2009) adds to this complexity.

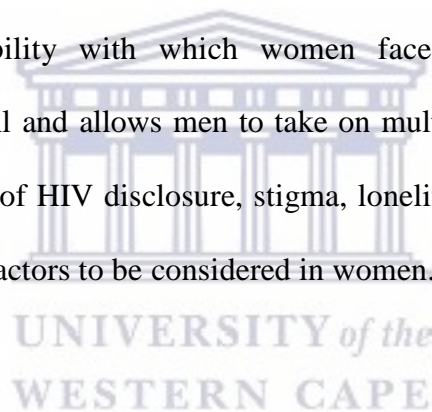
The HIV/AIDS pandemic affects males and females, although half of all HIV-infected people, globally, are female (UNAIDS, 2008) with a growing proportion of new infections occurring among women in s-SA (Naidoo et al., 2014). Another group that is particularly susceptible to being infected by HIV/AIDS is the black population, particularly those living under the scourge of poverty (Naidoo et al., 2014). Studies have found that there is a close link between poverty and vulnerability to HIV/AIDS, particularly in Southern Africa. In a report released by Save the Children UK and Oxfam International (2002), attention was drawn to the relationship that exists between HIV/AIDS and food insecurity in Southern Africa. They observed that poverty and inequality drove the epidemic. Kallman (2003) describes this relationship as mutually reinforcing, creating a vicious systemic circle and as a result, people living in poverty are more susceptible to HIV/AIDS compared to any other group. Through reviewing literature, it stands without reason that the profile of an individual at highest risk of becoming infected with HIV in South Africa is a black female (Temba, 2007).



In terms of the setting, South Africa (S.A.) is a typical example of a country in which its history of colonisation has negatively impacted the economy (Loonat, 2009). The advent of capitalism has resulted in the unequal dispersion of resources and lowered wages, particularly for the poorer and working class individuals. Poverty is rife in developing countries such as S.A. Poverty has been defined as “a level of income below which people cannot afford a minimum, nutritionally adequate diet, and non-food requirements” (Marks et al., 2006, p. 422). Poverty has an impact on the access to adequate health care, adequate sanitation as well as access to water that is safe to consume amongst others. Poverty is a critical factor as a cause of disease and early mortality (Freeman et al., 2008) because HIV and AIDS diagnosis means that expenses increase and income is drastically reduced (Loonat, 2009).

Poverty may also breed low levels of respect for self and others, and thus a lack of incentive to value and protect lives. Poverty is associated with low levels of formal education and literacy. Knowledge about HIV and how to prevent it, as well as access to information sources such as schools or clinics, is subsequently low in poor communities (Freeman et al., 2008) which also increases vulnerability to HIV.

The effects of poverty on women are even more detrimental than that of men, due to the psychosocial stressors with which they are faced. This is largely a result of the patriarchal system, which is still enmeshed in society. Women are still expected not to work. This is noted in the employment rate of the country. The inequality of women is further depicted in that the economic vulnerability with which women face, forces many into sexual relationships without free will and allows men to take on multiple sexual partners. Further, sexual partnerships with fear of HIV disclosure, stigma, loneliness, and the burden of child care activities are additional factors to be considered in women.

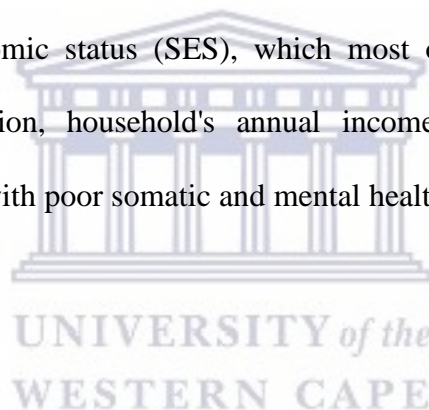


However, HIV/AIDS is not an inevitable outcome of poverty. Countries with similar social circumstances, such as Uganda and Senegal, have not seen such a rapid spread of the epidemic (Walker, Reid & Cornell, 2004). The relative importance of some sociodemographic factors versus others may vary across different studies and contexts. Thus the findings of studies would need to be contextualised to the settings where they took place (Abgralla & del Amo, 2016) and time (including history) needs to be investigated

Ironically, socioeconomic development and poverty relief can, in fact, sometimes drive the epidemic. This is particularly the case when development is linked to labour migration, rapid urbanisation, and cultural modernisation – all of which occur to a significant extent in South Africa. Thus, although poverty contributes to the spread of HIV/AIDS, alleviating

poverty can do likewise. For example, improved infrastructure such as new transport routes and improved access are seen as positive developmental goals. However, this often results in a larger migrant population and facilitates the spread of AIDS to previously inaccessible parts of the country. In essence, those that are poor have an immense battle to cope with the effects of HIV/AIDS.

According to Abgralla & del Amo (2016), the relationship between socioeconomic position and disease progression has been approached in different ways. Given that socioeconomic status is very hard to measure, several proxies have been used in various studies, such as individual educational level and individual income or neighbourhood socioeconomic position (Bjelland, 2004). Socioeconomic status (SES), which most often is characterised by the length of completed education, household's annual income, and occupation, has also consistently been associated with poor somatic and mental health (Dohrenwend, 1998; Taylor & Seeman, 1999).



Freeman et al. (2008) have shown that mental illness is a result of poverty rather than the diagnosis of HIV/AIDS, but no substantial studies exist to support this claim. The relationship between poverty and HIV is not that clear ("Poverty and HIV/AIDS," n.d.). Freeman et al. (2008) state further that poverty worsens conditions present in PLWHA which affects the mental health of these individuals. Mental illness is a risk factor to poverty as employment becomes harder to find for those who are living with a mental disorder (Freeman et al., 2008). Living in poverty where economic resources are low have an impact on a sense of well-being (Das, Do, Friedmann, Mckenzie & Scott, 2007). It is not uncommon to experience depression and anxiety while living in dire sub-economic conditions or where poverty is rife. Lower socioeconomic status is a determinant of

emotional distress. There is a body of evidence that shows that even the uncertainty of income is a causal factor of mental disorders (Patel & Kleinman, 2003). However, other studies have not found a significant difference between SES and depressive symptoms (Twenge & Nolen-Hoeksema, 2002).

However, in a recent meta-analysis, Lorant et al. (2003) found compelling evidence for socioeconomic inequalities in depression. Low-SES individuals had a significantly higher risk of being depressed (OR=1.81) compared to high-SES individuals in the 51 cross-sectional studies, where a dose-response relation was observed both for education and income. In the few longitudinal studies (n=7) similar socioeconomic inequalities in depression were observed: a slight association in the incidence studies (OR=1.24) and a moderate to the strong association in the persistence studies (i.e. persistence of depression from baseline to follow-up) (OR=2.06) (Bjelland, 2004). However, after excluding the studies not addressing education, the most frequently used SES indicator, the results of the studies on incidence (Eaton, Muntaner, Bovasso & Smith, 2001; Kaplan, Roberts, Camacho & Coyne, 1987) and persistence (Kaplan et al., 1987; Bracke, 2000; Sargeant, Bruce, Florio & Weissman, 1990) were inconsistent. The discrepancy may be due to differences in sample size and follow-up period between the studies (Eaton et al., 2001).

3.4. The relationship between gender, depression and risk-taking behaviour in PLWHAs

Studies have also indicated that gender is significantly associated with depression with women experiencing twice the level of depression than men (Nolen-Hoeksema, Larson & Grayson, 1999).

Sex refers to the biological characteristics that categorise someone as either female or male.

Biological [and social] factors continue to influence and shape determinants and patterns of disease which may be sex-specific. For example, men have a much greater biological propensity to develop heart disease early in life compared to women. In contrast, women report depression and anxiety more frequently, although there is no biological explanation for this (Doyal, 2001). The effects of sex also relate to women's greater biological or physiological vulnerability to HIV. There are physiological reasons why women are more vulnerable to infection than men, for example, the fact that much of the female genital tract is more permeable to fluids compared with the male's anatomy. Moreover, semen contains a higher concentration of the HIV virus than female secretions (Nair, 2008). Research shows that men pass on the virus more efficiently than women and that a woman is twice as likely to be infected by an HIV-positive man as is a man by an HIV-positive woman (Sprague, 2008).



Gender is a primary way of stratifying individuals and societies. As Díaz (1994) notes, 'sex' is defined 'by chromosomes or biological functions' but 'gender' is a social construction. Gender divisions persist in all countries of the world. Men and women are "assigned different duties and responsibilities as well as different entitlements" (Artazcoz, Borrell, Cortés, Escribá-Agüir & Cascant, 2007, p. 39). Stacey & Olesen (1993, p. 4) observe that gender is emerging "as a critical problematic in understanding women's and men's participation in social and cultural systems [and] in studies of health and illness, care and cure." A large body of literature captures the relationships between women's health and gender divisions: a range of economic, social, and cultural factors have been documented by researchers, demonstrating their links with physical and mental wellbeing for women (Garenne & Lafon, 1998; Annandale & Clark, 2000; Doyal, 2006).

The terrain of gender roles in South Africa is both complex and diverse. South African culture is male-dominated, with women accorded a lower status than men are. Men are

socialised to believe that women are inferior and should be under their control; women are socialised to over-respect men and act submissively towards them (Walker, Reid & Cornell, 2004). The patriarchal social arrangements discussed above ultimately serve to coalesce power and privilege into the hands of men while simultaneously curtailing the autonomy of women (Walker, Reid & Cornell, 2004). The gender dynamics that result from this system put women in South Africa at greater risk of HIV infection than their male counterparts (Walker, Reid & Cornell, 2004). As a result of gender inequality and social structure, women living with HIV/AIDS are more at risk of experiencing stigma (Sayles, Mitchell, Wong, Kinsler, Martins & William, 2009). These inequalities have serious implications for choices that women can make in their lives and provide a supportive backdrop for gender-based violence (Kalichman, Simbayi, Kaufman, Cain, Cherry, Jooste & Mathiti, 2005; Dunkle, Jewkes, Brown, Gray, McIntyre & Harlow, 2004). In the first instance, it affects women's capacity to decide with whom, when and how sexual intercourse takes place (Pettifor et al., 2004). Glover-Walton (2001) notes that in South Africa, the carrying of condoms by women is often taken as evidence of being promiscuous and as being HIV-positive. Women's inferior status affords them little or no power to protect themselves by insisting on condom use or refusing sex (Goldstein, Pretorius & Stuart, 2003).

Studies have shown that up to 80% of women in rural areas have experienced domestic violence. Another study conducted in a rural area in the Eastern Cape, most women reported being coerced into early sexual activity against their wishes (Ntlabati, Kelly & Mankayi, 2001). This is a huge problem because it is not possible to negotiate safer-sex practices in abusive relationships (Walker, Reid & Cornell, 2004). According to Gupta et al. (2010), this type of situation can lead to feelings of lower self-worth among women and a higher

prevalence of depression. In addition to leading directly to depression, it is also plausible that lack of sexual control can indirectly result in depression via engaging in risky sex if people do not feel good about their choices and practices. A final possibility is that women who are depressed feel less empowered to assert control over their sexual relationships.

In southern Africa, including South Africa, sex with multiple and concurrent partners in the context of poor and inconsistent male condom usage has been identified as the key behavioural driver of HIV (Mah & Halperin, 2008; SADC, 2006). A community-based cross-sectional study from South Africa confirmed the associations between depression and having concurrent partnerships, previous treatment for a sexually transmitted infection, sex with someone known to less than one day, sex while using alcohol or drugs, transactional sex and forced sex (Smit et al., 2006). There is conflicting evidence on the association of depressive symptomatology with condom use, however, with one South African study showing greater use of condoms among respondents with depressed symptoms (Smit et al., 2006) and another reporting the opposite (Peltzer, 2004).

International evidence has suggested that African American women with HIV disease living in rural areas are at a particularly higher risk of depression compared to other PLWH (Arseniou, Arvaniti & Samakouri, 2014). Unique characteristics of rural areas, including geographic distance and lack of transportation, isolated rural women from support services and resources (Moneyham et al., 2000). Additionally, conservative values and social norms favour stigmatisation of HIV-infected women, making them reluctant to disclose their HIV status, which further isolates them from much needed social support (Hudson, Lee, Miramontes, & Portillo, 2001; Moneyham et al., 1996). Consequently, these women experience extreme psychological stress that exceeds their limited resources and

coping abilities, which may result in adverse psychological outcomes such as depression (Vyavaharkar et al., 2010).

Another study undertaken nationally in South Africa found that there were no significant gender differences between males and females with HIV or AIDS (Olley et al., 2003). When comparing demographic characteristics and HIV status, HIV infection on its own was not a risk factor for psychological morbidity for women, but psychosocial stressors were (Stranix-Chibanda, Chibanda, Chingono, Montgomery, Wells, Maldonado, Chipato, & Shetty, 2005). With the roles and responsibilities placed on women such as having to act as caregivers (Mello et al. 2010) coupled with the lack of recognition and power, it is not surprising that women are about twice as likely as men to develop depression (Nolen-Hoeksema, 1990; Weissman et al., 1996).

Psychological services around the world are accessed more by women than men, a phenomenon that is probably more related to gender differences in help-seeking behaviour, than psychopathology prevalence (World Health Organisation, 2001). Recent South African research at a semi-rural primary health care facility showed that women over the age of 30 years constituted 86.1% of patients attending psychological consultations (Petersen, 2004). Another South African investigation at an urban psychological service revealed that almost 70% of attendees over the age of 18 years were women (Seedat, Kruger, & Bode, 2003). Reports from elsewhere in the world show a similar trend in the gender distribution of individuals seeking psychological care (Sayers, 2001). With this type of patient profile at mental health facilities, it is critical that service providers and planners examine whether they are positioning themselves to meet the needs of the women seeking help (Pillay & Kriel, 2006). Although historically mental health services have not

had a reputation for gender-sensitive practices, this must be urgently addressed, through firstly an examination of the needs of women presenting at the community or district-level mental health services. Domestic and intimate partner violence is an example of a severe problem affecting women in South Africa, and reliable statistics are difficult to obtain due to the under-reporting that characterises this phenomenon (Pillay & Kriel, 2006).

Socio-demographic factors such as age, gender, education and unemployment play a role in the development of HIV/AIDS and high-risk behaviours (Omar, 2010). In addition to poverty that prompts many women to engage in transactional sex, South Africa's rapidly expanding economy is creating new needs and wants amongst young women who often view relationships with older, employed men as a relatively easy way to meet their growing desire for consumer commodities (Leclerc-Madlala, 2008), and in order to gain money to survive and to support their family. In a study conducted in Soweto, 21.1% of participants had sex with a non-primary male partner in exchange for material goods or money (Dunkle et al., 2004). In a study of women living in a peri-urban area on the outskirts of Durban, it was found that over 90% of participants were dependent on men financially and that meeting their immediate needs for food and shelter overshadowed the long-term consequences of unsafe sex (Hoosen & Collins, 2001).

3.5. The relationship between social support and depression in PLWHAs

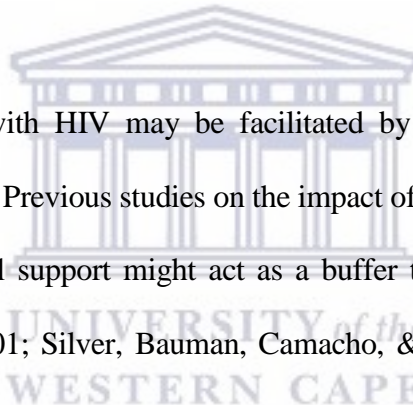
A significant body of research suggests that social support plays a vital role in managing the stress associated with having HIV, resulting in better psychological outcomes among persons with HIV disease (Vyavaharkar et al., 2010). Studies so far relate increased depression symptoms to stressful life events and diminished social support within the context of HIV infection (Leserman, Petitto, Gu et al., 2002; Ironson, O'Cleirigh, Fletcher, et al., 2005).

There is also a consensus among researchers that social support plays an active role in mental and physical health, despite different theoretical or methodological approaches (Wethington & Kessler, 1986; Kutner, 1987; Kohler & Gerstel, 1985; Hu & Goldman, 1990; Arber, 1991; Macintyre, 1992; Wyke & Ford, 1992; Goldman, 1993). Additionally, different patterns of living arrangements seem to have an impact on functional status and health in general (Illiffe, Tai & Haines et al., 1992; Sarvwari, Fredman & Langenberg et al., 1998; Michael, Berkman, Colditz et al., 2001). Particularly in Greece, no information exists on how different social support patterns affect self-perceived functional status. It is, however, believed that the strong social ties among family and community members cover efficiently the needs of people, especially in small communities, suggesting that living arrangements not play a major role and thus do not affect in a significant way health status and self-perceived functional status in particular (Koukouli, Vlachonikolis & Philalithis, 2002).

South Africa's culture, family structures, economic circumstances and sociological patterns differ from developed countries, however (Loonat, 2009). Many South Africans rely on social support on a systematic micro level. This leaves many children taking on the role of parents and grandparents looking after children (Loonat, 2009). Also, many seek care from spiritual advisors and traditional healers, including witch doctors as a primary source of care and treatment (Sorsdahl, Stein, Grimsrud, Seedat, Flisher, Williams, Myer, 2009). This, as opposed to traditional Western forms of treatment, is often valued more. This also negatively affects compliance to treatment and health outcomes if it is not considered (Van der Merwe, 1995).

Marital status, in particular, has been found to be highly associated with onset and prevalence of depression, but not with treatment outcome (Hirschfeld & Weissman, 2002). Interpersonal conflict is commonly related to depression (Hammen, 1992), but it is associated with higher

levels of depression if it occurs with close social partners. For instance, people have higher levels of depressive symptoms if the conflict takes place in their most intimate circle of partners as opposed to less intimate circles (Antonucci, Akiyama, & Lansford, 1998). In married couples, the risk for major depression is about 40 times greater if the couple is unhappily married (Weissman, 1987). Moreover, conflict with close social partners is associated with more depression if the relationship is otherwise characterised by helpfulness and cooperation (Major, Zubek, Cooper, Cozzarelli, & Richards, 1997; Pagel, Erdly, & Becker, 1987). In studies focusing on patients with rheumatoid arthritis for example; there was no significant association between perception of social support and health outcome in rheumatoid arthritis. This, however, was contrary to other findings (Naidoo, Lindeggar, & Mody, 2004).



For many PLWHA, coping with HIV may be facilitated by their social support networks (McDowell & Serovich, 2007). Previous studies on the impact of social support among PLWHA suggested that perceived social support might act as a buffer to stress-related crises, such as depression (Johnson et al., 2001; Silver, Bauman, Camacho, & Hudis, 2003) and may aid in psychological wellbeing (Hays, Chauncey, & Tobey, 1990; Serovich, Kimberly, Mosack, & Lewis, 2001). Also, past studies in the US provided evidence that perceived social support was inversely associated with levels of perceived stigma (Galvan, Maxwell Davis, Banks, & Bing, 2008). Ross and Srisaeng (2005) found that higher social support reported by HIV-positive pregnant women in Thailand was associated with a lower level of perceived stigma. Social support did not seem to be strong as most patients did not disclose their HIV status (Nair, 2008).

Presence of adequate social support has been implicated as a protective factor for depression (Sheeber, Hops, Alperly, Davis, & Andrews, 1997; Stice, Ragan, & Randall, 2004), and it has been associated with a better long-term outcome after an episode of depression (Brugha,

Bebbington, Stretch, MacCarthy, & Wykes, 1997; Lara, Leader, & Klein, 1997). Some studies have shown that social support may protect not only against first episodes of major depression but also against recurrent episodes. However, other studies have suggested that there is overlapping genetic vulnerability to both recurrent depression and too low social support, and thus there is not a directly causal relationship between these two variables (Burcusa & Iacono, 2007).

Wilhelm and colleagues (1999), in a retrospective study of 164 individuals, found that those with two or more past episodes of depression reported less adequate social support in their lives, compared to those with only one episode of depression or those with no previous episodes. In a prospective study, Lewinsohn and colleagues (1988) also found that having few or no social supports at intake prospectively predicted having an episode of depression (a recurrent episode in 90% of the subjects) during the eight-month follow-up period, but only for female and not male participants. These studies seem to indicate that social support is protective against recurrent episodes of depression (Burcusa & Iacono, 2007). Alternatively, other studies have found opposite results, although they have some significant methodological differences that could account for their divergent findings (Burcusa & Iacono, 2007).

3.6. The relationship between disease characteristics and depression in PLWHAs

HIV is a virus which causes the chronic disease AIDS which people have to live with and to which there is currently no cure (Brannon & Feist, 2000). There are four stages of HIV which are characterised by the Primary Infection/Acute HIV stage which is stage one, stage two is the Clinically Asymptomatic stage, stage three, the Symptomatic Infection stage and the final stage, stage four is the progression from HIV to AIDS. According to the Centers for Disease Control and Prevention (CDC, 2008), an AIDS diagnosis can be given

to an individual with HIV who has a CD4 count of less than $200/\text{mm}^3$ or a history of what is called an AIDS-defining illness, such as an opportunistic infection, even if a previous HIV disease was not experienced (HIV Epidemiology Annual Report, 2015). Although individuals with CD4 counts under 200 are more likely to experience serious health problems, HIV-related symptoms and health problems can occur at any time. Additionally, individuals with HIV often experience emotional distress as a response to having a fatal illness (Burack et al., 1993).

The individual's progression through the various stages of the disease has been known to increase the likelihood of depression. Starace, Bartoli & Aloisi et al. (2002) and Atkinson et al. (2008) reported that major depression rates are low in patients whose disease has not evolved to AIDS or who have received HAART compared with those who did not receive it. Antakly and Malgebier (2006) studied 60 HIV positive women with AIDS symptoms and 60 HIV positive without AIDS symptoms. The prevalence of Major Depression (MD) was higher in the symptomatic group (38.3%) than in the asymptomatic group (13.3%). It has also been observed that depressive symptoms become more severe in the year preceding AIDS-associated death (Cook, Grey, Burke, et al., 2004; Leserman, 2008; Kilbourne, Justice & Rollman, 2002).

Some studies have found that rates of depression increase in the later stages of HIV infection (Maj et al., 1994, Rosenberger, Bornstein, Nasrallah, 1993; Hoover, Saah, Bacellar, Deres, Phair, 1992), while others have shown no consistent association between rates of depression and stage of HIV disease (Atkinson et al., 1988, Lyketsos & Federman, 1995). This raises the question of whether depression is a predictor or a result of disease progression. It seems that depression may be more likely to lead to clinical worsening of

disease than vice versa (Arseniou et al., 2014). An example of this is a study conducted by Lyketsos et al. (2004) which showed that depression was linked to the various HIV clinical stages. The effect of depression on HIV/AIDS is such that research has shown that a drop in CD4 counts can account for the development of depression but there have (Lyketsos et al., 1996) been no conclusive evidence to substantiate this (Olley et al., 2004). However as the manifestation of HIV and AIDS becomes clear within the increase of symptoms, it has been known to increase depressive symptoms (Olley et al., 2004).

3.7. The relationship between anxiety and depression and risk-taking behaviour in PLWHAs

The high prevalence of depression and anxiety as a co-morbid disorder among patients with general medical disorders has been extensively researched and is currently well known. Its impact on the individuals functioning has also been widely researched (Loonat, 2009). Collectively, anxiety and depression constitute the most frequently identified psychological symptoms reported by persons with HIV (Kalichman & Sikkema, 1994). Following an HIV diagnosis, elevated levels of fear and anxiety are to be expected and are often of clinically significant proportion (Triesman et al., 1994). One systematic review found that major depression was twice as prevalent in HIV-infected compared with HIV-uninfected individuals (Ciesla & Roberts, 2001) and individual studies have demonstrated that anxiety and substance abuse disorders are also more common among people living with HIV/AIDS (Bing, Burnam & Longshore et al., 2001; Sewell, Kathy, Rabkin, et al. 2000; Rabkin, Ferrando, Jacobsberg, et al., 1997). Prevalence of anxiety tended to be between 20% and 40% (Brandt, 2000). Persistent and chronic anxiety following notification of seropositive status affects about 20% of patients. This anxiety may evolve into a fully developed posttraumatic stress disorder. Denial or avoidant behaviours secondary to untreated HIV-related anxiety may diminish treatment compliance and interfere with the

medical management of HIV disease. Among HIV patients with diagnosed anxiety disorders, adjustment disorder with anxious mood seems to be the most prevalent (Kemppainen, MacKain & Reyes 2003).

Some studies show higher rates of anxiety in HIV-negative persons. In one example, Perkins and colleagues (1994) compared the lifetime and initial cross-sectional prevalence of mood disorders in a cohort of 98 HIV-positive and 71 HIV-negative men in a low AIDS prevalence area of the southeastern United States. Findings from this study reflected relatively low current and lifetime prevalence of anxiety disorders compared to those for depression. Seven percent of HIV-positive men and 13% of HIV-negative men reported a lifetime prevalence of anxiety disorders, whereas 29% of HIV-positive and 45% of HIV-negative individuals reported lifetime depression rates (Kemppainen et al., 2003).

Studies have also attempted to identify risk factors for the development of HIV-related anxiety. Dew and colleagues (1997) found that persons with a prior history of an anxiety disorder before their diagnosis of HIV are at higher risk for a recurrence of symptoms. Low partner support and a coping style indicated by low feelings of mastery or control over life events also increase the risk for the development of HIV-related anxiety. Johnson, Williams, Rabkin, Goetz, and Remien (1995) found a relationship between the onset of HIV-related anxiety and a pre-existing diagnosis of personality disorder. The researchers compared the prevalence of personality disorders in a group of 110 HIV-positive and 52 HIV-negative men. In both groups, 19% of the study participants were diagnosed with personality disorders. Participants in the HIV-positive group were more likely to have lifetime anxiety disorders and display greater levels of anxiety than were HIV-negative participants. The researchers concluded that the interplay of HIV disease

and personality disorders might interactively increase the likelihood of psychiatric symptoms, including anxiety (Kemppainen et al., 2003).

In South Africa, Olley, Gxamza, Seedat, Reuter and Stein (2003), Olley et al. (2004) and Gxamza, Seedat, Theron, Taljaard, Reid and Reuter (2003) have argued that psychiatric disorders be common among HIV/AIDS patients. The most common psychiatric diagnoses were anxiety disorders and depression which the researchers suggest may be related to the high levels of stigmatisation the patient's experience. It is safe to say that anxiety is commonly associated with depression, and a careful assessment to rule out depressive illness is critical (Fernandez, 2005).

In their studies, they found a high prevalence of mood disorder among men and women and increased alcohol and substance abuse and riskier sexual behaviour in men. This is common to other studies and is likely to be due to gender identity roles and related issues (Doyal, 1995). Olley et al. (2003) and Olley et al. (2004) examined psychopathology and psychiatric morbidity amongst HIV patients. The most prevalent psychiatric diagnoses were anxiety disorders and depression which the researchers suggest may be related to the high levels of stigmatisation the patient's experience (Loonat, 2009). Blumberg and Dickey (2003) found that adults with at least one of three psychiatric disorders, namely depression, generalised anxiety disorder and panic attacks, were more likely to partake in high-risk behaviours.

3.8. The relationship between adherence to HIV medication and depression in PLWHAs

Poor adherence to ART has also been consistently associated with depression (Mugavero, Ostermann, Whetten, et al., 2006; Gordillo, del Amo, Soriano, Gonzalez-Lahoz, 1999), as well as posttraumatic stress disorder (PTSD) and other anxiety disorders (Safren, Gershuny &

Hendriksen, 2003; Meade, Hansen, Kochman & Sikkema 2009; Vranceanu, Safren, Lu, et al., 2008). This is consistent with findings that mental health influences medication adherence in other chronic medical conditions (DiMatteo, Lepper & Croghan, 2000). Recent systematic reviews of both quantitative and qualitative research among PLWHA highlight the importance of depression, psychological distress, and other mental health concerns in influencing adherence (Ammassari, Trotta, Murri et al., 2002; Vervoort, Borleffs, Hoepelman & Grypdonck, 2007).

According to a study by Gordillo, del Amo, Soriano and Gonzalez-Lahoz (1999) sociodemographic and psychological factors influence the degree of adherence to antiretroviral therapy. It was found that non-intravenous drug users and younger individuals tend to have a poorer compliance, as well as subjects with depression and lack of self-perceived social support. A study conducted by Yun, Maravi, Kobayashi, Barton and Davidson (2005) found that ARV regimens for HIV/AIDS infected patients require strict adherence, and untreated depression was associated with non-adherence to medication (Yun et al., 2005). Untreated depression could lead to self-medication of depressive symptoms with alcohol or illicit drug use, which also can be associated with poorer HIV treatment adherence (Wenger, Gifford, Lui et al., 1999) and therefore, ostensibly, to poorer clinical outcomes (Tucker, Burnam, Sherbourne, Kung & Gifford, 2003).

Numerous issues interfere with HIV and AIDS infected individual's ability to comply with complicated medication regimens. Barriers to medication compliance include a lack of understanding of the long-term results of noncompliance, myths, and misunderstandings about the effectiveness and necessity of medication, side-effects of the medication, distrust of

the medical community, conflicts with lifestyle choices, substance abuse, and mental health illness (Boyd-Franklin, Steiner & Boland, 1995).

3.9. The relationship between sexual risk-taking behaviour and depression in PLWHAs

Poor mental health is one of the leading causes of disability in low-income countries, with depression constituting the heaviest disease burden (Patel, 2007). The HIV epidemic may contribute to increased depression rates in countries having high HIV prevalence: HIV may lead to depression both in persons who live with HIV (Ciesla & Roberts, 2001; Kaharuza et al., 2006) and in those who are indirectly affected (Chipimo & Fylkesnes, 2009; Myer, Seedat, Stein, Moomal & Williams, 2009; Bolton, 2004). An association between depression and sexual risk behaviours is thus particularly relevant in low-income countries with high HIV prevalence (Lundberg et al., 2011)

In high-income countries, poor mental health has been closely linked to risky sexual behaviours (Ramrakha, Caspi, Dickson, Moffitt & Paul, 2000). For instance, longitudinal studies from the United States suggest that depressive symptoms contribute to sexual risk behaviours (multiple sexual partners, unprotected sex) in the general population, with potential mechanisms including maladaptive coping, low self-efficacy, and self-destructiveness (Shrier, Harris & Beardslee, 2002; Lehrer, Shrier, Gortmaker & Buka, 2006; DiClemente et al., 2001). Depression has been linked to low rates of condom use, casual relationships, multiple sex partners, rapid accrual of partners over time, and exchanging sex for money or drugs (DiClemente, Wingood, Crosby, et al, 2001; Shrier, Harris, Sternberg, et al., 2001; Williams, Latkin, 2005; Ramrakha, Caspi, Diskson, et al., 2000; Beck, McNally, Petrak, 2003; Johnson, Cunningham-Williams, Cottler, 2003; Perdue, Hagan, Thiede, et al, 2003). This association has been found in diverse samples (Ramrakha et al., 2000; Shrier, Harris &

Beardslee, 2002; Berenson, Breitkopf & Wu, 2003; Kosunen E, Kaltiala-Heino R, Rimpela M, et al. 2003; Brooks, Harris, Thrall, et al., 2002; Burns, Cottrel, Perkins, et al., 2004) and settings (Johnson et al., 2003, Perdue et al. 2003; Carey, Carey, Maisto, et al., 2004; O'Leary, Purcell, Remien, et al. 2003; Catania, Pollack, Stall, et al., 2001; Kalichman, Sikkema, DiFonzo, et al., 2002) It is likely a bi-directional phenomenon: fractious relationships and lack of intimacy are often the reported origins of depressed mood (Burns, Sayers, Moras, 1994; Eaton, 2001) High-risk behaviour and depression work synergistically to inhibit coping efforts regarding risk recognition, stress reduction or significantly, behaviour change (Williams, Latkin, 2005; Shrier et al., 2002; Hays, Paul, Ekstrand et al., 1997). However, conclusions derived from findings in high-income countries may not apply to low-income settings. Sexual behaviours vary widely between and within countries and are determined both by context and individual factors (Wellings et al., 2006). In many sub-Saharan African low-income countries, contextual factors such as poverty/wealth, mobility, and gender inequality heavily influence sexual behaviours (Wellings et al., 2006; Gillespie, Kadiyala & Greener, 2007; Barnighausen, Hosegood, Timaeus & Newell, 2007; Jewkes et al., 2006; Gupta, Parkhurst, Ogden, Aggleton & Mahal, 2008). In contrast, in high-income countries, the personal choice may have a greater influence.

Evidence exists to support a potential U-shaped relationship between sexual risk behaviour and depression, with increased sexual risk behaviour associated with moderate but not severe depression (Chesney, Koblin, Barresi, et al., 2003; Rogers, Curry, Oddy, Pratt, Beilby, Wilkinson, 2003; Reisner, Mimiaga, Skeer, et al., 2009). To our knowledge only a few studies have previously investigated the association between poor mental health and sexual risk behaviours in the general population in sub-Saharan African countries: In South Africa, depressive symptoms predicted transactional sex and intimate partner physical and sexual violence in women, and inconsistent condom use in men (Mullins, Whitelaw, Cooke, Beck,

2000), while cross-sectional associations with sexual risk behaviours have also been found (Mullins et al., 2000; Gardner, Maravi, Rietmeijer, Davidson & Burman, 2008) . In Botswana, cross-sectional associations were found between depressive symptoms and having multiple partners among women, and with paying for sex among men (Chesney, Ickovics, Chambers et al., 2000). Also, South Africa and Botswana are both middle-income countries, and to the researcher's knowledge, no population-based study has investigated the association between poor mental health and sexual risk behaviours in a low-income sub-Saharan African setting.

The HIV research field has traditionally considered sexual risk behaviours and adherence to antiretroviral medication and HIV care separately. However, because both behaviours contribute to the spread of HIV infection and share common correlates, integration of the two has recently been advocated (Kalichman, 2008). In particular, people with psychiatric disorders, including depression and substance use, are more likely to engage in unprotected sexual intercourse, despite knowing their HIV status (Bradley, Remien, Dolezal, 2008; Ryan, Forehand, Solomon, Miller, 2008; Bousman, Cherner, Ake, et al., 2009; Valverde, Cassetti, Metsch, et al., 2009), and are more likely to have poor adherence to antiretroviral therapy (Mugavero, Ostermann, Whetten, et al., 2006; Gordillo, del Amo, Soriano, Gonzalez-Lahoz, 1999). Moreover, difficulties attending regular clinic appointments (Mugavero, Lin, Willig, et al., 2009; Mellins, Kang, Leu, Havens, Chesney, 2003; Rajabiun, Mallinson, McCoy, et al., 2007), which can result in an inability to suppress viral load and therefore a greater likelihood of transmitting the virus to others (Flaks, Burman, Gourley, Rietmeijer, Cohn, 2003; Chakraborty, Sen, Helms, et al., 2001; Porco, Martin, Page-Shafer, et al., 2004; Mugavero, Lin, Allison, et al., 2009). A failure to address these behaviours together may result in a missed opportunity for effective secondary HIV prevention.

It is further suggested that it be recognised that to treat a physical disorder, such as HIV, attention must be paid to the individual's mental health given that mental health issues often develop during times of major physical illnesses, regardless of the presence or absence of effective treatment (Griffin, 2008). According to a study conducted by Valente (2003), treating depression can significantly reduce the possibility of the rapid spread of this disease. Poor treatment of depression, however, can lead to increased rates of high-risk behaviours, such as substance abuse and high-risk sexual behaviours, increasing the risk of acquiring other sexual diseases, and transmitting HIV infection (Cook et al., 2004). For example, it has been found that of the 140 participants in a study conducted in Argentina that due to depressive symptoms being present, it lead to the improper and inconsistent use of condoms which poses a significant risk factor in the spread of HIV (Valverde et al., 2009). Inadequate treatment of depression in HIV-positive people can also be explained by the reluctance of some clinicians to prescribe antidepressant therapy in patients with certain characteristics such as low educational level or in patients of minority ethnic groups (Griffin, 2008).

Many studies have found that depression symptoms are associated with greater sexual risk behaviours among PLWHA (Bradley et al., 2008; Ryan et al., 2008; Bousman et al., 2009; Valverde et al., 2009) and those at risk of HIV infection (Hutton, Lyketsos, Zenilman, Thompson, Erbelding, 2004; Reisner et al., 2009; Klein, Elifson, Sterk, 2008). Anxiety disorders, including social anxiety and posttraumatic stress, are also associated with increased sexual risk behaviours (Hart, James, Purcell, Farber, 2008; Reyes, Robles, Colon, 2007; Hutton, Treisman, Hunt, et al., 2001; Reisner et al., 2009). While two meta-analytic reviews of the literature found no relationship between negative affect (measured as depression or anxiety symptoms) and sexual risk behaviour (Crepaz & Marks, 2001; 2002), the range of effect sizes across studies was $-.41$ to $.55$. A relatively even distribution was displayed with a third of studies showing little effect, a third showing significant adverse consequences, and a

third showing significant positive effects, suggesting important mediators and moderators may have been overlooked. Further, many of these studies used cross-sectional designs and global measures of affect, which may underestimate the influence of mental health because affect itself fluctuates. Additionally, global measures do not accurately identify clinically significant mental health problems and thus may not capture the relationship between psychiatric disorders and sexual risk (Kalichman & Weinhardt, 2001).

3.10. The impact of depression on the individual

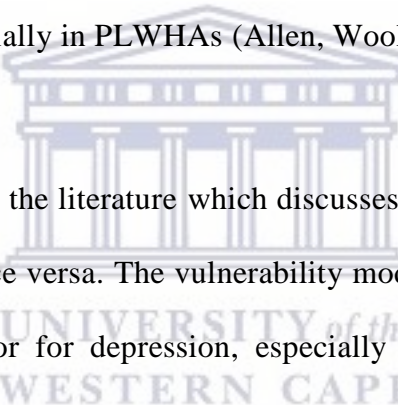
Individuals develop depression because they evaluate the situation that they are in as life threatening. A negative perception is a risk factor for the onset of depression (Brannon & Feist, 2007). Depression is viewed as a sense of loss or having less of or the absence of not being able to achieve desired rewards. Distorted automatic thoughts consist of the belief that the individual is a failure and is worthless. An event that occurs is processed through these automatic thoughts and this result in the onset of depression and thus resulting in decreased motivation in pursuing behaviour that brings about rewards (Corey, 1991). Maladaptive assumptions are primarily the belief that future expectations will not be achieved and the future is thus perceived as negative. Negative schema's as described by Beck (1976) is that process that occurs cognitively within a given situation where loss or failure is experienced. Earlier negative concepts of the self are then triggered. Schemas reflect core beliefs about the self, such as that the self is unlovable, helpless, vulnerable to abandonment or incompetent" (Leahy & Holland, 2000, p.18). Psychological factors play a major role where life events such as being diagnosed with HIV and AIDS are concerned as it would often determine how the individual interprets these events. Psychological factors include cognitive styles, the interpretation of the event and how the individual perceives of

themselves. The more negative the psychological factors are, the higher the likelihood of developing depression (Hamen, 2005).

According to Habib and Rahman (2010), HIV/AIDS threatens the individual's psychological survival because of the close link between the body and the self. Our body is important to the self-image and self-esteem. When HIV/AIDS attacks the body, fear of losing one's self and self-esteem and ultimately dying psychologically is evoked, along with the fear of physical death.

Many theories of depression postulate that low self-esteem is a defining feature of depression (Abramson, Seligman, & Teasdale, 1978; Beck, 1967; Blatt, D'Afflitti, & Quinlan, 1976; Brown & Harris, 1978). Indeed, numerous studies have documented strong concurrent relations between low self-esteem and depression (Joiner, Katz, & Lew, 1999; Kernis, Grannemann, & Mathis, 1991; Lewinsohn, Hoberman, & Rosenbaum, 1988; Roberts & Monroe, 1992). Most of the literature concentrates on the evaluative dimension of self-concept, partly because of the strength and pervasiveness of the self-esteem motive. Much of the literature finds self-esteem and self-concept being used interchangeably. Self-concept is, in essence, the evaluative component of self-esteem. As a result, self-esteem has been related to almost everything at one time or another (Crandall 1973:45), and therefore, in this chapter, the relationship between depression and other variables in relation to self-esteem more than for self-concept is discussed. In most research areas, low self-esteem is associated with undesirable outcomes, such as greater propensity to engage in delinquent behaviour or lower academic interests, aspirations, and achievements. High self-esteem is viewed as having favourable consequences, but the research literature is by no means clear on this point.

Self-concept is a factor that has promise in acting as a means of coping with the effects of depression (Robles-Piña, 2011). There have been a few studies which concluded that low self-concept is associated with depression in an opposite manner; in other words, as self-concept decreases, depression rates go up (Modrcin-Talbott, Pullen, Ehrenberger, Zandstra, & Muenchen, 1998; Siegel, Yancey, Aneshensel & Schuler, 1999; Steffenhagen & Steffenhagen, 1985; Robles-Piña, DeFrance & Cox, 2008). Several theorists have described cognition, especially cognition related to the self, as fundamental to the onset and maintenance of depression (Abramson et al., 1978; Beck, 1967; Higgins, 1987; Ingram, 1984; Teasdale, 1983). However, the nature of this relation - specifically, the temporal order - remains unclear, especially in PLWHAs (Allen, Woolfolk, Gara, & Apter, 1996).



Two dominant models exist in the literature which discuss the relationship between self-esteem and depression and vice versa. The vulnerability model hypothesizes that low self-esteem serves as a risk factor for depression, especially in the face of the main life stressors (Beck, 1967; Butler, Hokanson, & Flynn, 1994; Metalsky, Joiner, Hardin, & Abramson, 1993; Roberts & Monroe, 1992; Whisman & Kwon, 1993). For example, according to Beck's (1967) cognitive theory of depression, negative beliefs about the self—one of three central components of depressive disorders - are not just symptomatic of depression but play a critical causal role in its aetiology. In contrast, the scar model hypothesises that low self-esteem is an outcome of depression rather than a cause.

Specifically, depression is assumed to persistently deteriorate personal resources such as self-esteem, even after remittance of a depressive episode; that is, episodes of depression may leave scars in the individual's self-concept that progressively chip away at self-esteem over time (Coyne, Gallo, Klinkman, & Calarco, 1998; Rohde, Lewinsohn, &

Seeley, 1990; Zeiss & Lewinsohn, 1988). Thus far, the extant research has not provided clear support in favour of either the vulnerability model or the scar model, in part because the scar model has rarely been tested empirically and in part because the two models have seldom been pitted against each other in the context of a single study.

3.11. The effect of self-esteem on depression

Numerous studies have investigated the prospective effect of self-esteem on depression (controlling for prior levels of depression), but not the effect of depression on self-esteem (and thus they have addressed only the vulnerability hypothesis). In a study using a large community sample of adults, self-esteem significantly predicted depression across a 9-month interval, even after controlling for the occurrence of stressful life events and other variables (Lewinsohn et al., 1988, reanalyzing data reported in Lewinsohn et al., 1981). In another study using a large sample of adults, Fernandez, Mutran, and Reitzes (1998) found that self-esteem predicted depression scores two years later, especially among participants who reported that stressful life events occurred during the time interval. Abela et al. (2006), using a community sample of adults with a history of major depression, found that self-esteem, in interaction with the occurrence of daily hassles, predicted depression at several time points during the following year.

Rosenberg (1965) argued that self-esteem was associated with many psychological variables as well as behavioural ones. He suggested, for example, that when compared to adolescents with high self-esteem, those with low self-esteem were more depressed, less satisfied with life and scored highly on anxiety, aggression, and irritability. Bolognini and colleagues (1996) noted that self-esteem was a determining variable in the mental health of early

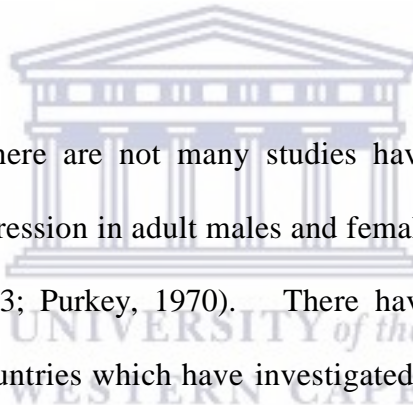
adolescence and that adolescents with low self-esteem tended to report significantly higher scores on depression. Bolognini et al. (1996) also revealed that males demonstrated a higher correlation between self-esteem and mental health than did females. Females, however, reported more problems with depression and anxiety than males. Such a relationship between mental health and self-esteem was supported by the findings of Byrne (2000).

Shin (1993) found that when cumulative stress, social support, and self-esteem were introduced subsequently in regression analysis, of the latter two, only self-esteem accounted for significant additional variance in depression. Also, Brown et al. (Brown et al., 1990) showed that positive self-esteem, although closely associated with inadequate social support, plays a role as a buffer factor. Alternatively, another study indicated that when examining the role of life events and difficulties, it was found that total level of stress interacted with low self-esteem in predicting depression, whereas self-esteem alone made no direct contribution (Miller et al., 1989). To conclude, results of cross-sectional and longitudinal studies have shown that low self-esteem is predictive of depression.

3.12. The effects of depression on self-esteem

Besides the two studies testing the reciprocal effects of self-esteem on depression mentioned above, the researcher is not aware of any studies that have examined the effects of depression on subsequent level of self-esteem after controlling for prior levels of self-esteem. Despite the previous research efforts, the temporal sequence of self-esteem and depression is still unclear because most of the studies examined only the vulnerability hypothesis, not the scar hypothesis.

The two studies that investigated the scar hypothesis resulted in inconsistent findings (Ormel et al., 2004; Shahar & Davidson, 2003). Moreover, these studies were conducted over a relatively short period, and one of them was based on a highly select sample (i.e., individuals with severe mental illness; Shahar & Davidson, 2003), which is of important clinical interest but may not generalise. It is unclear why these studies yielded different results because they differ in so many respects, including sample characteristics (e.g., age and education level), design characteristics (e.g., time intervals between assessments and measures used), and data analytic procedures (e.g., statistical analyses to estimate effects across repeated time intervals and control for content overlap between self-esteem and depression measures).



The researcher found that there are not many studies that have looked at the relationship between self-concept and depression in adult males and females living with HIV and AIDS (Jordan, 1981; Mwaniki, 1973; Purkey, 1970). There have been numerous studies in developed and developing countries which have investigated the medical, behavioural and psychosocial factors affecting people living with HIV and AIDS (PLWHA). However, self-concept as a specific psychological construct has been neglected in psychological research among PLWHA. The assessment of self is important as it influences many areas in a person's life (Kimani, Cheboswony, Kodero & Misigo, 2009).

Self-concept has a significant effect on the state one is in, including the risk of being in a depressive state. Previous research that does exist indicates a strong correlation between self-concept and depression in the general population. Negative self-concept has the possibility to impact or indicate depression (Burwell & Shirk, 2006; Cole & Jordan, 1995; Cole et al., 1998; Hoffman et al., 2000; Keyes, 2006; Schwartz et al., 2006). Cole et al. (1999) also found that unlike self-esteem, this relationship is uni-directional, not bi-

directional. Also, several studies have concluded that low self-concept is associated with depression in an opposite manner; in other words, as self-concept decreases, depression rates go up (Modrcin-Talbott et al., 1998; Siegel et al., 1999; Robles-Piña, DeFrance & Cox, 2008).

3.13. The formation of the self-concept

Assessing the notion of self has proved problematic, not least because confusion over the definition of “self” terms has led to the interchangeability of terminology where self-concept, self-image, and self-esteem are frequently employed synonymously and indiscriminately (Haney & Durlak, 1998; Hughes, 1984; McGuire, 1994). Harter (1983) suggested terms used to describe the self are simplistic prefixes rather than legitimate constructs and Wylie (1989) argued the wide use of terminology has rendered much of the literature uninterpretable. Fortunately, recently there has been an emerging clarification of terms with self-concept referring to a global, over-arching presentation encompassing facets such as affective, behavioural, and cognitive constituents (Byrne, 1983); self-esteem relating to an evaluative aspect of self (Blascovich & Tomaka, 1991; Butler & Green, 1998) and self-image referring to descriptive characteristics available to an individual in defining self (Butler & Gasson, 2005). There is a vast array of self-concept/self-esteem scales for adults with Blascovitch and Tomaka (1991) suggesting at least 200 published measures, yet most, according to Keith and Bracken (1996), are one-offs, used in idiosyncratic research studies and appear fleetingly in the professional literature. Hattie and Marsh (1996) detailed minimum criteria for assessing the quality of such scales and felt most lacked “credibility.” A literature search of self measures for adults over the last 20 years revealed 1, 226 articles referring to measurement of the self (Butler & Gasson, 2005), the most frequently endorsed being the Self-Esteem Scale (SES) by Rosenberg (1965), Tennessee Self-Concept Scale (TSCS) by Fitts and Warren

(1996), and the Self-Esteem Index (SEI) by Coopersmith (1981). Butler and Gasson (2005) highlighted some of the problems with the administering of these instruments. Many articles lack a distinct theoretical stance but draw directly or implicitly on a multidimensional and hierarchical model proposed by Shavelson and Bolus (1982).

Critically most published scales of self-concept/self-esteem have been developed and psychometrically validated on small, geographically limited samples, with arguably little correspondence with a national census, thus, creating significant problems in generalisation (Butler & Gasson 2006). The main factors determining the formation of the self-concept of an individual are the environment as well as people with whom the individual lives, who play a very crucial role in the moulding of the self-concept (Kimani et al., 2009). These people are called the significant others, and they include parents, teachers, peers, and sibling. Johnson-Pynn et al. (2003) claim that people describe a given individual regarding various personality traits and when these traits are consistently applied, the person often accepts them as descriptions of him or her (Kimani et al., 2009).

The self-concept is not restricted to the present. It includes past selves and future selves. Future selves or possible selves represent individuals' ideas of what they might become (Adetoro, Oyefuga, & Simisaye, 2010). Possible selves may function as incentives for future behaviour. Moreover, they also provide an evaluative and interpretive context for the current view of self (Markus & Nurius, 1986). Self-concept is crucial in explaining and predicting how a person acts. A person's perception of himself is thought to influence the way he acts. Moreover, his acts, in turn, influence the way he perceives himself (Shavelson, Hubner & Staton, 1976).

A positive self-concept has been postulated to be central to adaptive functioning (Harter, 1990). Theoretically, it has been presumed that high self-esteem enhances independence, responsibility, frustration tolerance, and confidence in tackling new tasks (Heatherton & Wyland, 2003) whereas low self-esteem leads to psychological distress (Tennen & Affleck, 1993). Empirically high self-esteem is associated with greater autonomy, sense of mastery, positive relations with others, and self-acceptance, which might globally be thought to constitute “well-being” (Paradise & Kernis, 2002). In a review of the clinical field, Emler (2001) suggests those with low self-esteem are likely to show depression, become pregnant during teenage years, have suicidal thoughts, experience unemployment (male), have eating disorders (female), and have difficulty in forming and sustaining social relationships (Butler & Gasson, 2006).



Recent research has shown that the repertory grid method devised by Kelly (1955) is a useful technique for mapping the way a person who is diagnosed with depression structures his or her world and how the self is seen in this world. Rowe (1971) investigated self-esteem in depression and reported that the grid findings confirmed clinical observations of low self-esteem in patients who were diagnosed as being depressed. Sheehan (1981) compared the grids of patients who were diagnosed with depression and a non-hospitalized control group and found some significant differences. The chief of these was, firstly, that the group who were found to have depression had a significantly greater distance between actual and ideal self, secondly, they had a higher percentage of the variance accounted for by the first principal component and, thirdly, they showed more negative emotions than controls (Axford & Jerrom, 1986).

According to Axford and Jerrom (1986), individuals who were diagnosed with depression had significantly poorer self-esteem as measured by their repertory grids, and also showed a

significantly more negative social perception of themselves. Social perception can be measured in grid methodology by the distance between self and non-self elements, a greater mean distance representing more negative social perception (Hewstone et al., 1981). However, it is possible that these cognitive phenomena are a characteristic of ill psychiatric illnesses rather than specific to depression. It has been suggested that individuals ‘who are depressed usually paint the bleakest picture of their background’ (Kovacs & Beck, 1978, p. 527) and recall only negative aspects of their past. Negative beliefs about the self, the world, and the future are common during an episode of depression (Axford & Jerrom, 1986). According to Beck’s influential cognitive theory, individuals who hold negative self-schemas when otherwise well are vulnerable to developing depression in the future (Beck, 1967). However, results from studies investigating negative self-schemas and depression have been conflicting. Cross-sectional studies have found a robust association, but negative self-schema scores improve when people with depression recover (Haaga et al., 1991; Scott et al., 1995). One explanation that negative self-schemas are only elicited during a period of normal lowering of mood (Teasdale & Cox, 2001) is supported by experimental mood induction studies (Kelvin et al., 1999). However, as no large prospective study of negative self-schemas has been conducted in nondepressed populations, the need for application of the cognitive theory is uncertain (Evans, Heron, Lewis, Araya, Wolke, 2005).

Beck has postulated in his cognitive theory of depression that ‘the affective response is determined by the way an individual structures his experience’ (Beck, 1964, p. 567). The fundamental postulate of George Kelly’s theory of personality is similar to Beck’s; ‘A person’s processes are psychologically channelized by the ways he anticipates events’ (Kelly, 1963, p. 48). Both theories are based on clinical observations. Central to Beck’s theory is the observation that the depressed individual displays a negative view of the self, the world, and the future (Axford & Jerrom, 1986).

The final possible self-considered in this study, the future self, how one sees oneself in the future, is derived from Beck's cognitive theory of depression. Beck hypothesised that a negative cognitive triad made up of negative perceptions of the self, the future, and the world characterises the thinking of depressed individuals (Beck, 1967; Beck et al., 1979). Empirical research has supported the view that depressives are pessimistic and self-evaluative regarding their futures. Some investigators have found that depressed subjects view negative events as more likely and positive events as less likely to occur than do non-depressed subjects (; Pyszczynski et al., 1987). Pietromonaco and Markus's data (1985) showed that a depressed group thought sad events more likely than did control subjects.

Up to this point, it is clear that self-esteem in relation to depression may have been well-researched in adolescents and other groups, but that self-concept and implicative dilemmas, in particular, have been under-researched and may be significant predictors of depression and risk-taking behaviour. The relationship between self-concept, gender, and risk-taking behaviour specifically is explored next with depression as the common thread running through all the relationships which are discussed.

3.14. The relationship between self-concept and gender

Although the literature states that girls have more negative self-concepts than boys, empirical studies testing this hypothesis have produced mixed results (Nolen-Hoeksema & Girgus, 1994). Several studies have found no gender differences in self-esteem, self-concept, or dysfunctional attitudes. Those studies that did find gender differences, however, tend to show that girls have poorer self-concepts than boys. Again, negative self-concepts could contribute directly to depression, and could interact with stressors to contribute to depression. Negative

self-concept has been shown to predict increases in depression in some studies of children (Nolen-Hoeksema & Girgus, 1994).

3.15. The relationship between self-concept and risk-taking behaviour

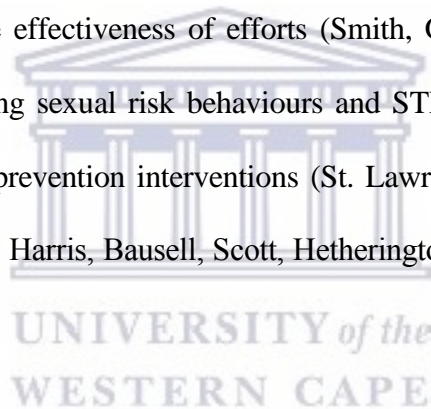
The relationship between negative mood states and high-risk behaviours might be mediated by cognitive factors such as self-concept and implicative dilemmas. Being infected may affect mood states which in turn might affect an individual's ability to consistently make rational decisions about safe sex which may then at times lead to high-risk sexual behaviours and eventually lead to HIV/AIDS transmission (Binson et al., 1993).

The importance of the self-concept in understanding risky behaviours has been widely recognised both in the theoretical and empirical literature but specifically in adolescents only (Stein, Roeser & Markus, 1998). At least three models of the relationship between the self-concept and risky behaviours have been addressed. By far the most extensively researched model focuses on the self-concept as an antecedent of adolescent risky behaviours. One large group of studies based on this model defines the self-concept as a single, unidimensional structure referred to as self-esteem. In these studies, self-esteem is conceptualised as a stable personality characteristic that directly influences engagement in risky behaviours. Studies that examined the effects of self-esteem on a variety of risky behaviours including tobacco, alcohol, and drug use and precocious sexual activity found no or only small associations between self-esteem and risky behaviours (Dielman, Campanelli, Shope, & Butchart, 1987; Maton & Zimmerman, 1992; Simmon, Sussman, Dent, Burton, & Flay, 1995; Webster, Hunter, & Keats, 1994).

The second group of studies focused on the self-concept as a mediator between biological, social, and cultural antecedents and risky behaviours. In this work, the emphasis shifted from the overall evaluation of oneself (i.e., self-esteem) to the specific contents of the conceptions that comprise the self-concept. Oyserman, Gant, & Ager (1995) found that both ethnic background and gender shaped the contents of current and future-oriented self-conceptions in middle school adolescents and that these differences affect persistence and success in school. Irwin and Milstein (1986) argue that individual differences in biological maturation shaped the contents of the emerging self-conceptions in adolescents, which in turn, impact risk perception, peer group selection, and engagement in risky behaviours.

A final but much less common approach focused on the self-concept as a consequence of engagement in risky behaviours. Jessor (1991) conceptualised an inadequate self-concept as one of the health-compromising outcomes stemming from the risk-taking lifestyle. In this model, biological, psychological, and sociocultural factors directly affect engagement in risky behaviours, and the engagement in the risky behaviours, in turn, shapes emerging conceptions of the self and, ultimately, contributes to the stabilisation of the risky behaviours. In contrast to studies that seek to explain involvement in a single, isolated risky behaviour, Jessor's model focuses on a collection of risky behaviours. Based on studies that have shown that risky behaviours are highly inter-correlated in adolescent and young adult populations (Donovan & Jessor, 1985; Donovan, Jessor & Costa, 1988), Jessor's model focuses on a "syndrome or organised constellation of behaviours" (1984, p. 76). Furthermore, this model goes beyond the antecedents of the risky behaviours to consider their consequences and the role that the consequences play in the persistence of the behaviours over time.

Research has suggested that mental health problems, including depression and low self-esteem, may play a major role in the development and maintenance of sexual risk behaviours (Stiffman, Dore, Earls, Cunningham, 1992; Joffe & Radius, 1993; Shrier, Emans, Woods & DuRant, 1996; Seal, Minichiello & Omodei, 1997; Pao, Lyon, D'Angelo, Schuman, Tipnis & Mrazek, 2000). Self-esteem, the perception of self-worth or positive feelings about oneself, is considered another important indicator of mental health. Limited research exists on the relationship between self-esteem and sexual risk behaviour (Rotheram-Borus, Rosario, Reid, Koopman, 1995; Walter, Vaughan & Cohall, 1991); studies of adolescents and adults, primarily women, have shown conflicting results; and both high and low self-esteem have been associated with sexual risk behaviour (Seal et al., 1997; Rotheram-Borus et al., 1995; Walter et al., 1991; Rosenthal, Moore & Flynn, 1991). Although the effectiveness of efforts (Smith, Gerrard & Gibbons, 1997), to improve self-esteem in reducing sexual risk behaviours and STDs is unclear, self-esteem has been a focus of several STD prevention interventions (St. Lawrence, Eldridge, Shelby, Little, Brasfield, & O'Bannon, 1997; Harris, Bausell, Scott, Hetherington & Kavanagh, 1998; Ford & Koetsawang, 1999).

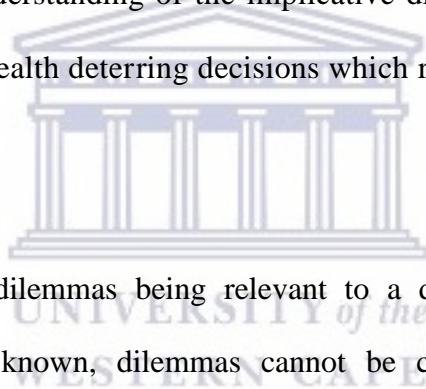


Health behaviour theories, including Social Cognitive Theory (Bandura, 1986), the Theory of Planned Behaviour (Ajzen, 1985), and Problem Behaviour Theory (Jessor & Jessor, 1977), provide possible mechanisms by which depression and self-esteem may affect sexual risk behaviour, both directly and mediated through substance use. These theories emphasise the importance of cognitive-affective factors, such as self-efficacy, risk perceptions, and attitudes, in risk behaviours. Through negative schemata and attributions (Beck, 1976; Rehm, 1977; Abramson, Seligman & Teasdale, 1989) depression and low self-esteem may predispose one to sexual risk by influencing these constructs. Furthermore, the theories suggest that problem behaviours, including both substance use and sexual risk, are determined by dynamic and

reciprocal interactions with personality characteristics, such as depression and self-esteem, and environmental factors, such as societal expectations. Youth who participate in problem behaviours may be oriented toward psychosocial unconventionality (Jessor & Jessor, 1977; Costa, Jessor, Donovan, Fortenberry, 1995) and be more likely to have been experiencing alienation and impaired social functioning.

3.16. The relationship between implicative dilemmas and depression

In the present research, by focusing on the relationship between an HIV-infected individual's self-concept as a cognitive structure, following being infected with the HIV; one is able to provide an understanding of the implicative dilemmas that drives an HIV-infected individual to make health deterring decisions which result in increased risk-taking behaviours.



With regard to implicative dilemmas being relevant to a disorder like HIV/AIDS and depression, as far as it is known, dilemmas cannot be considered the cause or the consequence of any of them. This is evident by the bi-directional relationship between HIV/AIDS and depression. Nevertheless, the potential implications of the two conditions occurring together are many and can be devastating if not appropriately recognised or treated.

Montesano, Gonçalves & Feixas (2015) assumed that implicative dilemmas (i) are conflicts among opposing parts of the self (discrepant and congruent constructs) that could lead to ambivalence and resistance to change (Engle & Arkowitz, 2008; Gonçalves, Ribeiro, Conde, et al., 2011), (ii) are often out of a client's awareness, and (iii) have personal meanings that serve a protective function against invalidation of core aspects of identity. A series of studies found consistent evidence for the relevance of IDs in major depression and dysthymia,

indicating significant differences between depressed and non-depressed individuals with regard to the presence and level of IDs (Feixas, Montesano, Compañ, et al., 2014; Feixas, Montesano, Erazo-Caicedo, Compañ, & Pucurull, 2014). Furthermore, the level of conflict predicted the same depressive clinical status as predicted by negative self-views, which indicates that IDs play a prominent role in the identity of depressive individuals (Montesano, Feixas, & Winter, 2014). Dorrough, Grice and Parker (2007) found modest significant correlations between percentages of ID as computed from a completed repertory grid, and depression, self-esteem and anxiety using a .20 salience criterion, and a significant correlation between percent of implicative dilemmas and anxiety using a .35 salience criterion. The study also found evidence that implicative dilemmas account for a statistically significant if modest, amount of variance in anxiety above and beyond the variance accounted for by actual/ideal self-discrepancies alone.

Though the Dorrough, Grice, and Parker (2007) study, in part, provides evidence in support of the theory that implicative dilemmas are associated with negative psychological well-being, the effect sizes were modest, at best. Additionally, the measures used to assess anxiety, depression, and self-esteem failed to reflect these concepts in a distinctly Kellian way. Two preliminary studies, one with a sample of mixed depressive disorders (Feixas et al., 2014) and another with dysthymic patients (Montesano et al., 2014), found higher percentages of clinical participants presenting with IDs as compared to controls. However, to the researcher's knowledge, a systematic evaluation of cognitive conflicts in major depression has not yet been conducted.

What follows is a review of one of the many preliminary studies which have recently been conducted (Feixas & Saúl, 2004). The different research centres participating in the MDP provide a central database with data regarding their subjects, and then these data are used for

various studies. As these are ongoing projects, the studies themselves need more refinements and more areas are presently being studied, such as the one in this study on PLWHAs, but no results or publications have been produced yet (Feixas & Saúl, 2004). In particular, a series of studies found that IDs were significantly more prevalent in depressive participants than in controls and that such cognitive conflicts were associated with the severity of patients' clinical complaints (Feixas, Montesano, Compañ, et al., 2014; Feixas et al., 2014; Montesano et al., 2014).

The area of social anxiety was one of the first areas to be investigated on the presence of dilemmas. However, no systematic and well-defined criteria to identify dilemmas had been used before (Feixas & Saúl, 2004). Díaz et al. (2001) conducted a study with a small number ($n = 13$, nine male, four female) of participants who had been diagnosed with social phobia, and compared them to a non-clinical group of 224 subjects regarding their cognitive conflicts (Feixas & Saúl, 2004). The results of the comparison found that three levels of conflict were established. The grids for subjects in the "no conflict" level (8% of the clinical and 20% of the non-clinical groups) did not yield implicative dilemmas (Feixas & Saúl, 2004). The grids in the "moderate conflict" level show implicative dilemmas (23% clinical, 17% non-clinical). Looking at the clinical group, only 8% (one subject) could be placed at the "no conflict" level while 46% were classified within the "high conflict" category (Feixas & Saúl, 2004). When looking at the number of implicative dilemmas, the average for those presenting with this type of conflict was much higher for the clinical group (9.92; $SD = 14.9$) than for the non-clinical group (1.65; $SD = 3.4$) (Feixas & Saúl, 2004). Thus, cognitive conflicts may or may not, play a role in subjects diagnosed with social phobia, however, it does seem likely. Also, for those whose conflicts can be identified in their grids, the degree of relevance of the conflicts might be different (Feixas, Saúl, Ávila, & Sánchez, 2001).

3.17. Conclusion

The literature was reviewed to get more insight and understanding on what the relationship is between HIV/AIDS and mental health globally and nationally. Following this was a discussion of the relationship between factors such as sociodemographic variables, disease characteristics, and psychosocial variables (anxiety) in relation to depression and, risk-taking behaviour wherever applicable. In describing the above, an attempt was made at highlighting the gap in research, which is, that the cognitive variables, namely self-esteem in relation to depression may have been well-researched in adolescents and other groups but that self-concept, and implicative dilemmas, in particular, have been under-researched and are significant predictors of depression and risk-taking behaviour in adults. Even though the relationships discussed have been under-researched in certain groups of people, it has never been explored in PLWHAs before.

Different sources were accessed to find the literature and these included the internet, textbooks, journal articles, newspaper articles, and unpublished theses of university students. The literature reviewed helped in the conceptualisation of and understanding of concepts such as co-infection of TB and HIV, knowledge, attitude and practice of PLWHAs, as well as cognitive concepts such as self-concept, self-esteem, and implicative dilemmas. The current understanding of these concepts was highlighted in this chapter, as were the findings from previous studies. Overall, the strengths and weaknesses of previous studies were identified where necessary to justify the choice of the topic of this study.

CHAPTER FOUR

METHODS

4.1. Introduction

The Methods chapter is important as it describes the exact steps that are undertaken to address the hypotheses or research questions, and uses clear strategy to address the aims. For this reason, the methods section follows logically from the statement of the problem in much the same way as research questions follow from the review of the literature. The goal of this chapter is to provide a clear and complete description of the specific steps to be followed.

4.2. Aims of the study

The first aim of the study is to construct a model that examines selected sociodemographic factors, disease characteristics, risk-taking behaviours, psychosocial factors such as anxiety and cognitive variables as predictors of clinical depression in PLWHA.

The second aim of the study is to construct a model that examines selected sociodemographic factors, disease characteristics, psychosocial factors such as anxiety and depression, and cognitive variables as predictors of risk-taking behaviours in PLWHA.

4.3. Research Design

The research design is the overall plan for connecting the conceptual research problems to the relevant (and achievable) empirical research (van Wyk, 2013). In other words, the research design articulates what data is required, what methods are going to be used to collect and analyse this information, and how all of this is going to answer the research question (van Wyk, 2013).

This study design was correlational, cross-sectional, non-experimental, and located within a quantitative research paradigm. Correlational studies simply measure variables (without manipulating them) and then analyses the data to see whether the variables are related. At best, there is an association between variables in the study. The shortcoming of all correlational studies, however, is that no causal conclusions can be drawn from them (Kerlinger, 1985).

A **cross-sectional** study examines the relationship between diseases (or another health-related state) and other variables of interest as they exist in a defined population at a single point in time or over a short period (e.g. calendar year) (Hennekens & Buring, 1987). Cross-sectional studies usually provide a snapshot of the frequency of a disease or other health-related characteristics (e.g. exposure variables) in a population at a given point in time (Hennekens & Buring, 1987).

The **non-experimental research design** was the ideal choice for this specific research. With non-experimental research there is no manipulation of the independent variable/s, no control group, nor is there use of randomisation.

A **quantitative research** paradigm was used because it is an objective, systematic process where numerical data is used to describe variables and examine relationships among variables in a study.

The participants were requested to answer specific questions to attain quantitative data, which in turn addressed the research aims and objectives. The research aims and objectives of the study were clearly outlined in Chapter One and further justifies the use of this research design.

The independent variables were: sociodemographic factors, disease characteristics,

psychosocial factors and cognitive variables.

The dependent variables or main outcomes of interest were: 1.) clinical depression for aim one and 2.) risk-taking behaviour for aim two.

A **mediator variable** is a variable that causes mediation in the dependent and the independent variables. In other words, it explains the relationship between the dependent variable and the independent variable (Barron & Kinney, 1986).

The mediator variables in this study were as follows: anxiety, risk-taking behaviour variables, and all the cognitive variables

The mediator variables are discussed in more detail in the section called ‘Data Collection Tools’.

4.4. Sampling

4.4.1. Sampling Method

A **non-probability, purposive sampling** method was used in the study. Non-probability sampling techniques, such as purposive sampling, can provide researchers with strong theoretical reasons for their choice of subjects to be included in the sample. Rather than using probabilistic methods (i.e. random selection) to generate a sample, non-probability sampling requires researchers to use their subjective judgments, drawing on theory (Trochim, 2006). A non-probability purposive sampling method was used as certain criteria needed to be met to be included in the study, but the participants had to be available and willing to participate in the research.

The practicality of non-probability sampling is that it can be particularly useful in exploratory research where the aim is to find out if a problem or issue even exists in a quick and

inexpensive way (Trochim, 2006). Its weakness, however, is that there is no way to estimate the probability of each patient being included in the sample (Rosenthal & Rosnow, 1991).

The fact that HIV is a sensitive issue with the relatively low prevalence and high-transmission rate meant that it is hard to use a probability random sampling technique in this study. Because the number of patients attending the clinic was relatively small, every patient was approached. However, only those who met the inclusion criteria were eventually included in the study.

4.4.2. Study Setting and Population

Demographics are the most recent statistical characteristics of a population. Commonly examined demographics include gender, race, age, disabilities, mobility, home ownership, employment status, and even location. Demographic trends describe the historical changes in demographics in a population over time (for example, the average age of a population may increase or decrease over time). Both distributions and trends of values within a demographic variable are of interest. Demographics are about the population of a region and the culture of the people there (www.studylib.net).

The study took place in a public health clinic in a township 40 kilometres away from Cape Town in a historically disadvantaged area. This clinic is a City of Cape Town (CCT) health facility.

For the purpose of this study, the latest data that is available which is the CCT 2011 Census data supplied by Statistics South Africa (Statssa) (Statssa, 2012) was used, as an approximation of the statistics that is currently available for this particular township. Based on the statistics by Statssa (2012), the population in this particular township is approximately 64 269 and the number of households is 20 751. The average household size is 3.10. A household can be defined as a group of people who live together and provide

themselves jointly with food or other essentials for living, or a single person who lives alone (Statssa, 2012).

According to Statssa (2012), the majority of the township is made up of predominantly Black African (96%), 2.7% are Coloured, and 1% comprise other. The gender profile of the predominantly Black African population in this area contains 49% males and 47% females. This township is made up of individuals between 15 to 64 years of age, with 19.7% of Black Africans ranging between 15 to 24 years and 48.6% of them ranging between 25 to 64 years. The minority age group is 65 years and older (1%). The majority of the individuals living in this township are isiXhosa speaking (86%).

According to Statssa (2012), concerning adult education among the Black Africans (for all aged 20 years and older) 1.8% had no schooling, 10.5% had some primary schooling, 4.9% completed primary school, and 50.4% had some secondary schooling. Only 32% of those aged 20 years and older have completed Grade 12 or higher. The economic profile of this community showed that the total unemployment rate is 39.53%. The unemployment rate is the proportion of the labour force that is unemployed. The labour absorption rate for this community was 41.76%. The labour absorption rate is the proportion of the working age (15 to 64 years) population that is employed.

Residents in this township live in shacks, that is, informal, makeshift homes made from waste cardboard, tins, planks, or anything that can provide shelter and protection from the wind and the rain. Further, many of these poor residents are affected by many social influences such as unemployment crime, poverty, overcrowded living conditions and HIV/AIDS.

One measure of poverty is the household subsistence level, below which households are unable to meet their basic needs for clothing, food, cleaning and transport. Any household

having a monthly income below R3 500 is regarded as living in poverty. According to Statssa (2012), this township is considered to be underprivileged with 77% of households having a monthly income of R3 200 or less, 51% of households live in formal dwellings, 39% live in informal dwellings/shack/not in a backyard and, 8.9% live in informal dwellings/shack in backyard.

Although the overall crime rate has shown a decline in Cape Town the level of crime and its associated social and psychological consequences, continue to be an area of concern. Of particular concern is the dramatic increase in drug-related crime especially in township areas such as this one. As high levels of crime can negatively affect the economy, this, in turn, can lead to rising poverty (Demographics and Socio-Economic Characteristics of Cape Town Report, April 2011).

Concerning health status, the incidence of HIV in Cape Town increased from 17% in 2005 to 18.2% in 2009. The incidence is higher than that in the Western Cape which was at 16.8% but significantly lower than that for South Africa at 29.4% in 2009.

The number of people with HIV registered for antiretroviral treatment (ART) increased from 17,646 in December 2006 to 52,141 in December 2009. In the same period, the number of facilities dispensing antiretroviral therapy (ART) increased from 28 to 50. These figures do not include treatment at private facilities (Western Cape Government Provincial Treasury, 2014).

A range of factors explains the high prevalence of HIV/AIDS in informal areas of the city. Some of the factors include poverty and unemployment which increases vulnerability to HIV, urbanisation resulting in social disintegration which increases risk-taking behaviour, inadequate services, sexual violence and rape, disempowerment of women, illiteracy and low levels of education (Bromfield, 2006).

4.4.3. Sample for this study

The participants in this study comprised Black South Africans only. The majority of the participants were isiXhosa speaking. Participants consisted of 142 adult males (n=32) and females (n=110) living with HIV and AIDS. The sample included participants who were either diagnosed with HIV or AIDS recently or who was already disease established, meaning they were diagnosed with AIDS in the year preceding the commencement of the larger study which was in 2009. The sample also included those who were preparing for ARVs at the time and were also in counselling as part of overall health and wellness promotion programme at the clinic.

4.4.4. Inclusion and exclusion criteria

The following inclusion criteria were applied for the selection of participants in the study: (a) at the time of data collection, all participants had received their HIV-positive diagnosis within the year preceding the study, (b) all participants had been diagnosed with HIV for more than month so as to exclude the possibility of Acute Stress Disorder, and to minimise recall bias, (c) only participants aged 18 years of age and older were included in the study, (d) participants were able to understand either spoken English or isiXhosa, and (e) participants were physically and psychologically capable of engaging in an interview and completing a battery of self-reported instruments. Patients with tuberculosis (TB) were also included because TB often co-exists with HIV as cellular immunity is compromised, especially in sub-Saharan Africa. Currently, Sub-Saharan Africa accounts for 79% of the burden of TB-HIV co-infections (Naidoo, Naidoo, Padayatchi & Abdool Karim, 2011). Of the estimated 9.3 million new cases of TB that occurred in 2007, 1.37 million (15%) were co-infected with HIV (Naidoo et al., 2011).

The exclusion criteria for sampling were psychotic symptoms, organic brain dysfunction, mental retardation and AIDS patients with neuropsychiatric symptoms and in the terminal stage of the disease and who were too ill to participate in the study. Other co-morbid conditions (for example, anxiety, personality disorders, cardiovascular disease (CVD), hypertension) were not excluded from the study and could have posed as potential confounders. We did not test for personality because the fact that mood is more closely related to self-report scores for personality disorders can be attributed most easily to method variance (i.e. people who are unhappy are more likely to describe themselves in negative ways).

The participants' health was considered a priority throughout the recruitment phase. This meant that if the potential participant was feeling physically unwell, either before or during the study, then they were excluded from or asked to exit the study.

4.5. Data Collection

Burns and Grove (2001, p, 49) define data collection as “the precise, systematic gathering of information relevant to specific research objectives or questions.” According to Burns and Grove (2001), the research objectives are accomplished with the instrument used.

Standardised tools which were utilised in the larger study were also used to collect data from each participant in this study. Secondary data participants were followed up so that they could complete the RGT tool, as the other instruments were administered to them previously. The section below on ‘data collection tools’ contains more information on each tool and what measures were used to validate it.

4.5.1. Administration of the questionnaire

Participants were subjected to a face-to-face interview that lasted between one hour and one hour and 30 minutes. The research assistant who conducted the interview spoke either Xhosa or English depending on the participant's language of preference. There were four questionnaires which needed to be completed. The questionnaires were available in English, Afrikaans, and Xhosa. None of the participants chose the Afrikaans version even though the option was available to them. The reason for this is that the patients came from a community where the majority of the people were Xhosa-speaking, and some were English-speaking. All the Xhosa questionnaires were translated into English for the purpose of the analysis. The questionnaires were administered verbally by the research assistant in isiXhosa or English, for reasons of standardisation. Participants also felt more comfortable if the research assistant administered the questionnaires possibly due to their inadequate literacy skills.

4.5.2. Data collection tools

The five data collection tools were: (a) The Personal and Demographic Questionnaire (b) Beck's Depression Inventory (BDI-II), (c) Hospital Anxiety and Depression Scale (HADS), (d) The Repertory Grid Technique (RGT), are described in detail below and appear in the Appendix

a. The Personal and Demographic Questionnaire

i. Background

Demographics are characteristics of a population. Characteristics such as race, gender, age, education, income level, marital status are all examples of demographics that are used in surveys (Wyse, 2012). It is used in most studies to assess whom to survey and how to break down overall survey response data into meaningful groups of respondents (Wyse, 2012).

The information obtained from the Personal and Demographic Questionnaire was used to allow a comparison of sub-groups within the sample and to enhance findings, which could be a platform for future studies. It also contributed to the existing database. The questionnaire was used in a previous study looking at the association between psychological distress and quality of life enjoyment and satisfaction (Q-LES) among HIV-positive individuals in South Africa (Naidoo, 2004).

The two-part semi-structured Personal and Demographic questionnaire were administered to the participants.

ii. Section One consisted of various personal details and a biographical inventory which was administered to obtain information regarding the participant's demographics. It comprised 31 items such as gender, age, education, income level, marital status. Eight of the 31 items included disease characteristics variables. The disease characteristics variables covered the following (1) co-existing medical conditions, (2) date of the diagnoses, (3) treatment specification for co-existing medical conditions, (4) diagnosis of AIDS, (5) date of the diagnoses, (6) stage of illness, (7) HIV status and (8) CD4 Count.

The medical records of the participants were also accessed, to collect data on the biological markers for viral load and CD4 count.

iii. Section Two consisted of 38 items about knowledge and behaviours about HIV and AIDS. This section was further divided into four sub-sections. Section one consisted of 15 items about risk-taking behaviours (sexual behaviours). Of the 15 items, two items were related to issues of disclosure. Section two consisted of seven items about adherence to medication. Section three consisted of six items about substance use and other risk-taking behaviours, and section four consisted of 10 items about Knowledge of factors that are fuelling the disease.

Both section one and two consisted of closed-ended questions, some of which were followed up by open-ended questions.

iv. Scoring and Administration

All close-ended items were scored categorically; that is, a “No” = 0, while “Yes” =1. If a participant answered ‘Yes’ to a question, then in most cases the next question asked them to elaborate further. Open-ended questions were analysed by conducting a content analysis. In other words, they were scored by only adding up the number of times a particular response appeared, and inferences were made.

b. Beck’s Depression Inventory (BDI-II)

i. Background

The Beck Depression Inventory (BDI, BDI-1A, BDI-II) was created by Beck (1972). Its development marked a shift among health care professionals, who had until then viewed depression from a psychodynamic perspective, instead of it being rooted in the patient's thoughts (Beck, 1972). The BDI-II is the updated version of the self-report depression inventory, which was developed to screen the degree, intensity and depth of depression in clinical patients aged 13 years and older (Beck, Steer, & Brown 1996 cited in Kumar, Steer, Teitshnan & Villacis, 2002). The BDI-II is used to indicate the presence and severity of depressive symptoms in the study as stated by the criteria in the Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition (DSM-IV, 1994).

The BDI-II covers questions about the experience of sadness, pessimism, past failure, loss of pleasure and guilt feelings just to mention a few (Beck, Steer, & Garbin, 1996). The BDI-II distinguishes between those who are clinically depressed and those who are not (Beck, Steer & Garbin, 1996). Beck, Steer, and Garbin (1996) found that although the assessment might not be able to give a functional analysis of how the problem of depression

had arisen, it can, however, be useful in establishing the severity of the problem and then be able to decide on a necessary intervention.

ii. Scoring and Administration

The BDI-II is a 21 item self-report inventory based on the Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition DSM-IV (DSM-IV, 1994). The BDI-II took approximately 5-10 minutes to complete. However, patients with a severe degree of depression, who found it difficult to comprehend and who was in the more advanced stage of the disease were expected to take longer (Beck, Steer & Brown, 1996). Due to working with people with HIV and those with AIDS and possible co-morbid diseases this needed to be well considered and was expected.

The BDI-II is based on raw scores and does not have norms. The raw scores are calculated by adding the ratings on the 21 items, each of which is rated on a 4 point scale, with scores ranging from zero to three (Beck, Steer & Brown, 1996). Twenty-one items produce a maximum score of 63 and a minimum score of 0. In each item, the option that best fits the patient's mental state in the previous two weeks, including the day in which the test was administered is selected from four alternatives listed in order of lesser to greater severity. Cut-off scores are usually set for the purpose of assessing the severity of depression. They are classified into four groups (non-depressed (0-13 points), mildly depressed (14–19 points), moderately depressed (20–28 points), and severely depressed (29–63 points) (Beck, Steer & Brown, 1996). For the purpose of this study, the four groups were compressed into two categories for analysis, that is, the non-depressed (0-13 points) and the depressed (14-63 points) which was a combination of mildly depressed, moderately depressed and severely depressed.

The research assistant referred the participant to the counsellor at the clinic in the case of a crisis or the need for assistance. For example, particular attention needed to be given to the responses to specific items in the questionnaire, e.g. those exploring pessimism and item 9, which deals with suicidal thoughts or wishes, and alluded to possible suicidal risk. It was imperative to take note that some participants may not exhibit suicidal potential, but may have stopped eating and sleeping. Hence, suicidal tendencies had to be further examined at a later stage. The RA also remained aware of the fact that each person uniquely displays their manifestation of symptoms, which needed to be individually assessed.

iii. Reliability and Validity

The BDI-II has been used for 35 years to identify and evaluate depressive symptoms of individuals, and it has been reported that it is highly reliable regardless of the population (Beck, Steer, and Garbin, 1996). The BDI-II has been shown to be valid and reliable, with results corresponding to clinician ratings of depression in more than 90% of all cases (Encyclopedia of Mental Disorders, 2011). Two reviews on the BDI-II's properties across both clinical and non-clinical populations showed high reliability in both (Beck, Steer & Brown, 1996). The psychometric properties of the translated scale were comparable to those of the original English versions. Measures of internal consistency (0.93) were as high as those for the validation studies internationally, such as in the USA (0.92 for outpatients, and 0.93 for college students) and good item-scale correlations were obtained. This suggests that the translation yielded a clinically useful scale which taps symptoms that are largely culturally universal (Steele & Edwards, 2008). For the BDI-II the coefficient alphas were higher than those for the BDI-1A (Beck, Steer, and Garbin. 1996). For this study, the Cronbach alpha for the BDI-II was 0.89.

Concerning the validity of the BDI-II, sufficient evidence has proven its “convergent validity as determined by high correlations with the original BDI and the depression subscale of the Symptom Checklist-90-Revised” (Berger-Greenstein, Cuevas, Brady & Keane, 2008). It has a high Cronbach alpha (.80), and the concurrent construct validity of the BDI-I concerning a variety of psychological measures was established (Beck, Steer & Brown, 1996). The BDI-II version has higher content validity, though, through its revision and added items. It has criterion validity and is positively correlated with the Hamilton Rating Scales for Depression (HRSD) (0.71).

It provides a valid assessment of depressive symptoms in people with HIV/AIDS particularly. The depressive and HIV-related symptoms are easily distinguished because the scale has a somatic symptoms subscale (Arbisi, 2001). It has shown high levels of validity and reliability across cultures (Kojima et al., 2002; Nuevo et al., 2009). According to Foxcroft and Roodt (2001), the BDI has been increasingly adopted and standardised on various cultural groups in South Africa and has been used extensively for research purposes mainly. The BDI-II was translated into Xhosa, a language widely spoken in South Africa to yield translated scales referred to as the XBDI-I (IsiXhosa BDI-II). However, there is little research investigating the psychometric properties of the isiXhosa version in South Africa. The BDI-II is also an inexpensive tool that can be utilised in South African public sectors to detect depression and assess the quality of life of individuals seeking health care services (Naidoo, 2004).

iv. Item-Related Issues

The BDI has a clear pattern in its ordering of responses, which may have led to faking, social desirability bias and defensiveness (Gregory, 2000). In a past study, patients with *greater* social desirability response bias reported less depression on the BDI, but higher

levels of pain experienced (Deshields, Tait, Gfeller, & Chibnall, 1995). The weighting of the items poses another problem. The generation of the scores is a result of adding the individual scores of each of the items. It raises questions regarding the scoring technique and whether the total score is accurate. It also questions the weighting of the items, and whether or not each of the added items should have equal value (Hagen, 2007).

v. Limitations of the BDI-II

The limitations of the BDI-II includes issues related to norms, which include bias issues, problems wording, ordering and weighing of the BDI items; potential gender bias; and criticisms regarding the theoretical limitations (Hagen, 2007). However, questions regarding weight gain or loss were considered if manifested in conjunction to feeling sad and not wanting to partake in pleasurable activities.

c. Hospital Anxiety and Depression Scale (HADS)

i. Background

The HADS (Zigmond & Snaith, 1983) was developed by Zigmond and Snaith in 1983 as a screening instrument for use in hospital outpatient departments to identify caseness (possible and probable) of anxiety disorders and depression among patients. It is not a tool to diagnose mood disorders, but it has proved to be a reliable, valid and responsive instrument to assess the severity of symptoms of mood disorders (Snaith, 2003). It has subsequently been validated for use with primary care patients and the general population (Snaith, 2003; Bjelland, Dahl, Haug & Neckelmann, 2002). The role of the scale is dimensional rather than categorical. Its aim is to detect the presence and severity of depression and anxiety in non-psychiatric settings.

Originally the scale consisted of eight questions relating to depression and eight relating to anxiety. Initial findings indicated one of the items on the depression scale was weak ($r = .11$) thus it was removed. Remaining items on the scale had correlations ranging from $+0.60$ to $+0.30$, with a significance of ($p < 0.02$). Anxiety items had correlations ranging from $+0.76$ to $+0.41$ ($p < 0.01$); however, to keep the items in each scale equal, the weakest item on the anxiety portion of the scale was removed. Thus, the final measure comprises 14 items, divided equally into an Anxiety subscale (HADS-A) and a Depression subscale (HADS-D), both containing seven intermingled items. The subscales are intended to be considered separately, not summated (Snaith, 1990), and can be self- or interviewer-administered. In this study, it was interviewer administered. To prevent 'noise' from somatic disorders on the scores, all symptoms of anxiety or depression also relating to physical disorders, such as dizziness, headaches, insomnia, and fatigue were excluded. Symptoms relating to serious mental disorders were also excluded since such symptoms were less common in patients who were attending a non-psychiatric hospital clinic.

The HADS has been translated and widely used in more than 25 countries since its original development (Herrmann, 1997). Herrmann, in an extended review, reported that the HADS had demonstrated reliability and validity when used to assess medical patients (Herrmann, 1997). Bjelland reached similar conclusions in his review five years later (Bjelland et al., 2002). The HADS has been used in the general population (Lisspers, Nygren, Soderman, 1997; Mykletun, Stordal, Dahl, 2001), on general hospital patients (Johnston, Pollard, Hennessey, 2000; Malasi, Mirza, el-Islam, 1991; Spinhoven, Ormel, & Sloekers, 1997), in cancer care settings (Moorey et al., 1991; Razavi et al., 1990; Sigurdardottir et al., 1993), and even in HIV patients (Savard et al., 1998).

ii. Scoring and Administration

The HADS is a self-report rating scale of 14 items (7 items for anxiety and seven items for depression) on a 4-point Likert scale ranging from 0 (not at all) to 3 (very often indeed) (Whelan-Goodinson et al., 2009). Score for each subscale (anxiety and depression) can range from 0-21 with scores categorised as follows: normal (0-7), mild (8-10), moderate (11-14), severe (15-21). Scores for the entire scale (emotional distress) range from 0-42, with higher scores indicating more distress (Zigmond & Snaith, 1983). It is worth noting that items referring to depression symptoms that describe somatic aspects of depression (e.g. insomnia and weight loss) are not included in the scale.

iii. Reliability and Validity

Concerning reliability, the internal consistency of the Anxiety subscale is excellent (Cronbach's alpha =0.8463-0.85). Internal consistency of the Depression subscale is adequate to excellent (Cronbach's alpha =0.79-0.8122) (Woolrich et al., 2006, Berry & Kennedy, 2003). For this study, the reliability for HADS-A was 0.59 and HADS-D was 0.50.

A review of the literature of the validity of the Hospital Anxiety and Depression Scale (HADS) showed that the correlations between the two subscales varied from 0.40 to 0.74 (mean 0.56). Cronbach's alpha for HADS-A varied from 0.68 to 0.93 (mean 0.83) and for HADS-D from 0.67 to 0.90 (mean 0.82). Zigmond and Snaith (1983) have suggested two cut-off scores for detecting depression and anxiety that have been used in most studies; that is, scores of eight to 10 = doubtful cases, and scores of 11 and higher = valid cases. Bjelland et al. (2002) in their review, report that most studies conclude the cut-off score of 8 in the general population and somatic patient's samples is correct. The same score has been recently proposed by Olsson, Mykletun & Dahl (2005) for outpatients. In most studies, an optimal

balance between sensitivity and specificity was achieved when caseness was defined by a score of 8 or above on both HADS-A and HADS-D.

Correlations between HADS and other commonly used questionnaires were in the range 0.49 to 0.83. Overall HADS was found to perform well in assessing the symptom severity and caseness of anxiety disorders and depression in both somatic, psychiatric and primary care patients and the general population (Bjelland et al., 2001). A recent review of the literature on the validity of the HADS clearly indicates that it is a well-performed questionnaire in assessing the symptom severity and caseness of anxiety disorders and depression in both somatic, psychiatric and primary care patients and even in the general population (Bjelland et al., 2002) and it has been used on HIV/AIDS patients suffering from depression in Africa (Sale & Gadanya, 2008).

d. The Repertory Grid Technique (RGT)

i. Background

The RGT (originally The Rep Test) is an instrument which was developed by George A. Kelly. Unlike more traditional testing methods, which can be included in what Hampson (1982) calls the "investigator centered approach," the repertory grid technique is not geared to the study of personality as it is postulated according to the researcher's theoretical constructs. It can be more accurately described as a "person-centred approach" in that it involves the study of a person's theories (the "lay" perspective in Hampson, 1982) which, according to Personal Construct Theory (PCT), consist of personal constructs (Feixas, 1989; Neimeyer, 1993). This testing approach has been defined as a constructivist assessment because it does not intend to classify the participant within theoretically derived categories but aims to explore the person's idiosyncratic construction processes. It is, therefore, less concerned with the participants' "real world" than with the way in which they construe that world. This is

coherent with constructivist epistemology, which states that all constructs are necessarily influenced by the active construing processes of the person who has elicited them (see Feixas & Villegas, 1993; Neimeyer, 1993).

Houston (1998) highlights the advantages of using Repertory Grid (RepGrids). Firstly, the technique does not force a response choice on the individual in the same way a questionnaire does; the clinician can, therefore, use the patient's starting point rather than impose a fixed structure on them. This is particularly helpful when working with people who may try and tell you what you want to hear. RepGrids are much less open to distorted responding. The key point is that RepGrids only offer a window to one aspect of construing and not to the person's entire construct system (Walker, Trenoweth, Martin & Ramm, 2013).

At the moment, there are various types of constructivist assessment methods: laddering, self-characterisation, analysis of autobiographical texts, as well as an infinite variety of open interview designs (Neimeyer's edited volume, 1993, for a comprehensive presentation of these procedures). However, the RGT is by far the most used and best-known assessment tool in PCT (Feixas & Cornejo, 2002; Fransella, Bell & Bannister, 2004; Jankowicz, 2003) in that the user can adapt the technique to his/her area of interest. Its flexibility makes it applicable to a wide variety of contexts and purposes. The systematic and thorough mathematical analysis of the data makes it an excellent tool for the scientific study of personal meaning as does its flexible mode of administration in structured interviews, paper, and pencil or computerised interactive forms. Out of the 1,700 papers published (Neimeyer, Baker, Neimeyer, 1990) by PCT psychologists and researchers, 60% used the repertory grid technique. Its area of application includes not only the clinical field (e.g. schizophrenic thought disorder, eating disorders, neurotic disorders, family conflicts, evaluation of therapeutic interventions) but also such areas as education, business consultancy, artificial intelligence and environmental perception. In the field of policy analysis, too, RGT has

gradually gained ground. In this study, the RGT was used in the area of health and psychology to analyse and evaluate cognitive dilemmas in PLWHAs.

ii. Administration of the RGT

A working knowledge of the overall grid procedure, as well as a clear idea of the information to be gathered, is necessary if a grid is to be designed accurately. In general, a design that extracts the most relevant information in the shortest time span is recommended. The time factor in the administration of the grid can be crucial in large-scale studies as well as in clinical work. Administration of the grid asks that the respondent reply to a considerable number of questions, thus requiring the investigator to consider the influence of respondent fatigue when interpreting the results. Although the average time was taken to administer the grid varies from 45 to 60 minutes, various factors can affect the time needed for completion, regardless of the participant's pace. The decision to provide or to elicit constructs and the final number of elements used can all influence the time that it takes to complete the grid. Concerning the latter, Rivas, and Marcos (1985) carried out a bibliographical study based on a large number of published studies that used the RGT. They found that the average number of elements ranges from ten to fifteen and that the usual number of constructs is usually slightly less than the number of elements. For the results of a grid design to be valid, it is suggested using a minimum of ten elements and constructs. For this study, participants were asked to provide a minimum of ten elements and constructs.

iii. Components of the RGT

The design of the RepGrid involves a general planning phase that is determined by the investigator's objectives. Entry into this phase requires a good knowledge of how the repertory grid is administered and analysed. This is because a series of decisions must be

made that will determine the scope or focus of the grid. The RGT is therefore not completely standardised like other psychological tests but must be adapted to the type of assessment to be carried out and to its general aims.

A repertory grid consists of (a) a series of *elements* that are representative of the content area under study, (b) a set of *personal constructs* that the participant uses to compare and contrast these elements, and (c) a *rating system* that evaluates the elements based on the bipolar arrangement of each construct. As a result, the parameters that are to be set in the *design phase of* a grid assessment are the selection of elements and constructs, the rating system to be used and the number of grids to be administered. These decisions will determine the type of information obtained. Therefore, the aims of the assessment must be closely considered.

a. Selection of Elements

The elements selected for the grid depend on which aspects of the interviewee's construing are to be evaluated. In the clinical field, elements are usually those people who are representative of the participant's world or of a particular problem domain. In most cases, however, most of the central constructs related to the clinical problem often lie in the construing of the self and others. The aim is to select a representative sample of the most significant people with whom the participant relates.

PLWHAs construct systems concerning their interpersonal relations were also studied, therefore, the design of the grid of the 'personal other' was applied to these cases. Personal elements such as "self" and "meaningful others" from their family were included such as self, parents, siblings (if they are numerous, the closest and the most significant are chosen), current partner, former partner (if he/she was significant), two or three friends, a work companion/colleague, a superior (if the problem is work-related), so on and so forth.

Also of great interest are the **self-elements** that represent specific aspects or roles of the participant. Examples are **IDEAL-SELF** (or "how I would like to be"), **PREVIOUS SELF** (or self before the problem). They can also represent roles such as **CURRENT-SELF** (or "how I am"). However, only three of the self-type of elements are included in the design of the grid of the personal other. This is because too many self-elements would result in a particular type of design focused on the self-system which would exclude significant others altogether.

The selection of elements for a clinical grid typically involves some knowledge relating to the background and problem of the person to whom the grid is being administered. A relatively extensive interview must have been held before administering the grid to obtain this information. Therefore the repertory grid was managed after all the other tools were administered. Frequently, in research studies, the same elements are used for each participant. However, by allowing for differences in the number and type of elements (e.g., friends, relatives); there was more opportunity to obtain a better representation of the participants' interpersonal worlds (Compañ et al., 2011).

b. Selection of Constructs

Constructs are the templates by which a person comes to know and anticipate their personal world (Kelly, 1955). It is using personal constructs that individuals anticipate the outcome of a particular event (Walker, Trenoweth, Martin & Ramm, 2013). It is through experience that constructs develop, but they are also tested, confirmed or disconfirmed, and revised as a result of experience (Kelly, 1995).

When selecting the constructs to be used, the investigator must decide whether to provide previously selected constructs or to elicit them directly from the participant. The latter is usually the option chosen for individual clinical assessments in which the focus is

ideographic; i.e., learning about the person's constructs. If the researcher provides the constructs for the study, then it is likely that his or her interest lies in discovering commonalities within a group of participants. In this case, the researcher allowed the participants to provide their constructs since her initial intention was to become familiar with participant's personal meanings.

A construct is usually expressed as an adjective (e.g. honest, dishonest) or a short descriptive phrase (e.g., "talks too much" or "not to be trusted"). They reflect participant's subjective views of themselves and others. There is a limit on the number of constructs to be elicited. The construct elicitation process ends whenever the research assistant and patient consensually felt no more new constructs could appear (what is known as the "saturation point") (Melrose & Shapiro, 1999).

There are a variety of structured procedures for the elicitation of personal constructs. Kelly outlined six procedures. For the purpose of this study, the researcher decided to simplify matters by adopting one of the six procedures, namely that which uses only one element also known as monadic elicitation. This way of obtaining constructs is most similar to an informal conversation. It consists of asking participants in their words the "personality" of each of the elements presented. The interviewer's task is limited to writing down the constructs as they appear and then asking for the opposite poles. Once two columns of constructs, with the emergent pole on the left and the implicit pole on the right, is formed, elements are considered individually about each of these pairs of personal constructs and then ranked or rated (Melrose & Shapiro, 1999).

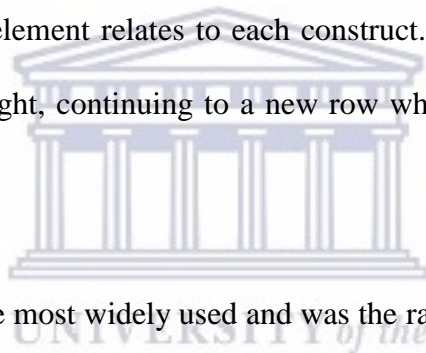
This protocol was administered to the participant with the explanation that the elements are placed vertically on the top half of the table and that they constitute the columns while the constructs are placed horizontally on the left side of the grid and constitute the rows. The reason for this arrangement is so that each construct can be related to every element via a

rating system. It is, therefore, necessary for all the elements to fall within the range of convenience of the constructs.

c. Selection of the Rating Method (Scoring)

The type of rating method used (the dichotomous method, the ordinal method and the rating scale method) determines the kind of mathematical analysis to be carried out as well as the length and duration of the test administration. The advantages of each type of rating system are very closely related to how the grid must be applied.

The participant's task is to choose a score (according to the rating method selected) that accurately defines how each element relates to each construct. The participant is advised to fill in the rows from left to right, continuing to a new row when the previous one has been completed.



The **rating scale** method is the most widely used and was the rating method of choice for this study. Each element is assigned a value on a Likert-type scale delimited by both poles of the constructs. For example, the applications of a construct within a seven-point scale would be as follows:

1. Very honest (left pole)
2. Quite honest (left pole)
3. Slightly honest (left pole)
4. Middle point
5. Slightly dishonest (right pole)
6. Quite dishonest (right pole)
7. Very dishonest (right pole)

These scales can range from 3 to 11 or more intervals. A three-point interval scale is only recommended for those people who may find difficulties with larger scales. Our experience tells us that 7-point interval scales are preferable; hence this study used the 7-point interval scale. However, interval scales are not without problems. There is nothing to indicate that the distances between scale points are metrically equivalent. For example, it has been found that scores located near the extremes of constructs are clearly more meaningful than average scores which are, at the time, imprecise (<http://www.terapiacognitiva.net/record/pag/references.htm>).

iv. Problems with the RGT

Regardless of the system used, there are times when the participant cannot score an element along a construct because the construct is simply not applicable to that particular element. In these cases, space was left blank (or "N/A" written) indicating that it does not apply. Leaving a blank space (including an "N/A" response) poses a series of problems for the mathematical analysis of the grid. To avoid the above from happening, two alternatives exist, neither of which has proven to be entirely satisfactory:

1. **Eliminate the construct.** Although it is the most illogical solution, the opportunity to analyse it with the remaining constructs and to thereby appreciate the semantic connections between them is lost.
2. **Convert the blank boxes into the central (halfway) score on the Likert-type scale.** This is not an entirely correct solution as the halfway score has a different numerical weighting. However, it does allow for the inclusion of the construct in the analysis. If this option is chosen, the construct has to be carefully considered afterward.

Another problem that can be encountered while administering the grid is that the participant may not know enough about the element to score it on a particular construct. In this case, it is necessary to insist on the fact that the researcher is not just interested in judgments that the

participant feels certain of but also in any inferences, intuitions or fantasies that the participant may have. If a participant has any idea, no matter how subjective it may be, he or she has to try to answer with a score.

At times, people refuse to write down a score until they are confident. However, inferences that have not repeatedly been put to the test may also be of interest as they are predictions based on a particular construct system. They may not provide information on the scored element but do provide an insight into the way the interviewee infers things. It was mentioned previously that the repertory grid does not provide "objective" data on the elements as much as on the person's construing processes.

Once the grid has been administered, the resulting data matrix is potentially as complex as the rating system allows, and its size depends on the final number of elicited or provided constructs and elements used. These data represent the answers to many questions and contain lots of information as to how the participant construes the elements used. The researcher is therefore faced with a significant amount of information which must be synthesised so that the basic structure can be retained without too much loss of information.

v. Cognitive measures

Although the repertory grid has generated various ways that purportedly measure certain cognitive dimensions, it is worth clarifying some terms at this stage. The term "cognitive" is used in its broadest sense, as Kelly (1969) rejects the notion that personal constructs are merely "cognitive." This is because he regards the "cognition-emotion" distinction as being of little use to psychological science, preferring to move towards a more holistic orientation which views behaviour, thought and emotion as the result of a process that involves the construction of meaning (<http://www.terapiacognitiva.net/record/pag/references.htm>).

Various aspects of the self can be evaluated using RepGrid data. The GRIDCOR programme gives a clear output of the original data which summarises, in a clinically relevant manner, some of the responses provided by the participant.

From all the indexes and measures used for the analysis of RGT data, only the following were included in this study:

vi. Cognitive (RGT) variables related to the construction of the Self

a. Self-Ideal relationship (Negative self-evaluation)

The SELF-IDEAL correlation, which is simply the product-moment correlation of these elements, can give purely quantitative information on any discrepancy.

Although Norris & Makhoul-Norris (1976) relate it to "self-alienation," the SELF-IDEAL discrepancy can be considered a measure of self-esteem. The SELF-IDEAL correlation gives us a quantitative evaluation of how participants value themselves in their terms, as opposed to more traditional self-esteem scales which score the participant according to items previously selected by the investigator. At the moment, there are a growing number of studies that point out the importance of self-esteem for efficient functioning and a subjective sense of well-being. Low self-esteem is associated with a lot of psychological disorders (Robson, 1988). For example, a high negative correlation between SELF and the IDEAL are indicative of a very low self-esteem and is coherent with one's symptomatology and discomfort.

The negativity or positivity with which a person perceives the self is assessed with the RepGrid by comparing ratings of the "self" with the "ideal self," using Pearson correlations or distance scores (self-ideal)

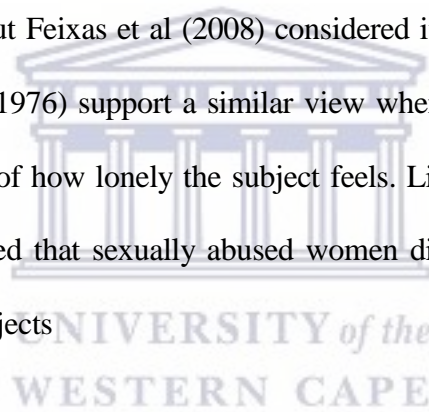
b. Self-Others relationship (Perceived self-isolation)

In PCT, the construction of the self is intrinsically related to the construction of others:

"The way in which the self is construed must necessarily be the way we construe others. This is because we do not have a self-concept as such, only a bipolar 'self-not self' construct" (Bannister & Agnew, 1977, p. 99).

For this reason, the processing of information about others also involves a degree of automatic self-comparison. Therefore, the differentiation between the SELF and OTHERS is of particular relevance as a central feature of interpersonal construing.

The finding (replicated in experimental and clinical studies) that depressed subjects show a greater SELF-OTHERS differentiation than normal subjects (Neimeyer, 1985) is of significant clinical interest. The reverse of this differentiation score has been labelled "identification" by some authors (Jones, 1961), but Feixas et al (2008) considered it to be a measure of perceived social isolation. Norris et al. (1976) support a similar view when suggesting that this measure could be used as an indicator of how lonely the subject feels. Likewise, Harter, Neimeyer and Alexander (1988) have reported that sexually abused women display greater SELF-OTHERS differentiation than control subjects



This index is calculated using the product-moment correlation between the scores of the "present self" and the mean scores of the other elements (excluding the "ideal self") included in the grid. It shows the degree of similarity of self to others as perceived by the respondent. High correlations indicate identification with others while low scores indicate a view of self as different from significant others (Feixas et al., 2008).

c. Others-Ideal relationship (Perceived adequacy of others/negative evaluation of others)

Although less frequently used in the psychological literature, the correlation between the IDEAL and OTHERS was considered to be a measure of perceived adequacy of others. For

example, while a high negative correlation can indicate that the subject is dissatisfied with the people that surround him/her, a positive correlation suggests a perception along the lines of “everyone is great” (Feixas et al., 2008). One is rather distant from what one considers to be the ideal if the Pearson correlation is negative. Beck and his colleagues (1979) regard negativity about the social world to be one of the hallmarks of depression.

From a clinical perspective, it is worth stressing that the two indices that contain the IDEAL element (correlation SELF-IDEAL, correlation IDEAL-OTHERS) can suggest opposite but complementary lines of action. A substantial difference between the IDEAL and SELF/OTHERS could indicate the need to improve self-esteem as well as how others are perceived. However, it could also indicate an excessive and over-demanding IDEAL which would be tough to satisfy realistically. If such a demanding ideal appears, it is usually positively and highly correlated with a particular, idealised, element which may prompt useful therapeutic discussion (Feixas et al., 2008).

This is estimated by the correlation between the “ideal self” and the mean scores of the other elements (excluding the “present self”). A negative correlation may indicate that the subject is likely to be a depressed person who thinks that others are equally maladaptive. This suggests that he or she may relate his or her depression or despair to the attitudes held by others. A high positive correlation might suggest a positive (or even an idealised, if extreme) image of others (Feixas et al., 2008).

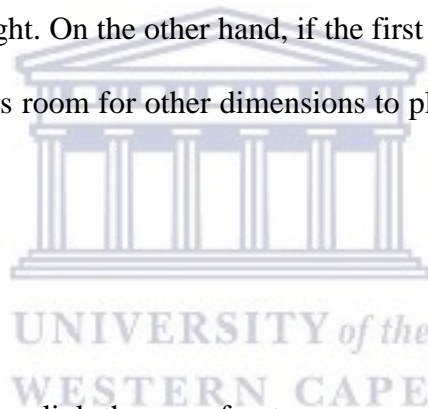
d. Number of constructs

An additional measure of cognitive differentiation, used in this study as a measure of constriction, is the number of constructs that the person can provide others. This is simply the

number of different constructs offered by the participant in the RepGrid interview (Feixas et al., 2008).

e. Percentage of variance explained by the first factor (PVFF)

Another index that Bonarius (1965) considers in his review as an indicator of cognitive complexity is the percentage of variance accounted for by the first factor (PVAFF) (or axis in the case of CA). This proportion (which in the GRIDCOR programme is shown in the eigenvalues table) indicates the importance of the main dimension of meaning. If this dimension accounts for a high percentage of variance, this indicates a degree of one-dimensionality in the subject's construing of his/her interpersonal world given that the other factors, or axes, have less weight. On the other hand, if the first axis accounts for only a small percentage of variance, there is room for other dimensions to play important roles in the way the subject construes.



f. Polarization

Some personal construct authors link the use of extreme scores to the meaningfulness of the construct or element involved (Bonarius, 1977). However, the total proportion of extreme scores can be considered indicative of cognitive rigidity and polarised construing. Various empirical studies suggest that a high degree of polarisation is linked to neurotic problems (Winter, 1992) as well as to the severity of depressive symptomatology. On the contrary, low scores give us an idea of the cognitive "laxity" of the subject (Feixas & Cornejo, 1996). Although polarisation is not the only characteristic of depressive disorders (it can also be found in schizophrenic patients), it does seem to be a cognitive element of depression (Neimeyer & Feixas, 1992; Neimeyer, 1985). The GRIDCOR programme gives the percentage

of extremity ratings ("1" and "7" in the example given; provided by the subject for constructs and elements, as well as a general average or total degree of polarisation.

g. The Presence of Implicative Dilemmas

To identify implicative dilemmas, identify the congruent and discrepant constructs in a seven-point scale grid (Feixas & Sánchez, 1998). Data obtained from the RepGrid informs us about the subject's areas of congruence, (where a person's "current self" and "ideal self" are consistent or rated similarly, also exemplified as a positive self-concept) and of incongruence (where a difference may exist between a person's "current self" and "ideal self" resulting in an incongruence or dilemma, also exemplified as a negative self-concept) (Feixas & Saúl, 2004).

Feixas and Saúl (2004) defined the presence of an ID in a grid whenever the correlation between the scores given to a discrepant construct and those given to a congruent construct is 0.35 or higher. This estimative cutting point has been used in other studies with this measure (Feixas et al., 2009). For this purpose, only the cases in which the pole the subject wishes to change in the discrepant construct is associated with the undesired pole of the congruent construct are considered dilemmatic. ID is a dichotomous variable scoring '1' for those participants for whom at least one ID is found, and '0' for those for whom none is found.

vii. Reliability and Validity

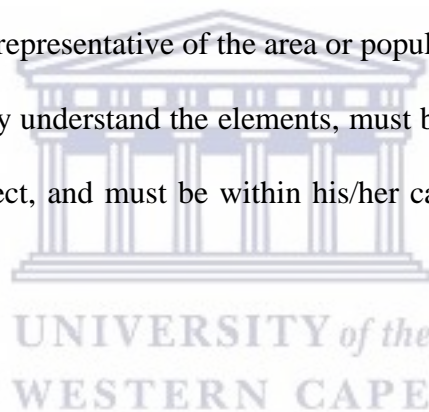
It can be problematic detailing the psychometric properties of repertory grids, given that there are some different ways of administering them (Bell, 2004), and that not all aspects of traditional test theory have the same meaning for repertory grid data (Bell, 1990). The reliability of the RGT has been estimated with test-retest studies providing stability scores of 71-77% for the elements, and 47.7 - 69% for the elicited constructs. On the measures derived

from the RGT, studies provide test-retest correlations ranging from 0.61 to 0.95 (Caputi and Keynes, 2001).

Issues of validity have been less commonly addressed, instead of being carried out in the theory of personal constructs (Bell, 2004). This makes commenting on issues of validity difficult.

To preserve the validity of a grid's design. However, the following must be taken into account (Compañ, 2011):

- The elements must be homogeneous -- that is, lie within the same range of convenience or area of interest.
- The elements must be representative of the area or population under study.
- The subject must easily understand the elements, must be coherent with those already employed by the subject, and must be within his/her capacity to understand (Yorke, 1985).



4.6. Procedures

4.6.1. The research team

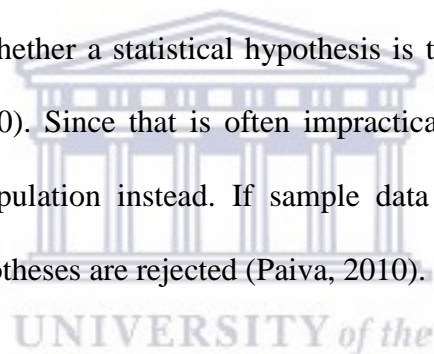
Four persons comprised the research team for this project. They were the senior researcher who also acted as the organiser and coordinator of the research, the two researcher assistants, and a counsellor/advisor. The research assistants were responsible for conducting the research in the clinic. They were students studying towards an undergraduate psychology degree which meant that they had been exposed to and also had experience in conducting sociological research. They were also specifically selected for the project as South African, black, females, and in their early 20s. The assumption was that they were already somewhat familiar with the culture and lifestyles of the participants and that, in turn, they would easily develop a rapport with participants of the study. They were trained by the senior researcher,

who also introduced them to the specific character and objectives of this research project and their roles and responsibilities within it. When one of the female research assistants terminated her services later on in the study, the senior researcher employed a male research assistant instead to increase the recruitment of male participants into the study, as the majority of the sample represented female participants only.

4.7. Hypotheses Testing

A **statistical hypothesis** is an assumption about a population parameter. This hypothesis may or may not be true. **Hypothesis testing** refers to the formal procedures used by statisticians to accept or reject statistical hypotheses.

The best way to determine whether a statistical hypothesis is true would be to examine the entire population (Paiva, 2010). Since that is often impractical, the researcher examines a random sample from the population instead. If sample data are not consistent with the statistical hypothesis, the hypotheses are rejected (Paiva, 2010).



The researcher followed certain steps in hypothesis testing to determine whether to reject the null hypotheses, based on the sample data.

First, the researcher stated the null (H_0) and alternate (H_1) hypotheses and then chose a significance level. The hypotheses were stated in such a way that they are mutually exclusive. That is, if one is true, the other must be false.

The hypotheses for the RGT cognitive variables in depression were mentioned in Chapter One: Background and Introduction.

Concerning choosing a significance level, the p-value is the lowest level of significance at which the observed value of a test statistic is significant (i.e., one rejects H_0) (Paiva, 2010).

In the approach the researcher has taken so far, the significance level was pre-selected up front, by choosing a given p-value of 0.05. In this case, the outcome was the decision. In other words, the strength of evidence in support of a null hypothesis was measured by the p-value.

4.8. Ethics and Procedures

4.8.1. Ethics

The study received ethical approval from the City of Cape Town Health Authority (ethics no:) and the University of Western Cape (ethics no: 08/06/5). Ethical considerations are vital to any study because of the influence of the researcher's ability to acquire and retain participants (Polit & Hungler, 1999).

4.8.2. Recruitment strategy

All the necessary staff at the clinic, as well as the research team, was briefed before the commencement of the study. Participants came to the clinic on the day that the doctor had given them appointments. Once a doctor saw the participants on the day, the doctor sent them to the counsellor. After the counsellor had seen them, the counsellor requested participants to see the research assistant who introduced him/herself and then gave each participant more information about the study. Upon completion of the interview, each participant received a transport voucher to the value of R30 as an honorarium.

4.8.3. Procedures to ensure confidentiality

Confidentiality of data was maintained at all times. Individual interviews were held in a private setting inside the clinic with each participant. The names of the participants were not recorded on the questionnaires. Instead, patient folder numbers were placed on the questionnaires, thereby allowing all questionnaires at the baseline and follow-up phase of the

study to be linked. All personnel working with data collection on the study were reminded about their obligation and responsibility to respect the privacy of the participants and the confidentiality of the data.

4.8.4. Informed consent

The research assistants ensured that the participants fully understood the nature of the study. By reading out the purpose of the study directly from the information sheet, this ensured that all participants had the same understanding of what the aims of the study were. A description of the benefits and any risks were also clearly stated. If participants were interested in participating, they were required to provide either written or verbal consent for the interview. Verbal consent was applied where the participant was illiterate although this was hardly the case. Patients' participation was voluntary, and they were allowed to withdraw from the study at any point.

4.9. Statistical analysis

This study used two types of data, primary data, and secondary data: Primary data is data that has not been published yet and is more reliable, authentic and objective. Primary data has not been changed or altered; therefore its validity is greater than secondary data (Salim, 2013).

Secondary data is data that is collected by "others" to be re-used by the researcher (Salim, 2013). Data gathered from a source that was published in any form is called secondary data (Salim, 2013). Secondary data is usually inexpensive to obtain and is analysed in less time. However, because it is gathered for other purposes, one may need to tease out the information to find what one is looking for (Salim, 2013).

The researcher used secondary data since it was made available to the researcher. Additional data (primary data) was collected to add further to the secondary data, thus increasing the sample size.

Data was analysed using STATA (version 14.0).

4.9.1. Univariate analysis

All data was screened to identify outliers. All captured data was checked for missing values.

The dependent variable (DV) (depression and risk-taking behaviour) was checked for its quality.

First, univariate analysis was performed to describe the identifying characteristics of the sample. In this cross-sectional study, descriptive statistics (frequencies, percentages, means) and inferential statistics were generated to test the hypothesis of the study. Inferential statistics refers to making inferences about the population based on data that was collected from a sample (Pretorius, 2007).

Pearson chi-square tests or One-way ANOVA were conducted to examine the possible relationship between the independent variables, namely sociodemographic variable, disease characteristics, anxiety, cognitive variables, and each of the three dependent variables, namely depression, and the risk-taking behaviour variables - unprotected sex and non-adherence to ART. Third, a series of univariate regression analyses were conducted to examine associations between each of the IVs and each of the DVs. Odds ratios, confidence intervals, and their associated p-values were reported.

4.9.2. Multivariate analysis

Variables were recoded where necessary to ensure sufficient cell sample sizes per category. Multivariate analysis was carried out using multiple regression models. The researcher

analysed the regression analysis for each of the ten mediator variables as the outcome or dependent variables (DV). In these models, all ten independent variables (IV) were fed into each of these nine models. For a continuous mediator variable (MV) a linear regression was used, for binary mediator a logistic regression was use, and for categorical variables with three or more categories, a multinomial regression was used. The IV's that were significantly associated with each MV were noted.

All statistical tests were two-sided at $\alpha=0.05$. A series of step-wise hierarchical multiple logistic regression models were developed to examine the association between depression and risk-taking behaviour and all other variables mentioned earlier under the aims of the study. The coefficients from these models are reported as odds ratios (OR) with 95% confidence intervals (CI).

4.9.3. Analysis of the RGT

RGT data were analysed using the GRIDCOR Version 4.0 (Feixas & Cornejo, 2002) computer program and then entered into SPSS Version 13.0, along with the rest of the data, to perform statistical analysis.

The GRIDCOR programme described above is an adaptation of the repertory grid of the original ANCORSIM (Cornejo, 1988) statistical programme. GRIDCOR was developed by Dr's. José Manuel Cornejo and Guillem Feixas. GRIDCOR allows for easy and systematic mathematical analysis of the RepGrid data for psychological interpretation purposes. As it is specifically adapted to the RGT, the GRIDCOR programme calculates the main cognitive measures found in the repertory grid literature. The evaluation of how the self is construed as well as access to the structural characteristics of the construct system (e.g., cognitive complexity) is, therefore, possible.

Each grid data matrix is analysed with the GRIDCOR program, which provided some cognitive measures and indices, including the assessment of implicative dilemmas (Feixas & Cornejo, 2002). It calculates global grid measures many of which are beyond the scope of this study. For the purpose of this study, only the following measures were discussed: Conflict Analysis and PVFF. The output for the Conflict Analysis included the following measures: SELF-IDEAL relationship, SELF-OTHERS relationship, IDEAL-OTHERS relationship, and Presence of implicative dilemmas (PID).

4.9.3.1. Self-construction Profiles

According to data that is available a series of general self-construction profiles can be identified based on the three indices just explored

- **Positive SELF-IDEAL Correlation, Positive SELF-OTHERS Correlation, Positive IDEAL-OTHERS Correlation.** This gives a **positivity profile**; that is, there is an overall positive image of the self and others, everything is all right, and there is an absence of conflict. Effectively, Adams-Webber (1990) and Schwartz (1992) suggest that healthy construing involves a balance between positive and negative perceptions, rather than an elimination of negativity
- **Positive SELF-IDEAL Correlation, Negative SELF-OTHERS Correlation, Negative IDEAL-OTHERS Correlation.** Although high self-esteem discriminates between psychological well-being and suffering, it can be indicative of a **superiority profile** if related to the idea that one is different from others and that others are not how they should be.
- **Negative SELF-IDEAL Correlation, Positive SELF-OTHERS Correlation, and Negative IDEAL-OTHERS Correlation.** Suggests a **negativity profile** or a tendency towards pessimism. Both the self and others are perceived negatively. Under

these conditions, if self and others are construed negatively, the person may not be strongly motivated to change, believing that life is inevitably tragic or that human beings are inherently flawed, especially if no significant positive figures exist to function as positive models. This pattern can also reflect a tendency to seek comfort in relating to others who are themselves distressed or to view themselves as a victim of a dysfunctional family system.

- **Negative SELF-IDEAL Correlation, Negative SELF_OTHERS Correlation, and Positive IDEAL-OTHERS Correlation.** A review of the existing research (Neimeyer, 1985) suggests that this can be called a **depressive isolation profile**. Low self-esteem is neither sufficient nor invariably characteristics in a depression. This profile applies to depressive subjects and subjects in other psychiatric (or existential) categories who manifest hopelessness.

Profiles	SELF-IDEAL correlation	SELF-OTHERS correlation	IDEAL-OTHERS correlation
Positivity	+	+	+
Superiority	+	-	-
Negativity	-	+	-
Isolation	-	-	+
Resentment	-	-	-

4.10. Conclusion

This chapter has discussed the methodology employed in the collection and analysis of data. It has included a description of the setting, the design, the sample and sampling procedure, research instruments and the procedure. Also, it has covered a detailed description of the three phases of data collection, the analysis of data and the ethical considerations. The next chapter focuses on the results of the study.

CHAPTER FIVE

RESULTS

5.1. Introduction

This chapter contains the results which illustrate the role of sociodemographic factors, disease characteristics, psychosocial variables (namely anxiety), risk-taking behaviour variables and cognitive (RGT) variables (which represented self-concept, namely the Self-Ideal, Self-Others, Other-Ideal relationship, and Polarisation, PVFF and Implicative Dilemmas) concerning depression and risk-taking behaviours in PLWHA.

To describe the sample, firstly various descriptives of sociodemographic factors, disease characteristics, risk-taking behaviours, psychosocial and cognitive variables are highlighted. Secondly, the aims of the study were addressed by means of bivariate and multivariate regression analyses.

The **first aim** of this study was to construct a model that examines selected sociodemographic factors, disease characteristics, psychosocial factors and cognitive variables and risk-taking behaviours as **predictors of clinical depression** in PLWHA.

The **second aim** of this study was to construct a model that examines selected sociodemographic factors, disease characteristics, psychosocial factors, and cognitive variables and depression as **predictors of risk-taking behaviours** in PLWHA.

For the first aim, the association between the sociodemographic variables, psychosocial factors and risk-taking behaviours (unprotected sex) within each range of category of depression, namely minimal, mild, and moderate to severe depression was first explored using Pearson's Chi-squared test to conclude whether there were significant differences.

Secondly, a bivariate multinomial regression analysis was performed to determine what the odds ratios were between each of the independent variables and depression and if there were any significant relationships between variables. Finally, for the multivariate multinomial regression was conducted.

To test the second aim, the same statistical steps were carried out as the first aim. All independent variables remained as is except that depression was treated as the independent variable and two risk-taking behaviour variables, namely unprotected sex and non-adherence to ART, were the outcome variables.

The mediator variables used were Anxiety (HADS-A), both risk-taking variables, and all of the cognitive variables.

All data were analysed using STATA version 13.0 throughout the analysis. Categorical variables were compared with Pearson's Chi-square test. Pearson's Chi-squared test was used if the p-value was less than 0.05% (<0.05), meaning there would be significance between the variables.

5.2. Description of the sample

The sociodemographic profile, disease characteristics and risky sexual behaviour variables of the participants studied are presented in Table One below.

Table 1: Distribution of the study participants, according to sociodemographic variables, financial support variables, disease characteristics and risk-taking behaviour variables

Sociodemographic variables	Categories	Frequency (n)	Percentage (%)
Sex	1- Male	32	22.5
	2- Female	110	77.5
	Total	142	100
Age	18-24 years	21	14.8
	25-34 years	70	49.3
	35-54 years	51	35.9
Marital status	1- Never married	80	56.3
	2- Living with partner	20	14.1
	3- Separated	9	6.3
	4- Married	33	23.2
Financial & social support variables	Categories	Frequency (n)	Percentage (%)
Employment status	1- Employed	25	17.6
	2- Unemployed	117	82.4
Type of government financial aid	1- Child grant	46	32.4
	2- HIV grant	5	3.5
	3- Not receiving grant	91	64.1
Financial Support	1- Have financial dependents & are financially dependent on others	66	46.5
	2- Have dependents & not dependent on others	33	23.2
	3- No dependents & are dependent on others	27	19
	4- No social dependents & not dependent on others	16	11.3
Do you live on your own?	1- Yes	39	27.5
	2- No	103	72.5

Disease characteristics	Categories	Frequency (n)	Percentage (%)
Do you have a co-existing medical condition?	1- Yes	77	54.2
	2- No	65	45.8
Have you been diagnosed with AIDS?	1- Yes	126	88.7
	2- No	16	11.3
CD4 Count	1-Stage 2: 500-800 cells/mm ³	6	4.3
	2-Stage 3: 200-499 cells/mm ³	44	31.2
	3-Stage 4: <200 cells/mm ³	73	51.8
	4-Unknown	18	12.8
Risk-taking behaviour variables	Categories	Frequency (n)	Percentage (%)
Are you in a sexual relationship?	1- Yes	104	75.4
	2- No	34	24.6
Adherence to ART	1- Yes	109	76.8
	2- No	33	23.2
Are you having unprotected sex?	1- Yes	26	18.3
	2- No	116	81.7
Females only: Are you able to ask your partner to use a condom	1- Yes	70	63.6
	2- No	4	3.6
Do you have multiple sexual partners?	1- Yes	4	2.8
	2- No	71	50

5.2.1. Sociodemographic variables

The descriptive data in Table 1 above indicates that there was a total of 142 participants, with more female (77.5%) than male participants (22.5%) in the sample. The age of participants ranged between 18 and 54 years, with the mean age being 32.8 years, and a standard deviation (SD) of 7.8 years. Half of the sample were between 25-34 years old (49.3%), followed by 35-54 years old (35%), and finally, those who were between 18-24 years old (14.8%).

For some variables, categories containing very small numbers of participants were combined with other categories, to ensure sufficient cell sample sizes per response category provided that the combining of categories be logical and contextually suitable. For example, age was recoded into only three categories: 18-24, 25-34, and 35-54, where the 35-54 years age group was combined to include 35-44 (27%) and 45-54 which comprised *only* 8% of the sample.

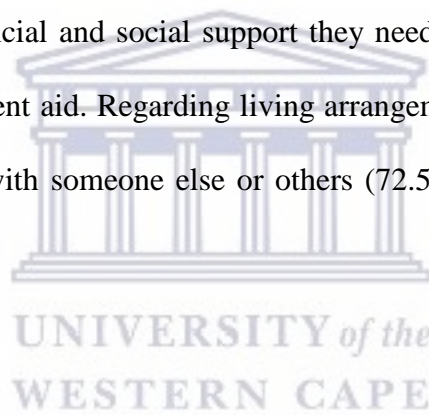
Regarding marital status, 56.3% were never married, 23.2 % were married, 14.1% were living with a partner, and 6.3% were separated. For later analysis the variables 'never married,' and 'separated,' and 'married' and 'living with a partner' were combined.

5.2.2. Financial and social support variables

The financial and social support variables in Table 1 above were also considered to be sociodemographic variables but for the purpose of this study, they were grouped under a separate sub-heading called 'Financial and Social support variables throughout the presentation of the results.

The results indicated that only a quarter of the sample (35.9%) was accessing government aid, where 32.4% of participants were accessing the child grant and only 3.5% were

accessing the HIV grant. The low uptake of the HIV grant was to be noted especially since the entire sample was HIV-positive and 88.7% of participants had AIDS (refer to disease characteristics) and the majority of participants were unemployed (82.4%). However, since almost half of the sample (46.5%) were financially dependent on others and had one or more people financially dependent on them, 23.2% of participants were not financially dependent on others but had one or more people financially dependent on them, 19% of participants were financially dependent on others but did not have any financial dependents, and 11.3% of participants were neither financially dependent on others nor did they have any financial dependents. Since most people were dependent on others financially, and regarding social support two thirds of participants were living with someone else or others (72.5%); perhaps many had the necessary financial and social support they needed and therefore were not so desperate to receive government aid. Regarding living arrangements almost three-quarters of the participants were living with someone else or others (72.5%); while 27.5% were living alone.



5.2.3. Disease characteristics

Table 1 above indicated that a little more than half (54.2%) of the sample had a co-existing medical condition/co-infection with TB and some participant were receiving treatment for TB.

HIV is the virus that attacks and replicates within the cells of the human body and AIDS occur during the later stage of the disease (i.e. Stage 4) when the virus attacks the body's immune system, and the CD4 count is usually below 200 cells per mm³. Therefore, stage of disease was looked at in light of CD4 count and found that 4.3% of participants had a CD4 count between 500-800 cells per mm³ also known as Stage 2 of the disease, 31.2% had a CD4 count between 200-499 cells per mm³ also expressed as Stage 3 of the disease, and 51.8% of

the sample had a CD4 count of fewer than 200 cells per mm³, also described as Stage 4 of the disease.

The entire sample was diagnosed as HIV positive, and 88.7% of all participants reported being diagnosed with AIDS. The majority of participants were in Stage 4 of the disease and those with an unknown CD4 count accounted for 12.8% of cases. However, it is not known for sure if all the unknown cases were Stage 4 cases. A possible reason for unknown cases was that participants answered the question poorly, participants were still waiting for their results at the clinic, they did not know their status since symptoms of AIDS and depression appear to overlap according to the literature, or they may have been reluctant to admit that they have AIDS due to fear of being stigmatised or discriminated against.

5.2.4. Risk-taking behaviour variables

In Table 1, three-quarters of the sample (75.4%) reported being in a sexual relationship and 18.3% reported having unprotected sex although they were HIV positive.

Only two thirds of the sample (76.8%) was adhering to their HIV medication. Subsequently, it is of concern that 11.9% of participants with full blown AIDs were not adhering to their medication and reasons as to why this is happening is explored further in the discussion section.

In a sample that constitutes 77.5% females, 63.6% of the females reported that they were able to ask their partner to use a condom, 3.6% reported not being able to negotiate condom use with their partner, and 32.7% reported that this was not applicable. Most of the females who responded “not applicable” also reported that they were never married, and therefore may have interpreted the question about partner condom negotiation as not relevant. As already discussed in the literature review, the reason for women not being able to negotiate safer sex

could be due to traditional patriarchal beliefs that may still be held within the culture in South Africa.

Only 2.8% of the sample reported that they had multiple sexual partners, 50% of the sample indicated that they did not have multiple sexual partners. Almost half (47%) of the sample did not specify if they had multiple sexual partners. This question was of a personal nature and therefore participants may have been afraid of being judged by a 'yes' response. This issue was not further analysed as there were too few responses for one to draw any meaningful conclusions from the analyses.

5.2.5. Knowledge of risk-taking behaviour

Section B of the Sociodemographic Questionnaire pertained to one's Knowledge of risk-taking behaviour. This section comprised close-ended questions which were follow-up by open-ended questions. The open-ended questions tested participants on their understanding of risk-taking behaviours by asking the same questions in different ways to avoid the Hawthorne effect. The Hawthorne effect (also referred to as the observer effect) is a type of reactivity in which individuals modify or improve their response to their awareness of being observed.

On average, 71% of participants had the knowledge of factors fuelling the disease, that is, they '**knew how HIV was spread**'. Participants mentioned 'not using a condom or having unprotected sex (72%) and contact with the blood of an infected person (such as touching open wounds, blood transfusions, sharing needles, accidents and not using gloves) (58%) as the biggest reasons for fuelling the disease. Only a third of the sample (33%) mentioned 'not adhering to medication' as a reason for the spread of the disease.

Participants were also well aware of behaviour change strategies such as eating healthily (51%), visiting the clinic regularly (14%), exercising (8%) and refraining from substance abuse (20%). However, only 2.5% of the sample mentioned looking after one's psychological health as a priority in light of behaviour change strategies, and 4% still held myths and misconceptions saying that 'using the same toothbrush,' caused HIV.

Regarding mother-to-child-transmission, 57% were aware of mother-to-child-transmission during birth, 7% were aware of HIV transmission through breastfeeding, 4% reported that HIV could be transmitted during normal birth from mother to baby, and 46% of participants said that they had their children tested for HIV.

When asked the question '**how do you not infect others?**' 66% stated that prevention methods such as using a condom, abstaining altogether, encouraging others to use condoms and refrain from risk-taking behaviours were some of the ways of not infecting others, while 13% said that disclosing one's status is an important way of protecting others.

With regard to stigma and discrimination, 6% of participants said that people did not treat them the same way after finding out their status, and 3% stated that it took their family a long time to accept their status.

When asked the question '**where do they get their information from?**' 64% received all their HIV information from the clinic, 4% received their information from support groups that they attended or were attending, 3% received their information from media sources such as the internet, and 2% received their information from their place of work, and 26% of participants reported having not received any information about HIV.

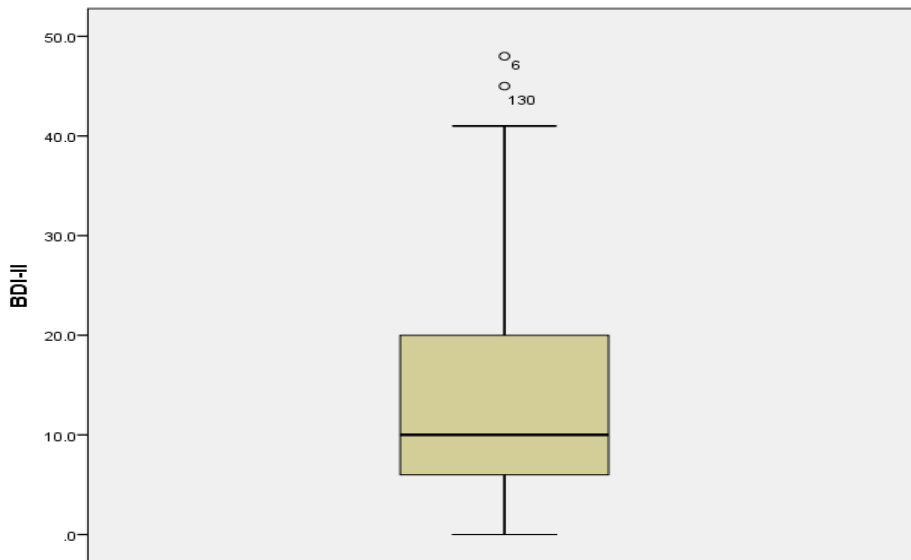
Table 2: The frequency distribution for the Hospital Anxiety and Depression Scale (HADS-A)

Variable	Categories	Frequency (n)	Percentage (%)
HADS-A	0-7 (normal)	99	70.7
	8-10 (mild)	24	17.1
	11-14 (moderate)	12	8.6
	15-21 (severe)	5	3.6
HADS-D	0-7 (normal)	82	58.6
	8-10 (mild)	33	23.6
	11-14 (moderate)	21	15
	15-21 (severe)	4	2.9

The mean for total HADS-A was 6.2, and SD = 3.6. For HADS-A, 70.7% of participants had a score in the range of '0-7' (normal) which means that they did not have any anxiety, 17.1% had scored in the range of '8-10' (mild) which means that they experienced mild anxiety, 8.6% had scored in the range of '11-14' (moderate) which means that they experienced moderate anxiety, and 3.6% had scored in the range of '15-21' (severe) which means that they experienced severe anxiety. This means that 29.3% of participants had mild, moderate or severe anxiety which constitutes almost a third of the sample.

The mean for total HADS-D was 7.1 and SD = 3.6. For HADS-D, 58.6% of participants had a score in the range of '0-7' (normal) which means that they did not have any depression, 23.6% had scored in the range of '8-10' (mild) which means that they experienced mild depression, 15% had scored in the range of '11-14' (moderate) which means that they suffered moderate depression, and 2.9% had scored in the range of '15-21' (severe) which means that they experienced severe depression.

Figure 3: Boxplot displaying depression (BDI-II) scores (indicating level of depression) for the whole sample



Scores on the BDI-II ranged from 0 to 48 with a mean of 13.9 and an SD = 11.2. There were two outliers or extreme values, namely participant ‘6’ with a BDI-II score of 48, participant ‘130’ with a BDI-II score of 45. In other words, the two participants who scored the highest for depression warrants further exploration as to what was causing such high depression levels.

Table 3: The prevalence of depressive symptoms as depicted by BDI-II

Variable	Categories	Frequency (n)	Percentage (%)
BDI-II	0-13 (minimal depression)	91	64.1
	14-19 (mild depression)	16	11.3
	20-28 (moderate depression)	17	12
	29-63 (severe depression)	18	12.7

Table 3 above depicts the results for the BDI-II, of which the purpose was to measure the prevalence and severity of depressive symptoms. It discriminates between those who are

clinically depressed and those who are not clinically depressed. Depression was treated categorically. The majority of the participants with HIV and AIDS were not depressed or minimally depressed (64.1%), 11.3% of participants had mild depression, 12% of participants had moderate depression, and 12.7% of participants had severe depression.

5.2.6. Descriptive statistics for the cognitive variables (RGT variables)

Part of the data used for this study was secondary data which meant that many participants were already administered the full battery of instruments; therefore, previous participants had to be followed up for them to complete the RGT. Ultimately, only 68% (96/142) of all the RGTs could be analysed. The rest of the RGT's were excluded from the analyses due to various reasons, mainly poorly scored elements or constructs.

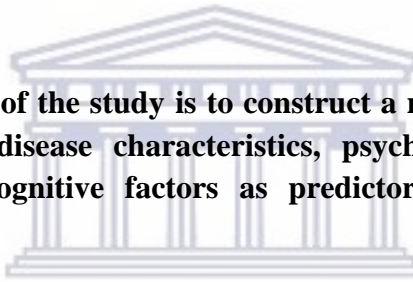
Table 4: Self Construction Profiles of PLWHAs

Self Construction Profile	% no depression		% with depression		BDI score		
	%	95% CI	%	95% CI	Mean BDI	95% CI (Mean)	n
Positivity	61.5	[41.7,78.2]	38.5	[21.8,58.3]	14.0	[9.10-18.90]	26
Superiority	70.0	[37.1,90.2]	30.0	[9.8,62.9]	9.0	[3.87-14.13]	10
Negativity	75.0	[23.0,96.8]	25.0	[3.2,77.0]	8.5	[4.87-12.13]	4
Isolation	50.0	[22.1,77.9]	50.0	[22.1,77.9]	16.6	[8.60-24.60]	10
Resentment	61.5	[33.9,83.3]	38.5	[16.7,66.1]	18.85	[11.71-25.98]	13

A *Positive* profile reflects a globally positive vision of self and others, with the self, identified as similar to others. A profile of *Superiority* reflects a positive perception of self that is different from others, which are construed negatively. A profile of *Negativity* is associated with negative perceptions of the self and similarly negative perceptions of others. A profile of *Isolation* reflects negative perceptions of self that is also perceived as different from others, who are perceived more positively. A profile of *Resentment* reflects negative perceptions of self and others, with the self also perceived as different from others. Theorists have suggested

that profiles of negativity, isolation, and resentment are more likely to be associated with depressive disorders (Feixas & Cornejo, 1996; Neimeyer, 1985).

Only 63 participants fell within one of the profiles mentioned above. The rest of the participants had various other combinations of profiles which are beyond the scope of this study. Twenty-six participants had a Positivity profile, followed by 13 who had a Resentment profile, ten who had a Superiority profile, ten who had an Isolation profile, and only four who had a Negativity profile. Seventy percent of non-depressed participants (i.e. those with a BDI-II > 13) had a Superiority profile. The Isolation profile (50%) was the same for depressed as well as non-depressed participants.



5.3. Aim One: The first aim of the study is to construct a model that examines selected sociodemographic factors, disease characteristics, psychosocial factors, risk-taking behaviour variables and cognitive factors as predictors of clinical depression in PLWHA.

Bivariate multinomial regression was used to assess the association of each of the sociodemographic, disease characteristic, psychosocial (namely, anxiety), risk-taking behaviour and cognitive variables with the level of depression. The dependent variable, level of depression, was derived from the BDI-II score and was recoded into three categories: 0=minimal/no depression (BDI-II: 0-13), 1=mild depression (14-19), and 2=moderate or severe depression (20-63). The multinomial regression, therefore, tests the relative risk ratio of 1.) mild depression relative to minimal/no depression, and 2.) moderate/severe depression relative to minimal/no depression. The cases for moderate and severe depression were combined since there were too few cases of severe depression that were reported. In categories, one and two above, no or minimal depression served as the reference group. The p-value denoted in the overall test of significance (Table 5) tests the association of the selected explanatory variable with the overall three category depression variable.

Table 5: The relationship between sociodemographic variables and depression (BDI-II)

Sociodemographic variables	Bivariate Multinomial regression						
	Overall test for association (p-value)	Mild vs Minimal/No Depression			Moderate/Severe vs Minimal/No Depression		
		RRR	95% CI	p-value	RRR	95% CI	p-value
Sex	0.566						
1-Female		ref	-	-	ref	-	-
2-Male		0.68	[0.18 - 2.61]	0.576	0.61	[0.23 - 1.66]	0.334
Age group	0.466						
18-24		ref	-	-	ref	-	-
25-34		0.8	[0.18 - 3.51]	0.764	1.88	[0.55 - 6.4]	0.314
35-54		0.78	[0.17 - 3.55]	0.745	0.88	[0.23 - 3.31]	0.844
Marital Status	0.523						
1-Never married/ Separated		ref	-	-	ref	-	-
2-Living with a partner/ Married		0.51	[0.15 - 1.7]	0.273	0.9	[0.4 - 2.02]	0.803

The bivariate multinomial regression analysis in Table 5 above indicates that none of the sociodemographic variables was significantly associated with depression.

Table 5 shows that while males were 0.68 times less likely than females to have **mild depression** relative to minimal/no depression, and 0.61 times less likely to have **moderate/severe depression** relative to minimal/no depression, this result was not statistically significant.

Older participants (25-34 years and 35-54 years) seemed to be less likely to have **mild depression** compared to minimal/no depression than those between 18-24 years of age; however, this was not statistically significant.

In the bivariate multinomial regression analyses, the categories ‘never married’ and ‘separated’, and the categories ‘married’ and ‘living with partner’ were combined to increase the statistical power of the results.

Someone living with a partner or being married was less likely to have **mild depression** or **moderate/severe** depression compared to people who were never married or who were separated, but this was not statistically significant.

Table 6: The relationship between financial and social support variables and depression (BDI-II)

Financial and social support variables	Bivariate Multinomial regression						
	Overall test for association (p-value)	Mild vs Minimal/No Depression			Moderate/Severe vs Minimal/No Depression		
		RRR	95% CI	p-value	RRR	95% CI	p-value
Source of Income	0.886						
1-Unemployed		ref	-	-	ref	-	-
2-Employed(with or w/o Government aid)		1.54	[0.4 - 5.96]	0.535	0.71	[0.23 - 2.21]	0.552
3-Receiving Government aid only		0.96	[0.28 - 3.3]	0.948	0.78	[0.33 - 1.86]	0.573
Do you have financial dependants	0.104						
1-No		ref	-	-	ref	-	-
2-Yes		0.53	[0.17 - 1.63]	0.269	0.43	[0.19 - 0.97]	0.042*
Are you financially dependent	0.318						
1-No		ref	-	-	ref	-	-
2-Yes		0.44	[0.15 - 1.3]	0.14	0.75	[0.33 - 1.7]	0.495
Live on your own	0.591						
1-No		ref	-	-	ref	-	-
2-Yes		0.99	[0.29 - 3.36]	0.981	1.54	[0.66 - 3.58]	0.314

*P<0.05

The bivariate multinomial regression analysis in Table 6 above indicates that none of the financial or social support variables was significantly associated with overall depression

(BDI-II), however, having financial dependents was significantly associated with moderate/severe depression (p=0.042).

Those who were employed were more likely than those who were unemployed to have **mild depression** and less likely to have **moderate/severe depression**.

It should be noted, however, that the relative risk ratio (RRR) = 0.96 (close to one) for receiving government aid meant that receiving government aid is almost no different to being unemployed.

Table 7: The relationship between disease characteristics and depression (BDI-II)

Disease Characteristics	Bivariate Multinomial regression						
	Overall test for association (p-value)	Mild vs Minimal/No Depression			Moderate/Severe vs Minimal/No Depression		
		RRR	95% CI	p-value	RRR	95% CI	p-value
Co-existing medical condition							
1-No	0.063	ref	-	-	ref	-	-
2-Yes		1.14	[0.38 - 3.41]	0.812	0.4	[0.18 - 0.9]	0.027*
AIDS diagnosis							
1-No	0.126	ref	-	-	ref	-	-
2-Yes		0	-	0.985	1.18	[0.35 - 3.93]	0.791
CD4 count							
Stage 2-3: 200-800	0.428	ref	-	-	ref	-	-
Stage 4<200		2.3	[0.67 - 7.85]	0.183	1.59	[0.66 - 3.85]	0.304
Unknown		0.82	[0.08 - 8.1]	0.864	1.96	[0.58 - 6.63]	0.277

*P<0.05

The bivariate multinomial regression analysis in Table 7 above indicates that none of the disease characteristics was significantly associated with depression, however, participants with a co-existing medical condition were significantly less likely (RRR=0.4) to have **moderate/severe depression** (p=0.027) than those without a co-existing medical condition.

There were no observations of people who have been diagnosed with AIDS and who experienced **mild depression**. Those who had been diagnosed with AIDS were 1.18 times more likely than those who did not have AIDS to have **moderate/severe depression** relative to minimal/no depression.

Those who were in Stage 4 of the disease were 2.3 times more likely to have **mild depression** and 1.59 times more likely to have **moderate/severe depression** relative to minimal/no depression than those who were in Stage 2-3 of the disease. Thus, there appeared to be a decrease in the severity of depression going from Stage 2-3 to Stage 4 of the disease.

Having an unknown CD4 count/ or not knowing what Stage of disease one was in happen to have the opposite result regarding the severity of depression compared to Stage 4 of the disease. Those with an unknown CD4 count were 0.82 times less likely to have **mild depression** and 1.96 times more likely to have **moderate/severe depression** relative to minimal/no depression compared to those who were in Stage 2-3 of the disease.

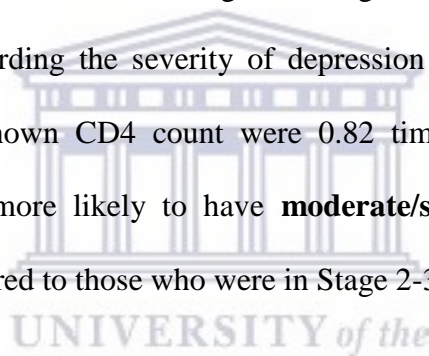


Table 8: The relationship between risk-taking behaviour variables and depression (BDI-II)

Risk-taking behaviour variables	Bivariate Multinomial regression						
	Overall test for association (p-value)	Mild vs Minimal/No Depression			Moderate/Severe vs Minimal/No Depression		
		RRR	95% CI	p-value	RRR	95% CI	p-value
Unprotected sex	0.037*	ref	-	-	ref	-	-
1-No 2-Yes		0.21	[0.03 – 1.67]	0.14	0.29	[0.08 – 1.05]	0.06
Non-adherence to HIV medication	0.733	ref	-	-	ref	-	-
1-Adherence 2-Non-adherence		1.61	[0.5 – 5.19]	0.422	1.05	[0.41 – 2.67]	0.915

*P<0.05

Unprotected sex was significantly associated with the level of depression ($p=0.037$) (Table 8). Those who were engaging in unprotected sex were 0.21 times less likely to have **mild depression** and 0.29 times less likely to have **moderate/severe depression** versus minimal/no depression, than those who were not engaging in unprotected sex.

Adherence to medication was not significantly associated with depression. However, when we took a closer look at the RRR, we found that those who were not adhering to their HIV medication tended to be more likely to experience **mild depression** relative to minimal/no depression compared to those were adhering to their HIV medication. The RRR for moderate/severe depression for ART non-adherence was 1.05. As this is very close to one, it indicates little difference in the likelihood of **moderate/severe depression** between those who were adhering and those who were not adhering to their HIV medication.

Table 9: The relationship between Hospital Anxiety and Depression Scale (HADS) and depression (BDI-II)

Psychosocial variable	Overall test for association (p-value)	Bivariate Multinomial Regression					
		Mild vs Minimal/No Depression			Moderate/Severe vs Minimal/No Depression		
		RRR	95% CI	p-value	RRR	95% CI	p-value
Anxiety (HADS_A)	0.001**						
0-7 (normal)		Ref	-	-	Ref	-	-
8-10 (mild)		2.02	[0.48 – 8.49]	0.338	4.48	[1.62 -12.44]	0.004**
11-21 (moderate/severe)		4.44	[0.92 – 21.48]	0.064	8.88	[2.61 -30.26]	<0.001**

** $P < 0.001$

Anxiety (measured by HADS-A) was strongly associated with depression ($p=0.001$). The significant RRR's were evident for moderate/severe depression levels relative to no/minimal depression.

Those with mild anxiety (RRR= 2.02, CI = 0.48 – 8.49) and those with moderate to severe anxiety (RRR= 4.44, CI = 0.92 – 21.48) were more likely than those who experienced normal anxiety to have **mild depression** versus minimal/no depression, although these RRR's were not statistically significant. Those with mild anxiety (RR= 4.48, CI =1.62 -12.44) and moderate/severe anxiety (OR=8.88, CI =2.61 -30.26) were significantly more likely to have **moderate/severe depression** relative to minimal/no depression than those with normal anxiety. These RRR's were almost double than those for mild depression versus minimal/ no depression.

Table 10: The relationship between cognitive (RGT) variables and depression (BDI-II)

RGT Variables	Bivariate Multinomial regression						
	Overall test for association (p-value)	Minimal/mild vs No Depression			Moderate/Severe vs No Depression		
		RRR	95% CI	p-value	RRR	95% CI	p-value
Self-Ideal relationship	0.640						
Negative or 0		ref	-	-	ref	-	
Positive		1.11	[0.21 – 5.86]	0.905	0.62	[0.22 – 1.75] 0.369	
Self-Others relationship	0.895						
Negative or 0		ref	-	-	ref	-	
Positive		1.45	[0.28 – 7.59]	0.657	0.99	[0.35 – 2.79] 0.98	
Other-Ideal relationship	0.230						
Negative or 0		ref	-	-	ref	-	
Positive		0.85	[0.2 – 3.68]	0.826	2.79	[0.74 – 10.56] 0.131	
Number of Constructs	0.128	1.31	[0.95 – 1.81]	0.105	1.21	[0.95 – 1.54] 0.115	
Presence of Implicative Dilemmas	0.389						
No = 0		ref	-	-	ref	-	
Yes =1		1.89	[0.33 – 10.77]	0.472	2.27	[0.68 – 7.58] 0.182	
PVFF	0.292						
20-45		ref	-	-	ref	-	
46-94		0.49	[0.12 – 2.08]	0.333	0.51	[0.19 – 1.35] 0.173	
Polarisation	0.219	0.97	[0.92 – 1.01]	0.12	0.99	[0.97 – 1.02] 0.553	

Table 10 above indicates that the cognitive variables (RGT variables) were not significantly associated with depression. Pearson’s chi-squared test for the cognitive variables with depression was also checked, and no associations were found. All RGT variables were treated as categorical variables except for a ‘number of constructs’ and Polarisation which were treated as continuous linear variables.

The following section presents the analysis and results for hypotheses one to seven, all of which relate to the RGT variables. All hypotheses refer to Table 10 for the findings. Further analyses were also presented for each hypothesis to confirm or support the findings in Table 10.

5.4. Repertory Grid Hypotheses

5.4.1. Testing Hypothesis 1: The relationship between ‘Self-Ideal’ and depression (BDI-II)

H₀: There is no difference in the Self-Ideal relationship between people who are depressed and people who are not depressed.

H₁: The Self-Ideal relationship is more negatively correlated with higher levels of depression (In other words, those who are depressed perceive themselves more negatively).

Table 11: Pearson’s correlation between ratings for ‘Self-Ideal’ relationship

RGT Variable	Mean	Std. Dev	Range
Self-Ideal relationship	0.27	0.42	-0.73-1

In Table 11 above, GRIDCOR calculates the Pearson correlation between ratings of the current self and the ideal self as a measure of negative self-evaluation. Given that a distance of less than 0.5 between elements implies that they are very similar and a distance of more

than 1.5 indicates that the elements are very different (Winter, 1992), the mean ‘current self’ and ‘ideal self’ discrepancy score of 0.27, (SD = 0.42) can be considered to be relatively low. This suggests that the participants who completed the repertory grids are satisfied with themselves since the closer the mean is to zero, the higher an individual’s self-esteem and self-satisfaction are thought to be (Leach, Freshwater, Aldridge & Sunderland cited in Warner, 2011).

The bivariate multinomial regression analysis in Table 10 above indicates that the ‘Self-Ideal’ relationship was not significantly associated with depression. Therefore one can accept the null hypothesis which states that there is no difference in the self-ideal relationship between people who are depressed and people who are not depressed.

Figure 4: Scatterplot showing the relationship between ‘Self-Ideal’ and Depression

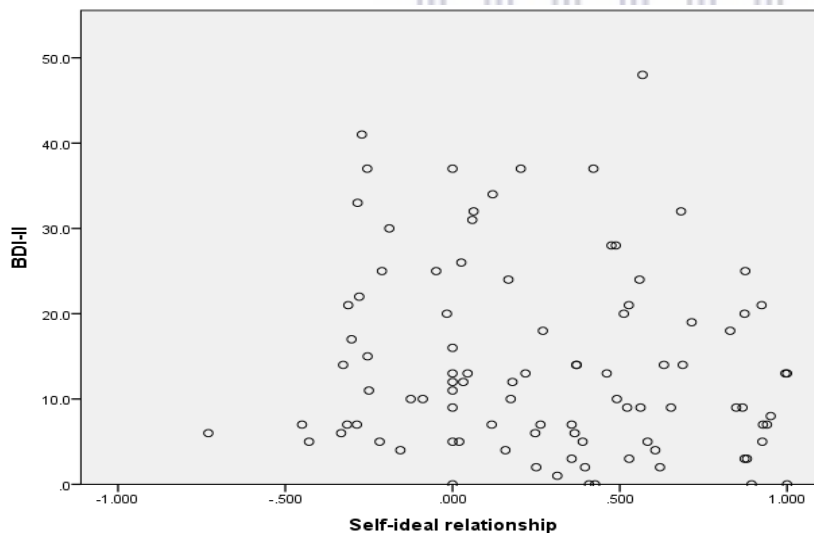


Figure 4 plotted the distance between the participants’ ‘self-ideal’ relationship versus BDI-II. The scatterplot shows no association between the two variables, as no clear patterns can be observed.

5.4.2. Testing Hypothesis 2: Relationship between ‘Self-Others’ and depression (BDI-II)

H₀: There is no difference in the Self-Others relationship between people who are depressed and people who are not depressed.

H₁: The Self-Others relationship is more negatively correlated with higher levels of depression. (In other words, those who are depressed perceive themselves different from others).

Table 12: Pearson’s correlation between ratings of the ‘Self-Others’ relationship

RGT Variable	Mean	Std. Dev	Range
Self-Others relationship	0.20	0.37	-0.63-0.95

In Table 12 above, GRIDCOR calculates the extent to which the current self is perceived as different from others (perceived self-isolation) as the mean correlation between the self and other people described on the grid (not counting the hypothetical ideal self). The mean ‘current self’ and ‘others’ discrepancy score of 0.20, (SD = 0.37) implies that the elements are somewhat similar (Winter, 1992). This suggests that the participants showed a degree of similarity of self to others.

The bivariate multinomial regression analysis in Table 10 above indicates that the ‘Self-Others’ relationship was not significantly associated with the three category depression variable. Therefore one can accept the null hypothesis which states that there is no difference in the self-others relationship between people who are depressed and people who are not depressed.

Figure 5: Scatterplot showing the relationship between ‘Self-Others’ and Depression

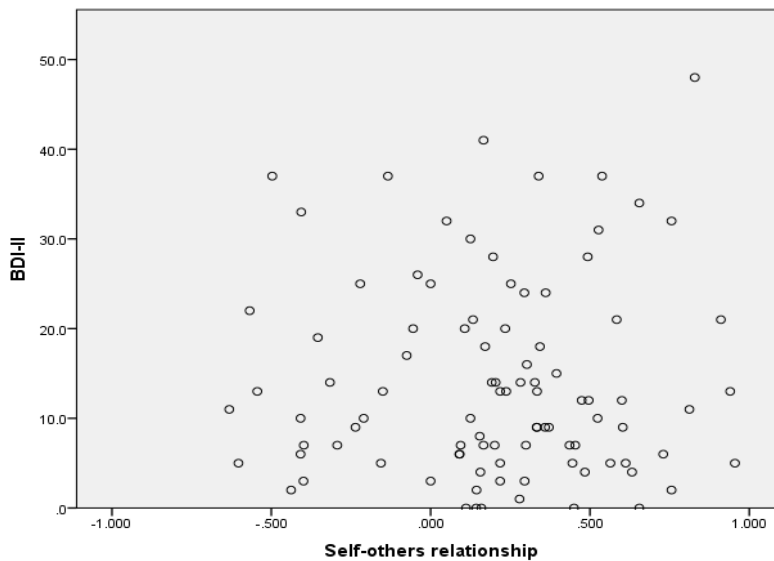


Figure 5 plotted the distance between the participants’ ‘self-others’ relationship versus BDI-II. The scatterplot shows no clear patterns of association between the two variables.

5.4.3. Testing Hypothesis 3: Relationship between ‘Others-Ideal’ and depression (BDI-II)

H₀: There is no difference in the Others-Ideal relationship between people who are depressed and people who are not depressed.

H₁: The Others-Ideal relationship is more negatively correlated with higher levels of depression (In other words, those who are depressed perceive others different from themselves. A strong negative correlation can indicate that the participant is dissatisfied with the people that surround him/her).

Table 13: Pearson correlation between ratings of the ‘Others-Ideal Self’ relationship

RGT Variable	Mean	Std. Dev	Range
Others-Ideal relationship	0.30	0.42	-0.65-0.99

In Table 13 above, GRIDCOR calculates the average correlation between ratings of the ideal self and ratings of other people on the grid, not counting ratings of the self, as a measure of negative evaluation of others. The mean ‘Others’ and ‘Ideal Self’ discrepancy score of 0.30, (SD = 0.42) implies that the elements are somewhat similar (Winter, 1992). This suggests that participants were satisfied with the people that surround him/her.

The bivariate multinomial regression analysis in Table 10 above indicates that ‘Others-Ideal’ was not significantly associated with depression. Therefore one can accept the null hypothesis which states that there is no difference in the self-others relationship between people who are depressed and people who are not depressed.

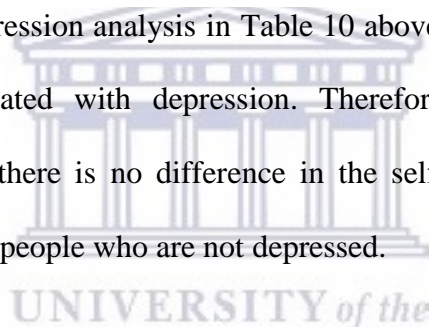


Figure 6: Scatterplot showing the relationship between ‘Others-Ideal’ and Depression

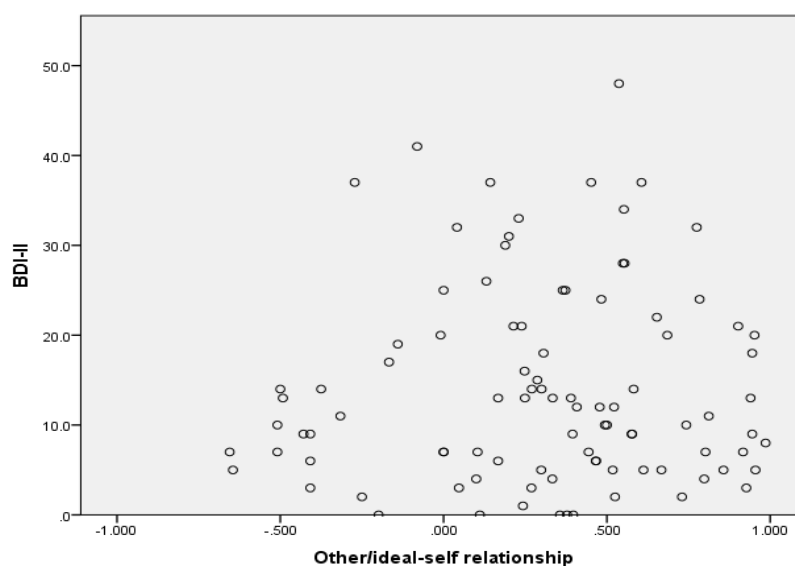


Figure 6 plotted the distance between the participants’ ‘others-ideal’ relationship versus BDI-

II. The scatterplot shows no apparent association between the two variables.

5.4.4. Testing Hypothesis 4: Relationship between the Number of Constructs and depression (BDI-II)

H₀: There is no difference in the number of constructs between depressed and non-depressed people

H₁: Those who are depressed have a lower number of constructs compared to people who are not depressed.

An additional measure of cognitive differentiation, used in this study as a measure of constriction, is the number of constructs that the person can provide to describe others (Crockett, 1965; Feixas, Bach & Laso, 2004). This is simply the number of different constructs offered by participants.

The bivariate multinomial regression analysis in Table 10 above indicates that neither the number of constructs was significantly associated with depression (BDI-II). Therefore, one can accept the null hypothesis which states that there is no difference in the number of constructs between depressed and non-depressed people.

5.4.5. Testing Hypothesis 5: Relationship between PVFF and depression (BDI-II)

H₀: There is no difference in the PVFF between people who are depressed and people who are not depressed

H₁: Those who are depressed have a higher PVFF compared to those who are not depressed.

(In other words, individuals who are depressed tend to perceive the self and others in a more uni-dimensional manner in contrast to individuals who are not depressed).

Feixas (2008) found a mean of 42% in normal samples and 46% of psychotherapy patients. The PVFF for this sample had a mean of 44.60, an SD of 13.35, indicating that the PVFF score was below what one would find in patients attending psychotherapy. In other words, based on what Feixas (2008) found in their study, one can safely assume that this sample was normal.

Figure 7: Histogram depicting the range for PVFF in the sample

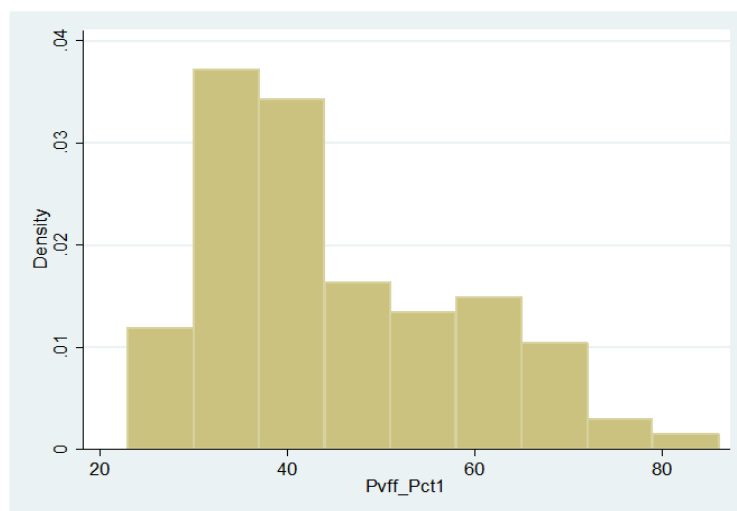


Figure 7 above displays an asymmetrical distribution of the PVFF scores in the sample with a positive skew to the right (higher values) in other words; most scores were below 46.

For the bivariate multinomial regression analysis in Table 10, PVFF was recoded into values below 46 and greater than or equal to 46, as guided by the literature (Feixas, 2008). PVFF was found not to be significantly associated with depression. Therefore one can accept the null hypothesis which states that there is no difference in the PVFF between depressed and non-depressed people.

5.4.6. Testing Hypothesis 6: Relationship between Polarisation and depression (BDI-II)

Ho: There is no difference in the Polarisation between people who are depressed and people who are not depressed

H1: Those who are depressed have a higher Polarisation compared to those who are not depressed.

GRIDCOR calculates polarisation as the percentage of extreme grid ratings (1 to 7 on a 7-point scale). The theoretical probability of extreme scores for a 7-point Likert scale is 28.57%. Polarisation index scores clearly exceeding this value can be considered as indicators of high cognitive polarisation. Elevated levels of extremity have been associated with rigidity and polarised construing related to neurotic problems and with the severity of depression (Neimeyer, 1985; Neimeyer & Feixas, 1992). Polarisation for the sample had a mean of 37.57, an SD of 19.42. Fifty-five out of the 96 participants who completed the RGT scored above 28.57% for polarisation.

Polarisation was treated as a continuous variable throughout the study. The bivariate multinomial regression analysis in Table 10 above indicates that Polarisation was not significantly associated with depression (BDI-II). Therefore one can accept the null hypothesis which states that there is no difference in Polarisation between depressed and non-depressed people.

5.4.7. Testing Hypothesis 7: Relationship between the Presence of implicative dilemmas and depression (BDI-II)

Ho: There is no difference in the number of implicative dilemmas between individuals who are depressed and those who are not depressed

H1: Those who are depressed have a higher number of implicative dilemmas compared to

people who are not depressed.

Implicative dilemmas are relationships between an individual's constructs which present that person with a dilemma. The bivariate multinomial regression analysis in Table 10 above indicates that implicative dilemmas were not significantly associated with depression (BDI-II). Therefore one can accept the null hypothesis which states that there is no difference in the implicative dilemmas between depressed and non-depressed people.

5.5. Final Model for depression as the outcome variable

The psychosocial variable, namely Anxiety (HADS-A), risk-taking behaviour variables, namely unprotected sex and adherence to HIV medication, and the cognitive variables, namely Self-Ideal, Self-Others, Others-Ideal, Implicative dilemmas, PVFF and Polarisation were hypothesised to be potential mediating variables in the model for predicting the level of depression. This is because they could potentially mediate the association between the independent variables and the dependent variable, level of depression. The following variables were treated as independent variables in the model for predicting depression: sex, age group, marital status, financial and social support, co-existing medical condition, AIDS diagnosis, CD4 count and Anxiety (HADS-A) because they were thought to be predictive of depression in PLWHAs.

The final model included only the moderating variables which were found to have a significant bivariate association with depression and included all the independent variables. When all these variables were regressed against depression, the output showed that individuals who had moderate to severe anxiety ($p=0.025$) had significantly higher risk of having **mild depression** than those with no anxiety. Participants with CD4 count < 200 were

also found to have significantly higher risk of having mild depression than individuals with a CD4 count above 200. Individuals with a co-existing medical condition ($p=0.027$) had significantly lower risk of moderate/severe depression. Mild anxiety ($p=0.011$) and moderate to severe anxiety ($p<0.001$) was found to be significantly positively associated with moderate to severe depression. The pseudo R2 can be interpreted as a measure of how well the model fits the data. The Pseudo R2 for the final model with depression as the outcome variable was = 0.2073.

Table 14: Final Model for depression (BDI-II) as the outcome variable

Depression (BDI-II)						
0-13 (minimal)	RRR	Std. Error	z	P>z	[95% Confidence Interval]	
14-19 (mild)	ref					
Female	0.37	0.32	-1.16	0.245	0.07	1.99
18-24 years	ref					
25-34years	0.78	0.68	-0.29	0.769	0.14	4.31
35-54years	0.56	0.51	-0.65	0.517	0.1	3.34
Never married/Separated	0.36	0.27	-1.39	0.165	0.08	1.54
Unemployed	0.82	0.6	-0.29	0.775	0.2	3.4
Employed	1.52	1.42	0.44	0.658	0.25	9.52
Do you have financial dependents	0.70	0.46	-0.57	0.571	0.19	2.51
Are you financially dependent	0.30	0.22	-1.71	0.087	0.08	1.2
Live on my own	0.70	0.53	-0.5	0.62	0.16	3.08
Co-existing medical condition	1.2	0.82	0.24	0.812	0.31	4.56
Aids Diagnosis	1670478	1.28	0.02	0.985	0	
Stage 2-3: 200-800	ref					
Stage 4:<200	6.26	4.5	2.32	0.02*	1.33	29.48
CD4 count unknown	1.53	2.1	0.31	0.753	0.11	21.52
HADS-A 0-7 (normal)	ref					
HADS-A 8-10 mild	2.96	2.53	1.27	0.205	0.56	15.8
HADS-A 11-21 moderate/severe	8.9	8.62	2.25	0.025*	1.33	59.56
Constant	1.65	0.01	-0.02	0.984	0	
Moderate or severe	RRR	Std. Error	z	P>z	[95% Confidence Interval]	
Female	0.40	0.28	-1.35	0.176	0.11	1.52
18-24 years	ref					
25-34years	1.97	1.54	0.87	0.387	0.43	9.08

35-54years	0.66	0.56	-0.5	0.62	0.13	3.49
Never						
married/Separated	0.93	0.51	-0.13	0.893	0.33	2.70
Unemployed	1.02	0.62	0.02	0.981	0.31	3.35
Employed	0.83	0.68	-0.24	0.809	0.17	4.11
Do you have						
financial dependents	0.44	0.23	-1.62	0.106	0.16	1.20
Are you financially						
dependent	0.68	0.42	-0.64	0.521	0.21	2.25
Live on my own	0.99	0.59	-0.02	0.98	0.31	3.19
Co-existing medical						
condition	0.30	0.17	-2.21	0.027*	0.11	0.87
Aids Diagnosis	1.45	1.20	0.44	0.657	0.29	7.31
Stage 2-3: 200-800	ref					
Stage 4:<200	2.77	1.60	1.76	0.078	0.90	8.58
CD4 count unknown	1.75	1.44	0.68	0.497	0.35	8.74
HADS-A 0-7 (normal)	ref					
HADS-A 8-10 (mild)	5.06	3.23	2.54	0.011*	1.45	17.70
HADS-A 11-21						
(moderate/severe)	17.09	13.58	3.57	<0.001*	3.61	81.10
Constant	0.31	0.35	-1.05	0.295	0.04	2.86

N = 139, LR chi2 (30) = 50.65, Prob > chi2 = 0.02, Log likelihood = -96.83, Pseudo R2 = 0.21;

* p<0.05

5.6. Aim Two: The second aim of the study is to construct a model that examines selected sociodemographic factors, disease characteristics, psychosocial variables, depression and cognitive variables as predictors of risk-taking behaviours in PLWHA

Risk-taking behaviour variables were narrowed down to two main variables, namely unprotected sex and non-adherence to HIV medication since all other risk-taking behaviour variables did not yield enough numbers significantly for us to report on and other risk-taking behaviour variables were reported on in the section under Knowledge of risk-taking behaviour variables. What follows is a study of the relationships between all the predictor variables and unprotected sex. Next, the relationships between all the predictors and non-adherence to HIV medication were studied.

Table 15: The relationship between sociodemographic variables and unprotected sex

Unprotected sex			Bivariate Regression		
Sociodemographic variables	%	n			
			OR	95% CI (OR)	p-value
Sex					
1-Female	17.3	110	ref	-	-
2-Male	21.9	32	1.34	[0.51-3.55]	0.554
Age					
18-24	28.6	21	ref	-	-
25-34	14.3	70	0.42	[0.13-1.33]	0.139
35-54	19.6	51	0.61	[0.19-1.97]	0.408
Marital status					
1-Never married/ Separated	16.9	89	ref	-	-
2-Living with partner/ Married	20.8	53	1.29	[0.54-3.07]	0.562

The bivariate analysis indicated that none of the sociodemographic variables was significantly associated with unprotected sex. The odds ratios in Table 15 above indicated that males (21.9%) were 1.34 times more likely to have unprotected sex than females (17.3%), although this was not a statistically significant finding. Regarding age, those between the age group 18-24 years (28.6%) were having twice as more sex than those in the age group 25-34 years (14.3%). Participants in the 25-34 year age group (OR=0.42, CI=0.13-1.33) and participants in the 35-54 year age group (OR=0.61, CI=0.19-1.97) both had a lower odds of having unprotected sex than participants in the 18-24 year age group.

Regarding marital status, it was found that those who were married or living with a partner 1.29 times more likely to have unprotected sex (20.8%) than participants who were never married or separated (16.9%).

Table 16: The relationship between financial and social support variables and unprotected sex

Unprotected sex			Bivariate Regression		
Financial and social support	%	n	OR	95% CI (OR)	p-value
Source of Income					
1-Unemployed	15.9	69	ref	-	-
2-Employed	16	25	1	[0.29-3.5]	0.995
3- Receive government aid only	22.9	48	1.57	[0.62-3.98]	0.344
Do you have financial dependents?					
1-No	20.9	43	ref	-	-
2-Yes	17.2	99	0.78	[0.32-1.93]	0.595
Are you financially dependent?					
1-No	8.2	49	ref	-	-
2-Yes	23.7	93	3.49	[1.13-10.78]	0.03*
Do you live on your own?					
1-No	19.4	103	ref	-	-
2-Yes	15.4	39	0.75	[0.28-2.05]	0.58

* p<0.05

The bivariate analysis indicated that none of the financial support variables was significantly associated with unprotected sex, except for the variable ‘are you financially dependent (p=0.03).

There was no difference in unprotected sex between those who were employed (16%) and those who were unemployed (15.9%). Participants who were receiving government aid only (22.9%) were 1.57 times more likely to have unprotected sex compared to those who were unemployed and not receiving government aid.

Those who had financial dependents (17.2%) were 0.78 times less likely to have unprotected sex than those who did not have financial dependents (20.9%).

Those who were financially dependent (23.7%) were 3.49 times more likely to have unprotected sex than those who were not financially dependent (8.2%).

Those who lived on their own (15.4%) were 0.75 times less likely to have unprotected sex than those who did not live on their own (19.4%).

Table 17: The relationship between disease characteristics and unprotected sex

Unprotected sex			Bivariate Regression		
Disease characteristics	%	n	OR	95% CI (OR)	p-value
Co-existing medical condition					
1-No	18.5	65	ref	-	-
2-Yes	18.2	77	0.98	[0.42-2.3]	0.966
AIDS diagnosis					
1-No	12.5	16	ref	-	-
2-Yes	19	126	1.65	[0.35-7.74]	0.527
CD4 count					
Stage 2-3: 200-800	18	50	ref	-	-
Stage 4: <200	17.8	73	0.99	[0.39-2.52]	0.978
Unknown	22.2	18	1.3	[0.35-4.9]	0.697

None of the disease characteristics was significantly associated with unprotected sex.

Unprotected sex was similar if not the same, irrespective of whether one had a co-existing medical condition or not (OR=0.98, CI = 0.42-2.3).

Those who have been diagnosed with AIDS (19%) were 1.65 times more likely to have unprotected sex compared to those who did not have AIDS/ who were only HIV-positive (12.5%).

The amount of unprotected sex that participants in Stage 4 of the disease (17.8%) were having in comparison to participants (18%) in Stage 2-3 of the disease was similar if not the same (OR=0.99, CI = 0.39-2.52). Those with an unknown CD4 count (22.2%) were 1.3 times more likely to have unprotected sex than those in Stage 2-3 (18%) of the disease.

Table 18: The relationship between Anxiety (HADS-A) and unprotected sex

Unprotected sex			Bivariate Regression		
Anxiety (HADS-A)	%	n	OR	95% CI (OR)	p-value
0-7 (normal)	21.2	99	ref	-	-
8-10 (mild)	8.3	24	0.34	[0.07-1.55]	0.163
11-21 (moderate/severe)	17.6	17	0.8	[0.21-3.03]	0.738

The bivariate analysis in Table 18 above highlighted that the psychosocial variable, as represented by anxiety was not significantly associated with unprotected sex. Participants who experience no anxiety to normal anxiety levels were having the most unprotected sex (21.2%), followed by those with moderate /severe anxiety (17.6%) and those experiencing mild anxiety appeared to have the least amount of unprotected sex (8.3%). Those who experienced moderate/severe anxiety (17.6%, OR=0.8, CI =0.21-3.03) were about two times more likely than those with mild anxiety (8.3%, OR=0.34, CI = 0.07-1.55) to have unprotected sex compared to those with normal anxiety.

Table 19: The relationship between depression (BDI-II) and unprotected sex

Unprotected sex			Bivariate Regression		
Depression (BDI-II)	%	n	OR	95% CI (OR)	p-value
0-13 (no or minimal depression)	24.2	91	ref	-	-
14-19 (mild depression)	6.3	16	0.21	[0.03-1.67]	0.14
20-63 (moderate / severe depression)	8.6	35	0.29	[0.08-1.05]	0.06

The bivariate analysis in Table 19 above indicated that there was no significant relationship between depression and unprotected sex. Participants who experienced mild depression (6.3%, OR=0.21, CI = 0.03-1.67) and those who experienced moderate/severe depression

(8.6%, OR=0.29, CI = 0.08-1.05) were both less likely to have unprotected sex compared to those with no or minimal depression.

Table 20: The relationship between cognitive variable (RGT) and unprotected sex

Unprotected sex			Bivariate Regression		
Cognitive variables (RGT)	%	n	OR	95% CI (OR)	p-value
Self-Ideal relationship					
Negative or 0	21.7	23	ref	-	-
Positive	20.5	73	0.93	[0.3-2.92]	0.902
Self-Others relationship					
Negative or 0	28	25	ref	-	-
Positive	18.3	71	0.58	[0.2-1.66]	0.308
Other- Ideal relationship					
Negative or 0	40.9	22	ref	-	-
Positive	14.8	74	0.25	[0.09-0.73]	0.011*
Number of constructs			0.91	[0.7-1.18]	0.485
Presence of Implicative Dilemmas					
No = 0	22.2	81	ref	-	-
Yes = 1	13.3	15	0.54	[0.11-2.61]	0.442
PVFF					
20-45	21.1	57	ref	-	-
46-94	20.5	39	0.97	[0.35-2.64]	0.949
Polarisation			0.99	[0.97-1.02]	0.691
0-24.9	23.7	38			
25-49.9	16.7	36			
50-100	22.7	22			

* p<0.05

In Table 20 above, the bivariate analysis indicated that there was no significant relationship between the cognitive variables and unprotected sex.

The others-ideal relationship was significantly associated with having unprotected sex (p=0.011). This suggests that those participants who were satisfied with the people that

surround him/her were less likely to have unprotected sex (OR=0.25, CI = 0.09-0.73).

Table 21: Final Model chosen for unprotected sex as a risk-taking behaviour variable

Unprotected sex	AOR	Std. Err.	z	P>z	[95% Confidence Interval]	
Female	2.6	2.32	1.06	0.287	0.45	14.98
18-24 years	ref					
25-34 years	0.07	0.07	-2.81	0.005**	0.01	0.44
35-54 years	0.07	0.08	-2.57	0.01*	0.01	0.54
Never married/Separated	3.13	2.24	1.59	0.111	0.77	12.72
Unemployed	6.01	5.0	2.15	0.031*	1.18	30.68
Employed	3.17	3.34	1.09	0.276	0.4	25.03
Do you have financial dependents	0.53	0.37	-0.94	0.348	0.14	2.02
Are you financially dependent	2.79	2.66	1.07	0.284	0.43	18.11
Live on my own	2.33	1.89	1.04	0.299	0.48	11.39
Co-existing medical condition	0.4	0.28	-1.35	0.178	0.11	1.54
Aids Diagnosis	0.8	0.91	-0.2	0.842	0.09	7.37
Stage 2-3: 200-800	ref					
Stage 4:<200	0.58	0.38	-0.85	0.395	0.16	2.07
CD4 count unknown	0.18	0.29	-1.07	0.285	0.01	4.34
Others-Ideal	0.17	0.12	-2.51	0.012*	0.05	0.68
Constant	3.1	5.2	0.67	0.501	0.12	82.85

* p<0.05 ** p<0.001

The model in Table 21 above was fitted by first looking at all the variables which were significant in the bivariate model. The final model only used the mediator variables that were significantly associated with unprotected sex and all the IVs.

The age groups 25-34 years (p=0.005), 35-54 years (p=0.01), being unemployed (p=0.031) and the other Others-Ideal relationship (p=0.012) were significantly associated with unprotected sex.

Table 22: The relationship between sociodemographic variables and non-adherence to HIV medication

Non-Adherence to HIV medication			Bivariate regression			
Sociodemographic variables	%	n	Overall variable significance			
				OR	95% CI (OR)	p-value
Sex						
1-Female	21.8	24		ref	-	-
2-Male	28.1	9		1.4	[0.57-3.43]	0.458
Age			0.237			
18-24	19	4		ref	-	-
25-34	18.6	13		0.97	[0.28-3.37]	0.961
35-54	31.4	16		1.94	[0.56-6.71]	0.294
Marital status						
1-Never Married/ Separated	27	24		ref	-	-
2-Living with partner/ Married	17	9		0.55	[0.24-1.3]	0.176

The bivariate analysis in Table 22 above indicated that none of the sociodemographic variables was significantly associated with non-adherence to HIV medication.

Males (28.1%) were 1.4 times more likely not to adhere to their HIV medication than females (21.8%).

There was no difference between those who were between 18-24 years (19%) and 25-34 years (18.6%) regarding not adhering to their HIV medication (OR=0.97, CI = 0.28-3.37).

The 35-54 year age group; however, were 1.94 times more likely not to adhere to their HIV medication relative to the 18-24 year age group. This shows that the older people were the greater were their chances of not adhering to their HIV medication.

Participants who were living with a partner or who were married (17%) were 0.55 times less likely not to adhere to their HIV medication than those who were never married or separated (27%).

Table 23: The relationship between financial and social support variables and non-adherence to HIV medication

Non-Adherence to HIV medication			Bivariate regression			
Financial and social support variables	%	n	Overall variable significance	OR	95% CI (OR)	p-value
Source of Income			0.643			
1-Unemployed	26.1	18		ref	-	-
2-Employed	24	6		0.89	[0.31-2.59]	0.838
3-Receive government aid only	18.8	9		0.65	[0.27-1.61]	0.356
Do you have financial dependents?						
1-No	30.2	13		ref	-	-
2-Yes	20.2	20		0.58	[0.26-1.32]	0.196
Are you financially dependent?						
1-No	22.4	11		ref	-	-
2-Yes	23.7	22		1.07	[0.47-2.44]	0.871
Do you live on your own?			0.031			
1-No	18.4	19		ref	-	-
2-Yes	35.9	14		2.48	[1.09-5.63]	0.031*

* p<0.05

The bivariate analysis in Table 23 above indicated that none of the financial and social support variables was significantly associated with non-adherence to HIV medication except for 'Do you live on your own? (p=0.031).

Participants who were receiving government aid only (18.8%, OR=0.65, CI = 0.27-1.61) and those who were employed (24%, OR=0.89, CI = 0.31-2.59) were both less likely to not adhere to their HIV medication when compared to those who were unemployed (26.1%).

Those who had financial dependents (20.2%) were 0.58 times less likely not to adhere to their HIV medication when compared to those who did not have financial dependents (30.2%). Those who were financially dependent (23.7%) were 1.07 times more likely not to adhere to their HIV medication when compared to those who were not financially dependent (22.4%). Those who lived on their own (35.9%) were 2.48 times more likely not to adhere to their HIV medication than those who did not live on their own (18.4%).

Table 24: The relationship between disease characteristics and non-adherence to HIV medication

Non-Adherence to HIV medication			Bivariate regression			
Disease Characteristics	%	n	Overall variable significance	OR	95% CI (OR)	p-value
Co-existing medical condition						
1-No	35.4	23		ref	-	-
2-Yes	13	10		0.27	[0.12-0.63]	0.002*
AIDS diagnosis						
1-No	43.8	7		ref	-	-
2-Yes	20.6	26		0.33	[0.11-0.98]	0.046*
CD4 count			<0.001			
Stage 2-3: 200-800	10	5		ref	-	-
Stage 4: <200	19.2	14		2.14	[0.72-6.37]	0.173
Unknown	77.8	14		31.5	[7.43-133.64]	<0.001*

*P<0.001

The bivariate analysis in Table 24 above indicated that having a co-existing medical condition (p=0.002), being diagnosed with AIDS (p=0.046) and having an unknown CD4 count (p<0.001) was significantly associated with non-adherence to HIV medication.

Those who had a co-existing medical condition (13%) was 0.27 times less likely to be non-adherent than those who did not have a co-existing medical condition (35.4%).

Those who were diagnosed with AIDS (20.6%) were 0.33 times less likely to be non-adherent to their HIV medication than those who did not have AIDS (43.8%). Those with Stage 4 of the disease (19.2%) were 2.14 times more likely while those with an unknown stage of illness (77.8%) were 31.5 times more likely to be non-adherent to their HIV medication compared to those in Stage 2-3 of the disease (10%).

Table 25: The relationship between Anxiety (HADS) and non-adherence to HIV medication

Non-Adherence to HIV medication			Bivariate regression			
Psychosocial variable	%	n	Overall variable significance	OR	95% CI (OR)	p-value
			Anxiety (HADS-A)			0.966
0-7 (normal)	23.2	23		ref	-	-
8-10 (mild)	20.8	5		0.87	[0.29-2.59]	0.802
11-21 (moderate/severe)	23.5	4		1.02	[0.3-3.42]	0.979

The bivariate analysis showed that anxiety was not significantly associated with unprotected sex. Participants who experienced **mild anxiety** (20.8%) were 0.87 times less likely than those who had normal anxiety (23.2%) to be non-adherent.

Participants who experienced **moderate/severe anxiety** (23.5%) were no different to participants who had normal anxiety regarding non-adherence to HIV medication (OR=1.02, CI = 0.3-3.42).

Table 26: The relationship between depression (BDI-II) and non-adherence to HIV medication

Non-Adherence to HIV medication			Bivariate regression			
	%	n	Overall variable significance	OR	95% CI (OR)	p-value
Depression (BDI-II)			0.733			
0-13 (no or minimal depression)	22	20		ref	-	-
14-19 (mild depression)	31.3	5		1.61	[0.5-5.19]	0.422
20-63 (moderate / severe depression)	22.9	8		1.05	[0.41-2.67]	0.915

The bivariate analysis indicated that there was no significant relationship between depression and non-adherence to medication.

Participants who experienced moderate/severe depression (22.9%, OR=1.05, CI= 0.41-2.67) were just as likely to be non-adherent to their HIV medication as those with minimal/no depression (22%). Participants who experienced mild depression (31.3%) were 1.61 times more likely not to adhere to their HIV medication than those with minimal/no depression (22%), although the relationship between the two variables did not appear to be significantly associated.

Table 27: The relationship between cognitive variable (RGT) and non-adherence to HIV medication

Non-Adherence to HIV medication			Bivariate regression		
Cognitive variables (RGT)	%	n	OR	95% CI (OR)	p-value
Self-Ideal relationship					
Negative or 0	21.7	23	ref	-	-
Positive	20.5	73	0.93	[0.3-2.92]	0.902
Self-Others relationship					
Negative or 0	28	25	ref	-	-
Positive	18.3	71	0.58	[0.2-1.66]	0.308
Other- Ideal relationship					
Negative or 0	40.9	22	ref	-	-
Positive	14.8	74	0.25	[0.09-0.73]	0.011*
Number of constructs					
			0.91	[0.7-1.18]	0.485
Presence of Implicative Dilemmas					
No = 0	22.2	81	ref	-	-
Yes = 1	13.3	15	0.54	[0.11-2.61]	0.442
PVFF category					
20-45	21.1	57	ref	-	-
46-94	20.5	39	0.97	[0.35-2.64]	0.949
Polarisation					
0-24.9	23.7	38	0.99 ^a	[0.97-1.02]	0.691
25-49.9	16.7	36			
50-100	22.7	22			

* p<0.05

The bivariate analysis indicated that there was no significant relationship between the cognitive variables and non-adherence to medication, except for the Other-Ideal relationship which was significantly associated with non-adherence to HIV medication (p=0.011). All cognitive variables showed lower odds of non-adherence with regard to their respective reference groups. There was no difference in PVFF between scores 20-45 (20.5%) in

reference to scores 46-94 (21.1%) (OR=0.97, CI = 0.35-2.64). There was also no difference in Polarisation between scores 50-100 (22.7%) in reference to scores 46-94 (23.7%) (OR=0.99, CI = 0.97-1.02).

Table 28: Final Model chosen for non-adherence to HIV medication as a risk-taking behaviour variable

Non-Adherence	Odds Ratio	Std. Err.	z	P>z	[95% Confidence Interval]	
Female	7.8	8.87	1.81	0.071	0.85	72.32
18-24 years	ref					
25-34 years	0.91	1.12	-0.08	0.938	0.09	10.07
35-54 years	1.43	1.85	0.27	0.783	0.12	18.06
Never married/Separated	0.67	0.64	-0.42	0.671	0.11	4.3
Unemployed	1.34	1.51	0.25	0.8	0.15	12.15
Employed	0.31	0.44	-0.83	0.409	0.02	5.03
Do you have financial dependents	0.28	0.25	-1.43	0.152	0.05	1.62
Are you financially dependent	1.07	1.26	0.05	0.958	0.11	10.81
Live on my own	0.33	0.37	-1	0.318	0.04	2.97
Co-existing medical condition	0.11	0.1	-2.35	0.019*	0.02	0.69
Aids Diagnosis	1.37	1.81	0.24	0.811	0.11	18.03
Stage 2-3: 200-800	ref					
Stage 4:<200	0.9	0.75	-0.14	0.892	0.18	4.56
CD4 count						
unknown	93.87	169.61	2.51	0.012*	2.72	3239.71
Polarization	1.04	0.03	1.48	0.139	0.99	1.1
Constant	0.12	0.29	-0.87	0.387	0.01	16.01

N = 85, LR chi2 (17) = 31.68, Prob > chi2 = 0.02, Log likelihood = -28.05, Pseudo R2 = 0.37

* p<0.05

The model in Table 28 above was fitted by first looking at all the variables which were significant in the bivariate model. The final model only used the mediator variables that were significantly associated with non-adherence to HIV medication and all the IVs.

Having a co-existing medical condition (p=0.019) and an unknown CD4 count (p= 0.012) were significantly associated with non-adherence to HIV medication.

5.3. Conclusion

A summary of all significant results was as follows:

Regarding **sociodemographic characteristics**, the sample consisted of more black African females (n=110; 78%) than males (n=32; 22%) and thus reflect the disproportion of females affected by HIV as compared to males. Two-thirds (76%) of the sample was between the ages 25 and 44 years. The majority of participants was diagnosed with AIDS (88.7%). The majority (82.4%) of participants were unemployed. Based on the descriptive statistics of the study, one-third of the sample reported having mild, moderate or severe depression (36%) and mild, moderate or severe anxiety (29.3%).

The study found that those between the ages 25-34 years were 1.88 times more likely to experience **moderate to severe depression** compared to those between 18-24 years old. Someone living with a partner or being married was almost twice as likely than people who were never married or who were separated to have **mild depression** ($1/0.51=1.96$). The bivariate regression analysis found that people who lived on their own were 1.54 times more likely to have moderate to severe depression than those who did not live on their own. Those who were in Stage 4 of the disease were 2.3 times more likely to experience mild depression and were 1.59 times more likely to experience moderate to severe depression relative to minimal/no depression. Those participants who had an unknown CD4 count were 1.96 times more likely to experience **moderate to severe depression** relative to minimal/no depression. Unprotected sex was significantly associated with depression ($p=0.037$). Those who had implicative dilemmas were 1.89 times more likely to experience mild depression and 2.27 times more likely to experience moderate to severe depression relative to minimal/no

depression. Even though the relationship was not significant, the odds of having depression increased in those with implicative dilemmas.

With regard to Aim One, the bivariate multinomial regression analysis found the following relationships significant: Having financial dependents ($p=0.042$), having a co-existing medical condition ($p=0.027$), mild anxiety ($p=0.004$) and moderate/severe anxiety ($p<0.001$) was **significantly associated with moderate/severe depression only**. Unprotected sex and anxiety ($p=0.001$) were **significantly related to depression** ($p=0.037$).

The final multivariate regression model predicted for Aim One used all the moderating variables which were significantly associated with **depression** in the bivariate multinomial regression model and all the independent variables. The final model showed that Stage 4: <200 cells per mm^3 of the disease ($p=0.02$) and moderate to severe anxiety ($p=0.025$) was significantly associated with **mild depression** and having a co-existing medical condition ($p=0.027$), mild anxiety ($p=0.011$) and moderate/severe anxiety ($p=0.001$) was significantly associated with **moderate/severe depression**. The Pseudo R^2 for the final model with depression as the outcome variable was = 0.2073

With regard to Aim Two, for the bivariate multinomial regression analysis, none of the variables was significantly associated with **unprotected sex**. **The final multivariate regression model for unprotected sex** used all the mediating variables which were significantly associated with unprotected sex and all the independent variables. Age group 25-34 years ($p=0.005$), age group 35-54 years ($p=0.01$), being unemployed ($p=0.031$) and Others-Ideal relationship ($p=0.012$) were all significantly associated with unprotected sex in the final regression model.

Males were 1.34 times more likely to have unprotected sex than females. Although 77.5 % of

the sample was female, only 49.3% were able to ask their partner to use a condom. Those between the ages 18-24 years in this study were most likely to have unprotected sex. Those who were financially dependent were 3.49 times more likely to have unprotected sex than those who were not. The others-ideal relationship was the only mediator significantly associated with having unprotected sex. This suggests that those participants who were satisfied with the people that surround him/her were less likely to have unprotected sex (OR=0.25, CI = 0.09-0.73).

The bivariate multinomial regression analysis indicated that neither sociodemographic variables, financial or social support variables (except for, 'Do you live on your own' (p=0.031)), unprotected sex, anxiety, depression, nor any of the cognitive variables (except for 'Other-Ideal' relationship (p=0.011)) were significantly associated with **non-adherence to HIV medication**. All the disease characteristics were significantly associated with non-adherence to HIV medication, that is, having a co-existing medical condition (p=0.002), being diagnosed with AIDS (p=0.046) and having an unknown CD4 count (p<0.001) was significantly associated with non-adherence to HIV medication.

The final multivariate regression model for non-adherence to HIV medication used all the independent variables which were significantly associated with the bivariate models and all the moderating variables. Co-existing medical condition (p=0.019) and CD4 count unknown (p=0.012) were the only two variables that were significantly associated with non-adherence to HIV medication

Males (28.1%) were 1.4 times more likely not to adhere to their HIV medication than females (21.8%). The 35-54 year age group were 1.94 times more likely not to adhere to their HIV medication relative to the 18-24 year age group. Those who lived on their own (35.9%) were 2.48 times more likely not to adhere to their HIV medication than those who did not live on

their own (18.4%). Those with Stage 4 of the disease (19.2%) were 2.14 times more likely while those with an unknown stage of illness (77.8%) were 31.5 times more likely to be non-adherent to their HIV medication compared to those in Stage 2-3 of the disease (10%). Participants who experienced mild depression (31.3%) were 1.61 times more likely not to adhere to their HIV medication than those with minimal/no depression (22%), although the relationship between the two variables did not appear to be significantly associated.



CHAPTER SIX

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

6.1. Introduction

This chapter will discuss the important and significant findings in relation to the hypotheses, first and the second aim of the study and some of its implications in the context of existing literature. The findings of the study were also interpreted in light of the study's methodological strengths and limitations. It is important to acknowledge the possible influence of the mentioned limitations on the absence of any significant relationships among the variables which were explored in the study.



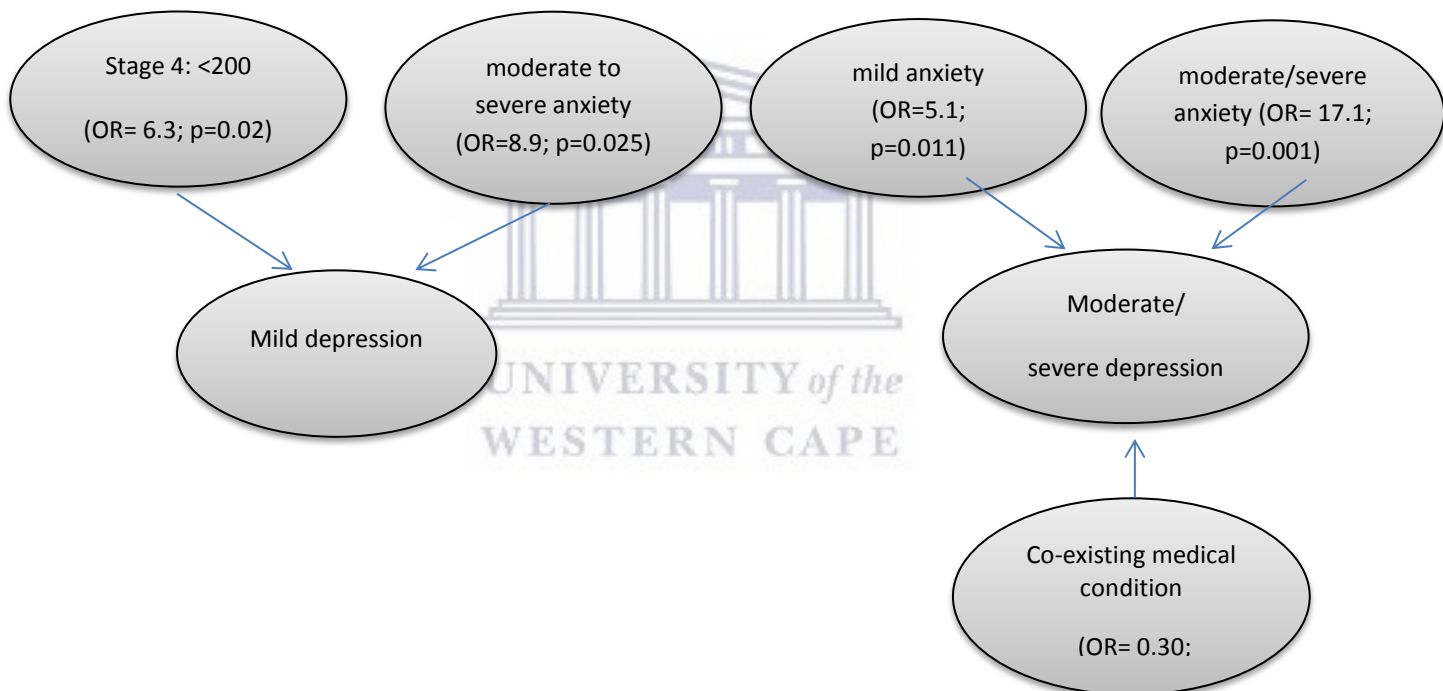
Possible reasons for missing data were attributed to three participants that were transferred out of the clinic to another clinic, four participants that died during the study, and eight participants who were lost to follow-up. Another reason could have been that participant's did not answer certain questions because they were unwell, tired or did not understand the question/s due to language barriers. All of the participants described above were, however, included in the analysis of the study.

6.2. Discussion with regard to Aim One:

The **bivariate multinomial regression analysis** highlighted that neither of the sociodemographic variables, financial or social support variables, disease characteristic variables, adherence to HIV medication (which was a risk-taking behaviour variable) nor any of the cognitive variables was significantly associated with depression.

Having financial dependents ($p=0.042$), mild anxiety ($p=0.004$) and moderate/severe anxiety ($p<0.001$) was **significantly associated** with **moderate/severe depression only**. Unprotected sex and anxiety ($p=0.001$) were **significantly related to depression** ($p=0.037$). Individuals with a co-existing medical condition ($p=0.027$) had significantly lower risk of moderate/severe depression

Figure 8: The final multivariate regression model with predictors for depression as the outcome variable



The final multivariate regression model predicted for Aim One used all the mediating variables which were significantly associated with depression in the bivariate multinomial regression model and all the independent variables.

The **final model** in Figure 8. above showed that Stage 4: <200 cells per mm³ of the disease ($p=0.02$) and moderate to severe anxiety ($p=0.025$) was significantly associated with **mild depression**, and mild anxiety ($p=0.011$) and moderate/severe anxiety ($p=0.001$) was

significantly associated with **moderate/severe depression**. However, individuals with a co-existing medical condition ($p=0.027$) had significantly lower risk of moderate/severe depression.

Being female, 25-34 years old, 35-54 years, never married/separated, unemployed, employed, having financial dependents, being financially dependent, living on one's own, having a co-existing medical condition, diagnosed with AIDS, unknown CD4 count, and mild anxiety were not significantly associated with depression.

6.2.1. The relationship between gender and depression

The sample consisted of more black African females ($n=110$; 78%) than males ($n=32$; 22%) and thus reflect the disproportion of females affected by HIV as compared to males. This also reflects the demographic pattern of the region which may have affected the generalisability of the results. The higher number of females than males within the sample correlates with past research findings which show that the majority of people attending public health care facilities are women (WHO, 2007), and that women are at a greater risk of infection, particularly in South Africa (SA) (Bradley, Gaynes, Pence, Eron, & Miller, 2008; Morrison, Petitto, Have, Gettes, Chiappini, Weber, Bauer, Douglas, & Evans, 2002; AIDS Foundation South Africa, 2005; UNAIDS, 2008). More women are infected especially in Africa due to social and cultural factors as well as gender inequality. In South Africa, abuse and violence against women (including sexual abuse) in particular, is largely a result of the inequality and disparity in the power of women that leads to the transmission of the virus and perhaps the reason why more women are accessing healthcare facilities (Bradley et al., 2008, Morrison et al., 2002). However, keeping in mind that this was a convenience sample, and therefore, the higher number of females in the

study may also have been the result of more females consenting to participation and the tendency of males to under report.

The current study found no significant gender differences in an HIV-infected population with depression as the outcome variable. This result was attributed to the relatively small sample size of males in the study, and consequently, lower statistical power to detect differences. A study by Gotlieb et al. (2004) found that consistent with that seen in the general population women had significantly worse depression scores than men. Similarly, a study by Theron et al. (2015), also found that women and PLWHAs to have a significantly higher level of psychological distress than men or HIV-uninfected patients, respectively.

On the other hand, however, a study by Gupta et al. (2010) found that men had a higher prevalence of depression compared to women which differs from prior studies that had found either no differences in the prevalence of depression by gender or a higher prevalence among women (Patel, Todd, Winston, Gwanzura, Simunyu, et al., 1997; Simbayi, Kalichman, Strebel, Cloete, Henda, et al. (2007). Furthermore, men often have less social support (Simbayi et al., 2007) and access health care less frequently (Bankole, Singh, Hussain & Wulf, 2004), which have been shown to be correlated with depression in prior literature from low resource settings including among PLWHA (Simbayi et al., 2007).

6.2.2. The relationship between age and depression

Two-thirds (76%) of the sample was between the ages 25 and 44 years. This could have been a result of chance, that is, due to the convenience sampling method used in the selection process. This also correlates with past studies which signify that AIDS-related mortality is the most common amongst individuals that are of reproductive age (Myer, Seedat, Stein,

Moomal, & Williams, 2009). The current study found that those between the ages 25-34 years were 1.88 times more likely to experience **moderate to severe depression** compared to those between 18-24 years old. In light of this finding, it was assumed that older people are less likely than younger people to seek treatment for depression. Younger patients may adapt better to life circumstances as well as treatment, hoping for a major scientific breakthrough that will bring about a cure in their lifetime. Furthermore, a study by Karpiak, Shippy & Cantor (2006) found that often there is a failure to recognise the symptoms of depression, and there may be a perception that being depressed is simply a characteristic of ageing rather than an illness (Karpiak et al., 2006).

Studies have found that older age was associated with psychological stress. This finding is consistent with the findings of other studies among TB patients (Issa, Yussuf & Kuranga, 2009; Aghanwa & Erhabor, 1998) in particular, but was not consistent with findings in general population studies (Williams et al., 2008). The increased prevalence of distress in older participants may be due to increased responsibilities such as child care, care of other family members, employment and economic responsibilities, having to cope with chronic illness conditions, including HIV in the older age group (Issa et al., 2009). A study by Olapegba (2005) on the other hand, however, found age to predict the mental health of PLWHA independently. This means that age at which one is infected influences the mental health and the choice of coping strategy which dominates at that point in a person's life.

6.2.3. The relationship between marital status and depression

Marital status did not appear to be a predictor of depression in PLWHAs in this study. In terms of the odds ratio's however, someone living with a partner or being married was almost twice as likely than people who were never married or who were separated to have **mild**

depression (1/0.51=1.96). The findings of this study happen to be in line with older studies such as that by Gurin, Feld & Veroff (1960) which found that mental health and happiness provide empirical evidence that women find marriage to be more difficult than men. Women report more marital problems than men and women tend to be less happy with their marriage. Because they found women to be more introspective than men, it is surprising to note that women are more likely to blame their husbands for their marital problems and unhappiness than vice versa (Gurin et al., 1960:84-116). Women are also less likely than men to get satisfaction out of being a parent, and they indicate that they have more problems in dealing with their children and that they more frequently feel inadequate as a parent (Gurin et al., 1960:117-142). In general, information suggests that married women find their role limited and frustrating and that their circumscribed range of activities and introspective tendencies (and/or opportunities for brooding) tend to magnify their problems. Also, women's feelings about themselves appear to be quite responsive to the feedback of others (Schwalbe & Staples, 1991). Consistent with these attributions, social stress is correlated with higher depression and lower self-esteem for women but not men (Moran & Eckenrode, 1991).

More recent studies, however, paint a different picture. A study by Akhtar-Danesh and Landeen (2007) that collected data based on unequal sampling probabilities to ensure adequate representation of young persons (15 to 24) and seniors (65 and over) found marital status to interact with gender in accounting for variance in the prevalence of depression. They found that in Australia, those who were separated or divorced had a high rate of anxiety disorders (18%) and affective disorders (12%) (Australian Bureau of Statistics, 2006). In Canada, single mothers have been found to have a prevalence of 15.4% compared to 6.8% for married mothers (Cairney, Thorpe, Rietschlin, Avison, 1999), although this increase in the rate of depression may relate to the demands of parenting rather than on marital status, per se.

A study by Hirschfeld (2000) also found that depression is more prevalent among the unmarried.

6.2.4. The relationship between financial support and depression

The majority (82.4%) of participants were unemployed. The high unemployment rate may be partly due to the South African economic system or could also possibly be a consequence of HIV disease severity (Akena, Musisi & Kinyanda, 2010). Even if people were employed in this community, their income was on average low and families (particularly large families who live in one household) still live in conditions of poverty.

Unemployment in this study also reflects the low levels of education in this sample of participants, which perhaps influences the employment opportunities available for these individuals. According to Marwicka and Kaaya (2010), unemployment and lack of education have been associated with mental disorder risk in South Africa (Havenaar et al., 2008) and Uganda (Kaharuza et al., 2006). These trends would be expected to lead to higher levels of depression in this study.

Financial variables were not a predictor of depression in this study. These findings are contradictory to the findings of a study that was conducted by Dunn, Inskip, Kendrick, et al. (2008) which found that perceived financial strain was associated with both onset and maintenance of depression. Other prospective studies from the US and also from Hong Kong, particularly among older adults, have suggested that perceived financial strain is a significant predictor of the development of depression (Angel, Frisco, Angel and Chiriboga, 2003; Chou, Chi, and Chow, 2004). The question arises as to why the results of this study differ from those in the papers mentioned above. The reason is that the measurement of potential confounders varies between all the studies which were looked at, and there were undoubtedly

complex relationships between contributing factors such as actual income, social circumstances, educational attainment and receipt of benefits, to name but a few. These factors make it difficult to compare studies, especially those between countries with widely differing conditions (Dunn et al., 2008). Also, females and age groups in this study could probably be necessary for that perhaps the question about the perception of financial strain is not so relevant to these categories of people, in whom other social or lifestyle factors may predominate.

The majority of participants was diagnosed with AIDS (88.7%) and was unemployed (82.4%), yet only 3.5% of participants were accessing the HIV grant. The reasons for not accessing the grants were not entirely clear, however, the assumption is that perhaps government support services for those who are HIV positive are weak, especially in small peri-urban areas such as this one where the prevalence of HIV happens to be high (Siddharth, Sheth, Paul, Jensen & Lahey, 2009). On the other hand, the majority of the sample were uneducated and therefore, did not probably have the knowledge or information as to where, when, what or how to access these grants. The low uptake of HIV grants could also be due to people not being able to access treatment and care or could be due to stigma. The majority of the sample either had financial dependents, were financially dependent and/or lived with others could mean that people had the financial and social support that they required and therefore, were not desperate enough to access the government grants.

6.2.5. The relationship between social support and depression

The study found that almost two-thirds of the sample (72.5%) lived with others. This finding is in line with one of the fundamental assumptions of the biopsychosocial model which is that systems exist within systems (Sheridan & Radmacher, 1992). A system is a dynamic

entity that is comprised of components that are continuously interrelated. A person is viewed as being a system in itself, as well as part of other systems, such as his family, and society in which he lives. These systems all affect and are affected by each other (Sarafino & Smith, 2002).

The bivariate regression analysis found that people who lived on their own were 1.54 times more likely to have **moderate to severe depression** than those who did not live on their own. These findings concur with previous research indicating that social isolation relates to higher depression symptoms (Hiott et al., 2008; Lackey, 2008; Mines, Mullenax & Saca, 2001). It is likely that living with others may have served as a buffer to the stress of HIV/AIDS in the lives of the participants in this study. A study by Hirschfeld (2000) also showed evidence that the health of an individual is related to the degree to which their support systems are active and supportive and the extent to which they are integrated into their communities (Berkman, 1995).

6.2.6. The relationship between co-infection, AIDS diagnosis, and depression

Although several studies have looked at the interaction between either HIV/AIDS or TB with mental health problems, little is known about the effect of TB/HIV co-infection on common mental disorders (Deribew et al., 2010). The results of this study showed that those who had a co-existing medical condition were 1.14 times more likely to have **mild depression** and those who were diagnosed with AIDS were 1.18 times more likely to have **moderate/severe depression** in comparison to minimal/no depression. The findings of this study concurred with a study conducted by Deribew et al. (2009) in Ethiopia, which compared the quality of life HIV-positive patients with and without TB. In Deribew et al's (2009) study co-infected patients and individuals with depression were 8.8 times more likely

to have poor physical health as compared to an individual who had no depression (OR = 8.8 (95% CI: 3.2, 23)). Furthermore, among co-infected patients and depressed individuals were five times more likely to have poor social relationships as compared to an individual without depression, (OR = 5.3, (95% CI: 2.3, 14.2)).

6.2.7. The relationship between CD4 count and depression

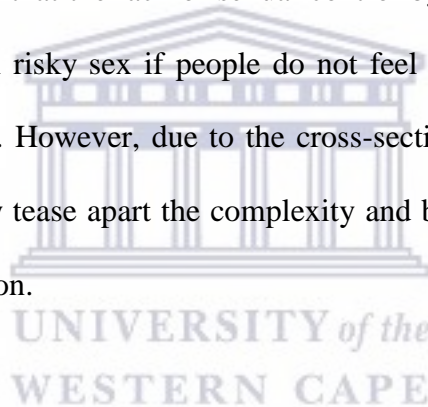
Most of the participants in this study were in Stage 3 and 4 of the disease. Those who were in Stage 4 of the disease were 2.3 times more likely to experience **mild depression** and were 1.59 times more likely to experience **moderate to severe depression** relative to minimal/no depression.

On the other hand, those participants who had an unknown CD4 count were 0.82 times less likely to experience **mild depression** and 1.96 times more likely to experience **moderate to severe depression** compared to minimal/no depression. These results is in keeping with previous studies, that is, the association between depression and immune function, particularly CD4 and T-lymphocyte counts, have reported varying findings with some showing an association and others not (Evans, Leserman, Perkins et al., 1995; Rabkin, Williams, Remien, et al., 1991; Leserman, Petitto, Perkins, et al. 1997; Perry, Fishman, Jacobsberg & Frances, 1992; Burack, 1993). For example, some studies have found that rates of depression increase in the later stages of HIV infection (Maj et al., 1994; Rosenberger, Bornstein & Nasrallah, 1993; Hoover, Saah, Bacellar, Detes & Phair 1992), while others have shown no consistent association between rates of depression and stage of HIV disease (Atkinson, Grant, Kennedy, Richman, Specter & McCutchan, 1988; Lyketsos & Federman, 1995). However, there is only one large prospective analysis published to date (Hoover et al., 1992) that has suggested that the

prevalence of depressive symptoms may increase in the later stages of HIV infection, before the development of clinical AIDS (Lyketsos, Hoover, Guccione, Dew, Wesch, Bing & Treisman, 1996).

6.2.8. The relationship between risk-taking behaviour variables and depression

Unprotected sex was significantly associated with depression ($p=0.037$). The study's findings are consistent with previous research carried out in South Africa that found that women have no decision-making power in relationships and this leads to feelings of lower self-worth among women and a higher prevalence of depression. In addition to leading directly to depression, it is also plausible that the lack of sexual control by women can indirectly result in depression via engaging in risky sex if people do not feel good about their choices and practices (Gupta et al., 2010). However, due to the cross-sectional nature of this study, the researcher was unable to fully tease apart the complexity and bi-directionality between risk-taking behaviour and depression.



6.2.9. The relationship between anxiety and depression

Based on the descriptive statistics of this study, one-third of the sample reported having mild, moderate or severe depression (36%) and mild, moderate or severe anxiety (29.3%). Anxiety disorders often co-occur with depression.

The bivariate multinomial regression analysis indicated that anxiety was significantly associated overall depression ($p=0.001$). For the descriptive statistics, 70.7% of the sample was considered to have normal anxiety, and 64.1% had minimal depression.

Epidemiological studies and data on prevalence rates of major depressive disorders in Africa are limited. Of the studies that have been completed, many have used clinic attendance as a recruitment method thus introducing a potential bias. The prevalence estimates for psychiatric disorders found in this study (36%) is broadly consistent with previous work in South Africa.

Amongst the mental health problems found in PLWHA, depression appears to be the most common. Several studies reported rates of clinical disorder or depressive symptoms above levels expected for non-infected populations. Rates for clinical disorder were mostly above 20%, with Els et al. (1999) and Olley et al. (2004) reporting rates of 35% and Sebit et al. (2003) 27%. Depressive symptoms were also prevalent, with most studies reporting rates of over 30% and as high as 64% (Mfusi & Mahabeer 2000; Sebit et al. 2003; Shisana et al. 2005; Kaharuza et al. 2006; Rochat et al. 2006; Simbayi et al. 2007; Stangl et al. 2007).

In South Africa, small rural-based studies have found a prevalence rate of depressive symptomatology of 18% (Rumble, Swartz, Parry & Zwarenstein, 1996) and a rate of depression of 27% (Rumble, 1994). Other results include a prevalence of depression of 25.2% (Gillis, Welman, Koch & Joyi, 1991) in an urban setting, while Cooper and colleagues (Cooper et al., 1999) found a 34.7% prevalence of postpartum depression in a peri-urban settlement in Cape Town. More recent depression statistics has shown that 41, 9 percent of women, compared to 24.3 percent of men, are affected in the country (Health Systems Trust (HST), 2016).

Levels of other psychiatric problems have also been investigated, with the most research available on anxiety, substance use and posttraumatic stress. Amongst a recently diagnosed population of HIV-infected adults in Nigeria, Adewuya, et al. (2007) reported

that 34% of individuals had some form of anxiety disorder. Other reports of high levels of anxiety-related symptoms or specific anxiety disorders such as panic disorder or generalised anxiety disorder range from 19 to 37% (Els et al. 1999; Mfusi & Mahabeer 2000; Sebit et al. 2003; Shisana et al. 2005).

According to Health24 (2016), the lifetime prevalence of social anxiety disorder is currently estimated to be around 12% of adults. It is equally common between men and women (Health24, 2016). Estimates of lifetime prevalence vary, but approximately 6% of adults will have Generalised Anxiety Disorder (GAD) at some point in their life (Health24, 2016). GAD is more common in women than men and often occurs in relatives of affected persons (Health24, 2016). The prevalence estimates for anxiety (mild, moderate or severe) in this study's sample was 29.3% which is more than the current rates for anxiety reported in other studies.

Although chronic illness has often been associated with increased psychological distress, a diagnosis of HIV disease, for example, places unique burdens on the mental health of persons afflicted with this disease. Because of the uncertainty and distress that HIV creates in the lives of those who are infected, anxiety is a universal problem for these individuals. Anxiety is one of the most prominent symptoms recognised by physicians among people with HIV disease (Fontaine & Lassauniere, 1999). Anxiety relates to several factors, including HIV testing, numbers of symptoms, gender, overall adjustment to HIV disease, higher pre-infection rates of psychiatric disorders, greater sources of severe stress, and socioeconomic issues (Kerrihard, Breitbart, Dent, & Strout, 1999).

Furthermore, approximately 6% (n=8) of participants were lost to follow-up, a rate that the study acknowledged is relatively low. However, if the researcher assumed that loss-to-

follow-up was associated with depression, then this might have biased the findings because this assumption would lead one to believe that the loss-to-follow-ups are an indication of an underestimation of the prevalence of depression that was reported in this sample.

Additionally, this study did not address other possible factors that might be related to depression and anxiety which could explain more variance in the outcome. For example, the researcher did not know what proportion of participants had received antidepressants at some point during or even before the study began. Having insight into this type of information perhaps would have given the researcher a truer reflection of what the rates of depression and anxiety are in the sample. There might have also been some misclassification between cases and non-cases of depression because the researcher relied on a brief self-report scale for identifying depression rather than a more detailed, observer-rated measure (Evans, Heron, Lewis, Araya, Wolke, 2005). The use of the BDI-II which is a self-report inventory result in social desirability bias may have limited the accuracy of the findings.

6.2.10. The relationship between cognitive variables and depression

The bivariate multinomial regression analysis indicates that none of the cognitive (RGT) variables was significantly associated with depression. Pearson's chi-squared test for the cognitive variables with depression was checked, and no association was found. Even though there was no comparison group in this study, the empirical literature comparing the goals of depressed and nondepressed individuals has yielded inconsistent results (Ahrens, 1987; Ahrens et al., 1988; Kanfer and Zeiss, 1983; Loeb et al., 1971).

6.2.11. The relationship between Self-Ideal discrepancy and depression

Beck et al. (1979) describe self-ideal discrepancy or self-devaluation as present in more than 80% of persons with depression. Negative views of the self were universally included in measures assessing depression. Previous RepGrid studies have found that persons with depressive disorders tend to have more negative self-constructions than both normal and psychiatric samples (Ashworth, Blackburn, & McPherson, 1982; Axford & Jerrom, 1986; Hewstone, Hooper, & Miller, 1981; Sheehan, 1981; Space & Cromwell, 1980; Space, Dingemans, & Cromwell, 1983).

The discrepancies between persons' beliefs about themselves currently and their beliefs about what they should be or would like to often result in depression or anxiety (Higgins, 1987). The mean 'current self' and 'ideal self' discrepancy score of 0.27, (SD = 0.42) in this study was considered to be relatively low. This suggested that PLWHAs in this sample were satisfied with themselves and were regarded as having higher self-esteem and self-satisfaction, however, they also were experiencing high levels of anxiety.

The higher self-esteem of participants in this study could be linked to the causal attributions that PLWHAs have assigned to their illness condition. These attributions will ultimately affect the way a patient copes (Naidoo, 2009). An individual, who ascribes external factors that are out of his/her control as causing the illness, is less likely to be self-motivated to improve his/her health status as compared to an individual who rates highly on self-efficacy. Those high in self-efficacy believe that they can carry out tasks and engage in behaviours that matter and provide direction in their lives (Naidoo, 2009).

Increased levels of self-efficacy have also been associated with better disease management, such as adhering to prescribed medicines and managing stress (Clark & Dodge, 1999). The reality is, however, that in socially and economically under-resourced communities, such as the one in this study, there may well be factors that individuals have very little control over. This presents as an immense challenge for many individuals in these communities who rate high on self-efficacy and have the personal will to improve their quality of life but are overwhelmed by their currently adverse life conditions and are unable to effect changes in the short-to-medium term resulting in high levels of anxiety.

Studies have shown that PLWHAs present worse self-esteem when compared to individuals living with other chronic diseases. Self-esteem levels influence self-confidence and valuing, and may lead the individual not to care for his/her health, for personal care, not to believe in him/herself and not to search for treatment (Reis, Santos, Dantas & Gir, 2011). The low self-esteem found in people living with HIV/aids in this study may be related to the negative consequences of dealing with the HIV/ AIDS infection, broadly reported in the literature as depression, and social and emotional isolation (Reis et al., 2011; Cechim, Selli & Mulheres, 2007). Self-esteem is an essential aspect in the creation and maintenance of health, hope, and quality of life. People living with HIV/AIDS may have their self-esteem damaged due to the social impact the infection may cause in their lives, associated with the stigma of the disease, as potentially fatal. Nevertheless, the infection also causes physical and social limitations in the life of the individuals, such as the loss of a life project, the need for restructuring habits, dealing with new limitations at work and family relations (Reis et al., 2011).

Increased self-esteem favours individuals with HIV/AIDS in having positive feelings about themselves; on the other hand, low self-esteem makes them feel more limited and discouraged (Castanha, Coutinho, Saldanha & Ribeiro, 2006).

6.2.12.The relationship between Self-Others discrepancy and depression

The RepGrid also provides measures of similarities and differences between a person's constructions of self and others, providing estimates of the person's perceived commonality with others. Previous studies found significantly greater self-isolating construing (or lower perceived commonality) in persons with depression in comparison to normal and psychiatric controls (Ashworth et al., 1982; Axford & Jerrom, 1986; Sheehan, 1981; Space & Cromwell, 1980; Space et al., 1983). The mean 'current self' and 'others' discrepancy score of 0.20, (SD = 0.37) was relatively low which implied that the elements were somewhat similar (Winter, 1992). This suggested that the participants showed a degree of similarity of self to others. In other words, participants were able to identify more closely with others as they lived in similar conditions and were experiencing similar diseases. This also indicated that participants who feel as if they can relate well to others and the environment not only have a higher rate of self-concept but were also less prone to depressive symptoms (Sullivan, 2009). This also implied that PLWHA in this sample have a perception of the world that is not all that negative, and this could facilitate the facilitation of social and interpersonal interactions. Also, it is possible that participants perceived themselves as being accepted by their family members and loved ones, since majority lived with others, and thus their evaluation of the situation is more positive. The person's positive view of themselves also possibly could lead to a heightened sense of self-acceptance, which could positively impact on the individual's life and having this positive view of self often also leads to positive characteristics about themselves (Songprakun, 2010) and others.

6.2.13.The relationship between Others-Ideal discrepancy and depression

Consistent with Beck and colleagues (1979), Neimeyer (1985) suggests that as the severity of

depression increases, the negative view of the self extends to the construction of others in the social world. However, negativity in the constructions of others has seldom been investigated. The mean 'Others' and 'Ideal Self' discrepancy score of 0.30, (SD = 0.42) was low which implied that the elements are somewhat similar (Winter, 1992). This also suggested that participants despite experiencing high levels of anxiety in this study were satisfied with the people that surrounded him/her.

6.2.14. Self- Construction profiles in PLWHAs

A **Positivity profile** is a combination of a Positive SELF-IDEAL Correlation, Positive SELF-OTHERS Correlation, and a Positive IDEAL-OTHERS Correlation. Twenty-six of the participants who were living with HIV and AIDS had such a profile implying that they had an overall positive image of the self and others and that there was an absence of conflict in their lives. Adams-Webber (1990) and Schwartz (1992) suggest that healthy construing involves a balance between positive and negative perceptions, rather than an elimination of negativity. This balance was evident as an equal percentage (61.5%) between positive perceptions (represented by Positivity) and negative perceptions (represented by Resentment) by PLWHAs was found, since a total elimination of negativity may imply that PLWHAs are in denial.

A **Superiority profile** is a combination of a Positive SELF-IDEAL Correlation, Negative SELF-OTHERS Correlation, and a Negative IDEAL-OTHERS Correlation. Although high self-esteem discriminates between psychological well-being and suffering, it can be indicative of a superiority profile if related to the idea that one is different from others and that others are not how they should be. However, the idea that one is different from others and that others are not how they should be was not the case in this study as it was found that only 30% of PLWHAs who were also depressed had a Superiority profile. Neimeyer and

Neimeyer (1985) stated that manic-depressive respondents with critical outbursts toward others might present this profile, as may individuals who seek self-validation by contrasting themselves with others whom they dislike. A more extensive clinical examination would need to be conducted to reveal whether participants in this study had a personality disorder (e.g. narcissistic or antisocial personality) or a problem related to maladaptive social behaviours (e.g. drug addiction, delinquency).

A Negativity profile is a combination of a Negative SELF-IDEAL Correlation, Positive SELF-OTHERS Correlation, and Negative IDEAL-OTHERS Correlation. Beck et al. (1979) regarded this configuration as a symptom of depression, particularly if the content of the constructs suggests themes of lack of power and worthlessness. Under these conditions, if self and others are construed negatively, the person may not be strongly motivated to change, believing that life is inevitably tragic or that human beings are inherently flawed, especially if no significant positive figures exist to function as positive models. This pattern can also reflect a tendency to seek comfort in relating to others who are themselves distressed or to view themselves as a victim of a dysfunctional family system. Beck reported that 78% of his depressed patients expressed a negative outlook on the future (Beck, 1967). PLWHAs in this study did not suggest a tendency towards pessimism as there were only 4 participants (25%) who fitted this profile. Therefore the data failed to uncover the degree of pessimism regarding the future as suggested by Beck's theory.

An Isolation profile is a combination of a Negative SELF-IDEAL Correlation, Negative SELF-OTHERS Correlation, and Positive IDEAL-OTHERS Correlation. A review of the existing research (Neimeyer, 1985) suggests that this can be called a depressive isolation profile. This study found that 50% of PLWHAs who were depressed and 50% of PLWHAs

who were not depressed had an isolation profile. Neimeyer (1985) suggested that low self-esteem is neither sufficient nor invariably characteristic in depression. Furthermore, not only depression but many other psychological disorders involve low self-esteem. Nevertheless, perceiving oneself as different from others as well as having a negative opinion of oneself appears to be characteristic of depression. According to the findings of the study this profile applied to 50% of depressive participants and the other 50% of participants who were not depressed perhaps represented other psychiatric categories which the researcher did not assess in this study.

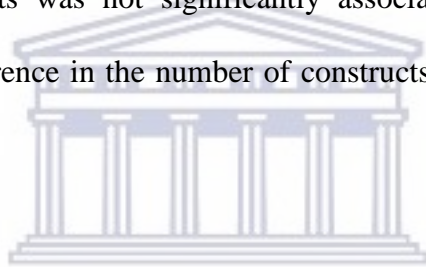
6.2.15. The relationship between Polarization and depression

When measuring negativity of self and other constructions and perceived self-isolation, it is important also to consider tendencies to extreme or catastrophic construing also described as characterising depressive cognitions (Beck et al., 1979). A RepGrid index is possibly related to the "all or nothing thinking" described in cognitive theories of depression as the use of more extreme ratings (described as polarisation in the RepGrid literature). Dingemans, Space, and Cromwell (1983) found that a depressed sample and a schizophrenic sample both used more extreme ratings than a normal sample. According to Neimeyer, 1985; Neimeyer and Feixas (1992), Polarisation index scores exceeding 28.57% can be considered as indicators of high cognitive polarisation. Polarisation scores for this study were on average 37.57 (SD of 19.42) which is higher than what it states above. According to Feixas and Cornejo (1996), this high index might be related to dichotomous thinking, as it indicates a tendency to perceive and evaluate oneself and others using a high proportion of extreme scores. However, this consideration deserves further research to be validated.

6.2.16. The relationship between number of constructs and depression

This study tested Kelly's (1955/1991) hypothesis that depression is associated with increased constriction in construing. Previous studies of depressive constriction have used RepGrid indices of the independence or inter-relatedness of construct dimensions as indications of constriction.

A measure of cognitive differentiation, employed in this study as a measure of constriction, is the number of constructs that the person can provide to describe others (Crockett, 1965; Feixas, Bach & Laso, 2004). This is simply the number of different constructs offered by the participant in the RepGrid interview. The bivariate multinomial regression analysis indicated that the number of constructs was not significantly associated with overall depression. Therefore, there was no difference in the number of constructs between depressed and non-depressed people.



6.2.17. The relationship between PVFF and depression

GRIDCOR calculated the percent of variance explained by the first factor (PVFF) derived from principal components analysis of a person's grid. This indicates the extent to which one dominant dimension of meaning explains the variance in the grid or the extent to which the person perceives the interpersonal world in a unidimensional manner. Feixas (2007) found a mean of 42% in normal samples and 46% of psychotherapy patients. The PVFF for this sample had a mean of 44.60, an SD of 13.35, indicating that the PVFF score was below what one would find in patients attending psychotherapy. In other words, based on what Feixas (2007) found in their study, this study failed to find more unidimensional construing in those with depressive disorders.

Studies have suggested less (Sheehan, 1981; Silverman, 1977), more (Oliver & McGee, 1982), and no differences (Axford & Jerrom, 1986; Dingemans et al., 1983; Space & Cromwell, 1980; Space et al., 1983) in cognitive differentiation for those with depression compared to non-clinical comparisons and more rarely to other psychiatric groups. Conflicting findings may be related to difficulties associated with the measures as well as the small samples studied (Adams-Webber, 1979; Crockett, 1965; Feixas et al., 2004; O'Keefe & Sypher, 1981). Recently Cornejo (1988) has proposed improvements in computations of PVFF by use of correspondence analysis as opposed to principal components analysis. This allows simultaneous consideration of variance attributable to both constructs and elements.

6.2.18. The relationship between implicative dilemmas and depression

According to Rogers (1961), everyone strives to become more like his or her “ideal self.” The closer one is to their ideal self; the happier one will be. Rogers (1961) theory states further that a person’s ideal self may not be consistent with what happens in life and experiences of the person currently. Hence, a difference may exist between a person’s current self and ideal - self resulting in an incongruence or dilemma, also exemplified as a negative self-concept. Where a person’s current-self and ideal-self are consistent or very similar; a state of congruence exists, also exemplified as a positive self-concept. Similarly, in this study, the way in which an infected person constructs his current-self (the self as constituted as an infected person) and how he defines his ideal-self (how an infected person would like to be) was taken into account. According to Schweitzer et al. (2010), an infected person is most likely to encounter a negative self-concept when they find out that they are HIV-positive and/or may have an altered self-concept (an incongruence between a person’s ideal self and actual self) assumingly during different stages of HIV progression.

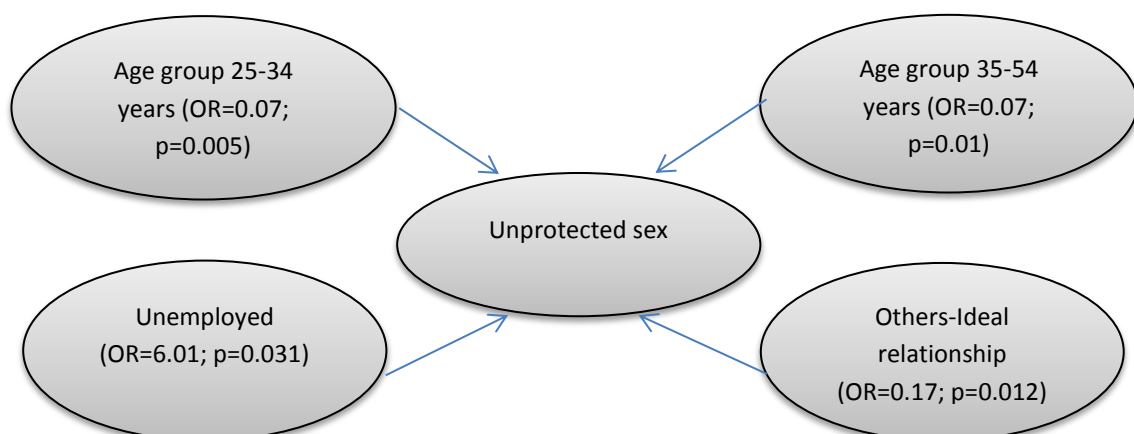
The findings of the study were the opposite of what was expected. In fact, Implicative dilemmas were not significantly associated with in PLWHAs. This finding was further supported by the mean ‘current self’ and ‘ideal self’ discrepancy score of 0.27, (SD = 0.42) which was considered to be relatively low and which suggested that PLWHAs were in a state of congruence. It was assumed that most people were in a state of congruence since they were in Stages 3-4 of the disease which meant that the disease was already established and that they have come to terms with living with HIV/AIDS.

6.3. Discussion with regard to Aim Two:

The two variables which were ultimately analysed for risk-taking behaviour were 1.) unprotected sex and 2.) non-adherence to HIV medication.

The bivariate multinomial regression analysis indicated that neither sociodemographic variables, financial or social support variables (except for, ‘Are you financially dependent (p=0.03)), disease characteristics, adherence to HIV medication, anxiety, depression, nor any of the cognitive variables (except for ‘Other-Ideal’ relationship (p=0.011)) were significantly associated with **unprotected sex**.

Figure 9: The final multivariate regression model with predictors for unprotected sex as the outcome variable



The final multivariate regression model predicted for Aim Two, variable one (namely unprotected sex) used all the mediating variables which were significantly associated with unprotected sex, and all the independent variables. Age group 25-34 years ($p=0.005$), age group 35-54 years ($p=0.01$), being unemployed ($p=0.031$) and Others-Ideal relationship ($p=0.012$) were all significantly associated with unprotected sex in the final regression model.

Being female, Never Married/Separated, Employed, Do you have financial dependents, Are you financially dependent, Live on my own, Co-existing medical condition, Aids Diagnosis, Stage 4: <200 , CD4 count unknown, Others-Ideal were not significantly associated with depression.

6.3.1. The relationship between gender and unprotected sex

Males were 1.34 times more likely to have unprotected sex than females.

Although 77.5 % of the sample was female, only 49.3% were able to ask their partner to use a condom. According to McNair & Prather (2004), the sex-ratio imbalance in the African community can give rise to women's difficulty in discussing and negotiating condom use with male sexual partners (Logan, Cole & Leukefeld, 2002). The imbalance in the number of women and men results in fewer available male partners; therefore, women have less interpersonal power in relationships because men have more options available to them (Adimora et al., 2001; Albrecht, Fossett, Cready, & Kiecolt, 1997). Other researchers such Bedim, Bennett, Kissinger & Clark (1998), Hobfall, Jackson, Lavin, Britton, & Sheperd (1993), Kalichman, Hunter, & Kelly (1992), Wingood & DiClemente (1998) have also reported low rates of partner condom use among African American women, who often cite reasons related to inconvenience, fear of reprisal, and negative perceptions about condom use

Peixoto, Barros, Guimaraes (2014), Meade & Sikkema (2007) and Guimaraes, McKinnon, Campos, Melo & Wainberg (2010) all state that gender-based inequalities, including cultural values (e.g., men should have many partners, women should be monogamous), socioeconomic context (e.g. unequal access to education, employment, increased violence, and restricted reproductive rights among women) which potentially place women at a disadvantage for negotiating safer sex or refusing unwanted sex, can partially explain differential rates of unprotected sex reported among men and women.

6.3.2. The relationship between age and unprotected sex

Those between the ages 18-24 years in this study were most likely to have unprotected sex. Although HIV transmission is declining worldwide, in young people (aged 15–24) it remains a growing concern (Choudhry, Ambresin, Nyakato & Agardh, 2015). In 2013, 33% of all new HIV infections, globally, occurred in people aged 15–24 years, and young women were disproportionately more affected than young men (UNAIDS, 2014, 2010). The risk of HIV transmission is increased by the social and the developmental context surrounding young people. Young people are unlikely to perceive themselves as being at risk of contracting a potentially fatal disease as youth is a period closely linked with experimentation and risk.

6.3.3. The relationship between marital status and unprotected sex

Those who were married/living with a partner were 1.29 times more likely to have unprotected sex than those who were never married or separated. McNair & Prather (2004) state that low rates of condom use are also consistent with research findings which show that many heterosexual African American women do not perceive AIDS to be a significant health risk and consider themselves to be at low risk for acquiring HIV (Hobfall et al., 1993; Kalichman et al., 1992; Mays & Cochran, 1988). For many women, low perception of risk is

related to two beliefs: (a) AIDS is a disease that affects primarily White gay men (Mays & Cochran, 1989; Wyatt et al., 2002), and (b) being in a monogamous relationship protects them from HIV (Hobfall et al., 1993). Consequently, many heterosexual African American women may not consider unprotected sex with their partners as a risk factor for contracting HIV.

Van Dyk (2001) found that a study conducted in Uganda notes that while HIV/AIDS education in Uganda is widespread and, condoms are widely distributed, only 3% of Ugandan men used condoms. Van Dyk (2001) similarly found that in another study that while Rwandan people were educated about the perils of HIV/AIDS, none of the participants in the study used condoms. This study concurred with the findings by Van Dyk (2001) as it found that knowledge was high among participants; however, 18% of participants were still having unprotected sex. Van Dyk (2001) concluded that the choice not to use condoms was this lack related to culture rather than ignorance. Most Rwandans, as Van Dyk (2001) put it, believed the exchange of bodily fluid that occurs during sexual intercourse is viewed as the exchange of "gifts of the self"; which is an essential component in a relationship. Most Rwandans, believe that the use of condoms will intercept and disturb this process with potentially adverse consequences for the relationship (Goldstein, Pretorius & Stuart, 2003).

Ironically, men's greater social power places them in a position of vulnerability regarding HIV infection (Walker, Reid & Cornell, 2004). Many of them are under social pressure to behave in a domineering and sexually aggressive way. For men, norms and expectations surrounding masculinity put them at risk (Walker, Reid & Cornell, 2004). Also, the norms of masculinity, which dictate that young men should be knowledgeable and experienced in sex, increase the risk, as such expectations prevent them from seeking information about safer sex (Walker, Reid & Cornell, 2004). They may also be coerced into experimenting with unsafe sex to prove their manhood. Traditional notions of masculinity are strongly associated with

risk-taking behaviour such as increased alcohol consumption, intravenous drug use, multiple sexual partners, and violence. Moreover, these all eventually contribute to HIV infection (Walker, Reid & Cornell, 2004).

6.3.4. The relationship between financial and social support variables and unprotected sex

Those who were financially dependent were 3.49 times more likely to have unprotected sex than those who were not. This finding implies that women who are unemployed and dependent on men for their economic survival tend to choose boyfriends as a way of making ends meet and acquiring commodities (Walker, Reid & Cornell, 2004). Choudhry et al. (2015) believed that the structural factors, such as economic inequalities in women, along with control of resources by men, patriarchal society, and social norms around acceptability of transactions in return for sex, and risky sexual behaviors associated with transactional sex make young women especially vulnerable to HIV (Ramjee & Daniels, 2013; Santelli et al., 2013; Greig, Peacock, Jewkes & Msimang, 2008).

6.3.5. The relationship between CD4 count and unprotected sex

There was no difference in unprotected sex between Stage 4 compared to Stage 2-3 of the disease. Those who had AIDS were 1.65 times more likely to have unprotected sex than those who did not have AIDS. Reductions in CD4 cell counts are the hallmark of advancing HIV infection (Eaton & Kalichman, 2009). Overall, studies show that reductions in sexual risk behaviour are most pronounced among individuals who have CD4 cell counts below 200 cells/mm³ (Dolezal et al., 1999; Eaton & Kalichman, 2009). Both numbers of sexual partners and rates of unprotected sexual acts decrease during the later stages of chronic infection.

Conversely, no differences (OR= 0.99, CI = 0.39-2.52) in sexual risk behaviour was observed among persons with CD4 cell counts between 200 - 500 cells/mm³ and those with CD4 cell counts greater than 500 cells/mm³, in this study. Dukers et al. (2001) found that among untreated persons with less than 350 cells/mm³ decreases in unprotected sexual acts with casual partners are more likely to be reported than decreases with regular partners. Additionally, increases in CD4 cell counts after receipt of antiretroviral therapy are associated with increased unprotected sexual acts with casual partners (Dukers et al., 2001).

6.3.6. The relationship between depression and unprotected sex

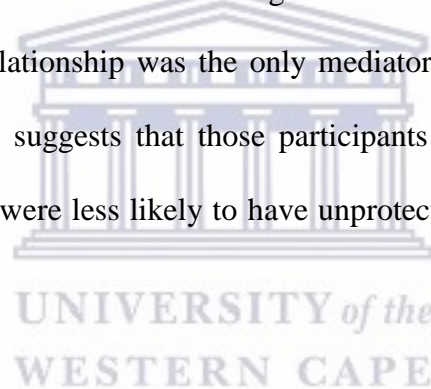
The bivariate analysis indicated that there was no significant relationship between depression and unprotected sex in the study. This was the opposite to the findings of a study by Meade & Sikkema (2005) which found that depression was identified as a major contributor to sexual risk behaviour and HIV infection in studies from the US and a few smaller studies in South Africa, while another study showed that major depression was correlated with less sexual activity (Gupta et al., 2010). Gupta et al. (2010) stated that the direction of effect between depression and risky sexual practices might depend on the severity and type of depression, hence the contradiction between studies. Additionally, variables including lack of control in sexual decision-making, intergenerational sex, and HIV-related stigma have complex social constructs and therefore require additional study to fully understand their associations with depression (Gupta et al., 2010).

Gerbi et al. (2012) found many studies also noted that psychosocial factors are prevalent in PLWHA and these factors influence HIV/AIDS risky behaviours that may contribute to the high probability of transmission and spread of HIV within high-risk populations (Schiltz and Sandfort, 2000; van der Straten et al., 2000; Wilson and Minkoff, 2001; Ostrow et al., 2002;

Kalichman et al., 2002; Paterson et al., 2000; Semple et al., 2003). The most plausible explanation for this finding is that psychosocial problems, such as depression, impair both physical and cognitive functioning and can interfere with the decision to practice safe sexual behaviours (Gerbi et al., 2012). Moreover, depression is a barrier to behaviour change, which is currently the most successful strategy to reduce the risk of acquiring and spreading HIV/AIDS (Paterson et al., 2000).

6.3.7. The relationship between cognitive variable and unprotected sex

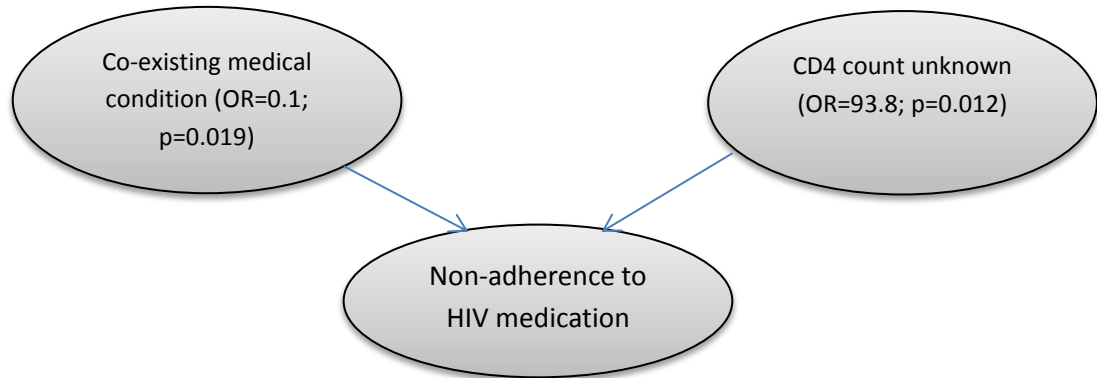
The bivariate analysis indicated that there was no significant association between the cognitive variables and unprotected sex. The cognitive variables were also the mediator variables. The others-ideal relationship was the only mediator significantly associated with having unprotected sex. This suggests that those participants who were satisfied with the people that surround him/her were less likely to have unprotected sex (OR=0.25, CI = 0.09-0.73).



6.4. Risk taking behaviour outcome Two: Non-Adherence to HIV medication

The bivariate multinomial regression analysis indicated that neither sociodemographic variables, financial or social support variables (except for, 'Do you live on your own' (p=0.031)), unprotected sex, anxiety, depression, nor any of the cognitive variables (except for 'Other-Ideal' relationship (p=0.011)) were significantly associated with non-adherence to HIV medication. All the disease characteristics were significantly associated with non-adherence to HIV medication, however.

Figure 10: The final multivariate regression model with predictors for non-adherence to HIV medication as the outcome variable



The final multivariate regression model predicted for Aim Two, variable two (namely non-adherence to HIV medication) used all the independent variables which were significantly associated with the bivariate models and all the mediating variables. Co-existing medical condition ($p=0.019$) and CD4 count unknown ($p=0.012$) were the only two variables that were significantly associated with non-adherence to HIV medication.

Being female, Age group 25-34 years, Age group 35-54 years, Never Married/Separated, unemployed, Employed, Do you have financial dependents, Are you financially dependent, Live on my own, Aids Diagnosis, Stage 4:<200 and Polarisation were not significantly associated non-adherence to HIV medication.

6.4.1. The relationship between gender, marital status, and non-adherence

More males (28.1%) than females (21.8%) were not adhering to their medication. Few studies have examined the significance of women's and men's experiences related to treatment adherence (Herstad, 2010). Recently, studies have started to explore women's and men's experiences related to adherence by including discussions of gender issues (Herstad, 2010).

They relate this to risk-taking health behaviour, reflective of the perceived general risk-taking behaviour usually displayed by males. Studies conducted in South Africa provide evidence for this perception (Mwaba & Naidoo, 2005). For example; Muula & Kataika's (2008) assessment of the uptake of ARVs in Malawi discovered that men were unlikely to access treatment out of fear of marital consequences. That is, men testing positive were perceived to have contracted HIV as a result of infidelity; most women think that HIV transmitted from one spouse to another is indicative of husbands' infidelity (Muula & Kataika, 2008). Given that the desire for marital harmony affects men's willingness to access testing services, people clearly face a barrier to obtaining and maintaining treatment.

In Ethiopia, Mekonnen et al. (2010) explored equity and access to ART, looking at barriers to accessing ART to gain a better understanding of those people both currently undergoing ART, as well as those who need ART but were prevented from accessing it. The findings included gender differences-men were more likely than women to discontinue ART. While there was no clear gender analysis of this result, common reasons included lack of resources, such as food and money for transport and medical costs, and situational factors, including stigma, addiction, and incarceration (Mekonnen et al., 2010).

6.4.2. The relationship between age and non-adherence

The 35-54 year age group; however, were 1.94 times more likely not to adhere to their HIV medication compared to the 18-24 year age group. This shows that the older people were, the greater were their chances of not adhering to their HIV medication. Research almost always finds that ART adherence is higher in HIV-infected older adults than their younger counterparts (Karpiak, 2014). In fact, a recent meta-analysis concluded that older age reduced non-adherence by 27 percent in HIV-infected persons (Ghidei et al. 2013). The lone

exception to this pattern is the Bianco et al. (2011) study, which found that less than one-half of HIV-infected persons ≥ 50 years of age were adherent to ART regimens in the past week. It should be noted that all participants in the Bianco et al. study were involved in an AIDS mental health randomised clinical trial and had mild, moderate or severe levels of depressive symptoms. As such, the mental health characteristics of this sample may have influenced their ART adherence efforts. This study concurs with Bianco et al.'s (2011) study in that this study also tested participants for depression and the mental health characteristics of this sample could have influenced ART adherence in those who were slightly older.

6.4.3. The relationship between financial support variables and non-adherence

The study's findings concurred with a study by Campos, Guimaraes & Remien (2010) which also found a slightly greater risk of non-adherence to HIV medication among participants who were unemployed, even though the study's finding was not significant. Despite free access to antiretroviral drugs and specialised care for HIV/AIDS, poor socioeconomic conditions can be barriers for good adherence as shown by other studies as well (Bonolo et al. 2005; Carvalho et al. 2003; Nemes et al. 2004; Pinheiro et al. 2002). Patients with low education may lack essential knowledge related to their treatment and health resources use (Falagas et al. 2008; Wolf et al. 2005). Also, unemployment may influence the ability of patients to have adequate access (e.g. financial burden of public transportation) and use of health care facilities and the patient's quality of life (Falagas et al. 2008; Melo & Guimaraes 2005). These issues may affect the accessibility to appropriate care and treatment as well as the patient's ability to adhere to ART. Furthermore, self-report assessment of adherence may have been subjected to recall bias, inaccurate memory, social desirability bias, and may also be problematic for individuals with cognitive impairment as was found in studies by Wagner Miller (2004) and Simoni et al. (2006).

6.4.4. The relationship between social support variables and non-adherence

Participants in this study who were diagnosed with AIDS were 3.03 (1/0.33) ($p < 0.05$) times more likely to adhere to their medication than those who were just HIV positive. Since participants in this study appeared to come from a close-knit community and many of them lived with others, social support may have played a major role in them adhering to their medication, as social support has been shown to predict more consistent adherence (Kalichman & Ramachandran (1999). Another key factor in medication adherence is the relationship between patient and primary care provider. Participants probably trusted their provider and were satisfied with their quality of care and therefore, were more likely to adhere to treatment regimens (Ickovics & Meisler, 1997; Stall, Hoff, Coates et al., 1996) in this study.

Those who lived on their own (35.9%) were 2.48 times more likely not to adhere to their HIV medication than those who did not live on their own (18.4%). This finding is consistent with a Tanzanian study which discovered that a perceived lack of family support led some PLHIV to drop out of treatment, despite evidence of improved health and a high level of personal motivation (Herstad, 2010). In some cases, the influence of family members was so significant that relatives such as parents or husbands made treatment decisions, including the decision to interrupt ART (Roura et al., 2009).

Herstad (2010) found other reason why PLHIV often decide to discontinue ART based on self-assessments of their health status. For example, PLHIV may stop treatment when it does not seem to be working or when their health improves to the extent that they believe they are cured and need no further treatment. PLHIV may also discontinue treatment when they experience unmanageable side effects; experience treatment fatigue; or lack commitment to

continue treatment for life (Mekonnen et al., 2010). Sustaining life-long treatment can be particularly challenging for rural residents who must travel regularly to central hospitals for follow-up appointments and obtain prescription refills (Roura et al., 2009; Mekonnen, 2010).

6.4.5. The relationship between co-infection and non-adherence

Participants in this study who had a co-existing medical condition such as HIV/TB were 3.7 times (1/0.27) ($p < 0.001$) more likely to adhere to their HIV medication than those without a co-existing medical condition. A cross-sectional study by Naidoo, Peltzer, Louw, Matseke, Mchunu and Tutshana (2013), looking at predictors of tuberculosis (TB) and antiretroviral (ARV) medication non-adherence in public primary care patients in South Africa found that the sub-sample of HIV-positive patients on dual therapy for TB and HIV infection, shared a similar profile to HIV/TB infected participants in this study. Non-adherence to both ART and anti-TB drugs were of concern in their study.

Dual infection requires that patients take two sets of drugs, which could prove to be quite burdensome. The use of a multiple drug regimen may also lead to drug reactions causing unmanageable side-effects ultimately leading to treatment default (Kwara, Flanigan & Carter, 2005; Claxton, Cramer & Piece, 2001; Ingersoll & Cohen, 2008). The complexity of the drug treatment regimen and the impact on the daily lives of these patients are also factors that are associated with poor adherence in these patients (Claxton et al., 2001; Ingersoll & Cohen, 2008). Patients on strict drug treatment programmes also have daily competing “life demands” associated with work and family. Despite all of the above, the increase in adherence in co-infected participants in this study probably means that clinicians are becoming more aware of toxicities associated with dual therapy, and attempts are being made to use agents with minimal overlapping or additive toxicities. Patients are perhaps becoming

more educated about drug toxicities, and a monitoring plan is probably in place and established at health facilities to discuss with patients at the start of therapy. Regularly scheduled clinical and laboratory monitoring in addition to patient education, and close communication between HIV care and TB clinicians to minimising treatment discontinuation due to adverse events is also possibly being placed high on the agenda of the National Health Minister.

6.4.6. CD4 count and non-adherence

A few studies describe a relationship between HIV-related symptoms and non-adherence (Wagner, 2002; Holzemer, Corless, Nokes & Turner, 1999). Other studies describe an association between a lower CD4 count and non-adherence, although this finding is seen less consistently across studies (Paterson et al., 2000; Gordillo et al., 1999). Those participants who were in Stage 4 of the disease were 2.14 times more likely not to adhere to their HIV medication compared to those in Stage 2-3. The reason is that people in Stage 4 were too sick and therefore, adherence to medication was the last thing on their mind. Those with an unknown CD4 count were 31.5 times more likely not to adhere to their medication than those in Stage 2-3 and are evident of a definite underlying vulnerability.

6.4.7. Anxiety, Depression, and non-adherence

The study found that those with mild anxiety were 1.15 times (1/0.87) more like to not adhere to their medication. Also, those with mild depression were 1.61 times more likely not to adhere to their medication. Anxiety and depression symptoms can contribute to non-adherence to antiretroviral therapy which, consequently, lowers immunity and increases virological response (Calvetti, Giovelli, Gauer & Moraes, 2014) and the progress of AIDS,

and deteriorates the quality of life (Calvetti et al., 2014). In one previous study (Calvetti et al., 2014), it was highlighted that people with depression, anxiety or generalised panic responses were approximately twice as non-adherent as those without a psychological disorder (Calvetti et al., 2014). On the contrary, the result of the study found that adherence to medication was not significantly associated with depression or anxiety. A study by Judd et al. (2012) supported the findings by also finding no link between depressive symptoms (BDI) and adherence to treatment regimens (missed HIV medications), although there were weak trends in the data. Some studies have reported that depression is one of the barriers to adherence to treatment (Bartlett, 2002; DiMatteo, Lepper & Croghan, 2000), but the relationship is complicated and must also consider factors extrinsic to the individual patient (van Servellen, Chang, Garcia & Lombardi, 2002) such as one's socioeconomic status, for example. Non-adherence, in turn, is said to increase high-risk sexual behaviours and further HIV transmission according to Blumberg and Dickey (2003).

6.4.8 Cognitive (RGT) variables and non-adherence

The bivariate analysis showed that none of the cognitive variables was significantly associated with non-adherence except for the Other-Ideal relationship ($p=0.011$) which was significantly related to non-adherence to HIV medication. This suggests that those participants who were satisfied with the people that surround him/her were less likely to be non-adherent to their HIV medication (OR=0.25, CI = 0.09-0.73).

6.5. Knowledge of risk-taking behaviour

Section B of the Personal and demographic questionnaire covered knowledge of risk-taking behaviour and included open-ended questions. It could be argued that the researcher relied on the openness and memories of the participants for the open-ended questions. Therefore, there

is a possibility that response bias may have occurred as participants may have been reluctant to share entirely accurate information with the research assistants because of the social stigma associated with HIV infection. The presence of missing data may have also biased the findings.

6.5.1. Limitations to open-ended and high-loaded questions

The nature of some of the issues was personal and sensitive, enquiring about high-risk behaviours. It is widely recognised in the literature that questions of a personal or sensitive nature is frequently under-reported, which in this case appears to have also affected the results of the research. The study relied on self-report measures of sensitive questions such as ‘Are you in a sexual relationship,’ ‘Are you having unprotected sex,’ ‘Females only: Are you able to ask your partner to use a condom,’ and ‘Do you have multiple sexual partners?’ In addition, the period of recall for these high-risk behaviours prior to assessment may have been a problem in that participants were unable to remember the exact number of times that they may have engaged in unprotected sex, number of times that they used a condom or the number of sexual partners that they may have had in the past. Thus, it is likely that high-risk behaviours leading to HIV infection were underreported in the data we used. Under-reporting of some risky sexual behaviour and other practices may have biased results toward the null hypothesis so that true associations were stronger than the data indicated.

6.5.2. Knowledge of HIV/AIDS

Participants in this study possessed relatively high levels of awareness about HIV/AIDS (71%). On occasions, however, a knowledge gap was evident, for example, several participants (4%) said that using the same toothbrush, caused HIV. This is proof that myths and misconceptions still exist which carries on fuelling the disease.

With regard to knowledge of HIV and AIDS, a quarter of the sample (26%), however, said that they had never received any information about HIV to date. The fact that they did not receive or have any information about HIV and AIDS was concerning since all participants in the study were infected, and 88.7% of the sample had been diagnosed with AIDS. It would be essential to do a qualitative analysis to investigate further the demographics of the 26% of the sample and the reasons as to why they have never been exposed to or received any HIV/AIDS information before.

6.5.3. Sources of Information

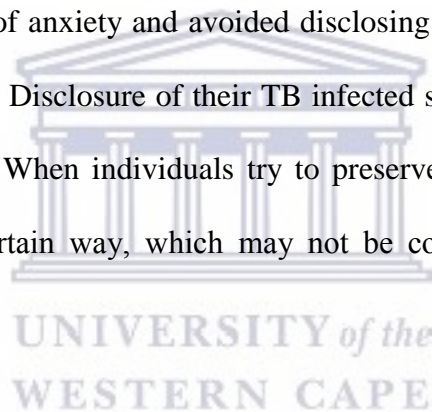
64% of participants stated that they received all their HIV information from the clinic, 4% of participants reported that they received their information from support groups that they attended or were attending, 3% of participants received information from media sources such as the internet, and 2% received their information from their place of work. Only one person in the sample received their information from a social worker. Regrettably, the findings show no information utilisation levels through libraries, information centres, and low usage of the internet. This was consistent with their level of education.

6.5.4. Knowledge of Stigma and Discrimination

With regard to stigma and discrimination, 6% of participants said that people did not treat them the same way after finding out their status, and 3% stated that it took their family a long time to accept their status. Freeman et al. (2008) demonstrated that individuals who had been discriminated against or isolated as a result of their HIV-positive status were more likely to

have a mental disorder, particularly if they were also at advanced stages of their disease (Freeman et al., 2008).

In the country with the second to highest HIV prevalence in the world, it is not difficult to imagine why anticipating negative responses to HIV could contribute to symptoms of depression among the general population (Gupta et al., 2010). Even though the study did not focus on stigma and its relationship to depression and risk-taking behaviour in detail, it did, however, posit that stigma may contribute to greater vulnerability to depression which is also what Siddharth et al. (2009) observed in rural patients in their study. A study by Naidoo (2009), found that participants in the study who were co-infected with the HIV perhaps experienced increased levels of anxiety and avoided disclosing their health status for fear of both enacted and felt stigmas. Disclosure of their TB infected status and HIV-positive status could lead to double stigma. When individuals try to preserve their identities they present themselves to others in a certain way, which may not be consistent with the “true self” (Goffman, 1963).



Anecdotal evidence based on a few women in the study who said that they would like to disclose their status but was afraid of doing so because of what their husbands might do to them. Most people infected with HIV struggle with issues of disclosure to others, particularly when first diagnosed (Nair, 2008). Interventions need to take into account the gendered nature of the experience of HIV/AIDS (Nair, 2008). For example, owing to gender-related factors, women may experience difficulty in disclosing their status to their partners for fear of abandonment or violence as has been documented in various studies (Gielen, McDonnell, Burke & O’Campo, 2000; Finney & Njoko, 2000; Mathews, Kühn, Fransman, Hussey & Dikweni, 1999). A multi-country WHO study revealed that fear of violence was a barrier to

HIV disclosure for an average of 25% of the women, and in some countries, the proportion was as high as 86% (Global AIDS Alliance, 2006).

The fear and experience of stigma and discrimination often pose a barrier to adherence (Watt et al., 2009). In Ethiopia, a study found that PLHIV who have not disclosed their HIV-positive status and fear stigma travel long distances to obtain anonymous treatment and then hide or skip pills to ensure that others, such as families and employers, do not learn about their status (Mekonnen et al., 2010). Such measures can compromise adherence and should be explored in future studies.

6.5.5. Knowledge on Depression

Only 2.5% of participants in the entire sample mentioned looking after one's psychological health as a priority regarding behaviour change strategies. Asch et al. (2003) believe that there are two primary clinical implications regarding this finding. First, patients with low education also may have lower health literacy, particularly "mental health literacy," which refers to the knowledge and beliefs about mental disorders that would aid in the recognition, management, and prevention of mental illness (Goldney, Fisher & Wilson, 2001; Lin & Parikh, 1999). For example, patients with less education may not consider their depressive symptoms as signs of a potentially serious illness warranting treatment. Also, both limited education and low health literacy have been shown to be associated with poorer treatment adherence (Goldman & Smith, 2002; Kalichman & Ramachandran, 1999). Some providers might have also hesitated to initiate depression treatment for their less-educated patients if they assumed that they were less likely to adhere to such treatment (Goldman & Smith, 2002).

A second reason some depressed patients may not receive treatment is that they may not consider themselves to be depressed. Ritchie et al. (1992) found that only 69% of HIV-infected male army personnel who were classified as depressed, based on an interview with a psychiatrist, considered themselves to be depressed. Symptoms of depression may be attributed by patients and providers to HIV disease. In fact, in many clinical settings, it may be impossible to determine whether symptoms such as fatigue or problems with concentration are due to HIV disease or accompanying depression, especially since the development of HIV symptoms may provoke feelings of depression (Perry & Fishman, 1993). However, this diagnostic conundrum should result in increased referral of patients for mental health evaluation (Katz, Douglas, Bolan, Marx, Sweat, Park & Buchbinder, 2010).

6.6. Completion of the RGTs

A small number of participants also did not answer some of the items in the questionnaires, and it was difficult to follow-up some of the participants for them to complete the RGTs. It was assumed that the reasons for inadequate responses to some of the questionnaire items was because 88.7% of participants had AIDS and was not feeling well due to their illness, or were too tired due to long waiting hours at the clinic. It can also be argued that some of the participants decided not to return to do the RGT for fear of the emotions that may be evoked when completing the other questionnaires, or perhaps not wanting to be reminded of past mistakes. Alternatively, it is possible that other participants did return as the research may have 'struck a chord' with them. This was evident in the content analysis which indicated that some participants wanted to change their behaviour and not infect others. They could have also participated in the study for the simple reason that an incentive was being offered but lacked the motivation to complete the entire battery of instruments.

This chapter attempted at best to highlight the most significant results of the study and to explain and discuss the findings in light of other studies. What follow next is the strengths and limitations of the study and then the conclusion chapter which highlighted the most important findings and provided recommendations for future research.

6.7. Strengths of the study

The main advantage of this research is the contribution it has made to understanding the relationship between biological, psychological, social and cognitive factors in relation to depression and risk-taking behaviour in PLHWHAs. It was also the first time that the RGT was used in SA and in particular in health research (HIV/AIDS)

The sample consisted of a larger number of Xhosa -speaking people than in any other language. A fair number of Xhosa speakers had some basic knowledge of the English language. This is due to the area in which the study was undertaken, which comprises of a majority of Xhosa speaking people and the predominance of Xhosa culture in the Western Cape region where the research study was conducted (du Preez, 2008). Translation of the measurement tools into isiXhosa was done by two isiXhosa speaking research assistants. On reflection, the translated measures were translated back into English by the research assistants to ascertain whether the translated version was close to the original English version. The strength of this approach is that it ensured greater face - and content validity.

6.8. Limitations of the study

The descriptive statistical information indicates that a sample of 142 participants was a limitation as it appeared to have reduced statistical power for both the questionnaires and repertory grids. Also, the study used purposive sampling, the weakness of which is that

there is no way to estimate the probability of each participant being included in the sample. Purposive samples target a very specific population, which can help gain detailed insight into their characteristics, but a disadvantage is a difficulty in reaching a large sample size. Because of the small sample size and the reduced statistical power, many of the study variables were not predictive of depression and risk-taking behaviour in PLWHAs. Furthermore, defining the target for purposive samples can be difficult, as all targets may not be known and this may have resulted in the underestimation of the prevalence of mental health disorders (Marwicka & Kaaya, 2010) in the community that was being studied.

Data collection was limited to only one City of Cape Town (CCT) primary health care (PHC) facility; one of the several clinics in the township. Therefore, the findings cannot be generalised to the patient population across South Africa. Future research studies should involve patients from more than one clinic to increase the external validity of the sample and should use prospective data and longitudinal analyses to examine causality and bi-directional causation.

The cross-sectional design of the study prevented the establishment of causality as well as true mediation among the variables, which can only be determined in longitudinal study designs. It was impossible to draw any causal conclusions since the study did not have a direct comparison group of HIV-uninfected persons to examine differences in depression and risk-taking behaviour directly. Additionally, this study was part secondary data analysis, and therefore, restricted the researcher's ability to investigate relationships among variables of interest thoroughly.

This study was intended to be hypothesis generating to guide future studies. More research is, therefore, needed to verify some of the findings given the limitations of the study in terms of sample size and, consequently, in the control of other variables such as the mediator

variables. The evidence presented in the results chapter regarding the influence of predictors of depression and risk-taking behaviour is much more fragmented than the researcher thought, and therefore the conclusions that can be drawn are limited. The predictors of depression and risk-taking behaviour did not account for huge variances in explaining the final models. These findings suggest that there is a need to explore the use of more robust measures to determine the relationship between predictive factors, especially cognitive factors and depression and risk-taking behaviour.

Methodological difficulties in studies of depression in populations with a known medical illness, such as this study, is the overlap of psychological and physical symptoms, such as fatigue and sleep problems, which are similar and further complicates the diagnosis of depression in HIV-positive populations (Marwicka & Kaaya, 2010). It is also important to note that the BDI-II is a screening tool and is not clinically diagnostic, and thus findings cannot be interpreted as definitive data on the prevalence or correlates of depression.

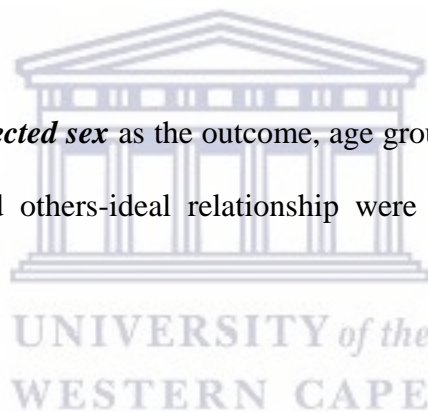
6.9. Conclusions and Recommendations

The central focus of this study was to look at developing predictive models for the following outcome variables: 1) depression and 2) risk-taking behaviour in PLWHAs, with an emphasis on self-concept (RGT) and implicative dilemmas.

In the *final model for depression* as the outcome, Stage 4 of the disease (having AIDS) and moderate to severe anxiety was significantly associated with mild depression, while having a co-existing medical condition, and having mild and moderate/severe anxiety was significantly associated with moderate/severe depression. Based on this finding, most of the participants recruited for this study were already between Stage two to four of the disease. According to Ciesla & Roberts (2001), the period immediately after receipt of a positive test

result is most critical. Therefore, it was anticipated that the greatest amount of psychological adjustment did not need to take place during this period and consequently that the greatest vulnerability to depression did not reside in Stage two to four of the disease, hence the moderate prevalence of depression. The researcher thought that it would be useful for future research to investigate the different stages of AIDS in which patients are in when determining their state of depression (Omar, 2010). These findings should encourage researchers to consider the strengths that are involved in protecting the majority of HIV-positive individuals from developing depressive disorders in this community. Future research should explore factors that contribute to resiliency to depression, such as adaptive coping styles, hardiness, and positive social support in PLWHAs.

In the *final model for unprotected sex* as the outcome, age group 25-34 years, age group 35-54 years, unemployment and others-ideal relationship were significantly associated with unprotected sex.



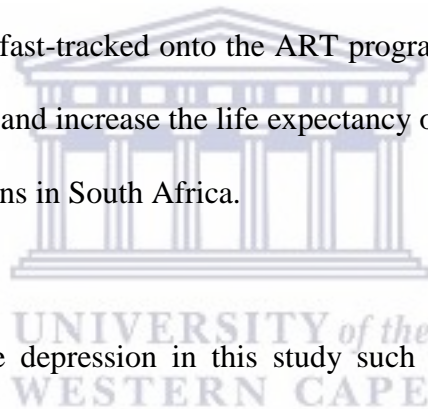
The others-ideal relationship was the only mediator significantly related to having unprotected sex. This suggested that those participants who were satisfied with the people that surround him/her were less likely to have unprotected sex (OR=0.25, CI = 0.09-0.73). The relationship between cognitive variables and risk-taking behaviour has never been studied before. This is the first study which looks at the relationship between cognitive variables and risk-taking behaviour variables in PLWHAs, specifically with regard to unprotected sex and non-adherence to HIV medication. The study found a significant association between Others-Ideal relationship and unprotected sex, which going forward contributes significantly to the Multicentre Dilemma Project.

Even though the majority of the sample was female, the results found that more males were having unprotected sex than females. Probably, it is necessary to replicate this study with more gender-equilibrated samples, to investigate potential differences related to gender. It cannot be stressed enough that intervention programmes must take on a gendered perspective (Nair, 2008). The results also found that those who were financially dependent were 3.49 times more likely to have unprotected sex than those who were not financially dependent. As stated earlier, there are important differences between men and women in many contexts in respect of the underlying mechanisms of the HIV and AIDS infection and the social and economic consequences of HIV and AIDS. These stem from biological factors, sexual behaviour, social norms and the socially constructed gender differences between men and women on access to resources, roles and responsibilities, decision-making power, extramarital and premarital sexual relationships and the ability to negotiate safe sex practices (Nair, 2008). A key recommendation arising from the study is that future research and health care interventions need to continue in efforts to understand and address the needs of this at-risk population group in South Africa. There is also need to identify the protective factors that can prevent the risk of developing mental health disorders and risk-taking behaviours so that these can be made an integral part of public health interventions for women living with HIV/AIDS.

In the *final model for non-adherence to HIV medication* as the outcome, co-existing medical condition, and the unknown CD4 count were significantly associated with non-adherence to HIV medication. The significant odds ratio that those with an unknown CD4 count were 31.5 times more likely to non-adhere to their HIV medication indicates an underlying vulnerability and therefore, warrants qualitative in-depth interviews be conducted

with participants, their close family members and healthcare providers to provide different insights into factors influencing participants' ART adherence behaviours.

In line with South Africa NDP 2030, UN Sustainable Development Goals to improve maternal health, reduce child mortality and combat HIV/AIDS, and UNAIDS 90-90-90 targets, the Minister of Health announced on the 10th May 2016, in his Health budget speech that South Africa would be implementing World Health Organization (WHO) evidence-based guidelines of Universal Test and Treat (UTT) by 1st September 2016. The UTT policy states that all PLHIV are now eligible to start treatment with ART regardless of their CD4 counts. Furthermore, the policy states that those specifically with an unknown CD4 count (among other criteria) will need to be fast-tracked onto the ART programme. It is envisaged that this will improve health outcomes and increase the life expectancy of PLHIV, and also reduce the incidence of new HIV infections in South Africa.



Predictors of moderate/severe depression in this study such as unknown CD4 count and positive 'self-others' relationship could not be explained but was worth mentioning. The findings suggested that mental health, in general, appears to be a complex concept, and the specific components of mental health are elusive and intangible elements. Mental health problems ultimately depend on people's perceptions and behaviours through their interactions in and with their environment.

The study found that the levels of depression in this study (36%) were consistent with recent depression statistics which shows that 41, 9 percent of women, compared to 24, 3 percent of men, are affected in the country (Health Systems Trust (HST), 2016). In addition, there were two participants who scored very high for depression which warrants further

exploration. According to Health 24 (2016), the lifetime prevalence of social anxiety disorder is currently estimated to be around 12% of adults. The prevalence estimates for anxiety (mild, moderate or severe) in the sample was 29.3% which is more than the current rates for anxiety in the country.

It was mentioned previously that the low detection rates of depression could be because participants did not recognise the difference between depression and HIV-related symptoms. Therefore, the recommendation is that increased screening for depression by a primary care clinician's and, or other health professionals is necessary (Lyketsos et al., 1994). Also, the fact that only depression was screened for and not diagnosed means that more robust measures such as the World Health Organization World Mental Health Composite International Diagnostic Interview (WHO-WMH-CIDI) be used to diagnose rather than screen for depression. The use of diverse measurement tools across studies has always been an issue. The standardisation of measurement tools across research studies is essential as it allows greater comparability of the findings. Also, diagnostic tools should be used where possible in preference to screening tools, unless they have been validated in the research setting.

The health care provider also needs to educate patients on how to recognise signs of depression and how it can be confused with HIV-related symptoms (Katz, Douglas, Bolan, Marx, Sweat, Park & Buchbinder (1996). In this study, the Kellian RGT method was found to be a useful technique for acquiring information relating to Beck's theory of depression. The RGT grids are a potentially useful tool in the process of cognitive therapy, which essentially aims to teach depressed people to reality test (Axford & Jerrom, 1986). Repertory grids allow investigation of the subject's theoretical framework and illuminate both conflicts and correlations; they also pinpoint the attitude areas which the subject considers to be of greatest

importance (Axford & Jerrom, 1986). The RGT, though used in many areas of health already, should be explored further especially in PLWHAs. It is also desirable to obtain multiple measures of self-concept, depression, and risk-taking behaviour through means of more than one instrument for each of them, so as to enhance the robustness of the measures. Examining differences between male and female respondents regarding self-concept and implicative dilemmas can also provide valuable information in terms of tailoring treatment modalities (Brandt, 2009).

Anxiety and depression may be related to fear regarding PLWHAs impending disease (Chandra et al., 1998). In the study, anxiety was significantly associated with depression and studies have shown that many people who develop depression have a history of an anxiety disorder earlier in life. Based on these findings, one can assume that participants with high levels of anxiety in the study are more likely to develop depression. Since anxiety is frequently unrecognised and underreported (Kemppainen et al., 2003); there is a need for ongoing assessment to include information about the severity or intensity of anxiety symptoms and the degree to which these symptoms disrupt a person's daily functioning. PLWHAs who experience intense anxiety must receive supportive psychological interventions (Lee, 1998) to prevent them from developing depression.

Anti-anxiety medications should also be considered for intense, disabling symptoms. Supportive referrals to mental health professionals should also be initiated when indicated (Kemppainen et al., 2003). Health professionals and psychiatric medication are not equally available throughout the world. However, where they are available, psychotherapy and anti-depressant treatment can be very effective in treating depression. Peer support groups where the person is supported by others with HIV or depression may also assist, as might the support of family and friends. It also appears that accessing ARV treatment, which

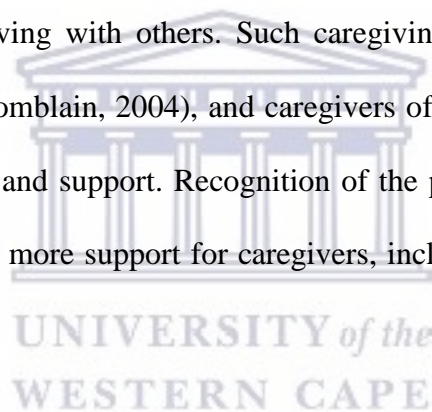
often brings with it the expectation of a longer life and an increase in hope, may go some way towards lifting depression, although the research is mixed on this point (Freeman, 2004).

The prevalence of depression that was in line with previous studies as well as the high prevalence of anxiety in the sample could also have been the possible consequence of engaging in increasing risk behaviours, although the study did not find this relationship to be significant. Significant, research is needed to ascertain the temporal relationship between depression and risk-taking behaviour in PLWHAs.

There was awareness in this study about treatment methods that are available, but these treatment modalities are not necessarily accessible to participants. This may have been a contributory factor leading to depression and anxiety among PLWHAs. Several participants in the study had been referred from other hospitals or clinics. This may have led to higher levels of anxiety and depression with participants probably perceiving their condition as serious and untreatable. The findings also indicate that the educational level of the sample is low which might have influenced the results as well.

The results of this study showed that those who had a co-existing medical condition were 1.14 times more likely to have mild depression, and those who were diagnosed with AIDS were 1.18 times more likely to have moderate/severe depression in comparison to minimal/no depression, TB/HIV control programs should, therefore, develop guidelines to screen and treat depression among TB/HIV co-infected patients. Screening programs should focus on individuals with no source of income and jobless people.

Those who lived on their own were 1.54 times more likely to experience moderate/severe depression and 2.48 times more likely to not adhere to their HIV medication. This finding suggested that living with someone had a protective effect, hence indirectly establishing the fact that social support is a significant intervention in mental health and risk-taking behaviour (non-adherence) of PLWHA (Olapegba, 2005). This finding makes it imperative for health care workers to incorporate significant others-spouses, family members, friends, etc. in the medical care of PLWHA to ensure co-operation in their health regimen, thus also helping towards reducing stigma and discrimination (Olapegba, 2005). Also, psychological and social programmes to enhance the self-esteem of PLWHA should be embarked on. Much of the responsibilities for caring for PLWHAs in Africa fall on family members which explain why so many participants were living with others. Such caregiving is mentally and physically taxing (Baingana, Thomas, Comblain, 2004), and caregivers often face tremendous hardship in continuing to provide care and support. Recognition of the potential psychosocial impact of caring is also needed, as is more support for caregivers, including mental health services, and financial support.



The cognitive factors associated with increased odds of **mild depression** were as follows: Self-Others relationship (OR=1.45, CI = 0.28-7.59) and those with a greater number of constructs (OR=1.31, CI = 0.95-1.81) were more likely to experience mild depression compared to minimal/no depression. The cognitive factors associated with increased odds of **moderate/severe depression** were as follows: a positive Others-Ideal relationship (OR=2.79, CI = 0.74-10.56), and a greater number of constructs (OR=1.21, CI = 0.95-1.54) were more likely to experience moderate to severe depression compared to minimal/no depression. Even though none of the cognitive variables was significantly associated with depression, the findings are consistent with previous research which has looked at the many studies that find

self-concept and depression correlated (Cole et al., 1999; Cole & Jordan, 1995; Cole et al., 1998; Hoffman et al., 2000; McCauley et al., 1988; Tram & Cole, 2000) as it leads researchers closer to identifying self-concept as an indicator that is predictive of the development of depression.

None of the cognitive variables was significantly associated with depression or risk-taking behaviour. However, the mean 'current self' and 'ideal self' discrepancy score (0.27), the mean 'current self' and 'others' discrepancy score (0.20), and the mean 'Others' and 'Ideal Self' discrepancy score (0.30) were all close to zero implies that PLWHAs in this study had a high self-esteem, showed a degree of similarity to others around them, and that they were satisfied with the people that surrounded them, respectively. Hence, they showed fewer depression and anxiety symptoms, and therefore had a tendency to engage in fewer high-risk behaviours like unprotected sex and non-adherence to HIV-medication. Like the study by Garaigordobil, Dura and Perez (2005), this study supports evidence that a high self-concept/self-esteem may play a major role in addressing issues of depression, anxiety and risk-taking behaviour in PLWHAs.

Those who had implicative dilemmas were 1.89 times more likely to experience **mild depression** and 2.27 times more likely to experience **moderate to severe depression** compared to minimal/no depression. Even though the relationship was not significant, the odds of having depression increased in those with implicative dilemmas. However, the 0.20 and 0.35 salience criteria employed in determining the presence of an implicative dilemma appeared to be arbitrary and certainly warrant further investigation, since the sample suffered from range restriction, and questions regarding the appropriateness of the traditional self-report measures of psychological wellbeing were raised. Dorrough, Grice & Parker (2007)

suggested that future research on implicative dilemmas might do well to utilise different measures of psychological well-being that are more consistent with Personal Construct Theory.

IDs are particularly ecological because they are not defined a priori by the researcher or the clinician, but are rather derived from the clients' subjective manner of constructing their experience. These might be crucial in both psychological and health problems. Moreover, these conflicts are, to a great extent, related to the severity of their symptoms. Therefore, psychotherapists could benefit considerably from screening for the presence of IDs in their patients insofar as it could enhance case formulation and shed light on the client's factors that maintain or worsen the symptoms related to the disorder. This should be a priority with patients experiencing difficulties to overcome their symptoms. From a clinical point of view, the findings of this study (i.e. the relationship between implicative dilemmas and depression), if confirmed by further large-scale studies, would be valuable, because IDs can be the focus of therapeutic work (Feixas & Saúl, 2005; Fernandes, Senra, & Feixas, 2009; Senra, Feixas, & Fernandes, 2006) and, therefore, amenable to intervention.

Future studies should explore the usefulness of including a module directed to work on the psychological resolution of dilemmas in multicomponent treatment packages. This would mean a step toward individualising the treatment design to fit patient characteristics, a need suggested by many authors (van Koulil et al., 2007; Williams, 2003). All of the cognitive variables in this study deserve further examination, with the goal of developing specific treatment modules that guide therapeutic work with these factors. Thus, when certain cognitive factors (e.g., implicative dilemmas) are found to be relevant for a given patient, the

module addressing these factors could then be integrated into an individualised treatment package for that patient (Compañ et al., 2010).

There are already some approaches devised for working with inner conflict and ambivalence (Ecker, Ticic & Hulley., 2012; Mansell, Care & Elliott, 2014.) Perhaps the most widespread is the motivational interviewing approach, (Miller, 2013) which has investigated the role of motivational interventions for engaging and encouraging change in a range of psychological problems (Arkowitz et al., 2008). This model shares some features with the dilemma-focused intervention, for instance, both emphasise the patients' responsibility in taking decisions about their future behaviour; they use techniques to explore decisional processes and both understand resistance as a sign indicating that the therapists are not correctly attuning their interventions to the state of the patient. There are, however, some differences between the approaches. As described by Feixas and Compañ, (2015), the main discrepancy between both approaches is the way in which ambivalence is conceived, as well as its relationship with symptom maintenance. For the motivational interviewing approach, ambivalence emerges whenever there is an attachment to an addictive/problematic behaviour. In brief, this attachment can be caused by learning processes and conditioning, or the utilisation of the addictive/problematic behaviour as a coping mechanism to face difficult or unpleasant emotional states (e.g., overcome inhibition).

Social scientists have theorised that ethnicity is central to the self-concept, but surprisingly little empirical research on this topic has been explored. There are, however, a few very recent findings to suggest that ethnicity influences collective identification strategies and their relation to psychological well-being (Banaji & Prentice, 1994). Since this was solely a Black sample, it is recommended that well-executed local validation studies be necessary as there may be cultural differences in interpretation of the RGT, particularly following

translation. Although many of the studies reviewed used internationally validated measures, there were no studies that validated the RGT locally with the study population of South Africa to date, therefore, limiting the generalisability and applicability of the findings. This has been the first study in South Africa to apply the RGT and the first study worldwide that has applied the RGT in adults living with HIV and AIDS.

With regard to HIV and AIDS, it has become abundantly clear that knowledge alone does not change behaviour, even when action to the contrary is potentially fatal. The view that the public has been “saturated” with information has also emerged along with complaints that this information is “stale” (Miller and Crown 2005:16). In sum, information, education, communication (IEC) and behaviour change communication (BCC) programmes may have made small dents in individual experiences, but it has not generated the behaviour changes essential to stem the tide of the epidemic. Despite information and knowledge, sex without condom use and multiple partnering persist. It is this disconnect between knowledge and practice and, as a result, the persistence of unsafe sex, among participants in this study that is cause for concern. It is this issue that must be given priority attention in policy and intervention (Barrow, 2005).

The study did not find a link between depression and risk-taking behaviour variables, namely unprotected sex and non-adherence to HIV medication. Therefore, qualitative studies should be conducted to explore further the subjective experiences of how poor mental health and sexual risk behaviours are inter-connected in low-income settings (Wright, Lubben & Mkandawire, 2007). Questions on risk-taking behaviour were poorly answered. For one thing, the sociodemographic questionnaire was not designed to generate answers to more sensitive questions about the multiple sources of risk in environments, issues for example relating to gender relations, peer influences, family problems, access to information, support

and care, and inequality, poverty and social alienation, all of which are critical to the assessment of unsafe sexual behaviour and risk (Barrow, 2005).

Overall, there is a need for integration of the needs and voices of people experiencing mental health problems and increased empowerment of women is needed. Increased community-level support is needed for those who receive a positive diagnosis, and that better understanding is needed around how mental health problems such as depression and anxiety increase the vulnerability of individuals who are HIV positive. As the availability of ART to people in Africa increases and the face of the epidemic changes, more research on the longer-term mental health needs of PLWHA will also be needed. This will require more studies with patients on treatment, but also longitudinal studies which can assess both changes over time and issues of causality (Brandt, 2000)

Although preliminary in nature, these results may have important implications for policies to advance public health in settings where HIV is most prevalent. Given the relatively high prevalence of depression and anxiety in this setting and persistent high risk-taking behaviour such as unprotected sex and non-adherence to HIV medication, it is possible that mental illness may play a role in the spread of HIV/AIDS at the population level. For policy makers, this points to the need for increased attention to mental health concerns within HIV prevention efforts, as well as enhanced HIV prevention as part of mental health services. Furthermore, these inter-relationships suggest that clinicians and researchers should include routine screening of depression and anxiety as part of HIV-related assessments (Smit, et al., 2006).

The results of this study found that socio-demographic factors, financial and social support

variables, diseases characteristics, and cognitive variables did not play a significant role in the development and maintenance of depression and risk-taking behaviours. The odds ratios alluded to some relationship between all of these variables. Therefore the importance of giving attention to improving support and services by the appropriate agencies to PLWHAs is highlighted. More resources for African-based research are desperately needed to add to the knowledge base and to ensure that the advocacy and services in this area can be as effective as possible. As the temporal nature of association such as depression and risk-taking behaviour or depression and HIV/AIDS, for example, is not clear, rigorous research is needed (Earls, Raviola, Carlson, 2008), including cross-discipline research and that research must be used to inform policies and be translated into better understanding and services at the community-level (Ibid).

Overall, this study contributes to a larger research project. It updates research with regards to the various predictors, especially cognitive factors as predictors of depression in PLWHAs in an under-resourced setting. It also adds to available research in South Africa on depression and anxiety as a co-morbid disorder and high risk-taking behaviours that currently exists in PLWHAs. These findings will hopefully assist in making recommendations that can be made to the health authority concerned about the importance of having a treatment programme that includes mental health care for individuals infected with HIV and AIDS. This will be done through published papers and feedback report to the clinic where the study was undertaken.

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UNIVERSITY of the
WESTERN CAPE

DEPARTMENT OF RESEARCH DEVELOPMENT

05 December 2016

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape approved the methodology and ethics of the following research project by:
Prof P Naidoo, Psychology

Research Project: Implicative personal dilemmas and cognitive conflicts in health decision-making in HIV positive adults and adults with AIDS

Registration no: 08/6/5

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

The Committee must be informed of any serious adverse event and/or termination of the study.

*Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape*



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INFORMATION SHEET

Project Title: IMPLICATIVE PERSONAL DILEMMAS AND COGNITIVE CONFLICTS IN HEALTH DECISION-MAKING IN HIV POSITIVE ADULTS AND ADULTS WITH AIDS

What is this study about?

This is a research project being conducted by Professor Pamela Naidoo at the University of the Western Cape. We are inviting you to participate in this research project because you have tested positive for the HI Virus and you are already on a treatment programme, which includes anti-retro viral therapy. The purpose of this research project is to try and understand how you think about your life and the fact that you are HIV positive, and how you arrive at the decisions you make regarding your health. You are aware that you can infect others with the HI Virus if you do not take the necessary precautions, such as using protective devices (e.g. a condom) whilst you are involved with other individuals during periods of intimacy. You are also aware that you have to follow a particular life-style, such as not engaging in risky behaviour, which can compromise your health. Not taking the anti-retro viral therapy as the doctor or the nurse advises you to take it, for example, may lead you to suffer ill health.

Very often despite individuals knowing that, certain behaviours are bad for theirs and other individual's health, they make decisions that may endanger theirs and the lives of others. This study, therefore, focuses on the difficulties that individuals, who are HIV positive, face when making health decisions. The study also attempts to understand how HIV positive individuals arrive at making health decisions that are good for them and other individuals that form part of their lives.

Once we are better able to understand the way you think about your health and how this thinking influences the decisions you make about taking care of your health, we will try to use this understanding to make changes to your current treatment programme. Once these changes are made and you receive the newly developed programme we will monitor the programme to assess whether it works well. Only one of the two clinics that is involved in the study will provide the new programme because we still need to test whether the programme works better than the previous programme before all the clinics provide it.

What will I be asked to do if I agree to participate?

You will be asked to fill in a number of questionnaires in a language of your choice. You will be assisted and guided by a research assistant. There will be a special room where you will be able to sit comfortably

and fill in all the questionnaires. Please do not hesitate to inform the research assistant if you are experiencing any discomfort or if you want to have a rest before completing the questionnaires. You should be able to complete the questionnaires within one and a half (to two) hours. Light refreshments will be provided.

About 6 to 8 months after the new treatment programme is given to you at your clinic, we will ask you and the patients from the clinic that did not provide the programme to fill in another set of questionnaires, which should take an hour and a half to complete. This will be done at one of your follow-up visits. Once again, you will be given the questionnaires in a special room where light refreshments will also be provided.

If you are required to come in when it is not your clinic follow-up visit, then you will be given money for your transport.

Would my participation in this study be kept confidential?

We will do our best to keep your personal information confidential. To help protect your confidentiality, we will not write your name on each of the questionnaires but we will use a code so that the main researchers can identify you. This is important because we would like you to benefit from this study. We would like you to participate in the follow-up phase of the study, after the new programme is provided at the clinic. It is for this reason that the main researchers need to be able to identify you.

Please be assured that the questionnaires you answered will be locked in a safe place and only the main researchers will be able to access it. After we enter your answers on the computer, we will create a protected file that only the main researchers can enter with a pass-word.

If we write a report or article about this research project, your identity will be protected to the maximum extent possible.

What are the risks of this research?

There are no known risks associated with participating in this research project. However, you are at liberty to rest if you get tired whilst you are filling in the questionnaires.

What are the benefits of this research?

The benefits to you if you receive the new treatment programme include the fact that you will be able to express the way you think and feel about being HIV positive. You will be given the choice to have more counselling about your health status.

You and the patients who do not receive the new programme, will also be helping other people who are HIV positive, indirectly, to benefit. By testing the new programme, we will be able to advise all the health practitioners involved in your treatment what the best method of treatment is so that you can live a better life by making better decisions.

Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

Is any assistance available if I am negatively affected by participating in this study?

Yes, the research assistants will be able to help you during the time that you are participating in the research. If you feel that you want to talk more about your experiences of being HIV positive, the research assistant will arrange for the appropriate professional person to see you. If this happens, you will have to provide permission for the research assistant to refer you.

What if I have questions?

This research is being conducted by Professor Pamela Naidoo of the department of Psychology at the University of the Western Cape. If you have any questions about the research study itself, please contact me at: the Department of Psychology at the University of the Western Cape. Tel: 021 959 2835/2283/2453.

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Head of Department: Professor Kelvin Mwaba

Dean of the Faculty of Community and Health Sciences: Prof R Mpofu

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This research has been approved by the University of the Western Cape's Senate Research Committee and Ethics Committee.



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IPHEPHA LOLWAZI

Itayitile yoluphando: IMPLICATIVE PERSONAL DILEMMAS AND COGNITIVE CONFLICTS IN HEALTH DECISION-MAKING IN HIV POSITIVE ADULTS AND ADULTS WITH AIDS

Lungantoni oluphando?

Olu luphando olenzwa yinjingalwazi u-Pamela Naidoo kwi-Dyunivesithi yaseNtshona Koloni. Uyamenywa uthathe inxhaxheba kolu phando ngokuba ufumaniseke unayo intsholongwane kagawulayo kwaye iyathomalaliswa ngepilisi zesi sifo(anti-retro viral therapy). Injongo yolu phando kukuzama ukuqonda indlela ocinga ngayo ngobomi bakho xeshikweni unentsholongwane kagawulayo, nokuba ufika njani kwizigqibo ozenzayo ngempilo yakho. Uyaqonda ukuba ungabasulela abanye abantu ngale ntsholongwane xa uthe awazinakekela ngendlela efanelekileyo efana nokusebenzisa izikhusele xa uthe wabelana ngesondo nabanye abantu. Kwaye uyazi okokuba kufuneka ulandele uhlobo oluthile ekufuneka uphile ngalo olunje ngokuba ungazifaki kuhlobo olungalunganga lokuziphatha oluyakuthi lufake ubomi bakho engozini. Xa uthe awazitya ipilisi zakho ngokomyalelo kagqirha okanye umongingakazi lonto uyakubangela impilo ebuthathaka.

Kumaxesha amaninzi noxa abantu abathile besazi ukuba iindlela ezithile zokuziphatha azilunganga kwi mpilo yabo kunye nempilo yabanye abantu, bathatha izigqibo ezinokuthi zifake ubomi babo engozini nobomi babanye abantu. Oluphando luqwalasela inzingo zabantu abathile abane ntsholongwane kagawulayo, xa kufuneka bethathe izigqibo ngempilo yabo. Kwaye oluphando luzama ukuqonda izigqibo ezifanelekileyo abafikelela kuzo abantu abanesifo sikagawulayo ngempilo yabo neya banye abantu abasebomini babo.

Xa sithe saqonda ngcono ngendlela ocinga ngayo ngempilo yakho nokuba ezingcinga zakho zichaphazela njani kwizigqibo ozenzayo ngoku nakakekela impilo yakho, sakuthi sizame ukusebenzisa olu lwazi siguqule indlela onyangwa ngayo. Xa olutshintsho luthelwenzeka uyakuthi ufumane unyango oluphuhlisiwe ngendlela ethe xhaxhe, kwaye sakulikhangela okokuba luyasebenza kakuhle na. Enye kwezi kliniki zimboni zibandakanyekayo koluphando, izakuthi ibeyiyo ezakuba nolunyango oluphuhlisiweyo ngendlela ethe xhaxhe, ngokuba kuzanywa ukukhangela ukuba ingaba lusebenza ngcono olunyango kunolu belusetyenziswa na, phambi kokuba ezinye iikliniki zilusebenzise.

Yintoni eyakhuthi ndicelwe ukuba ndiyenze xandithe ndavuma ukuthatha inxhaxheba?

Uzakucelwa ukuba uphendule ngokupheleleyo uluhlu lwemibuzo eyakuthi ibuzwe ngumcedisi ofumane uqeqesho olugqibeleleyo malunga nezophando ngolwimi othe walukhetha. Kuza kube kukho igumbi labucala apho uza kukwazi ukuhlala phantsi uphendule yonke imibuzo. Uyacelwa ukuba ungathandabuzi ukuxelela umcedisi ofumane uqeqesho olugqibeleleyo ukuba ufumana ukungonwabi okanye ufuna ukuphumla phambi kukuba uphendule imibuzo. Umele ukuba ubenako ukuyigqixiba lemibuzo phakathi kweyure enesiqingatha. Ukutya neziselo kuya kuba kukhona.

Emva kwenyanga ezintandathu ukuya kwezisibhozo emveni kolunyango lutsha othe walunikwa kwikliniki yakho, sakuthi sikubuze wena kunye nezinye izigulane ezithe azalufamana olu nyango ukuba ziphendule ngokugqibeleleyo uluhlu lwemibuzo eyakuthi ithathe iyure enesiqingatha. Lento iyakuthi yenziwe kutyelelo olulandelayo. Kwakhona uyakuthi unikwe uluhlu lwemibuzo kwigumbi labucala apho kuyakube kukho ukutya kunye neziselo .

Xa kuthe kwanyanzeleke ukuba uze ekliniki nangosuku olungelolwakho, uyakuthi unikwe imali yokukhwela.

Ingaba ukuthatha kwam inxhaxheba koluphando kuya kuba yimfihlelo na?

Siza kwenza ngako konke okusemandleni ukuqinisekisa ukuba ulwazi esinalo ngawe luyakubamfihlelo. Ngako oko ukukhusela igama lakho sokuligcina lisemfihlakalweni ngokuthi lingabhalwa koko kuyakusetyenziswa uphawu oluyakuthi lwaziwe ngaba phethe oluphando. Oku kubalulekile ngoba besingathanda uzuze koluphando. Besingathanda ukuba uthathe inxhaxheba kutyelelo olulandelayo loluphando, emveni kokuba olunyango lutsha lufumanekile ekliniki. Kungesizathu lento abaphathi boluphando kufuneka benako ukuthi bakolathe.

Siyakuqinisekisa ukuba uluhlu lwemibuzo oyewathi waluphendula luyakuvallelwa endaweni efihlakeleyo eyakuthi yaziwe ngabaphethe oluphando kuphela. Emveni kokuba sithe safaka iimpendulo zakho kwi kompuyutha, sakuthi senze ifayile eyokuthi ibesisikhuselo sempendulo zakho eyokuthi ivulwe ngabaphethe oluphando kuphela.

Ushicilelo olunokuthi lwenziwe ngoluphando lwkukhuselwa ngokugqibeleleyo lonke ulwazi esinalo ngawe.

Yintoni ingozi koluphando?

Abukho ubungozi obunxulumene nokuthatha inxhaxheba koluphando. Kodwa ke unalo ilungelo lokuphumla ngexesha usaphendula uluhlu lwemibuzo xa uthe waziva udiniwe.

Ziintoni inzuzo zoluphando?

Inzuzo oyakuthi uyifumane ngeyokuba ufumane unyango olutsha oluquka iibono zakho kwanendlela oziva ngayo ngokuba unentsholongwane ka gawulayo. Uyakunikwa ithuba lokubanodliwano dlebe ngezempilo.

Wena nezinye izigulane ezingalufumaniyo olunyango lutsha nizaku nceda abanye abantu abanentsholongwane kagawulayo bazuze ngokungathanga nqo. Ngokuhlola olunyango lutsha sizakuthi sikwazi ukucebisa bonke abezempilo abanxulumene nonyango lwakho, bakhangele ukuba loluphina uhlobo lonyango olungcono oluyakuthi lwenze ukuba ukwazi ukuphila nokuthatha izigqibo eziphucukileyo.

Kusisinyanzelo na ukuba ndibe koluphando kwaye ndingarhoxa na nangaliphi ixesha?

Inxaxheba oyithabathayo uyenza ngokuzithandela. Ukwanalo nelungelo lokurhoxa koluphando nangaliphina ixesha, kwaye ukurhoxa kwakho akusayi kuchaphazela ngendlela engeyiyo kuncedo olufumanayo.

Ingaba lukho uncedo olufumanekayo ukuba ndithe ndacaphazeleka ngendlela engafanelekanga ngokuthatha kwam inxaxheba koluphando?

Ewe, abancedisi abafumene uqeqesho olugqibeleleyo malunga nezophando bakuthi bancede ngexesha uthatha inxaxheba koluphando. Ukuba uzive ufuna ukuthetha ngokungezelekileyo malunga nokuba unentsholongwane kagawulayo umcedisi ofumane uqeqesho olugqibeleleyo malunga nezophando uyakuthi akufumanele umntu oqeqeshiweyo oyakuthi akubone. Ukuba oku kuthe kwenzeka, kufuneka unike umcedisi ofumane uqeqesho olugqibeleleyo malunga nezophando imvume yokuba akuthumele kulomntu oyakuthi akubone.

Ukuba ndithe ndanemibuzo?

Olu luphando lwenziwa yinjingalwazi u-Pamela Naaidoo wesebe lezengqondo kwi-Dyunivesiti yaseNtsona Koloni. Ukuba unemibuzo ngoluphando unganditsalela kwezinombolo: Isebe Lezengqondo kwi-Dyunivesiti yaseNtshona Koloni. 021 959 2835/2283/2453.

Ukuba unemibuzo ngoluphando nangamalungelo akho njengomntu othatha inxaxheba koluphando okanye ofuna ukuchaza ngeengxaki oyewazifumansa *Tel: +27 21-959 2835/2283/2453* koluphando, nceda ubhalele kuledilesi:

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CONSENT FORM

Title of Research Project: IMPLICATIVE PERSONAL DILEMMAS AND COGNITIVE CONFLICTS IN HEALTH DECISION-MAKING IN HIV POSITIVE ADULTS AND ADULTS WITH AIDS

The study has been described to me in language that I understand and I freely and voluntarily agree to participate. My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way.

Participant's name.....

Participant's signature.....

Date.....

Should you have any questions regarding this study or wish to report any problems you have experienced related to the study, please contact the study coordinator:

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IFOMU YEMVUMELWANO EYAZISIWEYO

Title of Research Project: IMPLICATIVE PERSONAL DILEMMAS AND COGNITIVE CONFLICTS IN HEALTH DECISION-MAKING IN HIV POSITIVE ADULTS AND ADULTS WITH AIDS

Mna, -----, ndiyasiqonda isizathu sokwenziwa koluphando namanqanaba alo.

Ndivumile ukuthatha inxaxheba ngokuzithandela. Ngaphaya koko, ndiyaqonda kakuhle ukuba ndinalo ilungelo lokurhoxa koluphando nangaliphi ixesha.

Umtyikityo womthathi-nxaxheba:.....

Umhla.....

Umtyikityo womncedisi phando:.....

Ukuba unayo imibuzo onayo malunga noluphando okanye unomdla wokuchaza ingxaki othe wadibana nazo ezingqamelene noluphando, ungaqhagamishelana nomphathi wophando:

Study Coordinator's Name: PROFESSOR PAMELA NAIDOO

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Thank you for participating in this research project.



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DEPARTMENT OF PSYCHOLOGY

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PERSONAL DETAILS AND BIOGRAPHICAL INVENTORY PART A

A1. Name: _____ A2. File No

A3. Age in years:

A4. Tel: W (A/H, home, or other contact no.):

A5. Type of transport used to get to the clinic? (*Please tick*)

(a) PUBLIC: Bus: Taxi: Walk

(b) PRIVATE: Own Vehicle: Hired Vehicle:

A6. Did you have to be accompanied to the clinic? (*Please tick*) Yes No
If yes, please state reason(s):

Please make a cross in the appropriate columns

A7. Sex

Male	<input type="checkbox"/>
Female	<input type="checkbox"/>

A8. Language

English	<input type="checkbox"/>
Afrikaans	<input type="checkbox"/>
Xhosa	<input type="checkbox"/>
Other (<i>Please Specify</i>)	<input type="checkbox"/>

A9. Marital Status

Never Married	
Living with partner	
Separated	
Married	
Divorced	
Widowed	

A10. Employment

Occupational status (if employed)?

Employed	
Unemployed	

A11. Net Monthly Income

Less than R500	
R500 to R1 000	
R1 000 to R2 000	
R 2 000 to R3 000	
More than R 3000	

A12. Financial Aid

Are you on a disability grant? Yes No

Please state amount: _____

Do you receive any other financial aid from government? Yes No

If yes, please specify: _____

A13. Is anyone financially dependent on you? Yes No

If yes, please specify what the relationship of the dependent is to you: _____

A14. Are you financially dependent? Yes No

A15. Do you live on your own? Yes No

If yes, do you own your home? Yes No

If no, with whom do you live?

Is this person employed? Yes No

A16. Do you have any coexisting conditions (medical e.g. TB)? Yes No

If yes please specify when you were diagnosed with this condition _____ and what treatment are you on? _____

A17. Phase/Stage of Disease: Have you been diagnosed with having AIDS yet?
Yes No If yes, when were you diagnosed with AIDS _____ and what stage of the illness are you in _____?

A18. Phase/Stage of Disease: You are HIV positive. Do you know at what stage of the disease you are in? Yes No Please specify _____

A19. What is your CD4 count? _____

A20. At what Stage of the disease are you in?: _____
(Researcher will obtain information if you do not know)

PART B: KNOWLEDGE AND BEHAVIOR: HIV/AIDS

B1. Risk-Taking Behaviours

Sexual Behaviours: Please answer the following questions and make a tick where appropriate

(a) Are you in a sexual relationship? Yes No

Is the sexual relationship with a man or a woman? Man Woman

(b) Are you having unprotected sex (e.g. males not using a condom)? Yes No

If yes, do you have unprotected sex all the time or some of the time? _____

Female patients only: are you able to ask your partner to use a condom? Yes No

If he refuses what do you do? _____

(c) Do you have multiple (many) sexual partners? Yes No

If yes, please elaborate on how many partners _____ and within what period of time have you had these partners _____?

(d) Are you married or in a steady relationship? Yes No

- (e) Are you sexually unfaithful to your partner? Yes No If yes, why do you think you are unfaithful? _____
- (f) If you have children, have you tested them for the HI virus? Yes No
- (g) Have you told your partner about your HIV status? Yes No
If no, why not? _____

Adherence to medication: Please answer the following questions and make a tick where appropriate

- (h) Are you taking your medication to treat your HIV/AIDS status as the doctor and nurses have advised you to take it? Yes No

If no, then please explain the reasons for not taking the medicaton as prescribed.

- (i) Are you getting treatment for TB well? Yes No
- (j) Are you taking your medication for TB and HIV/AIDS as the doctor and nurses have advised you to take it? Yes No

If no, then please explain the reasons for not taking the medicaton as prescribed.

- (k) Are you taking any other medication besides for TB and/or HIV/AIDS (including traditional/alternative medicines)?

Please explain:

Substance use and other risk-taking behaviours: Please answer the following questions and make a tick where appropriate

(l) Do you take alcohol? Yes No If yes, can you please explain how taking alcohol affects your life as a HIV positive person? _____

(m) Do you smoke cigarettes or take other substances? Yes No If yes, can you please explain how smoking cigarettes or taking other substances affects your life as a HIV positive person? _____

(n) Do you engage in other risk-taking behaviors? Yes No
If Yes, please explain. _____

B2. Knowledge of factors fuelling the disease

(o) Do you know how the HI virus can spread from one person to another?

Yes No

If yes, can you please list as many factors as you know that can make the HI virus spread from one person to another?

Where did you get the above information from?

If no, please explain why you do not know.

(c) Did you know that a mother can transmit the HI virus during the birth process? Yes No

(d) Can you please write down ALL the steps you take to take care of your health now that you have been diagnosed with the HI virus.

(e) Can you please write down ALL the steps you take to take to make sure that you do not infect others with the HI virus.

(f) Does it matter if you know the people who you may infect? Yes No

If yes, please explain. _____

(g) Is there anything else you would like to mention about yourself, your health and how your HIV status affects others? _____

Ndiyabulela ngokuthatha kwakho inxaxheba koluphando



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IMIBUZO NGAWE NANGEMVELAPHI YAKHO

IMIBUZO A

A1. Igama:

A2. Inombolo yefayili

A3. Ubudala ngeminyaka

A4. Umnxeba wasemsebenzini
iminxeba):

(owasekhaya okanye eminye

A5. Udidi lwesithuthi olusetyenziswayo ukuya eKliniki (Nceda ukhethe)

(a WONKEWONKE: Ibasi:

Itekisi:

uhamba ngeenyawo:

(b) ANGASESE:

Isithuthi Sakho:

Isithuthi Esiqeshiweyo:

A6. Bekufuneka ukhatshiwe ukuya eKliniki? (Nceda ukhethe) Ewe Hayi

Ukubangaba kunjalo, nceda uchaze isizathu:

Nceda wenze umnqamlezo kwibokisi efanelekileyo

A7. Isini

Indoda	<input type="checkbox"/>
Umfazi	<input type="checkbox"/>

A8. Ulwimi

English	
Afrikaans	
Xhosa	
Ezinye (<i>Nceda ucacise</i>)	

A9. Isimo sokutshata

Zange watshata	
Uhlala neqabane	
Nohlukene	
Utshatile	
Uqhawukile umtshato	
Umhlolo/umhlokokazi	

A10. Umsebenzi

Wenza msebenzi mni (ukuba uyasebenza)?

Ndiyasebenza	
Andisebenzi	

Uyafunda? Ewe Hayi

A11. Intsalela yomvuzo wenyanga

Ngaphantsi kwe R500	
R500 ukuya kwi R1000	
R1000 ukuya kwi R2000	
R2000 ukuya kwi R3000	
Ngaphezu kwe R3000	

A12. Uxhaso mali

Ufumana imali yabantu abakhubazekileyo? Ewe Hayi

Nceda uchaze yimalini: _____

Ingaba uyalufumana olunye uncedo ngemali kurhulumente? Ewe Hayi

Ukuba kunjalo nceda ucacise: _____

A13. Ingaba kukho umntu oxhomekeke kuwe ngokwezemali? Ewe Hayi

Ukuba kunjalo, Nceda ucacise ukuba uhlobene njani nalomntu: _____

A14. Ingaba uxhomekekile ngokwezemali? Ewe Hayi

A15. Ingaba uhlala wedwa? Ewe Hayi
Ukuba kunjalo, unendlu yakho? Ewe Hayi

Ukuba akukho njalo, uhlala nabani?

Ingaba lomntu uyasebenza? Ewe Hayi

A16. Unazo na ezinye imfuno ezi mnxamnye (ezobugqirha e.g. isifo sephepha (TB))?
Ewe Hayi

Ukuba kunjalo nceda ucacise, waze nini ukuba unalemeko _____ kwaye unyanga ngantoni? _____

A17. Inqanaba lokugula: Ingaba sele uxilongiwe ngokuqonda ingculaza (iAIDS)? Ewe Hayi Ukuba kunjalo, Uyiqonde nini ukuba unengculaza (AIDS)?
_____ kwaye ukweliphi inqanaba lesisifo _____

A18. Inqanaba lokugula: UHIV (phozithivu)ngokuqinisekileyo/Unengculaza. Uyazazi na ukuba ukweliphi inqanaba lesisifo? Ewe Hayi
Nceda ucacise _____

A19. Ithini iCD4 khawunti yakho? _____

A20. Ukweliphi inqanaba lesisifo? _____
(Researcher to obtain information if you do not know)
(Umphandi ufuna ulwazi ukuba awuyazi)

UMBUZO B: ULWAZI NOKUZIPHATHA: HIV/AIDS

B1. Impatho yokuzifaka engozini

Impatho ngokwezesini: Nceda uphendule le mibuzo ilandelayo uze ubeke uphawu apho kufanelekileyo

(a) Ingaba ukulo na unxulumano lwe zesini? Ewe Hayi

Ingaba lunxulumano lwe zesini nendoda okanye nomfazi?

Indoda Umfazi

(b) Ingaba niyabelana na ngesondo ningakhuselananga (umzekelo; amadoda angasebenzisi ikhondom)? Ewe Hayi

Ukuba kunjalo, ingaba wabelana ngesondo ungakhuselekanga lonke ixesha okanye ngamanye amaxesha? _____

Izigulane ezingomama zodwa: Ingaba uyakwazi na ukucela iqabane lakho ukuba lisebenzise ikhondom? Ewe Hayi

Ukuba alivumi wenza ntoni? _____

(c) Ingaba unamaqabane amaninzi okwabelana ngesondo? Ewe Hayi

Ukuba kunjalo, Nceda ucacise ukuba ngamaqabane amangaphi _____

kwaye kukweliphi ixesha ube unawo lamaqabane _____?

(d) Ingaba utshatile okanye ukunxulumano oluthembekileyo? Ewe Hayi

(e) Ingaba awuthembekanga na kwiqabane lakho ngezesondo? Ewe Hayi

Ukuba kunjalo, kutheni lento ucinga ukuba awuthembekanga?

(f) Ukuba unabantwana, wakhe wabahlola ukuba abanayo intsholongwane yengculaza (HIV)? Ewe Hayi

(g) Sele ulixelele na iqabane lakho ngesimo sakho sengculaza (HIV)? Ewe

Hayi

Ukuba akunjalo, Kutheni lento kungekho njalo?

Ukuthembeka nokunyamekela amayeza: Nceda uphendule le mibuzo ilandelayo uze ubeke uphawu apho kufanelekileyo

- (h) Ingaba uthatha amayeza ukunyanga isimo sakho sengculaza (HIV/AIDS) njengoko ugqirha noomongikazi bebekucebisile? Ewe Hayi

Ukuba akunjalo, nceda uchaze izizathu ezibangela ukuba ungawathathi amayeza njengoko ubumiselwe.

- (i) Ingaba uyafumana unyango lwesisifo sephepha (TB) kakuhle? Ewe Hayi

- (j) Ingaba uyawathatha na amayeza akho esifo sephepha (eTB) nengculaza (HIV/AIDS) njengoko ugqirha noomongikazi bebekucebisile? Ewe Hayi
Ukuba akunjalo, nceda uchaze izizathu ezibangela ukuba ungawathathi amayeza njengoko ubumiselwe

- (k) Ingaba akhona amanye amayeza owathathayo ngaphandle kwawesifo sephepha (TB) okanye/ nengculaza (HIV/AIDS) (ukuquka amayeza esintu/ amayeza achaseneyo)?

Nceda ucacise:

Ukusebenzisa iziyobisi nezinye iimpatho zokuzifaka engozini: Nceda uphendule le mibuzo ilandelayo uze ubeke uphawu apho kufanelekileyo

- (l) Uyabusela utywala? Ewe Hayi

Ukuba kunjalo, unganceda uchaze ukuba ukusela utywala buyonakalisa kanjani impilo yakho njengomntu onengculaza (HIV phozithivu)? _____

(m) Ingaba uyatshaya icuba okanye uyazisebenzisa ezinye iziyobisi? Ewe Hayi

Ukuba kunjalo, unganceda uchaze ukuba ukutshaya icuba okanye ukusebenzisa ezinye iziyobisi buyonakalisa kanjani impilo yakho njengomntu onengculaza (oHIV phozithivu)?

(n) Ingaba uyazifaka na kwezinye iimpatho zokuzifaka engozini? Ewe Hayi

Ukuba kunjalo, nceda ucacise.

B2. Ulwazi lwemeko eziphembelela isifo

(o) Uyazi ukuba intsholongwane yengculaza (yeHIV) inganda kanjani ukusuka komnye umntu ukuya komnye? Ewe Hayi

Ukuba kunjalo, unganceda udwelise iimeko ezininzi ozaziyo ezinokwenza ukuba intsholongwane yengculaza (yeHIV) yande ukusuka komnye umntu ukuya komnye?

Ulufumene phi olulwazi lusemantla?

Ukuba akunjalo, nceda uchaze kutheni ungazi?

(p) Ubusazi ukuba umama angayigqithisela intsholongwane yengculaza (yeHIV) xa ezala? Ewe Hayi

(q) Unganceda ubhale phantsi onke amanyathelo owathathayo ukukhathalela impilo yakho ngoku uthe wazazi ukuba unentsholngwane yengculaza (yeHIV).

(r) Unganceda ubhale phantsi onke amanyathelo owathathayo ukuqinisekisa ukuba awosuleli abanye ngentsholngwane yengculaza (yeHIV).

(s) Ingaba iyanceda ukuba uyabazi abantu onokubesulela? Ewe Hayi

Ukuba kunjalo, nceda ucacise.

(t) Ingaba ikhona enye into ongathanda ukuyithetha ngawe, impilo yakho nokuba isimo sakho sengculaza (seHIV) sibakhathaza njani abanye?



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BDI II File no. _____

Please circle one item in each group that best describes the way you have been feeling in the last two weeks, including today.

1. Sadness

- 0 I do not feel sad.
- 1 I feel sad much of the time.
- 2 I am sad all the time.
- 3 I am so sad and unhappy that I can't stand it.

2. Pessimism

- 0 I am not discouraged about the future.
- 1 I feel more discouraged about the future than I used to be.
- 2 I do not expect things to work out for me.
- 3 I feel my future is hopeless and will only get worse.

3. Past Failure

- 0 I do not feel like a failure.
- 1 I have failed more than I should have.
- 2 As I look back I see a lot of failures.
- 3 I feel I am a total failure as a person.

4. Loss of Pleasure

- 0 I get as much pleasure out of things as I used to.
- 1 I don't enjoy things as much as I used to.
- 2 I get very little pleasure from the things I used to enjoy.
- 3 I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings

- 0 I don't feel particularly guilty.
- 1 I feel guilty over many things I have done or should have done.
- 2 I feel quite guilty most of the time.
- 3 I feel guilty all of the time.

6. Punishment Feelings

- 0 I don't feel I am being punished.
- 1 I feel I may be punished.
- 2 I expect to be punished.
- 3 I feel I am being punished.

7. Self Dislike

- 0 I feel the same about myself as ever.
- 1 I have lost confidence in myself.
- 2 I am disappointed in myself.
- 3 I dislike myself.

8. Self-Criticalness

- 0 I don't criticize or blame myself more than usual.
- 1 I am more critical of myself than I used to be.
- 2 I criticize myself for all my faults.
- 3 I blame myself for everything bad that happens.

9. Suicidal Thoughts or Wishes

- 0 I don't have any thoughts of killing myself.
- 1 I have thoughts of killing myself, but I would not carry them out.
- 2 I would like to kill myself.
- 3 I would kill myself if I had the chance.

10. Crying

- 0 I don't cry any more than I used to.
- 1 I cry more now than I used to.
- 2 I cry over very little things.
- 3 I feel like crying but I can't.

11. Agitation

- 0 I am no more restless or wound up than usual.
- 1 I feel more restless or wound up than usual.
- 2 I am so restless or agitated that it's hard to stay still.
- 3 I am so restless or agitated that I have to keep moving or doing something.

12. Loss of interest

- 0 I have not lost interest in other people or activities.
- 1 I am less interested in other people or things than before.
- 2 I have lost most of my interest in other people or things.
- 3 It's hard to get interest in anything.

13. Indecisiveness

- 0 I make decisions about as well as ever.
- 1 I find it more difficult to make decisions than usual.
- 2 I have much greater difficulty in making decisions more than I used to.
- 3 I have trouble in making any decisions.

14. Worthlessness

- 0 I do not feel I am worthless.
- 1 I don't consider myself as worthwhile and useful as I used to.
- 2 I feel more worthless as compared to other people.

- 3 I feel utterly worthless.

15. Loss of energy

- 0 I have as much energy as ever.
- 1 I have less energy than I used to have.
- 2 I don't have enough energy to do very much.
- 3 I don't have enough energy to do anything.

16. Changes in sleeping pattern

- 0 I have not experienced any change in my sleeping pattern.
- 1a I sleep somewhat more than usual.
- 1b I sleep somewhat less than usual
- 2a I sleep a lot more than usual.

- 2b I sleep a lot less than usual.

- 3a I sleep most of the day.

- 3b I wake up 1-2 hours early and can't get back to sleep.

17. Irritability

- 0 I am no more irritable than usual.
- 1 I am more irritable than usual.
- 2 I am much more irritable than usual.
- 3 I am irritable all the time.

18. Changes in appetite

- 0 I have not experienced any change in my appetite.
- 1a My appetite is somewhat less than usual.
- 1b My appetite is somewhat greater than usual.

- 2a My appetite is much less than before.
- 2b My appetite is much greater than usual.

- 3a I have no appetite at all.

- 3b I crave food all the time

19. Concentration difficulty

- 0 I can concentrate as well as ever.
- 1 I can't concentrate as well as usual.
- 2 It's hard to keep my mind on anything for very long.
- 3 I find I can't concentrate on anything.

20. Tiredness or Fatigue

- 0 I am no more tired or fatigued than usual.
- 1 I get more tired or fatigued more easily than usual.
- 2 I am too tired or fatigued to do a lot of the things I used to do.
- 3 I am tired or fatigued to do most of the things I used to do.

21. Loss of interest in sex

- 0 I have not noticed any recent change in my interest in sex.
- 1 I am less interested in sex than I used to be.
- 2 I am much less interest in sex now.
- 3 I have lost interest in sex completely.

TOTAL = _____



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BDII Inombolo yecwecwe. _____

Nceda urhangqe inani elingaphantsi kwimpendulo nganye elona libhekise kwindlela obuziva ngayo kwiveki ezimbini ezidlulileyo, kwakunye nolwanamhlanje usuku.

1. Unxunguphalo

- 0 Andiziva ndinxunguphele
- 1 Ndiziva ndinxunguphele ixesha elininzi
- 2 Ndxunguphele ngawo onke amaxesha yaye andikwazi ukuphuma kolu nxunguphalo
- 3 Ndxunguphele kwaye andinavuyo andimelani nalento

2. Umdla

- 0 Andiziva ndingenamadla ngekamva
- 1 Ndiziva ndingenamadla ngekamva ngakumbi kunakuqala
- 2 Andilindelanga ukuba izinto zindihambele kakuhle
- 3 Ndiva ikamva lingekho kwaye izinto ziye zisibangamandla

3. Ukungaphumeleli

- 0 Andiziva ndingengomphumeleli
- 1 Andiphumeleli ngaphezu kokufanelekileyo
- 2 Xa ndijonga ubomi bam, into endiyibonayo eninzi kukungaphumeleli kwam
- 3 Ndiziva ndungumntu ongaphumeleliyo kwaphela

4. Ukungabi nolwaneliseko

- 0 Ndifumana ulwaneliseko kwizinto endizenzayo kunangaphambili
- 1 Andizonwabeli izonto ngalandlela ndandizonwabela ngayo
- 2 Andifumani lwaneliseko ezintweni kwaphela
- 3 Andifumani lwaneliseko kwizinto ebendiqhele ukuzonwabela

5. Izimvo zokubanetyala

- 0 Andiziva ndinetyala nakancinci
- 1 Ndiziva ndinetyala kwizinto endizenzileyo okanye ebendifanele ukuzenza
- 2 Ndiziva ndinetyala ngamaxesha amaninzi
- 3 Ndiziva ndinetyala ngalo lonke ixesha

6. Izimvo zokohlwaywa

- 0 Andiziva ngathi ndiyohlwaywa
- 1 Ndiziva ngathi ndiyohlwaywa
- 2 Ndikulindele ukohlwaywa
- 3 Ndiziva ndisohlwaywa

7. Ukuzicaphukela

- 0 Andiziva ngohlobo olunye ngam njengakuqala
- 1 Ndilahlekene nokuzingca ngam
- 2 Ndidanile ngam
- 3 Ndiyazicaphukela

8. Ubuthathaka Ngawe

- 0 Andizigxeki okanye ndizisole ngam ngaphezulu kunakuqala
- 1 Ndiyathanda ukugxeka ubuthathaka kwaneempazamo zam kakhulu kunakuqala
- 2 Ndiyazigxeka ngazo zonke impazamo zam
- 3 Ndiyazigxeka ngayo yonke into embi eyenzekayo

9. Izimvo okanye amaphupha ngokuzibulala

- 0 Andinazo iingcinga zokuzibulala
- 1 Ndinazo ingcinga zokuzibulala kodwa asoze ndizibulale
- 2 Ndingathanda oko kuba ndizibulale
- 3 Ndingazibulala ukubangaba ndingafumana ithuba

10. Ukukhala

- 0 Andisakhali kakhulu kunesiqhelo
- 1 Ndikhala kakhulu kunakuqala
- 2 Ndikhaliwa zizinto ezincinci
- 3 Ndinqwenel ukukhala kodwa andikwazi

11. Ukungonwabi

- 0 Azisandicaphukisi izinto ezazindicaphukisa kuqala
- 1 Ndiyacaphuka kancinci kunakuqala
- 2 Ndiyadikwa okanye ndizive ndicaphuka ixesha elininzi
- 3 Ndiziva ndicaphuka ngapha koko kuye kufuneke nihambahambe okanye ndibe nento endiyenzeyo

12. Ukuphelelwa ngumdlala

- 0 Andiphelelwanga ngumdlala kwabanye abantu okanye izinto
- 1 Umdlala endinawo kwabanye abantu okanye izinto uhlile kunakuqala
- 2 Umdlala endinawo kwabanye abantu uhlile kakhulu kunakuqala
- 3 Kunzima ukubanomdlala nakwintonina

13. Ubunzima ngokwenza izigqibo

- 0 Ndenza izigqibo kakhulu kunakuqala
- 1 Ndikuva kundinzimela ukwenza izigqiba njengesiqhelo
- 2 Ndinobunzima obukhululu ukwenza izigqibo kunakuqala
- 3 Ndifumana ubunzima ekwenzeni izigqibo

14. Ukungabinaxabiso

- 0 Andiziva ndingenaxabiso
- 1 Andiziboni ndingenaxabiso okanye umsebenzi njengesiqhelo
- 2 Ndiziva ndingenaxabiso okodlula abanye abantu
- 3 Ndiziva ndingenaxabiso ngokupheleleyo

15. Ukungabinamdlala

- 0 Ndinawo amandla njengesiqhelo
- 1 Ndinamandla amancinci kunakuqala
- 2 Andimandla afanelekileyo ukwenze kakhulu
- 3 Andinawo amandla okwenza nantoni na

16. Utshintsho kwindlela zokulala

- 0 Anikaboni tshintsho kwindlela endilala ngayo
- 1a Ndilala ngokokucinga ngaphezulu kunakuqala
- 1b Ndilala ngokokucing kancinci kunakuqala

- 2a Ndilala kakhulu kunakuqala
- 2b Ndilala kancinci kunakuqala

- 3a Ndilala ixesha elininzi lemini
- 3b Ndivuka phambi kweyure enye ukuya kwezimbini phambi kwexesha lam ndikwakwazi ukuphinda ndilale

17. Ukuhlupheka

- 0 Andisahlupheki njengakuqala
- 1 Ndihlupheka ngakumbi kunakuqala
- 2 Ndiye ndihlupheke kakhulu kunakuqala
- 3 Ndiye ndihlupheke ngamaxesha onke

18. Utshintsho kwindlela zokutya

- 0 Andikadibani notshintsho kwindlela enditya ngayo
- 1a Ndicinga ukuba indlela yam yokutya ingaphantsi kunakuqala
- 1b Ndicinga ukuba indlela yam yokutya ingaphezu kunakuqala

- 2a Indlela yam yokutya ingaphantsi kunakuqala
- 2b Indlela yam yokutya ingaphezulu kunakuqala

- 3a Andinamandla wokutya kwaphela
- 3b Ndiyakubawela ukutya ngamaxesha onke

19. Ubunzima ngokujongana nezinto

- 0 Ndiyakwazi ukujongana nezinto njengakuqala
- 1 Andikwazi ukujongana nezinto njengesiqhelo
- 2 Kunzima ukubeka ingqondo yam nakwintoni na ixesha elide
- 3 Ndibona ndingakwazi ukujongana nayo nantoni na

20. Ukudinwa okanye ukudikwa

- 0 Andisadikwa okanye ndidikwe njengesiqhelo
- 1 Ndiyadinwa okanye ndidikwe kukwenza izinto ezininzi kunesiqhelo
- 2 Ndiyadinwa okanye ndidikwe kukwenza izinto ezininzi kunesiqhelo
- 3 Ndidiniwe okanye ndidikiwe kukwenza izinto izinto ezininzi kunesiqhelo

21. Ukuphelelwa ngumdla kukobelana ngesondo

0 Andikhange ndibone tshintsho kumdla wam ngokubelana ngesondo

1 Andinamdla kakhulu kwisondo njengakuqala

2 Andisenamdla wokobelana ngesondo ngoku

3 Andinamdla kwaphela ngokubelana ngesondo

Amanqaku= _____



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Hospital Anxiety and Depression Scale (HADS)

Please circle the answer under each item that best describes your feelings.

A	I feel tense or 'wound up':	
	Most of the time	3
	A lot of the time	2
	From time to time, occasionally	1
	Not at all	0

D	I still enjoy the things I used to enjoy:	
	Definitely as much	0
	Not quite so much	1
	Only a little	2
	Hardly at all	3

A	I get a sort of frightened feeling as if something awful is about to happen:	
	Very definitely and quite badly	3
	Yes, but not too badly	2
	A little, but it doesn't worry me	1
	Not at all	0

D	I can laugh and see the funny side of things:	
	As much as I always could	0
	Not quite so much now	1
	Definitely not so much now	2
	Not at all	3

A	Worrying thoughts go through my mind:	
	A great deal of the time	3
	A lot of the time	2
	From time to time, but not too often	1
	Only occasionally	0

D	I feel cheerful:	
	Not at all	3
	Not often	2
	Sometimes	1
	Most of the time	0

A	I can sit at ease and feel relaxed:	
	Definitely	0
	Usually	1
	Not Often	2
	Not at all	3

D	I feel as if I am slowed down:	
	Nearly all the time	3
	Very often	2
	Sometimes	1
	Not at all	0

A	I get a sort of frightened feeling like 'butterflies' in the stomach:	
	Not at all	0
	Occasionally	1
	Quite Often	2
	Very Often	3

D	I have lost interest in my appearance:	
	Definitely	3
	I don't take as much care as I should	2
	I may not take quite as much care	1
	I take just as much care as ever	0

A	I feel restless as I have to be on the move:	
	Very much indeed	3
	Quite a lot	2
	Not very much	1
	Not at all	0

D	I look forward with enjoyment to things:	
	As much as I ever did	0
	Rather less than I used to	1
	Definitely less than I used to	2
	Hardly at all	3

A	I get sudden feelings of panic:	
	Very often indeed	3
	Quite often	2
	Not very often	1
	Not at all	0

D	I can enjoy a good book or radio or TV program:	
	Often	0
	Sometimes	1
	Not often	2
	Very seldom	3

FOR RESEARCHER ONLY

Scoring (add the As = Anxiety. Add the Ds = Depression). The norms below will give you an idea of the level of Anxiety and Depression.	
0-7 = Normal	
8-10 = Borderline abnormal	
11-21 = Abnormal	



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Hospital Anxiety and Depression Scale (HADS)

Nceda urhangqe impendulo ngaphantsi kwazo zonke impendule ethi ikuchaze indlela oziva ngayo

A	Ndiziva ndibambekile okanye ndixhelekile:	
	Amaxesha amaninzi	3
	Ixesha elininzi	2
	Ngamaxesha ngamaxesha, manaphanqapha	1
	Hayi, Kancinci	0

D	Ndisazonwabela izinto endandizonwabela:	
	Njengesiqhelo	0
	Hayi kangako	1
	Nje Kancinci	2
	Andifane kwaphela	3

A	Ndiziva ndinoliyiko ingathi ikho into ezakwenzeka:	
	Ngokuqinisekileyo kwaye kakubi	3
	Ewe, kodwa hayi kakubi	2
	Kancinci, kodwa hayi ayindihluphi	1
	Hayi, Nakancinci	0

D	Ndingahleka ndizibone indlela ezihlekisa ngayo izinto:	
	Kangangendlela ebendiqhele ngayo	0
	Hayi kangako ngoku	1
	Hayi kakhulu ngoku	2
	Hayi, Nakancinci	3

A	Inginga zokukhathazeka ziyadlula apha engqondweni yam:	
	Ixesha elikhulu	3
	Ixesha elininzi	2
	Ngamaxesha athile kodwa hayi rhoqo	1
	Ngamaxesha athile qha	0

D	Ndiziva ndidlamkile	
	Hayi, nakancinci	3
	Hayi, rhoqo	2
	Ngamanye amaxesha	1
	Amaxesha amaninzi	0

A	Ndiyakwazi ukuhlala, yaye ndizive ndikhululekile:	
	Nakanjani	0
	Rhoqo	1
	Hayi, rhoqo	2
	Hayi, nakancinci	3

D	Ndiziva ngathi ndiyacotha	
	Kakhulu cishe amaxesha onke	3
	Kakhulu qho	2
	Ngamanye amaxesha	1
	Nakanye	0

A	Ndiziva ngathi ndiyoyika, ndiva ngathi kunamabhabhathane kwisisu sami	
	Nakanye	0
	Ngamanye amaxesha	1
	Qho noko	2
	Kakhulu qho	3

D	Ndilahlekelwe ngumdla ekuzikhathaleleni	
	Ngokuqinisekileyo	3
	Andizi khathaleli ngendlela efanekileyo	2
	Andizikhathaleli kakhulu noko	1
	Ndiya zikhathalela kakhulu	0

A	Ndiziva ndingaphumli kuba ndisoloko ndisendleleni	
	Kakhulu ngenene (ngokwenene)	3
	Kaninzi noko	2
	Ayikakhulu	1
	Nakanye	0

D	Ndijonga phambili kwizinto zolonwabo	
	Ngaphezu kwesiqhelo	0
	Kungathi kancinci kuna sekuqaleni	1
	Ngokucacileyo kancinci kulokho bengikwenza	2
	Kunqabile	3

A	Ndiba nomuva oqubulisayo wokuphaphazela	
	Kakhulu noko ngenene	3
	Noko kaninzi/ kaninzi noko	2
	Ayikakhulu	1
	Nakanye	0

D	Ndiya yivuyela incwadi okanye iwayelesi okanye ukubukela umabona kude	
	Qho	0
	Ngamanye amaxesha	1
	Ayi kaninzi	2
	Nqoza kakhulu	3

FOR RESEARCHER ONLY

Fumana amanqaku (dibanisa o As = ixhala. Dibanisa o Ds = ukudakumba). Umgangatho ophakathi ngaphantsi uzakunika iingcinga ngomphakamo we xhala kanyenokudakumba.	
0-7 = Philile ngengqondo/ Qhelekileyo	
8-10 = Umda ongaqhelekanga	
11-21 = Ngaqhelekanga	

Participant File number _____

RGT

Name: _____

Date: _____

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1																				
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20																				

1. Very 2. Quite 3. A little 4. Mid point 5. A little 6. Quite 7. Very