

IMPACT OF A HOLISTIC LIFESTYLE MANAGEMENT EDUCATION PROGRAMME
ON HEALTH AND EDUCATION OUTCOMES OF SOCIOECONOMICALLY
DISADVANTAGED UNIVERSITY STUDENTS

A.A.MORRIS-PAXTON

2016

Impact of a Holistic Lifestyle Management Education Programme on Health and Education
Outcomes of Socioeconomically Disadvantaged University Students

By

Angela A Morris-Paxton

Department of Psychology

Faculty of Health Sciences

Submitted in fulfilment of the requirements for the degree of DPhil to be
awarded at the Nelson Mandela Metropolitan University

April 2016

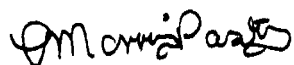
Promotor: Dr Hanna van Lingen

Co-Promotor: Prof Diane Elkonin

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

DECLARATION

I, Angela Ann Morris-Paxton student number 212464361, hereby declare that the thesis for Doctor of Philosophy is my own work and that it has not previously been submitted for assessment or completion of any postgraduate qualification to another University or for another qualification.



.....
Angela Ann Morris-Paxton

ACKNOWLEDGEMENTS

I would like to acknowledge the dedicated support of Dr. Johanna M. van Lingen, my promotor, for her invaluable guidance and the faith that she placed in this project, from its inception to its completion; ordinary thanks are not enough. I would also like to acknowledge Professor Diane Elkonin, my second promotor, for her experienced insight and continuous advice. Additionally I must thank Dr Jacques Pietersen, from the Unit for Statistical Consultation in NMMU, for his assistance with the SPSS statistical package set-up and Ms Madeleine Clare, the Faculty Librarian for Health Sciences, for her help with obtaining research articles. I would like also to express my appreciation for the extraordinary service given by Mrs. Mmampho Gogela-Smith, in facilitating the intervention programme, and the first-year Consumer Science class of 2013 at Walter Sisulu University, the participants of this study. I wish to thank also Ms. Nomvula Twaise for her assistance in administering the WQHE. Last but not least, I wish to thank my husband Mr Malcolm Dedman, for his unwavering support throughout this study.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

DEDICATION

This work is dedicated to my husband Malcolm and Mum Dorothy

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

ABSTRACT

Disorders of lifestyle are increasing globally; countries in transition are suffering the double burden of both contagious and chronic disorders. The utilization of health education to address these issues has had variable results, but the most successful have incorporated human contact. The aim of this study was to measure the quantitative and qualitative impact of a wellness promotion programme on university students. The objective was to provide a structured facilitated holistic wellness education programme to a sample of socioeconomically disadvantaged students in Higher Education in the Eastern Cape Province, South Africa. Using a pragmatic mixed methodological approach to this critical evaluation, the impact on both wellness and academic progress was measured. Initial demographic data was gathered via a biographical questionnaire, pre- and post-intervention measurement of wellness, using the Wellness Questionnaire for Higher Education, as well as a semi-structured qualitative questionnaire and transcripts of academic results. Quantitative data was analysed using SPSS analysis software and qualitative data using the NVivo analysis package. The findings were that all students improved throughout the year in their overall wellness scores, in particular in areas such as avoiding excessive sun exposure and increasing the amount of physical exercise. This corresponded with an increase in the value that the participants attached to information on these aspects of wellness, which was attributed to the programme. Results revealed that there was a weak correlation between student wellness measured at the year-end and academic success overall, but a strong correlation between student wellness and academic success for the students that gained the highest marks. Analysis of the dimensions of wellness that correlated best with student success revealed that there was a particularly strong correlation between year-end career wellness and year-end academic success. In conclusion it was found that a positive and holistic salutogenic wellness

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

education programme increased levels of student wellness overall, which translated into student academic success. The link between wellness and success was particularly strong in students that gained higher marks. Recommendations include that first-year higher education students receive a positive wellness education programme built into the curriculum of their first year of study and that the overall impact be monitored across a broader spectrum of students over the duration of their diploma or degree programme.

Keywords: Academic success, Disadvantaged students, Health promotion, Higher Education, Lifestyle management, South Africa, Wellness

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

TABLE OF CONTENTS

	Page
CHAPTER ONE: BACKGROUND TO THE STUDY	1
1.1 The Prevailing Conditions of Health and Health Education	1
1.1.1 Global health and chronic diseases of lifestyle.	3
1.1.2 Lifestyle related disease in the region	5
1.1.3 The health situation in South Africa.	6
1.1.4 Health in the Eastern Cape Province	7
1.1.5 The link between health and education	8
1.2 The Education and Health Promotion Context	10
1.2.1 The broader educational context within South Africa.	10
1.2.2 Health promotion and life skills in higher education	11
1.2.3 Life skills programmes in Walter Sisulu University.....	12
1.3 The Rationale for this Study	16
1.3.1 Lifestyle management programmes as a means of redress.	16
1.3.2 The role of Consumer Science	16
1.3.3 The lifestyle management curriculum requirements.....	18
1.3.4 Student inclusion in the evaluation of the programme.....	19
1.4 The Research Problem, Aim of the Study and Theoretical Approach	20
1.5 Structure of the Thesis.....	21
CHAPTER TWO: A THEORETICAL FRAMEWORK OF WELLNESS	
MANAGEMENT	24
2.1 Prevailing Models of Thought Regarding Health	25
2.1.1 The historical perspective of health.....	25
2.1.2 The emergence of health as a psychological construct.	28

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

2.1.3 The consequences of poor health.....	30
2.1.4 The current conventional perspective of health.....	32
2.2 The Theory of Salutogenesis	34
2.2.1 The salutogenic concept of health.....	36
2.2.2 Assessing health as opposed to diagnosing disease	37
2.2.3 Focus on factors that build resilience.....	38
2.2.4 Viewing stressors or exacerbating factors as normal	39
2.2.5. Focus on strengthening health.	41
2.3 The Use of Salutogenesis in the Context of this Study.....	42
2.3.1 The concept of health within the study.	43
2.3.2 Assessment of wellness for the purposes of the study	44
2.3.3 The incorporation of resilience-building	44
2.3.4 The incorporation of stress management and coping skills.....	44
2.3.5 The focus on building overall wellness.....	45
2.4 Conclusion	45
CHAPTER THREE: A REVIEW OF THE IMPACT OF WELLNESS ON	
EDUCATIONAL OUTCOMES	48
3.1 The Impact of Wellness on Education Globally.....	49
3.1.1 The link between economic poverty and poor health.	49
3.1.2 The impact of urbanisation on wellness.....	54
3.1.3 The link between health and education	58
3.2.3.1 <i>Nutritional wellness and educational outcomes</i>	60
3.2.3.1.1 <i>Food insecurity, obesity and poor health</i>	61
3.2.3.1.2 <i>Breakfast and cognition</i>	65
3.2.3.1.3 <i>Nutrients and brain function</i>	67

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

3.2.3.2 <i>Physical activity and educational outcomes</i>	70
3.2.3.3 <i>Psychosocial wellness and educational outcomes</i>	74
3.2.3.3.1 <i>The influence of alcohol and smoking</i>	74
3.2.3.3.2 <i>Illegal substance use</i>	78
3.2.3.3.3 <i>Mental health and development</i>	80
3.2.3.3.4 <i>Emotional wellness and affect</i>	84
3.1.4 Wellness promotion and academic success	87
3.2.4.1 <i>Health literacy and wellness values</i>	89
3.2.4.2 <i>Wellness promotion and educational intervention</i>	95
3.2 The Impact of Wellness on Education in Southern Africa	100
3.2.1 Adverse effects of ill-health on education	101
3.2.2 Wellness intervention effects on educational outcomes	101
3.3 The Impact of Wellness on Education in South Africa	103
3.3.1 The impact of wellness on South African higher education	105
3.3.2 Wellness promotion in South African higher education	106
3.3.3 Wellness and higher education outcomes in the Eastern Cape	108
3.4 The Rationale for the Study in Walter Sisulu University	109
3.5 Conclusion	112
CHAPTER FOUR: METHODOLOGY AND RESEARCH METHODS	114
4.1 Aim and Objectives of the Study	114
4.2 The Ontological Viewpoint	115
4.3 Research Approach	118
4.4 Participant Selection	123
4.5 Data Collection	127
4.5.1 The Wellness Questionnaire for Higher Education	128

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

4.5.2	Researcher generated participant questionnaires	131
4.5.3	Academic transcripts.....	132
4.5.4	Validity and reliability.....	133
4.6	Data Analysis.....	134
4.7	Descriptive Statistics.....	135
4.7.1	Quantitative data analysis.....	136
4.7.1.1	<i>Descriptive statistical analysis.....</i>	137
4.7.1.2	<i>Correlational statistical analysis.....</i>	138
4.7.1.3	<i>The Statistical Package for the Social Sciences (SPSS).....</i>	140
4.7.1.4	<i>Analysis of the WQHE questionnaire responses.....</i>	142
4.7.1.5	<i>Quantitative analysis of the researcher generated questionnaires (RGQs).</i>	142
4.7.1.6	<i>Academic transcripts</i>	143
4.7.1.7	<i>Statistical management of outlier scores and grouped scores</i>	143
4.7.2	Qualitative data analysis	144
4.7.2.1	<i>Use of NVivo qualitative data analysis package.....</i>	145
4.7.2.2	<i>Qualitative analysis of the researcher generated questionnaires (RGQs)</i>	146
4.8	Procedure and Timelines.....	147
4.9	Ethical Considerations	147
4.9.1	Compliance with legislation.	148
4.9.2	Informed consent	148
4.9.3	Confidentiality.....	149
4.9.4	Bias.	149
4.9.5	Risk.....	149

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

4.9.6 Beneficence	150
4.10 Conclusion	150
CHAPTER FIVE: DATA ANALYSIS AND FINDINGS	152
5.1 Students' Amount, Sources and Value of Wellness Information	154
5.1.1. Pre-course amount of information.	154
5.1.2 Pre-course sources of information.....	155
5.1.3 Post-course amount of information	156
5.1.4 Post-course sources of information.....	157
5.1.5 Post-post-course amount of information	159
5.1.6 Post-post-course sources of information	160
5.1.7 Pre-course value of information.	163
5.1.8 Post-course value of information	166
5.1.9 Post-post-course value of information	169
5.1.10 Comparison of pre-, post- and post-post-course values	172
5.2 Students' Wellness Pre-, Post- and Post-Post-Course	174
5.2.1 Pre-course student wellness	176
5.2.2 Post-course student wellness	177
5.2.3 Post-post-course student wellness.....	178
5.2.4 Comparison of overall wellness scores	179
5.2.5 Comparison of overall life satisfaction scores	180
5.3 Changes in Specific Aspects of Wellness.....	181
5.3.1 Changes in the main wellness domains	181
5.5.1.1 <i>Physical wellness scores.</i>	182
5.5.1.2 <i>Career wellness scores</i>	183
5.5.1.3 <i>Intellectual wellness scores</i>	183

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.5.1.4 <i>Environmental wellness scores</i>	184
5.5.1.5 <i>Social Wellness Scores</i>	185
5.5.1.6 <i>Emotional wellness scores</i>	186
5.5.1.7 <i>Spiritual wellness scores</i>	187
5.3.2 Changes in the composite primary factors of wellness	188
5.5.2.1 <i>Composite changes in physical wellness</i>	188
5.5.2.2 <i>Composite changes in career wellness</i>	193
5.5.2.3 <i>Composite changes in intellectual wellness</i>	196
5.5.2.4 <i>Composite changes in social wellness</i>	198
5.5.2.5 <i>Composite changes in emotional wellness</i>	203
5.5.2.6 <i>Composite changes in spiritual wellness</i>	207
5.4 Correlation between Students' Value of Health Information and Wellness	210
5.4.1 Variables for which no correlations were found	212
5.4.2 Variables for which a positive correlation was found	222
5.4.2.1 <i>Value of information on nutrition and wellness</i>	222
5.4.2.2 <i>Value of information on medication and wellness</i>	223
5.4.2.3 <i>Value of information on water intake and wellness</i>	224
5.4.2.4 <i>Value of information on interpersonal skills and wellness</i>	226
5.5 Qualitative Impact of the Intervention	227
5.6 Comparison of Qualitative Changes with Wellness	229
5.6.1 Students' wellness priorities and changes in priorities	230
5.6.1.1 <i>Pre-course wellness priorities</i>	230
5.6.1.2 <i>Post-course wellness priorities</i>	243
5.6.1.3 <i>Post-post-course wellness priorities</i>	248
5.6.2 Students' changes in wellness and lifestyle management	254

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.7 The Qualitative Impact Pertaining to Behavioural Changes.....	260
5.8 Qualitative Impact of the Educational Programme	264
5.8.1 Departures from student expectations	264
5.8.2 Impact of the course on the management of lifestyle changes	268
5.8.3 Students' evaluation of the course.....	269
5.8.4 Students' intentions with regard to use of their knowledge.....	270
5.9 Comparison of Students' Wellness Scores with Academic Achievement	274
5.9.1 Pre-course wellness and mid-year marks	276
5.9.2 Post-course wellness and mid-year marks.....	278
5.9.3 Post-course wellness and year-end marks	280
5.9.3.1 Statistical management of outlier scores	281
5.9.3.2 Post-course correlational data output	284
5.9.4 Post-post-course wellness and year-end marks.....	289
5.9.5 Wellness and year-end marks for higher achieving students	295
5.9.5.1 Post-course comparison	295
5.9.5.2 Post-post-course comparison	301
5.10 Comparison of the Qualitative Impact with Academic Achievement.....	303
5.11 Differential in Wellness between High and Low Achieving Students.....	305
5.12 Summary of the findings	310
5.13 Conclusion	316
CHAPTER SIX: DISCUSSION OF RESULTS.....	318
6.1 Student Demographics: Poverty Colour and Compromise	319
6.2 Students' Amount, Sources and Value of Wellness Information	321
6.3 Students' Wellness Pre-, Post- and Post-Post-Course	329
6.3.1 Changes in specific aspects of wellness	329

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

6.3.1.1 <i>Challenges with respect to wellness change</i>	334
6.3.2 Qualitative Impact of the Educational Programme	334
6.3.3 Students' evaluation of the course.....	336
6.3.4 Comparison of student's wellness scores with academic achievement	339
6.5 Implication of the Findings	342
6.6 Conclusion	345
CHAPTER SEVEN: REFLECTION, LIMITATIONS, CONCLUSION AND RECOMMENDATIONS.....	347
7.1 The Context of the Study.....	347
7.2 What this Study Reveals.....	351
7.3 The Researcher's Reflection on the Results of the Study.....	353
7.4 The Validity and Reliability of the Study	354
7.5 The Limitations of the Study	356
7.6 Conclusion	359
7.7 Recommendations for Future Practice and Further Research	361
REFERENCES.....	364
APPENDICES	
Appendix 1: Overview of the Introduction to Lifestyle Management Programme.....	417
Appendix 2: Letter of Consent.....	426
Appendix 3: WQHE - Table of Domains	429
Appendix 4: Pre-Course Researcher Generated Participant Questionnaire	431
Appendix 5: Post-Course Researcher Generated Participant Questionnaire.....	435
Appendix 6: 12-15 Week-Post-Course Researcher Generated Participant Questionnaire	442

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

LIST OF TABLES

	Page
Table 1: Timelines for Data Gathering and Types of Data Analysis.....	122
Table 2: Gender Distribution for the Research Sample	126
Table 3: Age Group Distribution for the Research Sample	126
Table 4: Pre-Course Amount of Health Information	154
Table 5: Pre-Course Sources of Health Information	155
Table 6: Post-Course Amount of Health Information	157
Table 7: Post-Course Sources of Health Information.....	158
Table 8: Post-Post-Course Amount of Health Information	160
Table 9: Post-Post-Course Sources of Health Information.....	161
Table 10: Pre-Course Value of Health Information.....	164
Table 11: Post-Course Value of Health Information	166
Table 12: 15 Weeks Post-Post-Course Value of Health Information.....	169
Table 13: Comparison of the Detailed Pre-, Post- and 15-Week Post-Post-Course Value of Health Information.....	173
Table 14: Pre-Course Main Sub-Scale Category Wellness Scores.....	176
Table 15: Post-Course Main Sub-Scale Category Wellness Scores	177
Table 16: Post-Post-Course Main Sub-Scale Category Wellness Scores.....	179
Table 17: Comparison of Pre-, Post- and 15-Week Post-Post-Course Overall Total Wellness.....	179
Table 18: Comparison of Pre-, Post- and 15-Week Post-Post-Course Life Satisfaction	181
Table 19: Pre-, Post-, and Post-Post Course Physical Wellness.....	183
Table 20: Pre-, Post-, and Post-Post Course Career Wellness.....	183

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 21:	Pre-, Post-, and Post-Post Course Intellectual Wellness	184
Table 22:	Pre-, Post-, and Post-Post Course Environmental Wellness.....	185
Table 23:	Pre-, Post-, and Post-Post Course Social Wellness	186
Table 24:	Pre-, Post-, and Post-Post Course Emotional Wellness.....	186
Table 25:	Pre-, Post-, and Post-Post Course Spiritual Wellness.....	187
Table 26:	Pre-, Post- and Post-Post-Course Physical Wellness, Exercise.....	189
Table 27:	Pre-, Post- and Post-Post-Course Physical Wellness, Nutritional Balance	190
Table 28:	Pre-, Post- and Post-Post-Course Physical Wellness, Nutritional Quality	191
Table 29:	Pre-, Post- and Post-Post-Course Physical Wellness, Risk Avoidance	192
Table 30:	Pre-, Post- and Post-Post-Course Physical Wellness, Protective Behaviour.....	193
Table 31:	Pre-, Post- and Post-Post-Course Career Wellness, Career Choice	194
Table 32:	Pre-, Post- and Post-Post-Course Career Wellness, Career Competence.....	194
Table 33:	Pre-, Post- and Post-Post-Course Career Wellness, Professional Development.....	195
Table 34:	Pre-, Post- and Post-Post-Course Intellectual Wellness, Intellectual Challenge	197
Table 35:	Pre-, Post- and Post-Post-Course Intellectual Wellness, Knowledge Expansion	197
Table 36:	Pre-, Post- and Post-Post-Course Intellectual Wellness, Critical and Creative Thinking	198
Table 37:	Pre-, Post- and Post-Post-Course Social Wellness, Meaningful Relationships	199
Table 38:	Pre-, Post- and Post-Post-Course Social Wellness, Social Skills	200

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 39:	Pre-, Post- and Post-Post-Course Social Wellness, Giving and Receiving Caring	200
Table 40:	Pre-, Post- and Post-Post-Course Social Wellness, Tolerance and Respect for Differences	201
Table 41:	Pre-, Post- and Post-Post-Course Social Wellness, Social Responsibility	202
Table 42:	Pre-, Post- and Post-Post-Course Emotional Wellness, Awareness Understanding and Acceptance of Own Emotions.....	203
Table 43:	Pre-, Post- and Post-Post-Course Emotional Wellness, Emotional Management	204
Table 44:	Pre-, Post- and Post-Post-Course Emotional Wellness, Affect-Balance	205
Table 45:	Pre-, Post- and Post-Post-Course Emotional Wellness, Realistic Self-Appraisal.....	205
Table 46:	Pre-, Post- and Post-Post-Course Emotional Wellness, Stress-Management	206
Table 47:	Pre-, Post- and Post-Post-Course Spiritual Wellness, Connectedness and Spiritual Practice.....	207
Table 48:	Pre-, Post- and Post-Post-Course Spiritual Wellness, Meaning and Purpose	208
Table 49:	Pre-, Post- and Post-Post-Course Spiritual Wellness, Values	209
Table 50:	Pairing of Value of Information Categories with WQHE Wellness Domains and Primary Factors	211
Table 51:	Pre-, Post-, and Post-Post-Course Correlations between the Value of Information on Categories of Health and WQHE Wellness Domains and Primary Factors.....	213

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 52:	Correlation between Post-Post-Course Value of Information on Nutrition and Physical Wellness: Nutritional Quality.....	222
Table 53:	Correlation between Pre-Course Value of Information on Use of Medication and Physical Wellness: Protective Behaviour	223
Table 54:	Correlation between Post-Post-Course Value of Information on Water Intake and Physical Wellness	224
Table 55:	Correlation between Post-Post-Course Value of Information on Water Intake and Physical Wellness: Nutritional Quality.....	225
Table 56:	Correlation between Pre-Course Value of Information on Interpersonal Skills and Social Wellness.....	226
Table 57:	Correlation between Post-Course Value of Information on Interpersonal Skills and Social Wellness: Meaningful Relationships	227
Table 58:	Correlation between Post-Course WQHE Total Wellness Scores and Year-End Academic Performance: Full Cohort (N = 34).....	281
Table 59:	Correlation between Post-Course WQHE Total Wellness Scores and Year-End academic performance: Excluding Outliers	284
Table 60:	Correlation between Post-Course Physical Wellness: Protective Behaviour and Year-End Academic Performance.....	285
Table 61:	Correlation between Post-Course Career Wellness and Year-End Academic Performance.....	286
Table 62:	Correlation between Post-Course Career Wellness: Career-Choice and Year-End academic Performance	287
Table 63:	Correlation between Post-Course Career Wellness: Career-Competence and Year-End Academic Performance	287

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 64:	Correlation between Post-Post-Course Career Wellness and Year-End Academic Performance.....	290
Table 65:	Correlation between Post-Post-Course Career Wellness: Career Competence and Year-End Academic Performance	291
Table 66:	Correlation between Post-Post-Course Intellectual Wellness Scores: Intellectual Challenge and Year-End Academic Performance	292
Table 67:	Correlation between Post-Post-Course Social Wellness: Social Skills Scores and Year-End Academic Performance.....	293
Table 68:	Correlation between Post-Post-Course Emotional Wellness: Self-Acceptance and Year-End Academic Performance.....	294
Table 69:	Correlation between Post-Course Total Wellness and Year-End Academic Performance for Students with Higher Academic Achievement	295
Table 70:	Correlation between Post-Course Life Satisfaction and Year-End Academic Performance for Students with Higher Academic Achievement	296
Table 71:	Correlation between Post-Course Career Wellness and Year-End Academic Performance for Students with Higher Academic Achievement.....	297
Table 72:	Correlation between Post-Course Career Wellness: Professional Development and Year-End Academic Performance for Students with Higher Academic Achievement.....	297
Table 73:	Correlation between Post-Course Emotional Wellness: Stress Management and Year-End Academic Performance for Students with Higher Academic Achievement.....	298
Table 74:	Correlation between Post-Course Spiritual Wellness and Year-End Academic Performance for Students with Higher Academic Achievement	299

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 75:	Correlation between Post-Course Spiritual Wellness: Spiritual Connectedness and Year-End Transcripts for Students with Higher Academic Achievement.....	299
Table 76:	Correlation between Post-Course Spiritual Wellness: Spiritual Meaning and Year-End Academic Performance for Students with Higher Academic Achievement.....	300
Table 77:	Correlation between Post-Course Spiritual Wellness: Spiritual Values Scores with Year-End Transcripts for Students with Higher Academic Achievement.....	300
Table 78:	Correlation between Post-Post-Course Emotional Wellness and Year-End Academic Performance for Students with Higher Academic Achievement	301
Table 79:	Correlation between Post-Post-Course Emotional Wellness: Self-Acceptance Scores and Year-End Academic Performance for Students with Higher Academic Achievement	302
Table 80:	Correlation between Post-Post-Course Spiritual Wellness: Spiritual Meaning Scores with Year-End Academic Performance for Students with Higher Academic Achievement.....	302
Table 81:	Post-Course Comparative Scores for the Top Five Students	306
Table 82:	Post-Course Comparative Scores for the Bottom Five Students	307

LIST OF FIGURES

	Page
Figure 1: Pre-Course Sources of Health Information	156
Figure 2: Post-Course Sources of Health Information	159
Figure 3: Post-Post-Course Sources of Health Information.....	162
Figure 4: Pre-Course Value of Health Information.....	165
Figure 5: Post-Course Value of Health Information	168
Figure 6: 15 Weeks Post-Post-Course Value of Health Information.....	171
Figure 8: Students' Pre-Course Health Priorities and Reasons for Choices	232
Figure 9: Students' Reasons for Choosing Future Planning as a Pre-Course Health Priority	233
Figure 10: Students' Pre-Course Least Important Aspects of Health: Numbers of Coded Responses	237
Figure 11: Students' Pre-Course Areas of Least Priority and Reasons for Choices	239
Figure 12: Students' Reasons for Choosing Alcohol as the Least Important Health Priority	240
Figure 13: Students' Reasons for Choosing Smoking as the Least Important Health Priority	242
Figure 14: Students' Post-Course Wellness Priorities: Numbers of Coded Responses.....	243
Figure 15: Students' Post-Course Health Priorities and Reasons for Choices.....	244
Figure 16: Students' Reasons for Choosing Nutrition Planning as a Post-Course Health Priority	245
Figure 17: Students' Post-Post-Course Wellness Priorities: Numbers of Coded Responses	249

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Figure 18:	Students' Post-Post-Course Health Priorities and Reasons for Choices	252
Figure 19:	Students' Post-Course Changes in Lifestyle	255
Figure 20:	Students' Post-Post-Course Changes in Lifestyle	258
Figure 21:	Post-Course Learning Session Impact.....	261
Figure 22:	Post-Post-Course Learning Session Impact.....	264
Figure 23:	Areas of the Intervention Programme that were Different from Student Expectations.....	265
Figure 24:	Reasons for Suggesting That There are no Changes to the Course.....	270
Figure 25:	Students' Post-Course Future Intentions for Use of Knowledge	271
Figure 26:	Students' Post-Post-Course Future Intentions for Use of Knowledge	272
Figure 27:	Post-Course Scatterplot Graph of the Correlation of the WQHE Total Wellness Scores with Year-End Transcripts: N = 34.....	282
Figure 28:	Post-Course Outlier Scores within the Correlation of the WQHE Total Wellness Scores with Year-End Transcripts: N = 34.....	283
Figure 29:	The Comparison of Lifestyle Changes with Year-End Transcript Marks.....	304

**GLOSSARY OF TERMS USED IN THE TITLE AND IN THE CONTEXT OF THIS
STUDY**

Education Outcomes:	The aggregate course marks of the students as per the post-examination transcripts.
Health:	The state of complete physical, mental, and social wellbeing as opposed to just the absence of disease.
Health Outcomes:	The quantitative and qualitative analysis of the data emanating from the health education intervention on the students.
Holistic Health:	A state in which one can perform physically, psychologically, socially, spiritually and professionally at one's optimum level. In the context of this study, holistic health encompasses physical, intellectual, career, psychological, environmental, social and spiritual wellness to a degree that allows for the optimum development of the individual concerned.
Impact:	The effect that the intervention programme had on the students who participated in this study, whether quantitatively measurable or qualitatively extracted from the comments made by the students.
Holistic Lifestyle Management:	The engagement in and management of positive health-related actions, in such a manner as to promote the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

attainment of holistic health. In the context of this study attention to and management of one's actions as an individual, to improve physical, intellectual, career, psychosocial, environmental, and spiritual wellness.

Objective Outcomes: Objective quantitative measurable wellness outcomes.

Socioeconomically Disadvantaged: Persons or groups of persons are considered socioeconomically disadvantaged if they are on low incomes, have little education, and struggle to supply themselves and their family with food, clothing, and shelter. This group of people can include single-parent families, the sick, disabled elderly, unemployed, and in the context of South Africa those who have historically been excluded from higher earning jobs and higher education. Students may be considered socioeconomically disadvantaged if they qualify for the National Student Funding Assistance (NSFAS) loans.

Subjective Outcomes: Subjective qualitative outcomes from the perspective of the students who participated in this study.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

CHAPTER ONE

Background to the Study

The intention of the author in this written work is to take the reader through the background, against which many developing countries and communities find themselves, in dealing with traditional illnesses related to poverty alongside the emerging chronic conditions related to wealth, in respect of their health. The disappointing attempts to provide varying methods of health education and empowerment, and the resulting rationale for a rethink, with respect to the provision of a health-empowering wellness education programme, will follow. The journey continues through the intervention by means of a salutogenic empowering programme of interactive holistic wellness education and its objective and subjective impact on a group of young, socioeconomically disadvantaged, higher education students. In the resulting discussion of the outcome, conclusions are reached and a way forward is proposed. Finally, the remaining unanswered questions and the possibilities for further investigations are explored.

1.1 The Prevailing Conditions of Health and Health Education

When health education programmes work, the results are rewarding; however, community health education can potentially be an expensive and misdirected exercise with varying and often disappointing results. Adult literacy and adult health literacy are fast becoming equal concerns as attempts to impart health information in a meaningful and utilisable manner have proved strongly resistant to health change and the hoped for health improvement (Schechter & Lynch, 2011). This may be due in part to the shifting landscape of health care and access to health care information (Johnson, 2011). The ability of the individual to engage with health information is mediated by a number of factors, including

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

social, cultural, interpersonal and educational conditions, which affect the capacity to digest, interpret and act on the information available (Johnson, 2011). Such factors are not always taken into consideration by the information provider, who may find that they are ‘talking past’ the person they think they are talking to (Johnson, 2011). Even in developed countries a significant number of adults may not have the ability to interpret health information, which in turn impacts upon socioeconomic conditions in a cyclical manner (Fetro, 2010; Schechter & Lynch, 2011). Health itself is strongly connected to socioeconomic development and empowerment and conversely, poor people cannot always access the health care and wellness information that they need, at a level they can utilise (Fetro, 2010; Schechter & Lynch, 2011).

The socioeconomic impact of failure of health education on the health, health care costs, economic development and social outcomes of a community, add to the further deterioration of its health and its economic sustainability. In particular, a community’s ability or inability to manage the physical, psychological and emotional-affective aspects of their well-being, either contribute to, or detract from, their overall growth and development (Fetro, 2010). As patterns of growth in the cities in developing countries change, so do the patterns of disease (Friel et al., 2011). Gains in improvement in the challenge of dealing with infectious and communicable disease have been vanquished by the growth in chronic non-communicable disease and injury (T. Campbell & Campbell, 2007). Despite the problem of death due to HIV/AIDS burdening the poorer urban communities, other risks in sprawling cities of the developing world are emerging rapidly (T. Campbell & Campbell, 2007; Friel et al., 2011).

The Eastern Cape Province of South Africa is one of the poorest areas of the country, with the Wild Coast area of the Eastern Cape being below the average socioeconomic development level of the province as a whole (Mitchell & Andersson, 2011). The province is served by three universities, including Walter Sisulu University (WSU), which is the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

institution that caters predominantly to students from the poorer areas. WSU is a comprehensive developmental university that seeks to educate its student population in a manner that best befits the needs of the population it serves (Council on Higher Education, 2011). The institution houses a National Diploma in Consumer Science: Food and Nutrition, which seeks to educate young people in the province, to support the food service and food security requirements of this underserved population (Walter Sisulu University, 2012a). Students registered in the first year of this programme, currently take a compulsory life skills / lifestyle management health education course (Walter Sisulu University, 2012a). The redevelopment of this course forms a more holistic programme of study for those students who are the intervention group for this research.

1.1.1 Global health and chronic diseases of lifestyle. According to statistical data published by the World Health Organisation, of the approximately 57 million deaths in 2008 across the world, 36 million (63%) were due to non-communicable diseases of lifestyle (WHO, 2012). If the upward trend in death due to preventable non-communicable diseases continues unabated, it is predicted to reach 55 million by 2030, whilst the incidence of death due to infectious disease continues to fall (WHO, 2012). The largest proportion of deaths are due to cardiovascular disease, followed by cancer, chronic respiratory disease and complications arising from type two (adult onset) diabetes mellitus (WHO, 2012). Behavioural risk factors, such as unhealthy diet, physical inactivity, smoking and inappropriate alcohol consumption, lie behind the statistics and account for 80% of cardiovascular disease related deaths (Ball, Timperio, & Crawford, 2006; Vorster, Kruger, Venter, Margetts, & Macintyre, 2007; WHO, 2012). The scenario is not very different in both developed countries such as the United States (US) and transitional countries, such as Iran (Bahrami et al., 2006; Ball et al., 2006).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Tobacco use alone accounts for six million deaths and millions of dollars' worth of economic damage globally (World Health Organisation, 2011). In the US, tobacco related deaths had not significantly decreased, until stricter controls were instituted by the state (Dilley et al., 2007). The incidence of smoking has decreased in developed countries; however, the use of tobacco has increased in middle and lower income countries (World Health Organisation, 2011). Smoking and alcohol related disorders have decreased among some Westernised populations; however, vulnerable and disadvantaged groups of people within these same Westernised societies may remain at higher risk for problem consumption and related disorders (Donath et al., 2012; Faseru, Daley, Gajewski, Pacheco, & Choi, 2010). Negative changes in drinking behaviour, since 1990, in the UK and the US have been most noticeable among 16-24 year olds (Chen & Storr, 2006; Duncan, Duncan, & Strycker, 2006; Mallett, Lee, Neighbors, Larimer, & Turrise, 2006; Medina, Schweinsburg, Cohen-Zion, Nagel, & Tapert, 2007).

The increase in behaviour that undermines well-being has not necessarily been mitigated by the protective effects of improvement in diet, as there is little to be seen in either the increase of fruit and vegetable consumption in the UK, US, and Sub-Saharan Africa or the protective effects of exercise (Kengne, Awah, Fezeu, & Mbanya, 2007). This is despite time-consuming and expensive health education strategies (Ball et al., 2006). Many people with long term health problems, or long term risks, do not comply with health provider recommendations for exercise, diet, medication or supplementation (Dunton & Schneider, 2006; Oakes, Forsyth, & Schmitz, 2007; Yang, Wang, Hsieh, & Chen, 2006).

This situation is unlikely to improve in the immediate future. Despite the improvement in treatment and the decrease in death rate from communicable and infectious diseases, the incidence of lifestyle related chronic disease is predicted to increase (Allender, Wickramasinghe, Goldacre, Matthews, & Prasad, 2011; WHO, 2012). Countries

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

experiencing increased urbanisation also experience an increase in chronic and lifestyle related diseases, almost in direct proportion (Friel et al., 2011). People who move from rural areas to rapidly expanding cities in developing countries are characterised by changes in lifestyle behaviour (Allender et al., 2011; Gong et al., 2012; Neuman, Kawachi, Gortmaker, & Subramanian, 2013; Yiengprugsawan, Caldwell, Lim, Seubsman, & Sleigh, 2011). Such changes include lower levels of physical activity and an increase in foods of low nutritional content, resulting in increased body mass index, and increases in smoking (Allender et al., 2010; Attard et al., 2012; Friel et al., 2011; Gong et al., 2012; Modesti et al., 2013; Neuman et al., 2013). These changes in turn, lead to changes in diseases and an increase, in particular, of cardiovascular disorders and adult onset type two diabetes mellitus (Attard et al., 2012; Bahrami et al., 2006; Kengne et al., 2007; Modesti et al., 2013).

1.1.2 Lifestyle related disease in the region. Urbanisation is increasing globally and has risen from 14% to over 50% as of 2008 and is predicted to reach 80% by 2030 (Allender, Foster, Hutchinson, & Arambepola, 2008; Allender et al., 2011). The most rapid and the highest increases in urban population is likely to affect those countries that are still developing; in particular, middle income countries experiencing rapid increases in socio-economic development (Allender et al., 2010; Attard et al., 2012; Gong et al., 2012; Neuman et al., 2013). Countries in transition are at an increased risk, as often both the problems of developing nations and those of developed nations have a concomitant impact (Hult et al., 2010; Kengne et al., 2007; Steyn et al., 2006). The nutrition transition from traditional diets that were inadequate in calories but high in nutrient density, to one which is high in calorific value but low in nutrients, has proven to be an underlying cause of chronic disease in Western Africa (Delisle, Agueh, & Fayomi, 2011). Western and Sub-Saharan Africa, in particular, have recently overtaken some developed countries in the incidence of chronic diseases (Delisle et al., 2011; Kirigia, Sambo, Sambo, & Barry, 2009). Added to the burden

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

of an emerging crisis in chronic disease, Sub-Saharan Africa is heavily impacted by HIV/AIDS which, as of 2008, affected approximately 33 million people globally and 22 million Sub-Saharan Africans, according to the World Health Organisation (World Health Organisation, 2009). This problem alone not only impacts on the health and well-being of the regional population, but also on its socioeconomic growth and the ability to provide the necessary resources to combat other health related concerns (Boutayeb, 2009; Ferrand et al., 2010).

1.1.3 The health situation in South Africa. As of 2012, 62% of the South African population lives in urban areas, but that does not mean that this population lives well (WHO, 2012). Despite the existence of a well-developed health care system and a growing economy, South Africa experiences a considerable degree of health inequality (Ataguba, Akazili, & McIntyre, 2011). The poor are unequally burdened in that they suffer a greater degree of disease and an increase in diseases of lifestyle, previously only seen in the wealthy, but have less access to the required health resources (Ataguba et al., 2011).

Despite the decrease in the prevalence of HIV/AIDS infection from 18.1% for the adult (18-49 years) population of the country in 2008 (World Health Organisation, 2010b) to 11.6% in 2012 (WHO, 2012), the problem remains of serious concern with regard to resources and the economic impact of opportunistic disorders. Research conducted in neighbouring countries demonstrates the impact of HIV/AIDS infection on students, resulting in disruptions in education due to morbidity and hospitalisation for acute opportunistic diseases (Boutayeb, 2009; Ferrand et al., 2010). In South Africa the impact of HIV on education development and the economy cannot be separated from one another, as education and socioeconomic well-being are intrinsically linked (Thurlow, Gow, & George, 2009). The largest burden of both HIV and other disorders of lifestyle is found in the rapid urbanisation of its largest city, Johannesburg, with both expanding urban areas and increasing urban

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

informal settlements (Vearey, 2011). Such increases in urbanisation contribute to health inequalities both between and within urban populations (Friel et al., 2011).

Food insecurity is an additional problem within the country and contributes equally to the health disparities; the wealthier households have a greater variety of food intake, whilst the poor have limited access to foods of higher nutritional value (Labadarios, Mchiza, et al., 2011). Poorer households typically consume fewer than 8 different food items on a 24 hour basis, thus contributing to chronic disorders of nutritional origin (Labadarios, Mchiza, et al., 2011; Labadarios, Steyn, & Nel, 2011). Food insecurity and disorders of nutritional origin exist in South Africa against a background of increasing obesity and obesity related health concerns, such as hypertension and type two diabetes (Micklesfield et al., 2013). Food insufficiency impacts not only on physical health, but also on mental wellbeing; there is a link between sometimes, or often, going without food and the diagnosis of mental illness (Sorsdahl et al., 2011). The converse, however, could also be taken into consideration. Individuals with a mental health disorder may not be psychologically able to source or prepare food of adequate nutritional value, or may not have sufficient income for foods of a substantial nutritional quality (Sorsdahl et al., 2011).

1.1.4 Health in the Eastern Cape Province. A search of the literature revealed little in the way of studies specific to health in the Eastern Cape; however, the Eastern Cape is the second largest province in South Africa, in addition to being the second poorest (Ataguba et al., 2011). Statistical evidence indicates that the poorest populations in South Africa have the lowest healthy life expectancy (Department of Health, 2012) and suffer the greatest burden of disease, in particular diarrhoea, tuberculosis (TB), HIV, drug dependency, depression and hypertension (Ataguba et al., 2011). Subjective health and quality of life appear to correlate positively with better educational status (C Day, Barron, Massyn, Padrath, & English, 2012; Statistics South Africa, 2009). A recent study conducted in a small Eastern

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Cape town found that subjective well-being correlated positively with neighbourhood socioeconomic status (J M Cramm, Moller, & Nieboer, 2011). In the upper coastal region of the Eastern Cape, however, low socioeconomic status, inequity in health care provision, inadequate access to safe water and a high burden of disease still prevail (Mitchell & Andersson, 2011).

1.1.5 The link between health and education. Attaining a higher standard of education appears to be linked to better health outcomes in a number of studies (Baker, Leon, Greenaway, Collins, & Movit, 2011; Madsen, Nybo Andersen, Christensen, Andersen, & Osler, 2010; Ross & Mirowsky, 2011). The actual reasons for the impact, however, may be debated, as better education leads to higher socio-economic status which, in turn, affords better health care options (Madsen et al., 2010). A re-evaluation of the evidence, however, found that, aside from socio-economic status, education *per se*, regardless of better social status or financial gain, is clearly linked to better health outcomes (Baker et al., 2011). One reason for this might be that formal education leads to better cognitive and decision making skills; in turn, leading to better lifestyle choices (Baker et al., 2011). Parental education and health may also be linked. There appears to be an exponentially positive effect of education on health across the generations, thus increasing the effect of education on health when parents were also educated. Ill health, may also be exponentially compounded in those of low educational status, where parents were also not educated (Ross & Mirowsky, 2011). It is acknowledged that empowerment and education can be successful in maintaining wellness and preventing disease in the general population, provided that the participants are met at their own level of readiness to change (Anderson & Goode, 2006; Carpenter, Alberg, Graya, & Saladina, 2010). In the Higher Education setting, a personal holistic wellness programme has seen positive results, with increased levels of wellness and increasing student participation over time (Saunders et al., 2012). Improved nutrition and exercise have been

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

linked to improved cognitive function and academic achievement in school children and adolescents (Lubans et al., 2010; Mhurchu et al., 2010; Nansel, Huang, Rovner, & Sanders-Butler, 2010; Pereira et al., 2011). Research on a sample of UK university students has found a reciprocal relationship between health awareness and knowledge, healthy behaviour and academic performance (Ansari & Stock, 2010).

Although, to date, there has been little work in this area in South Africa, one study conducted at an Eastern Cape Higher Education institution found that students generally had a good understanding of wellness, which corresponded to the theoretical definitions of various aspects of wellness (Van Lingen & De Jager, 2011). The focus of young Higher Education students, however, tends towards the subjective wellbeing and social aspects of wellness; nevertheless, these students were aware of the lifestyle factors that play a part in positive wellness (Van Lingen & De Jager, 2011). The mitigating factors of education and health promotion appeared to have paid off in a study conducted in the Eastern Cape, which found that promotion of mental well-being and mitigation of depression may help to prevent HIV/AIDS in young men and women who were at risk (Nduna, Jewkes, Dunkle, Jama Shai, & Colman, 2010). This is especially the case when intervention programmes focus on training that places the locus of control with the individual (Gwandure, 2010). A study of nursing students at a South African higher education institution in the Eastern Cape, tentatively indicated that students with a higher level of wellness performed better academically (Van Lingen, Douman, & Wannenburg, 2011). It is this latter aspect of health and wellness that is of interest in this study. The focus of this intervention is to evaluate the impact of a health education / lifestyle management programme and to ascertain whether or not this also impacts on academic results. The possible underlying rationale for the impact will also be reviewed.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

1.2 The Education and Health Promotion Context

1.2.1 The broader educational context within South Africa. As of 2013 South Africa had a total of 23 universities to serve a growing student population (Council on Higher Education, 2013). As far back as 2007 a report commissioned by the Council on Higher Education identified two major problems within the country's higher education system. The first was the problem of high first-year attrition and low graduate throughput; and the second was the problem of under-preparedness of the few graduates who succeeded, to meet the needs of the society they are required to serve (Scott, Yeld, & Hendry, 2007). This report went on to identify two possible solutions to the problems, one of which was extending the undergraduate curricula and another was extending the time taken to undertake the programme of study (Scott et al., 2007). A further report of a task team appointed to review the challenges and possible solutions of low throughput and low quality of graduates in higher education, concurred with the findings of Scott et al (Council on Higher Education, 2013). The Department of Higher Education and Training, however, had begun to address some of the issues with the interim provision of funding for universities that took the initiative to provide an extra year of undergraduate study in the form of a foundational programme (DHET, 2012).

Walter Sisulu University (WSU) was established in July 2005 from a merger of two former Technikons and the University of Transkei (UNITRA). It is a developmental comprehensive university with four campuses, situated in the upper part of the Eastern Cape Province of South Africa (Walter Sisulu University, 2013b). Two of these campuses (Ibika and Masibulele) serve poorer rural areas, surrounding Butterworth and Queenstown respectively, whilst the other two campuses (Mthatha and Buffalo City) serve both the urban and rural disadvantaged populations in the upper part of the Eastern Cape Province (Walter Sisulu University, 2013b). Following the Council for Higher Education audit and due to

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

extenuating financial circumstances, on 30 October 2011, the university was placed under administration by the Minister of Higher Education. The institution remained under administration throughout the time of the research intervention, during which a turnaround strategy for the university was drafted (Van Staden, 2012).

The university offers a broad and mainly practical qualification mix that spans a range of programmes from a National Higher Certificate in Accounting through to PhDs in specialised areas, such as engineering and medicine (Walter Sisulu University, 2013b). Within this qualification mix, WSU offered a total of 19 four-year extended curricular programmes at the beginning of the 2013 academic year (CLTD, 2012b). These programmes are designed to assist the most disadvantaged students who, although in possession of the necessary academic qualifications to enter the university, are unlikely to succeed in traditional three-year programmes, due to lack of social support and unpreparedness for university life (DHET, 2012). Part of the programme design of extended curricular programmes is that at least half of the subjects taken by students in the first two years should be foundational and supportive in nature (DHET, 2012). In order to fulfil the Department of Higher Education and Training (DHET) mandate on first-year foundational provision of student support, the Centre for Learning and Teaching Development provides courses in computer skills, academic literacy and life skills / lifestyle management (CLTD, 2012b).

1.2.2 Health promotion and life skills in higher education. Inequity of access to preventative measures and health promotion has been identified as one cause of inequity in health outcomes (Mitchell & Andersson, 2011; Vearey, 2011). Ignorance may well have an impact on the statistical outcome of preventable disorders of lifestyle management; however, lack of knowledge is not the sole problem. How knowledge is imparted plays a major role. Provision of written material, individualised goal setting and opportunities for monitoring and counselling, appear to be more successful than information alone (Berry & Mirabito, 2011).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

In addition, restructuring information in a manner in which the recipient becomes part of the decision making process can be more successful if a concordance model is applied (Fraser, 2010; Gucciardi, Cameron, Liao, Palmer, & Stewart, 2007; Hoddinott, Allan, Avenell, & Britten, 2010).

1.2.3 Life skills programmes in Walter Sisulu University. Life skills programmes for first-year Consumer Science students on both the four-year extended curriculum programme and the three-year programme, are a compulsory part of the curriculum. Participation, therefore, is mandatory (Walter Sisulu University, 2012b). These programmes are internally developed and usually generic within higher education institutions but not across institutions. Whilst some form of continuing life skills education beyond the secondary school has been deemed necessary (Scott et al., 2007), this does not translate into fitness for purpose (Weimann, 2011). The content of the previous life skills course was developed in-house and two supporting text books were used, both of which were published in 2005. These two books concentrated mainly on soft skills, interpersonal skills and relationships, decision making and goal setting, as well as student life and study skills, and included a small amount of wellness information regarding healthy eating, substance use and abuse and HIV/AIDS (Snyders, Vawda, Taljaard, Brophy, & Plaatjies, 2005; Van Heerden, 2005). A brief review of both supporting textbook books in use leaves the reader with the impression that, although highly interactive and engaging, the information weighs heavily in favour of success in university and engaging in student life. These are necessary; however, much of the wellness information was brief and had been superseded by more recent research.

As part of the re-development plan for the academic support courses within the extended curricula programmes, an employer study was conducted to ascertain the extent to which these programmes had proved useful when graduates entered the workplace. The report indicated that the life skills component of the extended programme curricula, in use as

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

of 2011, was proving inadequate (Weimann, 2011). This study, which was conducted among local Eastern Cape employers, found that graduates and interns entering the workplace had academic qualities, but little in the way of intrapersonal or interpersonal skills (Weimann, 2011). Neither had they knowledge of other cultures, faiths and practices (Weimann, 2011). The study also found that student interns and recent graduates entering the workplace were aware of the basis of healthy living in terms of nutrition and use or avoidance of substances; however, they were in possession of out-dated and/or erroneous information (Weimann, 2011). They did not possess the skills to put their knowledge into practice (Weimann, 2011).

The programme was re-thought in the light of producing a more evidence-based but concordant approach, so a decision was taken to split the former life skills course into separate components of academic literacy and lifestyle management. The former textbooks were retained and used where and when necessary but a third textbook was added, which became the course book for lifestyle management for 2012 and 2013 for all but one of the programmes offering this subject. The additional textbook had been originally developed for an NGO; however, the author and researcher retained the copyright. The book had already been published, met most of the criteria and more than 80% of the curriculum, so it was therefore deemed appropriate for the course. This book was heavily referenced in each of the learning sessions and contained, in total, 315 references to more recent research information up to 2009 (Morris-Paxton, 2010). It was decided that this would be the set book until a better version could be produced. This book was the first edition of 'Introduction to Lifestyle Management – A Student Workbook' which encompasses 36 hours of facilitated learning and covers aspects of physical wellness, environmental wellness, psychosocial wellness and spiritual wellness (Morris-Paxton, 2010).

Despite efforts to upgrade the course, the new textbook had the shortcoming of having been published for the international market and did not have the recommended module on

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

HIV/AIDS education (HEAIDS, 2012). There were other limitations to the book, such as insufficient information on spill-over (diseases transferred from the animal kingdom into humans, officially known as zoonosis) and bacteria, viruses and life planning. The information on nutrition was found to be too complex for the level of the students for whom it was originally written, as well as this particular cohort of students. This came at a time when wellness information was expanding exponentially and recent information on HIV/AIDS was in contradiction to the older information contained in the books that had been made available to students. Additionally, the teaching approach required a measure of integrative learning. An upgrade was necessary, which was in progress at the commencement of the study, completed by June 2013 and was used as the intervention course. The new 'Introduction to Lifestyle Management' programme is evidence based, more oriented towards disease prevention and personal empowerment, and includes subject areas not previously dealt with. The revised course included the maintenance of water balance and preventing dehydration; sun sense; the quality of air and mitigating air pollution; the correct use of medication and information on zoonotic diseases, including HIV/AIDS as well as informed decision-making, life planning and creating a personal talent profile.

The updated intervention course, 'Introduction to Lifestyle Management – A Student Workbook Edition 2', contained 26 90- minute facilitated learning units (39 hours of facilitated learning), with some emphasis on self-directed learning and student discussion sessions. This book formed the basis of the pilot course introduced for the first-year Consumer Science students at WSU, with a particular emphasis on fitness for purpose of preventing disease and enhancing life-long wellness, during and beyond the student's university life. This more recent programme, in the process of publication, embraced five broad modules, those of physical wellness; environmental wellness; psychosocial wellness; spiritual and affective wellness; and life planning (Appendix 1). Additionally, a total of 905

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

sources of research were read, of which 587 were published in the years 2010-2013 inclusive; 626 references were included in the learning and teaching material for this intervention.

The Eastern Cape region has not only its inherent problems of low socio-economic status and slower development when aligned to the rest of the country, but also has its internal problems with respect to educational delivery (ECSECC, 2009). The Council for Higher Education (CHE) audit report of 2011 for WSU was not all favourable and 30 recommendations were made. Among four commendations, was one which commended the Centre for Learning and Teaching Development for its work within the first-year provision (Council on Higher Education, 2011). The teaching and learning methodology applied to the Lifestyle Management programme focussed on practical application of skills, as opposed to testing students on knowledge base. Students were encouraged to work in small learning groups both within and outside the class. The formation of learning communities has been found to be more successful in promoting effective communication between the students as well as between the students and the facilitator, besides promoting cohesion and interpersonal student support (Butler & Dawkins, 2007).

In November 2012 the university was placed under administration and during the time within which the study took place, employer-employee relations were poor. Shortly after the commencement of the third term of the academic year, a seven-week long employee strike and management lock-out took place (Van Staden, 2013). During this time students underwent a period of supported self-directed learning, followed by the implementation of an academic catch-up plan (Gerber, 2013; Van Staden, 2013).

It is against this very challenging background of low socioeconomic status under-preparedness for university, little social support from home and challenges with educational delivery, that the intervention programme, which is the focus of this study, took place. On top of the given challenges of study in the first year of university - the seven-week long strike,

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

the institution of online learning, and condensed catch-up plan - imposed even greater challenges to students, the facilitator and the researcher. Despite the prevailing conditions, the full intervention programme of study was completed.

1.3 The Rationale for this Study

1.3.1 Lifestyle management programmes as a means of redress.

Psycho-educational life skills courses form part of the foundational studies provision of extended course programmes across the country as a means of redressing previously disadvantaged students who lacked opportunities for personal development. The necessity for redress is also viewed in terms of mitigating health disparities. The development, implementation and on-going monitoring of health education programmes can contribute to both the reduction of health disparities and the knowledge basis surrounding health disparity research (Mata & Davis, 2012). The programmes instituted are advocated and financially supported by the Department of Higher Education and Training (DHET) (DHET, 2012). WSU is no exception to this and the current life skills / lifestyle management courses, alongside academic literacy and computer skills, is run under the auspices of the Centre for Learning and Teaching Development (CLTD) within the university (CLTD, 2012a). This department is additionally responsible for the monitoring, re-curriculum and on-going development of the academic support programmes.

1.3.2 The role of Consumer Science. Family and consumer science (previously known as home economics or human ecology) is an academic discipline that combines aspects of both social and natural sciences. The discipline of consumer science focuses mainly on home life and family wellness; however, it increasingly deals with broader aspects of nutrition, food preparation, parenting, early childhood education, family economics, human development and resource management. The key role of consumer scientists is to promote positive consumer behaviour change in health, hygiene and sustainability and to act

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

as a bridge between the consumer and those providing wellness and family-related goods and services to them (Newson et al., 2013). Consumer science graduates are often employed to provide an advisory service on the one hand to the consumer, and on the other, to the service provider, in relation to food, nutrition, supplements, wellness-related information and products, and home-environment goods and/or services (Newson et al., 2013).

Health information is no longer solely in the domain of medicine (Rubenstein, 2012). The public at large increasingly seek information on health related issues and wellness management from alternative and more easily assessable sources, such as public and higher education libraries and librarians, out of a 'need to know' about health, without necessarily waiting to be ill (Rubenstein, 2012). In this respect, consumer science graduates form an ideal, and more publicly assessable, point of information on issues of health and disease prevention, especially where this links to health claims of product manufacturers and consumer goods (Mariotti, Kalonji, Huneau, & Margaritis, 2010). The role of consumer scientists and the professional integrity of the individual may play a future role in the attitude of consumers when making decisions about the purchase of status goods as opposed to necessary goods (Goldsmith & Clark, 2012). Aside from its intrinsic value to individual health, lifestyle management and wellness, education programmes prepare consumer science students for their graduate lives at the forefront of consumer information and informed consumer choices (Goldsmith & Clark, 2012). The curriculum, therefore, needs to reflect the ultimate role that the consumer science graduates are likely to play. The student's holistic wellbeing within a global context has to be considered as well as the globalisation of the future domain of the consumer scientist (Sohoni, Anguiano, & Woolridge, 2010). In this respect the curriculum of the consumer science programme as a whole has recently undergone re-curriculation, in order to meet the needs of the future population. The newer approach to lifestyle management needs to address not only the wellness of the current

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

students, but additionally deal with wellness management in a more portable manner, essentially by addressing current health and emerging wellness issues in a global consumer context (Menk Otto, Howerter, Bell, & Jackson, 2010; Sohoni et al., 2010).

1.3.3 The lifestyle management curriculum requirements. The academic environment has changed in recent years and the days where lecturers could simply deliver a programme for which they are not fully responsible, have come to an end. Academic practitioners and academic development specialists are increasingly engaged in curriculum reform and on-going monitoring and evaluation of their subjects (Brew, 2010). The degree of engagement with development of course content and the shifting of responsibility for quality and currency on to the individual lecturer has significantly increased in recent years (Brew, 2010). Health, wellness and psychosocial educational programmes in this respect have a double duty to perform: they need not only to have the academic integrity, but also to maintain evidence-based currency with respect to factual health information, which in itself is rapidly advancing.

Health and wellness education programmes have two sets of priorities to address within the academic practice and programme delivery. As in any other educational delivery, the requirements of the subject, its scientific underpinning and the manner of its practice, as well as the future trends, have to be met by engaging students in the method of searching for their own truth through research and self-study (Brew & Jewell, 2012). A programme such as this also has to meet the requirements of its own rationale: it needs to meet the learning outcomes required of the course of study in lifestyle management and not be found wanting (Butler & Dawkins, 2007). At the same time the method of delivery and the content and context of learning and teaching needs to be learner-centred and may not always follow the traditional routes in order to meet the learner's needs (Brown Wright, 2011; Butler & Dawkins, 2007).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

1.3.4 Student inclusion in the evaluation of the programme. Evaluation in teaching and learning needs should meet not only the current need for quality assurance, but also the need for quality enhancement (Bamber & Anderson, 2012). Generally evaluation has been viewed as a top-down process and a technical activity, which is institutionally driven, often meeting resistance from academics who may have different values from the institutional management with respect to teaching and learning (Bamber & Anderson, 2012). They argue, however, that evaluation may be autonomous and self-driven by teachers and viewed as a worthwhile exercise in its own right, thus promoting quality enhancement and improvement from the ground upwards (Bamber & Anderson, 2012). In this respect, the researcher engaged the students in the evaluation of the lifestyle management programme in order to fully inform the process for quality assurance, positive change and future enhancement. Engaging students in the research process via the course facilitator can serve to reduce the gap between the academic developer, practitioner and student (Brew & Jewell, 2012). This provides a way not only of including the student perspective, but also engaging the student in the value of research and enhancing their role in the academic process from a passive recipient to an active co-participant (Brew & Jewell, 2012).

The critical evaluation will address the question of the impact of the current updated course and additionally look at the underpinning reasons behind both the areas of success and those that require consideration. In essence, a critical evaluation of this programme will tell the researcher what the impact was and, most importantly, the underlying reasons for the impact. In this way the on-going improvement to the curriculum and the knowledge base can be addressed, considerations dealt with and improvements made, without changing those areas of the programme that have worked best.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

1.4 The Research Problem, Aim of the Study and Theoretical Approach

The research problem, in brief, is that there have been few enough evaluations of student wellness in this type of compromised socio-economic population, but none have so far addressed the educational programme given to students to improve wellness management. There appears to be a gap in knowledge, which needs to be addressed in order to move forward when looking at current life skills / lifestyle management or other wellness support educational programme content. Decisions relating to the effectiveness and improvement of wellness education programmes can only be made in the light of the evidence emanating from a critical evaluation of one such programme in place. In this current piece of research, the results of the measurement of effectiveness will assist in addressing both improvements in the content of the programme, from the perspective of the objective wellness outcomes, and the method of delivery, from the perspective of the participants' experience.

The aim of this study was to enquire into both objective and subjective impacts of a holistic, redeveloped, lifestyle management educational programme (entitled 'Introduction to Lifestyle Management') on a group of socioeconomically disadvantaged consumer science students in their first year of study at an institution of Higher Education. The overarching purpose of the study is to determine both the effectiveness of the programme currently in use for this group of students and to ascertain, ultimately, where and how this programme can be improved. The primary objective was to measure the impact and effectiveness of the interactive and holistic 'Introduction to Lifestyle Management' education course. Specific secondary objectives included the following:

- The objective measurement of any change in levels of wellness of the participants.
- The overall impact of the programme on changes in lifestyle management and the reasons for the impact.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Evaluation, from the perspective of the students, of the educational programme and its areas of success and challenge.
- Comparison (by statistical correlation) of the levels of individual wellness with the level of academic achievement of the participants.

The concept of salutogenesis, which the researcher will unpack, in chapter two, provides the underlying philosophy for this study and the intervention programme, which was the subject of this critical evaluation. This provided the theoretical perspective for this pragmatic mixed methods approach to a critical enquiry into the impact of an educational wellness programme on selected participants within the higher education sector.

1.5 Structure of the Thesis

In the first chapter of this thesis, the author provided a background to the study and the context in which it was conducted. The rationale for the investigation was discussed and the conditions under which the intervention and resulting critical evaluation took place. The author introduced, the research problem, aims and objectives of the study and briefly gave the basis of the approach to this study. Chapter two of this work will look at the theoretical framework of wellness management, alongside the recent prevailing models of thought on illness and health. The theory of salutogenesis will be reviewed, before discussing how this model of thought has arisen in recent times. Thereafter, the use of the salutogenesis paradigm in the construction of the intervention and its application in this particular study will be considered. A review of the literature to date in chapter three will begin by discussing the impact of wellness on educational outcomes globally and how this has played out in the regional and South African higher education context. The author will discuss the emerging links between wellness and educational outcomes in the Eastern Cape before returning to the rationale for this study within the context of Walter Sisulu University in the Eastern Cape. This will conclude the background to the study.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Chapter four takes the reader through the aims and objectives of the study and looks at the theoretical perspective of the investigation, before discussing the research methods applied. An explanation of the research sample, participant selection and the analysis of the demographics of the participants will be followed by a description of the collection of data and methods of analysis. Thereafter the rationale for the use of these particular methods in this investigation will be discussed, before the critical issues of validity, reliability and ethical considerations. This will be followed by chapter five, which will take an in-depth look at the results of the data analysis, and the findings of the study. A comparative picture of the pre- and post-intervention health literacy, health values and wellness status of the research sample will be presented. The analysis of the qualitative data, which draws out the unseen impact of the intervention, will precede the resulting overall impact of the intervention on wellness and academic achievement.

Chapter six will discuss the results of the study, looking firstly at the student demographics, health literacy and wellness values in the light of the global context. Thereafter the results of the study as they pertain to the main objective of ascertaining the impact of the wellness promotion and intervention will be discussed. The changes in the students' levels of wellness, alongside the impact of the programme on changes in lifestyle management and the reasons for the changes, will be explored. The students' evaluation of the programme and its effect on their academic achievement will be considered. The chapter will finally discuss the overall effectiveness of the intervention and the possibilities for future improvement in the programme.

In the final chapter the researcher will reflect on what this study revealed about the overall impact of the intervention and the connection between wellness and academic achievement. The specific issues of validity and reliability of this particular investigation, the issue of student beneficence and the specific limitations imposed by the context and actual

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

conditions under which the study was conducted will be discussed. Finally the researcher will conclude with an overall summary of the investigation and the author's recommendations for further research.

CHAPTER TWO**A Theoretical Framework of Wellness Management**

In order to provide a frame of reference for the theoretical perspective, the researcher will attempt to unpack the underlying perspectives on wellness and the direction of thought taken in framing and utilising the concept of salutogenesis. In order to do this one needs to understand two things: Firstly what health or wellness actually is and secondly, how it is being viewed in the light of the intervention that is being evaluated for the purposes of this study. Health itself is not easily defined and despite there being several definitions of diseases (i.e. defining asthma or defining diabetes), there is little provided in the literature when it comes to defining health and / or, wellness (Brüssow, 2013). Only in recent times has a vague consensus of opinion arisen on how health is defined and this is due in part to the emergence of the concept of ‘global health’ and the institution of the World Health Organisation (R. M. Campbell, Pleic, & Connolly, 2012; World Health Organisation, 2003b).

This chapter will take the reader through the prevailing models of thought on wellness, looking firstly at the previous pattern of relating health to the notion of absence of disease. The historical perspective of health will be briefly discussed, where we look at health in terms of the basic physiological requirement for survival and the necessity to preserve the species of mankind. The understanding of health that has evolved out of this biological necessity will be reviewed, before the emergence of health as a psychological construct, is discussed. Aside from how we deliberate and define the concept of health, the consequences of poor health cannot be left out of the overall picture with regard to the theoretical perspective. Without reviewing the consequences of poor health, the positive attributes of health and wellness have no comparison and consequently, no grounding.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

The current conventional perspective of health will look at the biomedical, conservative approach to health as the absence of measurable disease. Thereafter, the emergence of a more holistic model of health and wellness, as defined by the WHO, will be reviewed, alongside the measures that this organisation recommends in order to move the global population towards the envisioned health outcomes. The more progressive and holistic view of health takes the reader through the initial schools of thought on holistic health and the theory of salutogenesis in general. The researcher will look at how this theory has been used in the promotion of physical health in addition to the perspective of positive psychology. Finally the use of the salutogenesis model of wellness, as it currently stands and in the development of the intervention programme, will be discussed in the light of this critical evaluation.

2.1 Prevailing Models of Thought Regarding Health

2.1.1 The historical perspective of health. Despite the necessity to deal with present and future emerging physical and psychosocial disorders, the policies and procedures tied to public and community health arise from a historical perspective (Perdiguero, Bernabeu, Huertas, & Rodríguez-Ocaña, 2001). We therefore need briefly to review the information available with respect to this historical perspective in order to understand current health policies and the trend of impending policy changes (Berridge, 2008).

Health is an essential component of living and as far back as 1943 Abraham Maslow identified physiological (or biological) needs, including those of food (nutrition), water (hydration), sleep and warmth as some of the primary needs for the survival of mankind (Maslow, 1943). Maslow hypothesised that, without meeting the most basic requirements for survival, the higher order needs for socialisation, personal growth and self-awareness could not be met (Maslow, 1943). Health in terms of nutrition, hydration, temperature control and protection from physical exposure, has formed the basis for the survival of the human race

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

(Maslow, 1943). Conversely classical medicine has always focussed on identifiable and quantifiable diseases, with the largest National Institute of Health (in the US) still focussing on research into disease (Brüssow, 2013). Tied to this focus on identifying diseases, epidemiology has dealt with disease, rather than health, by quantifying the numbers of people in a population that contract a particular illness and analysing the possible causes (Ackland, Choi, & Puska, 2003).

Communicable illnesses that spread across populations are defined as epidemics and are generally of an infectious nature (such as tuberculosis or measles) (Ackland et al., 2003). They have throughout history followed defined patterns, affecting vulnerable population groups and are carried or spread by specific vectors, such as contact with infected animals, viruses or bacteria (Ackland et al., 2003). Epidemiology has therefore been the study of disease and the spread of disease in quantitative terms. Even in an epidemic, however, not all members of a population will become ill. The degree of vulnerability to infectious disease of a given population also depends on the degree of protective factors in place with regard to health and the given population's exposure to health promoting information and support (MacLachlan et al., 2012). Despite the focus on disease, something might be gained by focussing on the factors involved when certain people do not become ill, which leads us later to the focus on and promotion of such factors, within this study.

Communicable disease, despite having been the prevalent form of illness historically, is not the only form of ill-health (World Health Organisation, 2002). Congenital and genetic disorders, which account for far smaller statistical instances of illness and non-communicable disease, are common and on the increase (Ackland et al., 2003; World Health Organisation, 2002). Non-communicable (or chronic) disease also affects vulnerable populations. In the opinion of Ackland et al. this type of disease also has 'vectors', albeit social vectors, due to socially transmittable lifestyle factors and human population movement (Ackland et al.,

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

2003). The term non-communicable is therefore misleading and policy now demands that such disorders are termed ‘chronic disease’ (World Health Organisation, 2003a) and more recently ‘chronic disease of lifestyle’ (Willet et al., 2008).

From the historical conventional perspective, health and disease have generally run along a continuum, with no defined dividing line between the two, other than that of defining health as the absence of illness, or ‘the state of being physically and mentally vigorous and free from disease’ (Harper-Collins, 2003). Changes in both definitions of health and health policy have not only affected the terminology of how disease and wellness are defined but also how human access to wellness is viewed. These changes came into effect with the Declaration of Human Rights in Alma Ata in 1978, which advocated ‘Health for All’ (MacLachlan et al., 2012). In essence this shift in viewpoint changed the concept of health from the individual perspective to one of global health (MacLachlan et al., 2012). Such changes in perspective from the individual to the collective and from the focus on infectious diseases to those of chronic and preventable diseases, set the scene for public health interventions that focussed on health education, chronic disease prevention and behavioural change (Anand et al., 2008; Baker et al., 2011; Brookins-Fisher, O’Boyle, & Ivanitskaya, 2010; Willet et al., 2008; World Health Organisation, 2004).

From 2002 - 2004 the world’s largest and most influential body with respect to health began to change its strategy and focus to disease prevention and lifestyle changes to promote health. The WHO in 2002 undertook one of the largest projects ever undertaken in identifying the major risks to health (World Health Organisation, 2002). These were underweight; unsafe sex; hypertension; tobacco consumption; alcohol consumption; unsafe water; lack of sanitation and hygiene; iron deficiency; indoor smoke from solid fuels, high cholesterol and obesity (World Health Organisation, 2002). Following this report, recommendations were made for the prevention of diet-related disorders, including type 2

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

diabetes and cardiovascular disease. The recommendations focussed on appropriate food intake of sufficient variety, and policy recommendations for the implementation of the promotion of nutrition strategies (World Health Organisation, 2003a). Recommendations were also made for the promotion of exercise to enhance health and prevent obesity and osteoporosis (World Health Organisation, 2003a). A year later the organisation in its annual report shifted the focus from that of preventing specific diseases to one of promoting health, and in its 2004 report stated that:

“The overall goal of the Global Strategy on Diet, Physical Activity and Health is to promote and protect health by guiding the development of an enabling environment for sustainable actions at individual, community, national and global levels that, when taken together, will lead to reduced disease and death rates related to unhealthy diet and physical inactivity” (WHO 2004 p3).

Changes in behaviour that embrace a better lifestyle and focus on disease prevention and the improvement of health do not come easily or quickly. The emergence of the field of health psychology as a discipline has arisen out of this pragmatic realisation.

2.1.2 The emergence of health as a psychological construct. Research conducted in middle and lower-income countries has shown that chronic disease management has biopsychosocial and behavioural characteristics (Van Olmen et al., 2014). Health related behaviour, especially physical activity and dietary habits, greatly influence the risk of chronic disease, such as cardiovascular disease, obesity and depression (Spengler, Mess, Schmocker, & Woll, 2014). Success in the management and prevention of chronic diseases of lifestyle is often determined by how much and how well the behavioural characteristics of health are dealt with in the cultural context of the health care recipients (Van Olmen et al., 2014). Health psychology as a discipline is relatively recent, and is in an emerging process of understanding how an individual’s psychological perspective shapes their health related

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

behaviour for the better (or not, as the case may be) (Tybur, Bryan, & Caldwell Hooper, 2012). Health psychology looks at the constructs of cognitive behaviour and seeks to understand these, in order to inform the various means by which an individual can change their health-related behaviour and, in turn, change the related outcomes for the better (Tybur et al., 2012).

Health behaviour change theoretically proceeds from the perspective of intention to change, followed by receiving information in a positive manner, initiating corrective action and maintaining new habits (Walker, Hernan, Reddy, & Dunbar, 2012). Health behaviour change should be goal oriented and build self-sufficiency in real-world conditions, taking the social context into account (Walker et al., 2012). The years 2000-2010 were purported to be the 'decade of behaviour' when much of the emphasis on health improvement centred on behavioural change and the focus was on changed behaviour as the end-point of intervention (Michie & Johnston, 2012). In fact, the desired end-point is the outcome that results from the change, which needs to be sustained (Michie & Johnston, 2012). There are other factors involved in the sustained positive improvements associated with health psychology interventions and behavioural changes - those of family support, social capital and motivation (Durrani, Irvine, & Nolan, 2012; Kobau et al., 2011).

Health psychology interventions have had variable results, some small positive changes are seen in some areas and others have not been successful at all (Tybur et al., 2012). Those that take into account the social constructs of the recipients, building on social capital and take the 'glass half full' perspective, are more successful (Tybur et al., 2012). Positive psychology is a branch of health psychology that focusses on positive motivational psychosocial support used mainly in building mental wellness (Seligman, Steen, Park, &

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Peterson, 2005). Positive psychology is a relatively new and salutogenic¹ approach to health behaviour change that focuses on what is right as opposed to what is wrong (Kobau et al., 2011; Seligman et al., 2005). Positive psychology as a component of health psychology follows an asset-based wellness paradigm (Kobau et al., 2011). The overall aim is to bolster personal motivation, resilience, optimism and positive emotions, by building on the positive attributes that pre-exist in an individual (Kobau et al., 2011).

Despite efforts to give positive advice to those who could potentially benefit, not all efforts are either successful or appreciated (Bukman et al., 2014). Vulnerable groups of people of lower socio-economic status may not be able to implement health promoting advice due to actual or perceived complexities, not always understood by those who are giving it (Bukman et al., 2014). It is therefore imperative that attempts to effect changes in behaviour amongst those who are most vulnerable take into consideration the social and psychological practicalities of people's everyday lives (Bukman et al., 2014).

2.1.3 The consequences of poor health. Ironically, in countries where access to health care is easily available and often funded, either by governments or by private health insurance, health is not guaranteed. The consequences of poor health affect wealthier nations as much as poorer ones, with high costs of intervention for preventable diseases being amongst the most significant challenges that developed and developing nations are facing (T. Campbell & Campbell, 2007; Tybur et al., 2012). Between 2012 and 2020 health care costs in the US are predicted to almost double from 2.8 to 4.6 trillion US dollars (Tybur et al., 2012). If this is a major financial challenge for the world's wealthiest nation, what of the less well-off among us?

¹ Health and wellness promoting focus in one's attitude.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Urbanisation in rapidly developing economies of the middle income countries, affords better access to hospitals and health care resources, in addition to work related opportunities and increased financial security. Conversely, urbanisation also brings changes in lifestyle and behaviour, that increase the risks of chronic disease (Allender et al., 2008; Allender et al., 2010; Allender et al., 2011; T. Campbell & Campbell, 2007; Gong et al., 2012). Urbanisation appears to be directly correlated with decreases in physical activity, increases in smoking and adverse changes in nutrition in middle income countries such as India, China and Iran (Allender et al., 2011; Attard et al., 2012; Bahrami et al., 2006; Gong et al., 2012). The poorer nations, however, are not far behind as they are more prone to rapidly expanding urbanisation, without the concomitant benefits of established infrastructure, they suffer the greatest burden of the healthcare problems associated with urbanisation (Delisle et al., 2011; Friel et al., 2011; Modesti et al., 2013; Neuman et al., 2013; Sodjinou, Agueh, Fayomi, & Delisle, 2008).

The shift in disease patterns associated with urbanisation, population increases, inability of the infrastructure and resources to cope with the increases in demand to a large extent are due not exclusively, but largely, to particular lifestyle related factors (Allender et al., 2008; Allender et al., 2011; T. Campbell & Campbell, 2007; Delisle et al., 2011; Friel et al., 2011; Gong et al., 2012; Kengne et al., 2007; Neuman et al., 2013). These are changes in nutrition patterns with decreases in physical activity (Bahrami et al., 2006; Ball et al., 2006; Neuman et al., 2013; Sodjinou et al., 2008; Vorster et al., 2007), smoking and alcohol consumption (Ando, Asakura, Ando, & Simons-Morton, 2007; Arranz et al., 2012; Beck et al., 2008; Brown et al., 2008; Pednekar, Gupta, Shukla, & Hebert, 2006; Williams, Grier, & Seidel, 2008; Yu & Abler, 2010), all of which are behaviour related and preventable.

In Southern Africa in general and South Africa in particular, the dual burden of coping with HIV, as well as the increasing problem of chronic diseases, poses significant

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

disease management challenges to the health care system (Kahn et al., 2007). South Africa has not been isolated from the changes in degree of urbanisation, lifestyle related disorders and their accompanying challenges and consequences as the urban poor are increasingly more prone to lifestyle related disorders than affluent or rural, sectors of the population (Ataguba et al., 2011). Transitional changes in nutrition are particularly prevalent with food insecurity, alongside insufficient variety in the diet of the poorer communities, both urban and rural, contributing greatly to the paradox of malnutrition and rising levels of obesity related disorders (Labadarios, Mchiza, et al., 2011; Labadarios, Steyn, et al., 2011). In South Africa the burden of chronic disease is increasing fastest amongst the lowest socioeconomic sectors of the country (Ataguba et al., 2011). The current burden of ill-health in this sector of society urgently requires addressing as it imposes the greatest health care burden and the highest cost (Ataguba et al., 2011). That having been said, the chronic disease profile currently afflicting this population is also the most preventable if the correct type of intervention is delivered in an appropriate manner (Brookins-Fisher et al., 2010; Dennis et al., 2012; Frâncu & Vestemean, 2013). The challenge in this is to change not only the mind-set of the recipients of health promotion and disease prevention initiatives, but also to acknowledge how the perspective of health and wellness has changed over the recent years.

2.1.4 The current conventional perspective of health. Wellness has been redefined in recent years and goes beyond the concept of health being merely the absence of physical disease. Wellness is a way of focussing on the positive and what one has, as opposed to the absence of something, and for more than a decade, has been viewed in a biopsychosocio-spiritual framework (World Health Organisation, 2003b). Wellness is currently understood to be the level of well-being that allows for total fulfilment of the physical, psychological, social, educational, occupational and spiritual potential of each individual (World Health Organisation, 2003b). The use of language focuses on the positive construct of health as a

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

state of wholeness or wellness (Brüssow, 2013). The more modern medical definitions emphasise the capacity of a healthy person to adapt to changing external and internal circumstances, as opposed to accepting a state of ill-health or disease (Brüssow, 2013).

Parallel to this change in perspective of what health actually is, there is an equal change in perspective of who it is for. Out of this change in perspective there is an emerging concept of 'global health' which is not easily defined and for which there are differing views (R. M. Campbell et al., 2012). The global health standpoint, however, impacts on strategic decisions with regard to the direction that health care providers may take, both on a national and an international level (R. M. Campbell et al., 2012; Rowson et al., 2012). Funding and provision of health in a given country may be national; however, global health goes beyond nationalisation and tends to focus on vulnerable groups of people, regardless of where they may be situated (R. M. Campbell et al., 2012). The concept of global health goes beyond medicine and, for some scientists, is seen to incorporate issues such as social environment, economics and national politics and policies that drive the health provider practices (Rowson et al., 2012). Other viewpoints, however, see the concept of global health in reverse and feel that the localised concepts of global health drive the policies that drive the changes behind the practices (R. M. Campbell et al., 2012). There are differing national concepts of global health and how it is viewed, but in spite of there being no internationally accepted definition, the truly global perspective is the concept itself of health as an international human right for all people worldwide (R. M. Campbell et al., 2012; Rowson et al., 2012).

These changes in mind-set have changed not only how we view health and wellness, but also how we perceive the practitioner-patient relationship. The patient is no longer purely the recipient of care but is increasingly viewed as a partner in care with right of access to information and an equal partnership in decision-making with respect to health (Lawn, 2011; MacLachlan et al., 2012). These rights are not just for the educated and privileged in private

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

care, but also for the recipients of charitable or government health care programmes, even when the health literacy levels are poor, or when the ‘patient’ is viewed as lacking understanding of the treatment protocol (R. M. Campbell et al., 2012; Lawn, 2011; Liechty, 2011). The important factor to be considered in imparting health information is not so much what is given, but the manner in which it is given and how it is likely to be perceived and understood (Freedman, 2011). In this respect the patient has a right to health and a right to health information and concordant decision-making, and the right to have this imparted in a way in which what is being suggested and why, is understood and agreed upon (Freedman, 2011). In this respect it may be more beneficial for both the practitioner and the patient or recipient of health care and health information to begin from the ‘glass half-full’ perspective of what has already been achieved. This includes the knowledge and psychosocial advantages of what the recipient of health care and information may already have.

2.2 The Theory of Salutogenesis

The point of departure for the theory of salutogenesis is that the paradigm of health vs. disease - or the idea that one is either in a fixed state of being healthy or sick, with health simply being the absence of disease - is an erroneous one (Antonovsky, 1990). Aaron Antonovsky, the proponent of this theory, began by asking the question “What explains the movement towards the health end of the health/illness continuum?” (Antonovsky, 1990) Antonovsky concluded that the movement towards the health end of the continuum depended on the sense of coherence (SOC) (Antonovsky, 1990). This SOC, in turn, had three main components; those of comprehensibility, manageability and meaningfulness (Antonovsky, 1990). In the opinion of Antonovsky, the SOC is to a large extent embedded in the social culture and context in which the individual lives (Antonovsky, 1990; Benz, Bull, Mittelmark, & Vaandrager, 2014). How the comprehension of illness and health is formed depends on this cultural understanding of what constitutes illness and health (Antonovsky, 1990; Benz et al.,

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

2014). The SOC appears to be strongly related to the subjective sense of overall health and, in particular, to mental health and well-being (Eriksson & Lindstrom, 2006). Regardless of ethnicity, age or socioeconomic factors, the SOC appears to have a mediating role in the explanation of the state of health of an individual (Eriksson & Lindstrom, 2006). Individuals with a higher SOC appear to have a greater resilience and a positive subjective state of health; in this respect the SOC may be a predictor of health maintenance (Eriksson & Lindstrom, 2006). It is from this starting point, a sense of coherence that manageability and meaningfulness with respect to health and wellness, emanate (Antonovsky, 1990; Benz et al., 2014).

Antonovsky further proposed that there are five major contrasts between the mind-set of studying what makes people healthy as opposed to studying what makes them sick and presented the following differences in viewpoint. Firstly, with respect to how people are classified in terms of their health status, Antonovsky proposed a continuum model as opposed to a dichotomous model (Antonovsky, 1990). Secondly, with respect to what is to be understood and treated, Antonovsky proposed an assessment of the overall state of health as opposed to a scientific diagnosis of a specific disease (Antonovsky, 1990). Further there is the consideration of what the important etiological (disease causing) factors are, in which Antonovsky proposed that we look at the 'full story' that includes the salutary and health promoting resources and areas of resilience, as opposed to the pathological disease bearing factors alone (Antonovsky, 1990). With respect to the conceptualisation of 'stressors' Antonovsky proposed that these are not unusual but an ubiquitous part of life and are open ended in consequence, rather than unusual and pathogenic, leading to disease (Antonovsky, 1990). Finally when it comes to the treatment of suffering and illness, Antonovsky proposed that a strengthening of health and the promotion of health resources and personal resilience was more productive than that of the opposing viewpoint of waging a 'war on disease' and

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

searching for a cure for everything (Antonovsky, 1990). The author will now look more closely at the salutogenic point of view and how this has evolved over the last two decades to bring us to where we are now with respect to supporting health and holistic wellness.

2.2.1 The salutogenic concept of health. The author has already, in the previous section, discussed the historical perspective on how disease and health have been defined over the past few years. Antonovsky was one of the first people who viewed health and disease differently from the pathogenic model and began to formalise the study of wellness, asking a valid research question with respect to what makes people well as opposed to studying the pathogenesis of disease (Antonovsky, 1990). Although in recent years the WHO has taken a more holistic view of health as being a state in which one can perform physically, psychologically, socially, spiritually and professionally at one's most optimum, health is nevertheless still viewed by many as a 'fixed point' (World Health Organisation, 2003b). The reality in the opinion of Antonovsky, is that health and disease exist along a moveable continuum (Antonovsky, 1990). The majority of people find themselves somewhere between the two extremes of critically ill and perfectly healthy, with a degree of variability over a period of time (Antonovsky, 1990). Further, salutogenesis embraces a set of beliefs about health and the promotion of health and wellbeing, which maintains that wellness (as opposed to illness) is both a natural and achievable state (Abraham & Sheeran, 2007; Ellery, 2007; Lindstrom & Eriksson, 2005).

Traditionally pathogenesis is the theoretical framework for the Westernised and formalised health care profession (Becker, Glascoff, & Felts, 2010). It is the study of the origins and causes of diseases and begins with the disease and then investigates the cause of that disease and how it can be eliminated, managed or prevented in the future (Becker et al., 2010). In contrast, salutogenesis is the study of health and the causes of health and begins by considering health and investigates how this was created, how it can be maintained, enhanced

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

and improved in the future (Becker et al., 2010). It attempts to answer the question of what leads to better health regardless of one's current state (Becker et al., 2010). The concept of salutogenesis takes the perspective that there is more to be gained by focussing on people's capacity for positive change and their personal and social capital, as opposed to focussing on a prescriptive mitigation of ill-health and risk-behaviour (Lindstrom & Eriksson, 2005). With the focus on promoting health, the position of an individual on the health-illness continuum shifts towards the healthy end of the scale (Antonovsky, 1990; Juvinya-Canal, 2013). This concept lays the foundation for the promotion of health rather than the curing of disease (Antonovsky, 1990; Juvinya-Canal, 2013).

2.2.2 Assessing health as opposed to diagnosing disease. The next area where the salutogenic philosophy parts ways with the conventional mind-set is with respect to what we are actually looking at when the 'patient' visits the practitioner. In the conventional medical practice one begins searching for the disease and a diagnosis – i.e. labelling the problem (Antonovsky, 1990; Becker et al., 2010). The practitioner is comfortable with disease and the specialist is the person who focuses on a specific disease and does not necessarily take into account other factors surrounding other areas of physiology (Antonovsky, 1990). When an organic illness cannot be found, the patient is often turned over to a psychiatrist or psychologist (Antonovsky, 1990). Although this is still the predominant view in Western medicine there is a growing trend towards examining what makes an individual 'healthy' and to enhancing health in those who are 'not yet sick' (Becker et al., 2010).

The salutogenic philosophy proposes that one should rather make a full health assessment, focussing not only on what is wrong but also on what is right with respect to physiological and psychological function (Antonovsky, 1990). In the context of the philosophy of salutogenesis, it is the person who needs to be studied as opposed to the perceived medical problem (Antonovsky, 1990). In this respect health assessments and the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

tools for health assessment are gaining ascendancy, particularly in the higher education system (Ansari et al., 2011; Gradidge & De Jager, 2011; LaFontaine, Neisen, & Parsons, 2006; Mattila et al., 2008; Minor Bulmer, Irfan, Barton, Vancour, & Breny, 2010). By assessing overall holistic health before an individual becomes ill, low levels of subjective wellness in particular areas can be targeted for intervention before illness occurs (Arena, 2014; Babu, Madan, Veluswamy, Mehra, & Maiya, 2014; Cahalin et al., 2014; Despres, Almeras, & Gauvin, 2014; Frâncu & Vestemean, 2013; Golubnitschaja & Costigliola, 2011). This is entirely in keeping with the concepts of salutogenesis (Antonovsky, 1990; Becker et al., 2010).

2.2.3 Focus on factors that build resilience. Antonovsky maintained that the underlying cause of disease lay not so much in the pathogenesis of disease or necessarily in the aetiological risk factors, but in the level of physical and psychological resilience that an individual may possess (Antonovsky, 1990). Those factors, which are protective, buffering or mediating variables that prevent disease, Antonovsky termed ‘salutary resources’ (Antonovsky, 1990). These are the factors that promote the movement towards the health end of the health and disease spectrum; however, in the opinion of Antonovsky, the conventional health practitioner will rarely search for them (Antonovsky, 1990). The pathogenic approach works retrospectively in that the practitioner first identifies a disease or a tendency towards a disease and then acts to treat the problem or prevent the impending problem (Becker et al., 2010). The salutogenic approach works prospectively such that the factors that promote wellness are identified and enhanced in order to help individuals and society in general to move towards health (Becker et al., 2010). In the opinion of Becker et al., the two approaches, however, are not necessarily mutually exclusive (Becker et al., 2010). Whilst there may be specific personality traits that are linked to certain types of illness, an attitude of being open to new experiences may be linked to traits that are protective and lead

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

to better health outcomes (E. Ferguson & Bibby, 2012). The salutogenic approach proposes that the goal of health research should be to identify and define the factors that underpin positive health and well-being to supplement our knowledge of disease prevention and management (Becker et al., 2010).

Although the idea of resilience and the concept of assessing wellness is relatively new, measures of wellness as opposed to illness are beginning to emerge as a means of assessing individual resilience and protective behaviour (Lovaglio & Monzani, 2012; Lundman et al., 2011; Wennerberg, Lundgren, & Danielson, 2012; Wilson, Derrett, Hansen, & Langley, 2012). In this study a salutogenic assessment of overall wellness has been made as opposed to an evaluation of illness, using an officially recognised wellness questionnaire (Gradidge & De Jager, 2011).

2.2.4 Viewing stressors or exacerbating factors as normal. Stress has been blamed for much and currently it is viewed as both a contributor towards and a cause of many illnesses - in particular cardiovascular disorders, anxiety, depression and pro-inflammatory processes (Esch, Fricchione, Joos, & Teut, 2013). Stress associated illness is growing as is the more recent phenomenon of 'burn-out' (Esch et al., 2013). Stress itself has its own physiology with acknowledged biochemical pathways that lead to specific signs and symptoms (Esch et al., 2013; Tortora & Derrickson, 2009b). In the opinion of a number of researchers, therapeutic stress management is required; however, so is the prevention of stress and the building of resilience to stress (Esch et al., 2013).

In the context of salutogenesis, stress is not viewed as abnormal (Antonovsky, 1990). The physiology of stress is part of a normal physiological life-saving response to danger (Tortora & Derrickson, 2009b). We should not think that this response should not exist but rather think of it as a normal response to a normal (although not always pleasant) situation (Tortora & Derrickson, 2009b). Antonovsky maintains that it is not the stressful situation that

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

is necessarily abnormal as much as what we do in this situation and how we deal with it (Antonovsky, 1990). In the salutogenic sense, stress is not pathological; it has been with us all along our development as human beings and it is not going away (Antonovsky, 1990). What needs to change in our perspective is not that we aim to eliminate stress, but that we build mechanisms to deal with stress and develop resilience to stressful situations (Antonovsky, 1990).

Resilience is a relatively new concept that has emerged in behavioural psychology to explain why some people behave adaptively in a stressful situation and others do not (Hartley, 2011). Resilience can be measured in terms of personality and temperament as well as skills in managing situations and constructively solving problems (Hartley, 2011). Individual personality is to some extent genetic and inherent; however, ways of using one's natural traits, as well as the development of problem solving skills, can be learned (Hartley, 2011). Although not always associated with salutogenic practices, primary health care and health promotion as first line defences against stress have the ability to deliver strategies not only for lowering stress, but improving stress management skills of both individuals and the population as a whole (Esch et al., 2013).

Culture may play a role in stress when the individual feels that they cannot meet the cultural expectations of the society in which they live (Benz et al., 2014). Conversely it can equally play a role in building one's SOC and capitalising on community and cultural support as a means to building one's generalised resistance to disease (Benz et al., 2014). Building self-efficacy as opposed to acceptance of adversity as a fact of life, has been found to lead to better recovery from traumatic instances and stress (Benight & Bandura, 2004). The perception that one has the ability to exercise a measure of control over one's own life and that one can cope with a traumatic incident has been positively linked to better coping skills and higher levels of resilience (Benight & Bandura, 2004). This level of resilience and

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

perceived ability to cope has been found to lead to better recovery from a wide range of traumas, from criminal assault to natural disasters and terrorist attacks (Benight & Bandura, 2004).

2.2.5. Focus on strengthening health. To a large extent this is linked to the issue of aetiology and the cause of the ill-health, or rather lack of wellness. It is only a specific disease that has a specific treatment protocol (Antonovsky, 1990). If we do not accept, unquestioningly, the theory which subscribes to there always being a specific cause for a given disease, but rather, deal with the fact that disease may be caused by a lack of general resilience; then we are not looking at a specific cure or treatment (Antonovsky, 1990; Becker et al., 2010). Rather, we are aiming to build wellness by strengthening resilience and resistance to disease (Antonovsky, 1990; Becker et al., 2010). This change in mind-set found some footing in behavioural therapies. Social cognitive theory in psychological wellness began to emerge alongside the theory of salutogenesis and identified four constructs of self-responsibility: Those of intention, forethought, self-reaction and self-reflection (Bandura, 2004). People began to set their own goals and monitor their own reactions in the quest for improvement of their own wellbeing (Bandura, 2004). In this manner behaviourally orientated approaches to improving health took the adage that ‘it is better to light a candle than curse the darkness’ (Bandura, 2004). The two approaches are mutually complementary and are not dissimilar to those of positive psychology, the study of ‘what is right’ about people, their positive attitudes and psychosocial strengths (Kobau et al., 2011). Positive emotions are not simply the opposite of negative ones but have their own independent construct in that they affect one’s overall health (Kobau et al., 2011). Positive psychology, like salutogenesis, offers an asset-based approach to bolstering resilience and promoting health (Kobau et al., 2011). The salutogenic approach to building wellness is gaining ground, especially in Europe, Asia and South America (Becker et al., 2010).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

As the focus of building wellness as opposed to ‘fighting’ disease is one of lifestyle management and health behaviour change, perhaps the best place for the salutogenic approach to health is in health promotion and health education (Navarro, Voetsch, Liburd, Giles, & Collins, 2007). From the behavioural perspective, it is believed that salutogenesis as a theoretical construct can be successfully integrated into many areas of public health education (Ellery, 2007). This is especially important for young people in their formative years when wellness impacts upon their ability successfully to complete their education (Ansari et al., 2011; Kernan, Wheat, & Lerner, 2008; LaFontaine et al., 2006). Furthermore, it appears that conscientiousness, education and positive health related behaviour, continue beyond student life and predict physical health and longevity across adulthood (Lodi-Smith et al., 2010). Conversely, lack of conscientiousness and poor health habits as well as lifestyle factors, such as high alcohol consumption formed during adolescence, which are not corrected, are factors that predict adverse health outcomes and injury related death in adulthood (Lodi-Smith et al., 2010; Mattila et al., 2008).

2.3 The Use of Salutogenesis in the Context of this Study

Academia offers the socioeconomically disadvantaged individual an opportunity for long-term betterment of their lives and the lives of those around them (Department of Higher Education and Training, 2013; Moisés Próspero, 2012). Academic study is challenging to all those who participate, but for the socioeconomically disadvantaged in South Africa there are often a disproportionate number of challenges not experienced by those who come from an educated professional background (Department of Higher Education and Training, 2013). Aside from the normal challenges of study, social and family concerns can have an equally negative impact on the academic success of students (Kernan et al., 2008; Lodi-Smith et al., 2010). Such concerns should be addressed and students should be empowered to deal with such challenges (Kernan et al., 2008; Lodi-Smith et al., 2010).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

There is emerging evidence that wellness is an independent factor in academic success and that increasing student wellness has the potential to increase their academic success and future opportunities (Ansari et al., 2011; Esch et al., 2013; Hurrelamann, 2012; LaFontaine et al., 2006; Pisarik & Larson, 2011; Van Lingen, 2012; Van Lingen & De Jager, 2011). The overall aim in this study is to evaluate a salutogenic educational programme to improve wellness in a group of socioeconomically disadvantaged students in the first year of higher education.

Antonovsky's theory of salutogenesis, that of health emanating from the positive psychological and emotional assets contained within the individual and the health promoting factors of their lifestyle, provided the basis for the health / wellness education intervention (Antonovsky, 1990). The study is viewed from the perspective of socioeconomically disadvantaged students who are often marginalised and, as such, are unlikely to have had the opportunities that the promotion of salutogenic wellness factors may have offered (Van-Lenthe et al., 2009).

The intervention is based within a holistic lifestyle management educational programme that formed part of the first-year curriculum for the study participants. The intervention programme and its evaluation contained the five main principles of salutogenesis as outlined briefly below.

2.3.1 The concept of health within the study. For the purposes of this programme the concept of health was defined more broadly than the absence of disease. The definition used is that of the level of well-being that allows for total fulfilment of the physical, psychological, educational and occupational potential of each individual (World Health Organisation, 2003b). The whole purpose of the programme was to promote wellness by increasing the sense of coherence, understanding of health and the general resistance resources of the participants, as defined by Antonovsky (Antonovsky, 1990; Lindstrom &

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Eriksson, 2005). The study is couched in this philosophy, in that the effectiveness of the health promoting aspects of the programme is what is actually being measured.

2.3.2 Assessment of wellness for the purposes of the study. Rather than focussing on a fixed point at which to assess either illness or wellness, the study took the salutogenic stance of wellness existing along a movable scale (Eriksson & Lindstrom, 2006). Gradidge and De Jager maintain that wellness is both observable and measureable, but not fixed and can be improved with both individual and group intervention (Gradidge & De Jager, 2011). Students answered a pre-evaluated registered wellness questionnaire, which focussed on the measurement of wellness behaviour (Gradidge & De Jager, 2011). In addition, the researcher generated a questionnaire with questions that focussed on pro-activity of the participants (what they had done, read, engaged in, or what they thought), as opposed to medical history (what had happened to them in the past), and this was also administered. Students were asked to answer the questionnaires at three points in time, before, after and 15 weeks post-course. This gave an indication of how wellness had moved, the direction of movement and the amount of movement (Gradidge & De Jager, 2011). This is in accordance with the salutogenic philosophy of wellness existing along a scale, being measureable and moveable (Eriksson & Lindstrom, 2006; Gradidge & De Jager, 2011; Lindstrom & Eriksson, 2005).

2.3.3 The incorporation of resilience-building. The intervention programme focuses on the development of underlying personal strengths and takes a positive and supportive approach to facilitating informed decision-making and concordance, with respect to health and wellbeing. These aspects of health promotion have been found to be constructive in maintaining healthy behaviour (Brouse, Basch, & Kubara, 2005; Carpenter et al., 2010; Ellery, 2007).

2.3.4 The incorporation of stress management and coping skills. The intervention

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

programme departed from the traditional viewpoint on mental wellbeing and stress and took a holistic view of overall mental wellness, looking at more innovative ways of building wellness, as opposed to mitigating stress (Rutz, 2006). Stress is a part of living and some stress is, in fact, necessary to health as it motivates one to solve problems and improve life situations (Badescu, 2011). Most psychologists, however, would argue that when stress negatively impacts on wellness then it must be eliminated or reduced (Badescu, 2011). The focus of the intervention, however, was to promote the pro-active management of stress, the development of contingency plans and strengthening intrapersonal and interpersonal skills and social capital (Bolier et al., 2013; Couzin, 2009; Dahiya, 2013). The promotion of psychological well-being and emotional intelligence has been positively linked to academic and professional success (Kernan et al., 2008; Kobau et al., 2011; Romanelli, Cain, & Smith, 2006).

2.3.5 The focus on building overall wellness. The overall message of the programme of intervention and the evaluation of its effect is to improve the future wellness education strategy. The long-term implementation of an improved wellness education should, in turn, provide the required turn-around strategy, necessary to the creation of a culture of wellness (Strohecker, 2005). As such, the intervention and its evaluation leaves behind the notion of fixing up a health-related problem, and supplants this with a pro-active holistic and salutogenic health-skills building approach to enhancing physical, environmental, psychosocial and spiritual wellness in the study participants (Ellery, 2007; Lindstrom & Eriksson, 2005; Lundman et al., 2010; Strohecker, 2005).

2.4 Conclusion

In this chapter the researcher provided a frame of reference for the underlying perspective on wellness that underpinned this study. The concept of salutogenesis provided the underlying philosophy for this study and the intervention programme, which was the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

subject of this critical evaluation. In order to explain this philosophy, the researcher began by reviewing the pervading models of thought on health, beginning with the historical viewpoint that predominated until the 1990s. The emerging changes in thought that surrounded the concept of health and wellness with the concept of 'global health' and the stance of the WHO followed. The role of the WHO in redefining health in more holistic terms, and this institution's change in direction from one of controlling and reporting diseases to one of supporting the prevention of disease and the promotion of wellness, provided the underlying perspective to the emergence of health education and behavioural change. The emergence of health as a psychological construct was briefly underlined before the shift in the pattern of diseases and the double-edged advantages and considerations of urbanisation on health were highlighted.

The author progressed to the current conventional perspective of health and revisited the concept of global health as it is currently developing, with its focus on holistic wellness and promotion of physical and psychological aspects of wellness within the community. The change in focus of what health is accompanied a change in focus on who it is for, and health as a human right was briefly discussed along with how this change in perspective has driven health policy and practices of late. The change in direction that paved the way for the role of the progressive medical sociologist Aaron Antonovsky in redefining health, so the definition and concept of what we understand by 'health', was introduced.

Thereafter the author unpacked the theory of salutogenesis from its inception to its modern application, along with the five sub-principles that support this holistic wellness perspective. Each of these sub-principles, the salutogenic concepts of health; the assessment of health; the promotion of resilience; the viewpoint on stress as a normal factor in life; together with the salutogenic focus on strengthening health, were discussed in depth. The application of these principles and how each of them have emerged to a smaller or larger

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

extent in the fields of health promotion, health education, health psychology and stress management, were also brought into focus.

Finally the author presented the overarching philosophy of salutogenesis and each of the five sub-principles of thought with respect to wellness in the context of the study. How the theory of salutogenesis informed the foundation of the intervention programme and its critical evaluation in this study was reviewed. The effect of each of these sub-principles on the aim of the study, construction of the programme of intervention and methods of data gathering were reconstructed for the reader's understanding.

CHAPTER THREE**A Review of the Impact of Wellness on Educational Outcomes**

Despite extensive searching within the Pub-Med and Chapel-Hill Libraries as well as EBSCO-Host and Elsevier Science, there appear to be only a small number of studies that have been done to date on the impact of total wellness on educational outcomes. There are, however, results available from a number of studies on particular aspects of wellness on the educational outcomes of children and, to some extent, on adolescents. These studies focus most notably on the impact of nutrition and physical activity on academic outcomes. A few studies have been done with respect to the more psychosocial aspects of wellness. Studies have, in particular, focussed on emotional intelligence and overall success, in adults. These studies will be discussed in this chapter, in both the global and local context.

The level of wellness affects not only the physical development, but also the intellectual and psychosocial development of the young. The results of this impact on the outcomes of educational development in the wider context and how opportunities may have been enhanced, or missed, due to compromised health, will be drawn out. The researcher will discuss what has been found with respect to the overall impact of wellness on education globally, beginning with the link between economic poverty and poor health. These circumstances translate into insufficient education which, in turn, leads to the inability to make appropriate health-related decisions, or to improve one's overall health and lifestyle circumstances. How education itself impacts on health and how wellness promotion and better health can translate into academic success will be reviewed. Thereafter, the outcome of studies on the impact of wellness on education within the region will be discussed.

The impact of wellness within the South African Higher Education context encompasses not only the global patterns of wellness and educational outcomes but also the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

complicating problems of the HIV/AIDS and TB epidemics seen within South Africa. Additionally, there are complex health-related problems experienced by populations in socioeconomic developmental transition, which applies to Southern Africa in general and South Africa in particular. These issues are discussed before moving on to how this plays out in the local arena of the Eastern Cape Province.

In the final part of the literature review the author rationalises the study within the chosen university. The review discusses the intervention in the light of it being both a wellness enhancing intervention and a rational approach to evaluating solutions to the problem of ill-health that impact negatively on the students' academic development.

3.1 The Impact of Wellness on Education Globally

3.1.1 The link between economic poverty and poor health. In 2002, Dr Gro Harlem Brundtland identified the links between lifestyle related behaviour, disease and poverty in the WHO report of that year (World Health Organisation, 2002). The main factors that were linked to poor health were those of malnutrition (including under-nutrition, obesity and nutrition-related hypertension), unsafe sex, unsafe water consumption, insufficient hygiene, indoor air pollution, and tobacco and alcohol consumption (World Health Organisation, 2002). These same factors were not only directly linked to poor health, but also to poverty, both as a result of poor choices with regard to expenditure and reduced income due to poor health (World Health Organisation, 2002). The catchphrase “enemies of health, allies of poverty” was coined (World Health Organisation, 2002). In a further report the following year, inappropriate dietary patterns and an increase in nutrition-related diseases of lifestyle, were identified as a major health threat to both developed and developing countries, which the developing economies could ill afford (World Health Organisation, 2003a).

Even in developed countries, the poorer sectors of society tend towards health compromising behaviour, which impacts on education and further compromises socio-

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

economic status (Koivusilta, West, Saaristo, Nummi, & Rimpelä, 2013). A study conducted in Finland found that young people from broken homes, whose parents had not attained a higher educational level, had demonstrated more health compromising behaviour (Koivusilta et al., 2013). These adolescents fared less well in the educational system, thus perpetuating the lower socioeconomic level with further health compromising behaviour in adulthood (Koivusilta et al., 2013). The study also found that adolescents from two parent families, whose parents had skilled white collar employment, were more likely to engage in health enhancing behaviour (Koivusilta et al., 2013). These adolescents were more likely successfully to complete their own education, attain a higher level of socioeconomic status and better health as adults (Koivusilta et al., 2013). A study conducted in Spain found similar results among adults of lower socioeconomic status, who were found to have higher rates of Non-Insulin Dependent Diabetes Mellitus (NIDDM) and Cardiovascular Disease (CVD) than those who were educated and regularly employed (Palomo et al., 2014). The identical situation played out in New Zealand, where the poorer sectors of society with lower socioeconomic status and financial restraints had poor diets, poor lifestyle and poor health outcomes over the long-term (Wilson, Gearry, Grant, Pearson, & Skidmore, 2014).

If the poorer sectors of wealthier countries are compromised with respect to health, then the poorer sectors of the developing countries that have fewer advantages and limited access to well-resourced health care systems may well be compromised further (Friel et al., 2011). In middle income emerging economies, despite recent socioeconomic improvements, there are often health inequalities and the long-term impact of former poverty to contend with (Guimaraes, Werneck, Faerstein, Lopes, & Chor, 2014). Brazilian civil servants who had poor childhoods and compromised nutritional status in childhood and adolescence had worse health outcomes than the general population, despite government paid employment (Guimaraes et al., 2014). There appeared to be an adverse long-term impact of early life

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

hardship, especially for those who could not afford to eat at home during childhood and early adolescence and/or who had grown up in rural areas, where access to health-care services was limited (Guimaraes et al., 2014). A similar study conducted amongst the poorer areas of Mexico found that food insecurity and low socioeconomic status were linked to lower educational levels and poor health (Martinez-Rodriguez, Garcia-Chong, Trujillo-Olivera, & Noriero-Escalante, 2015). In developed, middle income and developing countries this is not a unique situation.

In 2005 all member nations of the WHO, including South Africa, made the commitment towards the provision of universal health coverage, not only for better health and well-being, but also for the promotion of human development (World Health Organisation, 2013b). The millennium development goals that were set for 2015 required substantial international improvement into the provision of universal health care coverage for all people (World Health Organisation, 2013b). In essence, universal health coverage includes access to health promotion and disease prevention, as much as to primary health care, medication and advanced health intervention and rehabilitation, without enduring unnecessary financial hardship (World Health Organisation, 2013b).

According to the WHO report of 2013, Canadians, Americans, Europeans and Southern Africans utilised up to 20% of their disposable income on out of pocket health expenditure (World Health Organisation, 2013b). Other Southern African Development Council (SADC) member nations and the majority of Northern and Central Asian and South American citizens spend between 20% and 40% of their disposable income on health related expenses (World Health Organisation, 2013b). Central Africans and Southern Asians come off the worst, with out of pocket health expenditure accounting for more than 40% of their disposable income (World Health Organisation, 2013b). Given that these very same countries, in general, have the lowest household incomes in terms of the WHO, this situation

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

constitutes 'a catastrophic health expenditure', exacerbating existing poverty (World Health Organisation, 2013b). Not only is the disparity between nations with regard to health coverage and out of pocket expenditure large, but also the socioeconomic health-related disparity within nations, is a major problem (Friel et al., 2011).

Even relatively wealthy and economically viable countries have poorer populations, with lower health status and a greater proportion of morbidity and mortality (Delpierre et al., 2012). Research has found a relationship between socioeconomic status and health in that lower socioeconomic status is often associated with poorer health outcomes, whereas self-reported health may, in fact, allow for a more subjective view (Garbarski, 2010). Self-rated health (SRH) and health-related quality of life (HRQoL) are often used to evaluate socioeconomic health disparities; however, like all subjective health measures, they may be dependent on the personal socioeconomic-related health expectations of the individual (Delpierre et al., 2012; Garbarski, 2010). In data retrieved from the French National Health Survey it was found that those with lower socioeconomic status had lower expectations of health and reported higher subjective health on government questionnaires (Delpierre et al., 2012). Conversely those with a higher socioeconomic position had higher expectations of their health and their lives in general and the impact of illness was subjectively greater (Delpierre et al., 2012). In the US it was also found that those who had a better education and higher socioeconomic status also had higher expectations of life in general and health in particular (Delpierre et al., 2012). This could lead to an under-estimation of the socioeconomic disparities when used to conduct health related surveys (Delpierre et al., 2012).

A study conducted in Thailand found that there were major socioeconomic and health disparities between those who had always lived in urban areas, those who had moved to urban areas during their life and those who remained in the rural areas (Yiengprugsawan et

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

al., 2011). The rural population who had not moved remained economically poorer than those who had moved to urban areas and those who had always lived in urban areas (Yiengprugsawan et al., 2011). In parts of the world which are still relatively poor and where the majority of the population does not have access to higher education, there appears to be a strong link between poverty, lack of education and chronic disease (Ignacio et al., 2015). Occidental Mindoro in the Philippines is an area of wide socioeconomic differences, with a small wealthy land-owning minority and a large, entrenched, impoverished rural peasantry (Ignacio et al., 2015). The area also has a large population growth rate coupled with low levels of education beyond primary school and basic literacy, a situation that is common in poorer regions of Asia, Africa and, Central and South America (Ignacio et al., 2015; Martinez-Rodriguez et al., 2015). In a study conducted in occidental Mindoro on health and development, almost a quarter of the population (23.4%), had been diagnosed with a medical problem in the year prior to the study, with 17.2% of the total population suffering chronic diseases of lifestyle and 9% tuberculosis (Ignacio et al., 2015). Reasons for visits to local clinics were given as treatment and/or cure, but little attention had been sought or given with respect to preventative care and lifestyle improvement (Ignacio et al., 2015). This may, in part, be because the expectation of anything beyond immediate help for the current problem was absent and the subjective perception of health was better than the morbidity statistics would have it (Delpierre et al., 2012).

Given the desperate circumstances of the poor and perceived improvement in living in the cities, many people in less fortunate socioeconomic circumstances, across the world, migrate to the larger cities in search of a better standard of living. Several studies show that, although the socioeconomic situation of those who make the transition to urban living may well improve, the expected health-related improvement does not always take place (Friel et al., 2011; Sodjinou et al., 2008; Yiengprugsawan et al., 2011).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

3.1.2 The impact of urbanisation on wellness. Urbanisation is a two-edged sword whilst, on the one hand, it affords improved standards of living, increased chances of employment and better access to services for many, there is also an increased access to a wider variety of foods, but not necessarily better quality nutrition (World Health Organisation, 2003a). Whilst advances have been made in combating the traditional infectious diseases, which were major causes of death and disability in the previous century, new chronic diseases have emerged, particularly in conjunction with the increasing urbanisation of the world's population (Allender et al., 2010; Allender et al., 2011; T. Campbell & Campbell, 2007; Friel et al., 2011; Neuman et al., 2013). Urban dwellers are more likely to be exposed to and consume more foods of higher fat and sugar content and lower nutritional density (World Health Organisation, 2003a). Urban populations are also less likely to engage in manual occupations, have lower levels of physical activity and use more public and private transport (World Health Organisation, 2003a). This lack of physical movement, along with the increase in calorie intake with lower levels of nutrition, is behind the urban explosion in Non-Insulin Dependent Diabetes Mellitus (NIDDM) and Cardiovascular Disorders (CVD) as well as other obesity-related diseases and some forms of cancer. (T. Campbell & Campbell, 2007; World Health Organisation, 2003a). A conservative estimate by Allender et al. in 2008 stated that, by 2020, preventable lifestyle related non-communicable diseases will account for approximately 69% of deaths globally (Allender et al., 2008). This increase, however, will not affect all countries equally.

Whilst in developed countries all-cause deaths are dropping, countries in transition, experiencing developmental growth and increasing urbanisation, are disproportionately affected by the increase in lifestyle-related disease morbidity and mortality (Allender et al., 2010; Neuman et al., 2013; Sibai et al., 2010; World Health Organisation, 2014). Between 2008 and 2030 the global urban population is expected to rise by 1.6 billion people, 80% of

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

whom are likely to inhabit the expanding cities of the middle income and developing countries (Allender et al., 2011). The newer emerging lifestyle-related problems of NIDDM and CVD are expected to account for 75% of the disease-burden in the developing world (Allender et al., 2010; Sibai et al., 2010). This is borne out by the report on the progress made in achieving the Millennium Development Goals (MDGs) by 2015, and what the future post-2015 would hold as in regard to health. The report indicated that, by 2030, non-communicable diseases of lifestyle would be the most common cause of death in Africa (Buse & Hawkes, 2014).

A clear link has been found between urbanisation and common preventable diseases of lifestyle, including high body mass index NIDDM and CVD (Allender et al., 2011; Attard et al., 2012; Bahrami et al., 2006; Bays, Chapman, & Grandy, 2007). Urbanisation and diseases of lifestyle, however, affect different countries in different ways (Neuman et al., 2013). In a study conducted across 38 middle and lower income countries, urban dwellers with better socio-economic status had higher levels of BMI overall and were developing obesity related disease comparable to people living in developed countries (Neuman et al., 2013). Those in less well-off situations, although resident in urban areas, retained their BMI status but may be compromised with respect to the provision of amenities (Neuman et al., 2013).

Urban living is set to become the new 'normal' for the world's majority with the prediction that, by 2030, 60% of the global population will live in cities in both developed and developing countries (Friel et al., 2011). There are differences, however, in the degree to which countries in the developed and the developing world have planned for and are prepared for urbanisation (Friel et al., 2011). Friel et al. argue that the move towards urbanisation is both a good and a bad thing in the developed and the developing world, depending on the infrastructure, level of preparedness and planning that the country has engaged in (Friel et al.,

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

2011). In established urban environments, good planning and infrastructure can accommodate increased moderate growth (Friel et al., 2011). Where the urban growth has overtaken the ability to plan and prepare for such growth and influx from rural areas and poorer countries, urbanisation has contributed to the urban-rural, inter-country and the rich-poor, inter-city divide (Friel et al., 2011). Both Friel et al. and Allender et al. recognise that rapid urban growth in middle and lower income countries is an independent, emerging, serious health challenge (Allender et al., 2011; Friel et al., 2011).

A case in point is China, with one fifth of the world's population, it not only has the world's largest population for any country, but also has the largest degree of human rural to city migration in recorded history (Attard et al., 2012; Gong et al., 2012). Between 1980 and 2009, the urban population in China rose from 191 million to 622 million people, which increased further to a level in 2011 where the urban population overtook the rural population (Gong et al., 2012). This rapid urbanisation, with its accompanying changes in lifestyle choices, is a major health challenge to the Chinese infrastructure and health care system (Gong et al., 2012). The transition to Westernised foods, accompanied by the decrease in physical activity, is responsible for the increase in Western-style disease patterns, including the rapid rise in NIDDM (Attard et al., 2012; Gong et al., 2012). The problem becomes more complex when one considers that with the increase in urban living comes the increase in air and water pollution, traffic and road accidents and disparities between the rich and poor in access to health care in China (Gong et al., 2012).

What is happening in China is not confined to China and there is the consensus that there has been a dramatic shift in the way the global population, in general, and countries in transition, in particular, eats, drinks and moves (Popkin, Adair, & Ng, 2011). As other middle income emerging economies follow this route of urbanisation towards economic growth, similar socioeconomic and health-related problems are likely to occur (Attard et al., 2012;

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Sibai et al., 2010). Along with the estimated increase in urban populations by 2030, it is also estimated that 2.16 billion people will be overweight and 1.12 billion will be obese by the same year (Popkin et al., 2011). Whereas obesity was formerly a disease of the wealthy, it is now a disease of the poor in developed and in middle income countries, particularly in urban areas (Popkin et al., 2011). Transitional populations are especially susceptible as they have gone from being undernourished and, as a consequence, often stunted and more disease-prone, to being inappropriately nourished, taking in too many calories and too much fat of the wrong kind (Popkin et al., 2011).

Rapidly expanding and urbanising countries need to be prepared for the effects of urbanisation, as do individuals within those countries. Although the reasons for moving to urban areas may be better socioeconomic status and opportunities, this does not always translate into the expected improvement in healthy living. Yiengprugsawan et al. found that, in Thailand, the urban dwellers were substantially less economically compromised; however, although they had better access to health care, they did not always have better health (Yiengprugsawan et al., 2011). In urban dwellers, there was a significant increase in depression, mental wellness disorders, and lifestyle related disorders linked to the urban transition (Yiengprugsawan et al., 2011). This is similar to the findings of Sodjinou et al. (2008). Food and transitional diets aside, another factor to be taken into consideration with the move to urban environments is that of stress, in itself a health hazard (Huneault, Mathieu, & Tremblay, 2011). Huneault et al. maintain that the increase in corticosteroid levels and decrease in physical exercise, as well as the decrease in quantity and quality of sleep associated with globalisation urbanisation and modern living, in themselves contribute to higher levels of obesity and stress-related disorders (Huneault et al., 2011).

In Africa in general and West Africa in particular, there appears to be a bell curve with regard to socio-economic status, urbanisation and health (Sodjinou et al., 2008). Health

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

in Benin is most compromised in the rural poor, who still suffer the bulk of the burden of communicable diseases and lack of access to health services (Sodjinou et al., 2008). As the population moves to urban areas the health improves, as does access to services, but over time this 'improvement' simply translates into an increase in diseases of lifestyle, predominantly obesity, cardiovascular disease and type 2 diabetes (Sodjinou et al., 2008). As of 2012 the non-communicable burden of lifestyle-related disease overtook the burden of communicable disease, globally, even in middle income and poorer regions of the world (World Health Organisation, 2014). In South Africa, despite the focus on HIV and TB, there were 711 deaths per 100,000 due to lifestyle related disorders, against 612 for communicable disorders and 17 for HIV/AIDS in 2012 (World Health Organisation, 2014).

Although socioeconomic status may affect both actual and subjective health outcomes; it is also acknowledged that health itself may affect the perceived social position of an individual, subject to interplay with health and not just as a cause of health (Garbarski, 2010). Health and socioeconomic status are not necessarily independent factors in influencing educational success; there is a growing understanding that these two factors may intersect to both create and maintain both health and educational disparities (M. I. Jackson, 2009; Kestilä, Martelin, Rahkonen, Härkänen, & Koskinen, 2009).

3.1.3 The link between health and education. Education has been shown to be linked to health outcomes in developed countries (Baker et al., 2011; A. K. Cohen, Rai, Rehkopf, & Abrams, 2013; Rosenbaum, 2012). The vast majority of research reports that investigate the link between health and education have found that education itself is a strong, enduring and growing increasing mediator of health (Baker et al., 2011). With the institution of community colleges, further education colleges and other intermediary educational opportunities for those who would not normally enter higher education health disparities, may be mitigated by the opportunity to obtain a higher qualification, thus changing the socio-

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

economic perception and identification of those taking part (Rosenbaum, 2012). This is possibly via the association with socioeconomic status; however, health literacy and health behaviour along with empowerment and change in the locus of control may also be determining factors in health outcomes (A. K. Cohen et al., 2013). There is also the possibility of reverse causation, such that those with health problems may be disadvantaged with respect to receiving adequate education (A. K. Cohen et al., 2013).

Self-rated health is an important health status indicator, which has been found to be linked to socioeconomic status and educational status as well as long term health outcomes (Guimaraes et al., 2014). This needs to be viewed with caution, however, as pointed out by Delpierre et al., self-rated health can be skewed by lower or higher expectations (Delpierre et al., 2012). Poverty and the resultant poor health during childhood and adolescence have further economic and educational consequences (Guimaraes et al., 2014; M. I. Jackson, 2009). The connection between early life health and educational success impacts on welfare and economic stability, as well as further improvement and the ability to access health care in later life (Guimaraes et al., 2014; M. I. Jackson, 2009). Although poor health in childhood is often a consequence of socioeconomic deprivation, conversely, repeated illness and chronic conditions during childhood and adolescence have lasting educational and socioeconomic effects (M. I. Jackson, 2009). Deprivation, lack of health, insufficient education and their combined results, become part of a vicious circle that always leads back to poverty and deprivation (M. I. Jackson, 2009).

The morbidity and mortality statistics do not always concur with self-rated health when the latter is skewed by higher or lower expectations of the population concerned (Delpierre et al., 2012). In essence, the poor expect less when it comes to health, report better subjective health and often fail to ask for, or receive, preventative care or educational information, whilst those with a better education and socioeconomic position may be more

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

demanding (Delpierre et al., 2012). As much as poor health behaviour and poor health-related decision-making is a cause of socio-economic disparity, the same socio-economic disparity is also a cause of poor health-behaviour (Mulder, de Bruin, Schreurs, van Ameijden, & van Woerkum, 2011). People with lower levels of education, higher levels of daily stress and fewer resources, including perceived lack of life-control, tend towards more health-compromising behaviours and do not have the psychosocial resources to manage health-related change (Mulder et al., 2011). Breaking into this cycle of poor health and poor education may not have the desired results if the benefactors are not able to make appropriate economic and health-related decisions (Kestilä et al., 2009). Those with reduced educational and economic opportunities may also have lower expectations of educational attainment and its benefits, or may believe that, due to a health-related condition such as asthma or depression, that they cannot be expected to achieve academically (M. I. Jackson, 2009). Increasing the perception of life-control social support and social cohesion is important in building the capacity to make appropriate health-behaviour decisions (Mulder et al., 2011).

3.2.3.1 Nutritional wellness and educational outcomes. Nutritional status is a paradox being both the cause of ill-health and the solution to improved health, educational attainment and ultimate improvement in socioeconomic status (Dube, Webb, Arora, & Pingali, 2014). There appears to be a nexus involving agriculture, food security, health improvement, reduction of poverty and containment of healthcare costs related to nutritional diseases (Dube et al., 2014). Nutritional status and daily food intake appear to be pivotal in determining whether or not health and wellness overall are improved or undermined (Dube et al., 2014). This, in turn, impacts on education, the two factors nutrition and education are so closely linked that it is almost impossible to separate them into cause and effect (Baraldi & Conde, 2014). The concept of human capital itself is defined by and focuses on the amount of

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

health and education that can be aggregated across a given social strata (Baraldi & Conde, 2014).

It may be that even getting a foot on the ladder of higher education could be nutrition dependent. As a middle income rapidly developing and rapidly urbanising country, Brazil has experienced both social and nutritional transition (Baraldi & Conde, 2014). Like other countries in transition, a decrease in infectious and increase in chronic diseases of lifestyle changed the health and nutritional landscape in Brazil (Baraldi & Conde, 2014). The educational landscape also changed with the difference in parental education and that of their offspring widening, reaching a peak in 2003 but dropping by 2009 (Baraldi & Conde, 2014). Social childhood conditions, characterised by nutrition, were found to be a greater determinant of academic success, than either social position or parental education alone (Baraldi & Conde, 2014). It was found that adolescents who were better nourished living at a higher socioeconomic level, but not at risk for chronic diseases of lifestyle, were more likely to enter higher education than those who were either undernourished or inappropriately nourished (Baraldi & Conde, 2014). In order to provide for a consistent level of appropriate nutrition, food security and adequate intake of nutrients is of vital importance and a growing global concern (Dube et al., 2014).

3.2.3.1.1 Food insecurity, obesity and poor health. Food insecurity and obesity often co-exist and are related, not only to one another, but also to NIDDM, poor health and lack of development (Eisenmann, Gundersen, Lohman, Garasky, & Stewart, 2011; Huneault et al., 2011). Food insecure disadvantaged groups of people are more likely to suffer the obesogenic consequences of poor health and slower socioeconomic development (Eisenmann et al., 2011; Huneault et al., 2011). Around the world there appears to be an evolving inverse relationship between educational attainment and obesity (A. K. Cohen et al., 2013). Given obesity's role in long-term adverse health outcomes and the consequential adverse impact on

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

national development, it is becoming an independent factor itself on the widening socio-economic and health disparities, both between and within countries (Freudenberg, Libman, & O'Keefe, 2010). With the rise in the numbers of people living in urban areas, the income inequalities, unhealthy diets and lack of physical activity, the poor in the poorest urban areas, bear the brunt of unhealthy diets, overweight and obesity and the consequential rise in NIDDM, CVD and other nutrition related problems (Freudenberg et al., 2010). This is not confined to the poorer nations. Studies done in London and New York have found that children and adolescents from immigrant and minority group families, living in poor neighbourhoods with lower socioeconomic status, are more likely to consume less nutritious foods (Freudenberg et al., 2010). In poorer neighbourhoods, even in wealthier countries, obesity and the concomitant poor diet has been linked to poorer health outcomes that follow through from childhood to adolescence and adulthood (A. L. Cook & Hayden, 2012; Estrade et al., 2014; Freudenberg et al., 2010). Studies in Europe and Scotland have revealed that lower socioeconomic status is linked to poor nutritional quality, as well as poor knowledge of nutrition (Estrade et al., 2014). A systematic review of the incidence of overweight and obesity in European children also found that the problem occurred more widely in the most socially disadvantaged groups, especially children and adolescent offspring of migrant and transient foreign workers (Labree, Mheen, Rutten, & Foets, 2011).

In the US rates of poor nutrition and obesity with concomitant early onset hypertension and hypercholesterolemia are found among the lower socioeconomic strata of minority populations, such as Latino, Native American and Pacific Islander children (A. L. Cook & Hayden, 2012). This is not very different from a study done in the UK which also found that minority black and South Asian children and adolescents in the UK also suffer disproportionately from overweight and obesity (El-Sayed, Scarborough, & Galea, 2011). The same study found that, in the UK, children and adolescents who are obese suffer from

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

orthopaedic abnormalities and intracranial hypertension, asthma and sleep apnoea, early onset insulin resistance and NIDDM as well as poor mental health (El-Sayed et al., 2011).

Although family plays a role in determining nutritional intake, many young people spend a high proportion of their time away from home and consume food purchased from local vendors (Estrade et al., 2014). Some schools and colleges provide food for students, or at least make food available, according to set national nutritional standards, but this is not consumed by all (Estrade et al., 2014). Studies conducted in Scotland, Canada and Brazil found that a large proportion of students from low socioeconomic areas purchased less nutritious food from local vendors (Estrade et al., 2014). This is no different from that found in the New York-London Study (Freudenberg et al., 2010). Of particular concern is the number of children and adolescents who attend school without breakfast, which in itself has been linked to a higher risk of obesity and NIDDM in both adolescent and adult life (Alexander et al., 2009). Foods most likely to be purchased have higher calorie, higher fat, and sugar content but are cheaper and more easily available (Freudenberg et al., 2010). Vendors, in turn, exist to make a profit and do not consider the nutritional quality of the food they sell (Estrade et al., 2014).

Family and food vendors are not the only influences on what children eat. There has been a large debate surrounding the role of food advertisers and food manufacturers (Galbraith-Emami & Lobstein, 2013). In response to the increasing evidence that food advertising affects the choices of foods made by children and adolescents, a number of manufacturers in various countries have self-regulated the content of certain products (Galbraith-Emami & Lobstein, 2013). Some of the larger manufacturers have also restricted advertising of foods to children to those that are labelled as 'better for you' or 'healthier choice' (Galbraith-Emami & Lobstein, 2013). Restrictions on manufacturing and advertising are mainly voluntary and may not always have the desired effect, or sufficiently reduce the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

number of unhealthy choices that youngsters make, when purchasing their own food items (Galbraith-Emami & Lobstein, 2013). In South Africa this has become a concern and it has been acknowledge that large international food manufacturers influence eating habits for better or for worse (Igumbor et al., 2012). Companies in South Africa have developed strategies to increase the availability, affordability and acceptability of their foods and, to some extent, have initiated 'health and wellness' related promotion of certain products (Igumbor et al., 2012). The impact, to date, of these self-imposed initiatives is unclear and there is concern that the government should do more to regulate the food manufacturing and advertising environment (Igumbor et al., 2012).

What children eat is not the only concern as the consumption of high fructose, corn syrup containing beverages among children, has also come under the spotlight (Morgan, 2013). Soft drink consumption has risen among children and adolescents alongside the rise in obesity (Morgan, 2013). With conflicting research on the connection between soft drink consumption and obesity, the jury is still out; however, soft drink consumption, particularly in adolescents who consume food and drink away from home, may replace more nutritious items such as milk (Morgan, 2013).

The damage done by the selection of poor food choices and compromised food availability is not always mitigated by education or nutritional counselling from health care professionals. The New York-London study found that the very same compromised, poor and immigrant populations that are most nutritionally compromised, are the ones who are less likely to receive nutritional counselling, preventative care or health education (Freudenberg et al., 2010). In New York the urban poor are less likely to have health insurance and may not receive adequate medical attention at all (Freudenberg et al., 2010). This makes it even more important to educate adolescents and to equip them with the knowledge they need to make informed decisions with regard to their food intake (Estrade et al., 2014). This concurs with

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

the study by El-Sayed et al. which indicated that south Asian and Black people in the UK who suffered from obesity were less likely to receive counselling with respect to obesity related problems and were found to be less satisfied with their medical care overall (El-Sayed et al., 2011).

In middle and lower income developing countries the rise in obesity and problems of nutritional transition are also playing out in adverse health outcomes, rising costs and long-term health disparities. There is a paradox in countries in transition in that they suffer the burden of both under-nutrition and obesity within the same population (Musaiger, Hassan, & Obeid, 2011). Two kinds of nutritional problems plague middle income developing countries and middle income developing urbanised populations (Kengne et al., 2007; Musaiger et al., 2011). In Middle Eastern countries and Africa, lack of access to education, health-services, poverty, ignorance and unsafe water contribute to under-nutrition, while changes in lifestyle and lack of physical exercise, contribute to obesity (Kengne et al., 2007; Musaiger et al., 2011). Both types of nutritional problems, however, are greatly exacerbated by inappropriate dietary intake, which in itself impacts on long term health and the development of chronic disease (Kengne et al., 2007; Musaiger et al., 2011).

3.2.3.1.2 Breakfast and cognition. Ill-health, whether due to nutritionally-related disease or not, impacts on the ability to learn; however, there is a more subtle and direct impact of nutrition on cognitive ability as was shown in a study of nurses in the UK (Chaplin & Smith, 2011). The study found that the regular consumption of breakfast consisting of dairy products, cereals and fruit, resulted in better cognitive performance, fewer accidents and less psychological stress (Chaplin & Smith, 2011). Conversely, skipping breakfast and snacking later in the day on items that were low in nutrients, was associated with higher levels of stress, a lower ability to cope with the demands of work, more work-related cognitive failure and more frequent accidents on duty (Chaplin & Smith, 2011).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

One proposed definition of breakfast is ‘the first meal of the day consumed before daily activities commence and within two hours of waking’ (Pereira et al., 2011). Breakfast, or lack thereof, has been directly linked to school attendance, performance and learning (Mhurchu et al., 2010; Pereira et al., 2011). Up to 20% of New Zealand children were found to leave home each day for school with no breakfast. This situation was more prominent amongst children who were older, Maori, or Pacific Islander and from poorer households (Mhurchu et al., 2010). This concurred with a study done by Pereira et al., which estimated that 12-34% of adolescents regularly missed breakfast (Pereira et al., 2011). Both frequency and quality of breakfast, have separate implications for health and performance (Pereira et al., 2011). Increased meal frequency overall appears to have an inverse effect on overweight and obesity and frequent breakfast eating appears to have a protective effect with respect to weight gain and overall fat intake (Pereira et al., 2011).

Missing breakfast has been linked to lower cognitive function, including decreased memory and academic performance, as well psychosocial adjustment (Mhurchu et al., 2010). Children who miss breakfast have lower overall micronutrient intakes and higher intakes of total fat (Mhurchu et al., 2010). Hungry children may lack the energy and the motivation to participate in classroom activities missing out not only on learning but also on psychosocial development (Mhurchu et al., 2010). The provision of free school breakfast for undernourished children from poorer households in the US, UK and Sweden has found that there is a direct improvement in school performance for children who participate in the breakfast programmes (Mhurchu et al., 2010).

The problem of insufficient or absence of breakfast is not necessarily isolated to one meal. In a study conducted on adolescents, the frequency of meals was directly associated with their quality (Pedersen, Meilstrup, Holstein, & Rasmussen, 2012). The frequency of skipping any of the three meals was directly associated with low fruit and vegetable intake

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

(Pedersen et al., 2012). The association between low fruit and vegetable intake and meal skipping was strongest for skipping breakfast and for the older teens (Pedersen et al., 2012). This has serious implications for young people as the lack of quantity of food is not compensated for by quality of intake and that when nutritional intake is poor it may well be poor with respect to both quantity and quality (Pedersen et al., 2012). Despite the dismal picture painted of poor nutrition in poor communities, there are notable exceptions. Some socioeconomically disadvantaged adolescents do manage to consume a healthy diet and adequate fruit and vegetable intake, thus demonstrating a measure of resilience (L. Stephens, McNaughton, Crawford, MacFarlane, & Ball, 2011). Factors that appear to promote healthy eating in disadvantaged adolescents include an appreciation of and value for health by the individual, and value of nutrition by the family (L. Stephens et al., 2011). Support for healthy eating from family and friends and having structured mealtimes as a family with 'mealtime rules' also resulted in greater fruit and vegetable intake (L. Stephens et al., 2011).

3.2.3.1.3 Nutrients and brain function. Relative to the rest of the body, the brain consumes more energy and is the first of the organs to suffer from hunger (Gómez-Pinilla, 2008). The brain weighs 2% of the overall body weight but takes up 20% of the micronutrients, oxygen and glucose, even at rest (Tortora & Derrickson, 2009a). Slowing down of blood flow to the brain, and decreased oxygen supply can be catastrophic, with a one to two minute interruption resulting in impaired neuronal function and a four minute interruption causing permanent neurological damage (Tortora & Derrickson, 2009a). What is less obvious, but just as neurologically precarious, is the situation where there is an impaired flow of glucose to the brain on a continuous basis, as virtually no glucose can be stored in the brain, the supply has to be continuous (Tortora & Derrickson, 2009a). Confusion and impaired cognitive function is the first sign of low glucose levels circulating in the blood within the brain, followed by dizziness and possibly convulsions (Tortora & Derrickson,

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

2009a). Correct and continuous neurological function depends heavily on a constant supply of circulating blood glucose that does not involve peaks, due to high sugar intake, or dips down to fasting levels due to irregular meals (Tortora & Derrickson, 2009a). Eating, in and of itself, is associated with better brain function, improved mood and better memory (Gómez-Pinilla, 2008). This can, however, be a short term effect if the food eaten is of poor nutritional quality (Alexander et al., 2009; Gómez-Pinilla, 2008; Morgan, 2013; Pereira et al., 2011). Whilst high quality whole-grain high-fibre breakfast cereals tend to promote more constant carbohydrate and blood glucose supply, longer satiety and better appetite control, those which are high in sugar and/or fat and low in fibre do not (Pereira et al., 2011).

Brain development and cognitive function (IQ) is not fixed at birth, as previously assumed, but continues throughout childhood and adolescence, with full grey matter weight at adulthood of approximately 1300g (Taki et al., 2010; Tortora & Derrickson, 2009a). Although primarily a source of energy, the focus on food in recent years as a source not only of generalised nutrients for health but specific nutrients for cognitive development has emerged (Gómez-Pinilla, 2008). Early development, brain growth and maturation have been linked to nutritional intake of infants, both directly and indirectly (Keunen, van Elburg, van Bel, & Benders, 2015). It is not uncommon for children born into socioeconomically compromised households to be underweight or pre-term at birth (Keunen et al., 2015). In a study conducted in the UK, those who were given a nutrient-dense formula containing higher levels of protein, zinc, iodine and calcium, demonstrated a higher level of verbal intelligence at 16 years, than those who were given a standard formula (Keunen et al., 2015). Keunen et al. postulate that better nutrition may also increase resistance to disease and reduce the incidence of early-life illness, which in itself could affect brain development (Keunen et al., 2015).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Even in apparently healthy adolescents micronutrient deficiencies can compromise cognitive function and intellectual development (Fayet-Moore, Petocz, & Samman, 2014; Nansel et al., 2010). Under-nutrition has been linked to poor school performance and higher levels of school disciplinary interventions (Nansel et al., 2010). In a school programme designed to eliminate processed foods and increase the level of nutrition in school food and the promotion of exercise, school performance indicators and student behaviour improved (Nansel et al., 2010). Zinc is essential for neuro-behavioural development and vitamins B-12 and folate are essential for cognitive function, whilst iron functions in adequate oxygen utilisation and thus general neurological function (Fayet-Moore et al., 2014). All of these micro-nutrients were found to be deficient in the majority of young women in a study conducted on seemingly healthy Australian female students (Fayet-Moore et al., 2014). Whilst unprocessed grains may contain their original nutrients, many better quality breakfast cereals and instant breakfast foods are fortified with iron, zinc and folate; however, not all students eat an adequate breakfast.

In a study conducted on groups of children with differing breakfast foods it was found that the type of breakfast eaten on a regular basis impacted on brain development, weight of grey matter and IQ levels (Taki et al., 2010). Using magnetic resonance imaging (MRI) on three groups of children, one eating a rice-based breakfast with three to four side dishes, one eating rice and bread with an average of four side dishes and a the third eating bread with two to three accompanying items, differences in brain volume were found (Taki et al., 2010). Although the white brain matter in all three groups were comparable, the grey brain matter that relates to cognitive function was highest in the children who consumed a rice-based breakfast with up to four accompaniments (Taki et al., 2010). The difference between the rice and the bread group increased in older children and adolescents (Taki et al., 2010). The children and adolescents who consumed the rice and accompaniments were also found to

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

have higher IQ levels (Taki et al., 2010). The research suggests that as Asian children exchange traditional foods for Western style bread based breakfasts, this could have implications for their future development and that optimal nutrition is important for childhood neurological development (Taki et al., 2010).

Disturbed eating behaviours in college students, involving meal skipping, restrained eating and self-induced vomiting, have also been linked to depression and anxiety, in addition to dichotomous thinking and psychological rigidity, that can impact on their education (Quick & Byrd-Bredbenner, 2013). It is not always certain which comes first, the behaviour problem or the nutritional impact, and it may be that one exacerbates the other (Quick & Byrd-Bredbenner, 2013). The researchers proposed that nutrition education be utilised to overcome the problem of disordered eating in adolescents (Quick & Byrd-Bredbenner, 2013). Conversely diets low in saturated fats and higher in Omega 3 fatty acids (found in fish, walnuts and canola seeds) have been linked to increased cognitive function as well as lower rates of depressive disorders (Gómez-Pinilla, 2008; Innis, 2007).

Because behaviour change is slow and cumulative, intermittent attendance in intervention programmes and high attrition rates compromise the intervention and waste both time and effort (Skelton & Beech, 2011). A study conducted on adolescents found a 39% attrition rate within a combined clinical intervention and education programme aimed at reducing obesity, with those dropping out being more likely to come from overweight families (Skelton & Beech, 2011). Perhaps a more positive way of dealing with the problem of attrition in intervention programmes would be to seek out what works (Skelton & Beech, 2011). Models of health promotion and disease prevention that overcome the barriers of time and distance and promote confidence, agency and hope, may afford a better solution (Nothwehr, Clark, & Perkins, 2013; Skelton & Beech, 2011).

3.2.3.2 *Physical activity and educational outcomes.* Along with the transition in

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

nutritional intake in urban populations in general and in middle and lower income countries in particular, there is an equal transition in levels of physical activity (Muthuri, Wachira, Onywera, & Tremblay, 2014; Pedroso Dias et al., 2014). Sedentary behaviour is increasing and the level of physical activity decreasing in urban populations (Pedroso Dias et al., 2014). This could, in part, be attributable to the urban environment itself, in which high crime levels and increased access to technological indoor activities, such as video-games and TV, promote physical inactivity (Chinapaw, Proper, Brug, van-Mechelen, & Singh, 2011; Pedroso Dias et al., 2014). Additionally, greenspace, a potential resource in increasing the level of physical activity, is often lost in the rapidly expanding urban environments (Lachowycz & Jones, 2011). The impact of the negative urban environment, however, can be mitigated by the provision of school and neighbourhood facilities for physical activity and increasing traffic safety levels (De Vet, De Ridder, & De Wit, 2011).

Diet and exercise often go hand in hand when it comes to impacting on physical wellness (Bog, 2014; Chinapaw et al., 2011; Gómez-Pinilla, 2008). Exercise has been associated with reducing the deleterious effects of poor diet (Gómez-Pinilla, 2008). In a study conducted on Brazilian adolescents sedentary behaviour was positively associated with other risky lifestyle behaviours, such as poor nutritional habits, smoking and alcohol intake, all of which may have an effect on health and consequently school performance. (Pedroso Dias et al., 2014). Physical activity, however, may have an intrinsic effect in itself, especially on compromised adolescents with concentration and learning ability challenges (Bog, 2014). College students with a tendency towards Attention Deficit Hyperactivity Disorder (ADHD) also have low social skills, low academic achievement and are at high risk for drug and alcohol abuse (Bog, 2014). A relationship between ADHD tendencies, abdominal fat and lack of physical muscular strength was found, as well as low self-esteem and lack of social skills (Bog, 2014). A physical exercise programme which focussed on building muscular strength

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

and endurance improved both abdominal tone and levels of concentration in a group of ADHD affected college students (Bog, 2014).

Sport participation is often associated with better academic performance in the educational environment as well as better job prospects beyond it (Super, Hermens, Verkooijen, & Koelen, 2014). Sport participation is often advocated by health professionals to overcome problems in health and education as well as to improve social development (Super et al., 2014). It has been noted that sport participation not only benefits physical health, in itself related to better overall performance, but also develops skills that can be applied to other areas of life (Super et al., 2014). These skills include those of self-regulation, self-efficacy, a sense of coherence and the ability to build and maintain partnerships with others (Super et al., 2014). Sport is often carried out in greenspaces, which are linked to better mental wellness, and reduced stress anxiety and depression, giving added benefit to outdoor sporting activities (Pearson & Craig, 2014). Engaging in activities conducted in greenspaces has also been linked to better cognition in children with attention deficits (Pearson & Craig, 2014). Greenspace could potentially be a valuable resource in both raising the levels of physical activity and reducing stress in order to reduce levels of obesity and improve overall wellbeing (Lachowycz & Jones, 2011).

Perhaps in the longer term, not only the amount of physical activity that young people engage in, but the type of physical activity can be better tailored to promote life-long exercise habits (Schachter, 2011). Aerobic dance classes, Wii, skateboarding and yoga have been introduced into some physical education classes in the US in an attempt to 'update' the concept of physical education and increase participation in the educational environment and beyond (Schachter, 2011). In one school in the US yoga has been incorporated in the classroom itself, where students engage in short movement breaks and yoga poses in order to re-focus on their work and increase levels of concentration (Schachter, 2011). In a Canadian

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

school students engaged in four minute high-intensity activities designed to complement a storyline in order to improve their focus; the programme resulted in increased levels of concentration, improved attention span and increases in test scores in participating students (Ma, Le Mare, & Gurd, 2015).

Starting and maintaining an exercise programme is not easy (Sook-Jung & Bok-Hee, 2013). It is recognised that physical strength peaks in the 20s but begins to decline after 30 years of age in both genders; however, the impact of the decline in physical strength impacts more on women (Sook-Jung & Bok-Hee, 2013). A study conducted on young college students in South Korea found that personal individual motivation, external encouragement and the attainment of measureable goals appear to be the key to sustaining an exercise programme over the longer term (Sook-Jung & Bok-Hee, 2013).

Inappropriate food intake and lack of physical exercise both impact physiologically on obesity; however, for some young people physical consequences are not their main problem. One of the psychosocial impacts of adolescent overweight and obesity is that of perceived or actual discrimination which has been found to be linked to educational attainment, particularly post-school education (Glass, Haas, & Reither, 2010). The stigma of being obese is stronger in adolescents than in adults and impacts on their decisions to complete secondary schooling and/or pursue higher education (Glass et al., 2010). There are serious psychological effects of childhood and adolescent obesity that result in low self-esteem and depression, independent factors that impact negatively on self-efficacy and school attendance, resulting in poor academic outcomes, with or without manifest physical illness (A. L. Cook & Hayden, 2012; De Vet et al., 2011; Skelton & Beech, 2011). Notwithstanding the psychosocial problems of obesity, with its concomitant level of low self-esteem or other physical problems, wrought by inappropriate nutrition and lack of exercise during

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

adolescence, this period of life also has additional psychosocial challenges (Beck et al., 2008).

3.2.3.3 Psychosocial wellness and educational outcomes. First year higher education students are often living away from home for the first time and, as such, may be away from parental/familial supervision for the first time (Beck et al., 2008; Brown et al., 2008). There are challenges with making new friends, settling into residence or finding accommodation and getting to classes in a campus which consists of multiple buildings (Beck et al., 2008; Brown et al., 2008). Mental wellness and the problem of psychological distress among higher education students appear to be of global concern (Deasy, Coughlan, Pironom, Jourdan, & Mannix-McNamara, 2014). The way in which students cope with stress has implications for both health and academic performance (Deasy et al., 2014). Causes of stress include changes in living conditions, financial constraints, social pressures and study difficulties (Deasy et al., 2014). These challenges may or may not be met with drug and/or alcohol use; however, among the student population, both are prevalent (Donath et al., 2012; Howland et al., 2010; White, Hingson, Pan, & Yi, 2011). Inappropriate dietary intake, such as comfort eating, is also used as a psychological escape mechanism (Deasy et al., 2014). Substance use is generally categorised into nicotine, alcohol and illegal drugs; whilst the first two are legal, they are not without consequences and alcohol, in particular, can seriously impair normal function (Sussman, Lisha, & Griffiths, 2011).

3.2.3.3.1 The influence of alcohol and smoking. One of the major problems during adolescence is heavy episodic (binge) drinking, with the accompanying physical, interpersonal, and academic consequences (Beck et al., 2008; Donath et al., 2012; Mallett et al., 2006; White et al., 2011). Studies conducted in Japan have shown that drinking and smoking are habits that begin early in adolescence and are becoming serious public health concerns (Ando et al., 2007). Both of these habits have been shown to have immediate and

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

lasting adverse effects, not only on physical health, but also on social and educational development (Ando et al., 2007), in addition to behavioural neurological and mental health consequences (Brown et al., 2008). A German study found that alcohol consumption in high school had been with absenteeism and low academic achievement, cognitive deficits and altered neural development (Donath et al., 2012). Alcohol consumption habits developed earlier on in adolescence often continue into higher education, escalating into uncontrollable and binge drinking (Beck et al., 2008; Brown et al., 2008). Alcoholic binge drinking rates of up to 40% have been reported in the 18-24 year age group (Weinstock, Capizzi, Weber, Pescatello, & Petry, 2014). Hospitalisation of young people aged between 18 and 24 due to alcohol (and drug) overdoses has risen in the US (White et al., 2011). Hospitalisation for alcohol abuse alone increased in this population by 25% over the period from 1999-2008, with a concomitant increase in the financial costs of treatment (White et al., 2011). This was despite the overall reduction in drinking in this age group, which indicates either that the problem is becoming polarised, or perhaps that young people may be increasingly or, in the opinion of White et al., more inclined to recognise the abuse and seek help (White et al., 2011).

A US study found that alcohol use in college students had both short and long-term consequences, such as unwanted and unprotected sex, legal problems, violence, injury and property damage (Howland et al., 2010; Weinstock et al., 2014). The biggest problem, however, may well be directly related to academic output (Howland et al., 2010). Although actual test scores did not differ from students who did not drink, students who drank the night before a test were slower to react and absorb information and had lower levels of mood/affect than those who had not been drinking (Howland et al., 2010).

Reasons for drinking among first-year college students vary, for some it is the social conviviality that comes with hanging out with friends, who also happen to drink, for others it

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

is an escape route from emotional problems, in particular depression (Beck et al., 2008). Knowing why, when and where students drink may provide some insight into the problem, for some it is a personality problem, whilst for others peer pressure and parental influence play a role in alcohol consumption (Beck et al., 2008). College students use both interpersonal and intrapersonal information about whether and how much alcohol to consume (Mallett et al., 2006). Interpersonal information for the main part is based on the norms created by how much alcohol is consumed by others, whilst intrapersonal information is based on how much alcohol one feels one can take in without adverse consequences (Mallett et al., 2006). Many college students underestimate how much alcohol is required to become intoxicated and overestimate how much they as individuals can tolerate (Beck et al., 2008; Mallett et al., 2006). Alcohol use is, in part, bounded by, but also influences, development in adolescence and future success in completing high school and obtaining and maintaining access to higher education (Brown et al., 2008; Donath et al., 2012). This has implications for both health and decision-making as, in the opinion of both Beck et al. and Mallett et al., many students attribute negative consequences of alcohol abuse, such as unwanted sex, disciplinary action and loss of university accommodation due to alcohol infringements, to other factors, and do not always learn from their mistakes (Beck et al., 2008; Mallett et al., 2006). This is contrary to White et al, who feel that some of the increase in hospitalisations for alcohol abuse are due to the fact that young people are recognising the fact that they have a problem (White et al., 2011).

As smoking decreases in Westernised developed countries, it is increasing in developing Asian and African countries, especially among the urban female population (Williams et al., 2008; World Health Organisation, 2011). Smoking is responsible for approximately 8% of deaths in South Africa (Ayo-Yusuf & Szymanski, 2010). A study done among women in Cape Town revealed that tobacco marketing that targets women in

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

particular is on the increase as cigarette manufacturers battle to maintain their profits from falling markets in developed countries (Williams et al., 2008). This is disconcerting as women have a greater influence on family and children and on the perception of 'normality' in children (Williams et al., 2008). The WHO have hit back with stricter measures for labelling of cigarettes and globalised anti-smoking campaigns (World Health Organisation, 2011). South Africa has clamped down considerably on advertising of cigarettes and regulating where one may or may not smoke to good effect, as smoking as of 2010 was on the decrease (Ayo-Yusuf & Szymanski, 2010). Although there appears to be no literature on the connection between smoking and educational outcomes; as smoking and alcohol use often go hand in hand, targeting one substance for intervention may have an impact on the other (Ando et al., 2007; Ayo-Yusuf & Szymanski, 2010).

Exercise and sports participation have been linked to lower levels of nicotine, alcohol and recreational drug use in young people, fostering better lifestyle habits, with the additional psychosocial gains of group participation (Terry-McElrath, O'Malley, & Johnston, 2010). In a study on college students with problem drinking behaviour, exercise was successful as in intervention in reducing drinking and maintaining reduction or abstinence (Weinstock et al., 2014). The success may be attributed to the fact that often students do not recognise that they need help and, because traditional intervention methods may be stigmatising, the use of exercise as an intervention was more socially acceptable (Weinstock et al., 2014).

Self-regulation as it pertains to the ability to plan one's own future and control one's own behaviour increases throughout childhood and early adolescence, reaching stable adult norms by late adolescence and is critical for dealing with increased risk during early adulthood (Brown et al., 2008). Self-regulation, self-efficacy and the ability to resist peer pressure, are negatively associated with alcohol use and smoking in adolescence, as is

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

parental involvement and a supportive social environment (Ando et al., 2007; Brown et al., 2008).

3.2.3.3.2 Illegal substance use. Part of the problem with the use of alcohol is that it may also be a way of reducing resistance to other substances, most notably cannabis, especially during adolescence when young people are most vulnerable (Winters & Lee, 2008). The active component of cannabis, delta-9 tetrahydrocannabinol (THC), has a long half-life and wide neurological effects (Hooper, Woolley, & De Bellis, 2014). Lower academic achievement and lower overall neurocognitive function is positively associated with younger onset of use and longer term use of cannabis (Hooper et al., 2014). In the US, the peak of cannabis misuse appears to be around 14-15 years of age with those from lower socioeconomic backgrounds being more vulnerable (Winters & Lee, 2008). This is borne out by a Canadian study with similar findings; however, cannabis use was found to be more gender specific with boys more influenced by socioeconomic background and minority population status and girls by lower academic success and mental wellness disorders (Tu, Ratner, & Johnson, 2008). Early onset of both alcohol and cannabis use paves the way for later substance use disorders (Winters & Lee, 2008). The total number of hospitalisations for drug overdose alone and for joint drug and alcohol overdoses among US adolescents, has risen substantially over the period from 1999-2008 (White et al., 2011). Overdoses of drugs, combined with alcohol, occur in one in five cases of drug overdose are particularly dangerous and have a serious negative impact on brain stem cells, which could result in death (White et al., 2011). Targeting alcohol intake could therefore lead to a reduction in drug abuse and at least lessen the severity of neurological damage. In the study conducted by Hooper et al. it was found that neurocognitive function and academic achievement has the potential to rebound after a 30 day complete abstinence from cannabis (Hooper et al., 2014).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

After cannabis, methamphetamine (known in South Africa as Tik) is possibly the next most widespread drug in use during adolescence, which in the US has reached epidemic proportions (Rusyniak, 2011). This used to be an over the counter pharmaceutical drug in bronchodilators, slimming tablets and drugs used to treat narcolepsy and its popularity derives from the fact that users do not feel the need to sleep or eat (Rusyniak, 2011). Crystal methamphetamine can now be manufactured from a range of easily obtainable over the counter substances and its use and abuse has become a global concern due to the devastating neurological effects on the central nervous system (Rusyniak, 2011). Such effects include an impaired ability to experience pleasure, slipping into deep depression, and impaired executive function, which leads to impulsivity and inability to react appropriately to social cues (Rusyniak, 2011). Damage to episodic memory and fine motor function can also occur with methamphetamine drug use and in the extreme inability to communicate verbally and impaired dexterity may occur (Rusyniak, 2011).

The importance of abstaining from alcohol and drug use during adolescence cannot be underestimated, considering the consequences of these behaviours occurring during pregnancy, which could result in life-long damage to offspring (Piper, Gray, Corbett, Birkett, & Raber, 2014). A study conducted on children and adolescents who were taken into care after pre-natal exposure to alcohol, nicotine and methamphetamine drug use, found that there were higher rates of academic difficulties (Piper et al., 2014). Additionally, there was a decrease in attention span and the youngsters were behind their classmates in maths and reading (Piper et al., 2014).

Alcohol and drug use in South Africa has become an ever increasing problem highlighted in the 1994 presidential speech; by 1999 the unacceptable increase in drug use gave rise to the National Drug Master Plan (Peltzer, Ramlagan, Johnson, & Phaswana-Mafuya, 2010). Drug use appears to correlate strongly with rapid modernisation, urbanisation

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

and the decline of traditional and family social structures and values (Peltzer et al., 2010).

The current use of cannabis in the South African population is estimated at between 2% and 9% of the population, with the highest rates being in the urban areas of Gauteng and Cape Town (Peltzer et al., 2010). Inhalants (including Tik) account for between 0.2% and 11% of illegal drug use (Peltzer et al., 2010). The primary substance of abuse at admission to treatment centres in South Africa is currently alcohol, followed by cannabis and Tik, and there is a steady increase in treatment demand for those under 22 years of age (Peltzer et al., 2010). The most common reasons given by young people for using drugs, those of mood-changing and coping, along with insomnia and lack of energy, may also provide the clue to their discontinued use and the rehabilitation of users (Peltzer et al., 2010). Programmes that focus on coping skills and positive enhancement of personal skills, as well as physical wellness and team building, may stand a better chance of success (Nothwehr et al., 2013; Super et al., 2014). As it appears that this lack of coping skills and the perceived enhancement of mood that is often the initiator of substance abuse it is perhaps the issues of mental wellness and positive affect that requires attention.

3.2.3.3.3 Mental health and development. Mental well-being is a fundamental concept of the WHO definition of health (World Health Organisation, 2013a). Good mental health is the right of all people and enables people to realise their full potential, cope with normal levels of daily stress, work productively and make a meaningful contribution to society (World Health Organisation, 2013a). The WHO action plan intends to bring to the fore and focus on the mental disorders which carry a higher burden of disease; these include depression, anxiety and behavioural and developmental disorders which generally begin during childhood and adolescence (World Health Organisation, 2013a).

Depression is a problem that is often referred to as ‘the common cold’ of mental illness and which will affect one in four people at some point in their lives (World Health

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Organisation, 2013a). Adolescent depression has been found to have a range of adverse outcomes, including that of incomplete education (Jonsson et al., 2010). Psychological distress impacts on the ability to learn and may underlie poor academic performance at the end of secondary education (Rothon et al., 2009). This, in turn, will negatively impact on the ability to enter or succeed in the tertiary education environment, which subsequently affects life's opportunities as a whole for these students (Rothon et al., 2009). Depression has a strong impact on both the ability to learn and the quality of life at university (Ibrahim, Kelly, & Glazebrook, 2013). A study on higher education students in the UK found that more than half of these students experienced depression at some point in their academic life (Ibrahim et al., 2013). Students from disadvantaged and lower socioeconomic backgrounds were more likely to be affected by depression than those who were from a more educated and/or affluent background (Ibrahim et al., 2013). In the final analysis, however, it was found that the locus of control played a major role in whether or not a student suffered from depression and disadvantaged students who felt more in control of their lives were less affected (Ibrahim et al., 2013).

Adolescents who are excluded from mainstream education may have mental wellness challenges, not the least of which is depression (Fleming, Dixon, Frampton, & Merry, 2012). For a group of such young people, who were excluded from the mainstream education system, a home based alternative education programme whilst undergoing on-line cognitive behavioural therapy, was found to be successful (Fleming et al., 2012). Such programmes, however, are not desirable as they keep students from developing socially; they are simply a short-term alternative until students can return to their normal educational environment. If this educational normality is not restored, the consequences for higher education may also be compromised (Jonsson et al., 2010). A Swedish study found that among 16-17 year olds who suffered from depression, many had still not completed any form of higher education by age

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

30; the impact of early depression appeared to be worse for male than for female students (Jonsson et al., 2010).

Often the inability to adjust to a higher level of academic expectations begins during the school years, with many children failing to make the transition from primary to secondary education, let alone meet the expectations of tertiary education (Skre et al., 2013; Vaz, Parsons, Falkmer, Passmore, & Falkmer, 2014). An Australian study found that children with any form of disability, even if this was not a mental wellness problem, had lower academic competence scores in the first year of secondary education; however, those with poor mental health function fared badly with respect to academic competency (Vaz et al., 2014). Such children are at higher risk for other psychosocial problems and these may accumulate if not dealt with at an early stage (Vaz et al., 2014).

Starting university is another transition, which is socially and psychologically challenging (Deasy et al., 2014; Flueckiger, Lieb, Meyer, & Mata, 2014). Although many young people who go to college or university follow a structured application and orientation programme, they nevertheless have problems coping both socially and academically (Kogan, Brody, & Chen, 2011; Stallman, 2011; Welle & Graf, 2011). The university years are often the most demanding for young people and, across the board, approximately a third of students leave without a degree (Flueckiger et al., 2014; Kogan et al., 2011). When student problems of depression, anxiety and inability to manage stress are allowed to continue unattended, they may affect both academic competency at the tertiary educational level and the professional life beyond university (Walkiewicz, Tartas, Majkowicz, & Budzinski, 2012). Students who find themselves in a situation that deems to be hopeless, with diminishing family support and the inability to be self-reliant, often externalise their feelings inappropriately with anger, rule-breaking and substance use, placing them at high risk for academic failure (Kogan et al., 2011). In a protracted study conducted on medical students from their admission to university

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

second year through to their fourth year of professional practice, it was found that anxiety and depression in university, later impacted negatively on both professional competence and job satisfaction (Walkiewicz et al., 2012). It is therefore vital that health behaviour, which increases student achievement is identified and supported (Flueckiger et al., 2014).

Stress has much to answer for in the rising tide of mental illness, yet it often goes unacknowledged, particularly in children and adolescents, as they are at a stage in life often depicted as being 'carefree and happy' (World Health Organisation, 2013a). One major source of stress among students is time management and there is a tendency to allocate more time to academic studies in order to reduce the academic stress (Mirzaei, 2012). The perception among students is that they will succeed if they work harder; however, better time management and a more balanced academic life that includes other health-related and social activities both reduces stress and increases academic success (Mirzaei, 2012). Often stress and the resultant feelings of being overwhelmed and anxious result in insomnia among students (Welle & Graf, 2011). Sleep itself may be exactly what is required to mitigate the stress; in a study conducted on first year university students it was found that there is nothing like a 'good night's sleep' during a stressful examination period (Flueckiger et al., 2014). Sleep quality and maintaining good sleep habits was directly related to reduction of stress, higher levels of emotional affect, better achievement of learning goals and academic success in examinations in these students (Flueckiger et al., 2014). The same study found that exercise did not influence emotional affect and learning goals to the same extent but did mediate against negative affect and stress (Flueckiger et al., 2014). This may be due, in part, to the effect of being outdoors and 'greenspace', which has been connected with lowering levels of stress, anxiety and depression as well as improving levels of cognition and attention span (Pearson & Craig, 2014).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Traditionally the health care professionals have focussed on treatment for mental wellness disorders as well as anxiety, stress and depression and there are a number of counselling, cognitive behavioural and problem-solving therapeutic programmes as well as medication (Bolier et al., 2013). Prevention programmes have not been the traditional focus of the health care profession; however, mental well-being and positive function are at the core of good mental health as defined by the WHO (Bolier et al., 2013). Positive psychology that raises awareness of positive feelings focuses on positive behaviour and, recognising what is going well in life, has been found to enhance both subjective and psychological well-being and reduce depressive symptoms (Bolier et al., 2013).

3.2.3.3.4 Emotional wellness and affect. A positive family environment may also play a role in the academic and later life success of young people (Melby, Conger, Fang, Wickrama, & Conger, 2008). A study found that, although family income and occupational pride had a statistically significant effect on the academic trajectory of offspring, so did family support and positive sibling relationships (Melby et al., 2008). Whilst this may well get one's offspring into college, it may or may not keep them there. The experience of first year students often determines the outcome of the academic career as a whole and is therefore an important component of overall life success (Zhou et al., 2015). Creating a positive first year experience at college or university is therefore paramount and having a high academic and social self-concept, as well as being engaged with college life, has been found to increase academic success in Chinese medical students (Zhou et al., 2015). Self-concept is defined by an individual's perception that they have the ability to succeed as well as their level of self-confidence and, as they succeed, then a higher level of self-concept is built in an upward spiral (Zhou et al., 2015). Although the family environment is important in the initial formation of self-concept, a socially complex and active learning environment alongside the influence of teachers and peers has been found to impact more on student's self-concept and

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

success (Zhou et al., 2015). Zhou et al. maintain that self-concept in itself, is a marker of successful academic adjustment and if the individual does not find it in the academic environment it may be sought elsewhere, indicating that there is a need to be mindful of this in creating a suitable environment for students (Zhou et al., 2015).

To this end, friendships can work for or against the individual, creating a positive outcome if the right kind of peer interaction prevails. Kogan et al. identified older mentor-friendships as beneficial for young people entering the first year of college or the workplace; for having a mentor-friend, they were less inclined to externalise their problems and more inclined to discuss methods of coping (Kogan et al., 2011). In a study on minority Latino students in the US it was found that, despite backgrounds of low socioeconomic status and a history of low achievement, those that made friends with higher-achieving students whose parents were better educated had a greater chance of academic success (Riegle-Crumb & Callahan, 2009).

A study on young college women found that those that suffered from negative emotional states, were angry, anxious or depressed, were more likely to be subject to abuse and victimisation (Kaukinen, 2014). This is supported by a Canadian study which found that sexual assault and victimisation is particularly high for first-year university women, especially those who had been victimised as children and had a low sense of self-esteem (Senn et al., 2014). Victimisation and assault are likely to lead to poor academic outcomes and a higher chance of attrition (Kaukinen, 2014). Social support and a stable family environment may play a protective role for young college women in avoiding victimisation and date-related violence helping them to form the right kind of intimate relationships (Kaukinen, 2014). Creating and maintaining appropriate and supportive friendships is more likely to happen when the friendship is based on compassionate goals, without either party losing their sense of self and the belief that differences can be resolved (Canevello &

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Crocker, 2010, 2011). This type of behaviour, however, relies on each party recognising the other's emotional state. It has been noted that often women who are victimised, do not always recognise the cues that precede abuse, due to lack of cognisance and emotional intelligence (Senn et al., 2014).

Emotional intelligence was first identified as a personality trait in the 1990s and was often described as a form of 'social intelligence' (Romanelli et al., 2006). Emotional intelligence involves the ability to monitor and discern the nature of both one's own and other people's emotions and to use this information to make decisions and take appropriate actions (Hen & Goroshit, 2014; Romanelli et al., 2006). It appears that emotional intelligence may be used to keep an individual safe from harm and a higher level of emotional intelligence, has been correlated with better academic performance, over and above what would be expected from general intelligence (Romanelli et al., 2006). Students with higher levels of emotional intelligence are found to procrastinate less and to have higher levels of self-directed learning and academic self-sufficiency, whilst students with learning difficulties tend to have lower levels of emotional intelligence and higher levels of academic stress (Hen & Goroshit, 2014).

A study conducted on first-year nursing students found a significant correlation between levels of emotional intelligence and critical thinking skills, the ability to seek assistance when required and engage in peer learning (Fernandez, Salamonson, & Griffiths, 2012). An awareness and understanding of their own emotions was found to be predictive of academic success in these nursing students, possibly because they had the ability to think more expansively about their chosen subjects and future career (Fernandez et al., 2012). Similar findings were recorded in a further study, in which emotional intelligence correlated significantly with continuous assessment grade point average scores in nursing students (Codier & Odell, 2014).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

In a commentary on Fernandez et al., Gratrix argued that those who choose the caring and service professions may have a higher degree of emotional intelligence that drives their choices of study and future career, in particular, nursing and health care, as these are the ‘compassionate and caring professions’ (Gratrix, 2014). This may suggest that the higher emotional intelligence scores are due to personality and career choice and, if so, would be found across the board, regardless of academic success or failure. This was not found to be the case, however, in a group of orthopaedic surgery residents who demonstrated relatively low levels of emotional intelligence, despite having succeeded through medical school (Chan, Petrisor, & Bhandari, 2014). A further study on first-year medical graduate residents found that their emotional intelligence was no different from the rest of the general population sample (McKinley et al., 2015).

In the end, how one feels about oneself may be the ultimate deciding factor in determining positive affect, academic success and health and well-being (Rivas-Drake et al., 2014). In a meta-analysis of a number of studies of psychosocial wellness, academic outcomes, health and happiness was conducted it was found that, in an increasingly multi-cultural and multi-ethnic environment, being happy with one’s own ethnic origin, colour and culture played a major role in academic achievement, academic attitude, overall positive affect and health risk outcomes (Rivas-Drake et al., 2014).

3.1.4 Wellness promotion and academic success. Whilst health as a pre-condition for development has received much attention in the attempt to achieve the MDGs set by the WHO, there has been less of a focus on health improvement as an outcome of development (Dora et al., 2015). Sustainable development policies that decrease pollution, increase resilience to environmental change, increase agricultural production and access to water, sanitation and power, have ancillary benefits to health, which in turn decrease health inequity and health-related risks (Dora et al., 2015). Such health benefits then impact further on

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

education and foster future development, thus contributing to the reversal of ill-health and, potentially, to the increase in overall sustainable economic stability and security (Dora et al., 2015).

There are few studies to date on the impact of overall wellness on academic outcomes in higher education students; however, those that are available highlight the importance of increasing wellness, especially in disadvantaged populations. Poor health in childhood and adolescence translates into a two-fold disadvantage. On the one hand, frequent absence from school due to illness may result in lower educational and social participation, translating into lower marks, inability to catch up to the rest of the class and ultimate attrition from the educational system (M. I. Jackson, 2009). Insufficient social skills and the inability to gain access to further education may also be a consequence of poor school attendance (M. I. Jackson, 2009). On the other hand, poor health and, in particular, poor nutrition may result in lower cognitive ability even without missed school days, resulting in poor academic performance (M. I. Jackson, 2009). Both routes independently result in lower educational attainment and a concomitant reduction in further opportunities for socioeconomic and educational advancement (M. I. Jackson, 2009).

Conversely to the above scenario, those who manage to attain a better education attain a better socioeconomic status and consequently better health due to improved working conditions, access to health insurance, improved housing and an overall better standard of living (Kestilä et al., 2009). Those with a better education and higher socioeconomic status often make better lifestyle choices which, in themselves, translate into better health (Kestilä et al., 2009). Putting a spanner in the works of a downward spiral may mitigate the negative effects of socioeconomic status, poor health and lack of development opportunities. In effect, an intervention that reverses this trend, or at least mitigates its consequences, may have some import. One aspect of education that is presently coming to the fore is that of health literacy,

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

with its ability to impart wellness values by creating a better understanding of wellness and health-related issues.

3.2.4.1 Health literacy and wellness values. Health promotion campaigns may fail due to the low level of literacy, low qualifications and low level of understanding of the recipients (Rowlands & Nutbeam, 2013). There is a strong association between low levels of education low levels of literacy and poor health (Van der Heide et al., 2013). Health literacy programmes can act as an intermediary that compensates for lower levels of education and low levels of literacy by promoting the understanding of health terminology and health-related self-care and lifestyle modifiers (Rowlands & Nutbeam, 2013; Van der Heide et al., 2013). The term ‘health literacy’ is commonly used in the US to describe a set of literacy capacities that act as a mediator in an individual’s understanding of health and aid in health-related decision-making (Fetro, 2010; Rowlands & Nutbeam, 2013). Whereas in other parts of the world, health literacy has a more positive connotation in that it represents a set of cognitive and social skills that can be educationally developed and targeted specifically to the healthcare consumer (Rowlands & Nutbeam, 2013). It is this second definition of health literacy that applies more to the programme under evaluation in this research. In the light of this understanding of health literacy, the purpose is to educate the recipient sufficiently for them to understand not only the wellness terminology, but also the purpose of understanding the terminology, in order to promote the value of the information and, ultimately, action health improvement.

Health literacy is emerging as an important factor in wellness (Rowlands & Nutbeam, 2013). Initiatives in the UK to develop health literacy skills have been met with enthusiasm in disadvantaged communities and have demonstrated increases in both learner knowledge and healthy lifestyle choices (Rowlands & Nutbeam, 2013). Health literacy skills are an important asset in either maintaining or improving the health of an individual and, ultimately, a

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

community (Furuya, Kondo, Yamagata, & Hashimoto, 2013; Van der Heide et al., 2013).

Furuya et al. found that levels of health literacy are generally higher in those who are younger and possess a better education, whilst those from socioeconomically deprived backgrounds may be more compromised with respect to both health literacy and health in general (Furuya et al., 2013). Health literacy has been found to be a mediator between education and health (Van der Heide et al., 2013). This is the first step in building health knowledge, which translates into health values and, ultimately, appropriate decisions and actions (Van der Heide et al., 2013). The study conducted by van der Heide et al. found that those with lower educational status had the most to gain and benefitted the most from a health literacy programme (Van der Heide et al., 2013).

Health literacy has gained ascendancy of late and, particularly since 2008, has become a 'buzzword' in some health education quarters (Fetro, 2010). Despite the recent focus on health literacy, there has been no clear idea of how to measure results (McCormack, Haun, Sorensen, & Valerio, 2013). No particular instruments of measurement or methods of measurement have been developed that are universal or generic enough to be recognised and applied across the board (McCormack et al., 2013). A number of countries and institutions have made an attempt at measuring health literacy as is appropriate to their situation (Osborne, Batterham, Elsworth, Hawkins, & Buchbinder, 2013; Reavley, Morgan, & Jorm, 2014; Stagliano & Wallace, 2013; Wangdahl & Martensson, 2014). McCormack et al. advance five recommendations for promoting the measurement, evaluation and recognition of health literacy: Develop a unified conceptual framework; use the measurement knowledge we have gained to date; test the frameworks and measures using robust research methods; use a tiered approach and finally, advocate for ongoing research (McCormack et al., 2013).

Fetro believes that health literacy is a human right and should be automatically incorporated into the education system (Fetro, 2010). Whilst there may be many who agree

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

with this sentiment, including health care professionals, not all are optimistic (Logan, 2007). There appear to be three schools of thought as to where and how to institute health literacy programmes (Logan, 2007). Whilst many support year 12 life skills classes, or the equivalent, others feel it is the domain of the provider–patient relationship, whilst the third school of thought supports individual personal education through informal settings (Logan, 2007). In support of the ‘human right to education’ viewpoint, a number of health literacy intervention programmes have been instituted in the education setting, albeit optional ones (Weinstein, Graham, Erps, & Lopez, 2013). Some are designed to address specific health-related issues of concern, whilst others have been developed for and within a specific community of need. Secondary education in South Africa includes life skills classes, which predominantly focus on outcomes-based educational competencies for interpersonal relations; (including the avoidance of sexually transmitted disease and HIV), decision-making, critical thinking and coping strategies (Lai et al., 2013).

Children and adolescents from disadvantaged and complex social backgrounds with multiple needs are unlikely to seek help unaided, especially concerning mental wellness challenges (Eapen, Lee, & Austin, 2012). Accessing information and services can be daunting for both students and parents, even when they can overcome the stigma attached to mental health (Eapen et al., 2012). Advocates of health promotion in schools have argued that the educational setting provides an ideal opportunity for both health literacy and health service interface (Eapen et al., 2012; Weinstein et al., 2013). Mental health literacy is designed to bring about both knowledge of mental health disorders as well as how to help oneself and access professional help, if needed (Skre et al., 2013). The purpose of instituting a mental health literacy programme is for young people to be able to make a direct connection between knowledge about, and their attitude towards, mental health and mental health problems (Skre et al., 2013). The Hill Top School Project is an Australian project that

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

managed to institute both mental health literacy and a mental health referral service in the school setting which was successful in achieving both better mental health and improved learning outcomes (Eapen et al., 2012). As highlighted previously in this chapter, depression is a major problem among young people and a barrier to effective learning (Loureiro et al., 2013). A programme that engaged Portuguese youth with respect to depression and its recognition and prevention found that young people are willing to engage in and advocate for a mental wellness health literacy programme (Loureiro et al., 2013).

Individual health literacy is an established predictor of individual health outcomes (Fetro, 2010; Rowlands & Nutbeam, 2013; Sentell, Zhang, Davis, Baker, & Braun, 2014). At the individual level Ferguson defines health literacy as the level of intelligence and communication skills that a person must have in order to make informed decisions regarding what is best for them, with respect to their health care (R. P. Ferguson, 2013). Community interventions that improve the community level of health literacy may impact on both community and individual health (Sentell et al., 2014). A study conducted in Hawaii suggested that low levels of both community and individual health literacy translated into poor individual self-reported health status (Sentell et al., 2014). When community health literacy interventions were instituted, not only community, but also individual self-reported health status improved (Sentell et al., 2014).

A major concern of the health-care professions is the unintentional non-adherence to medication and/or personal health care regimes (Bailey, Oramasionwu, & Wolf, 2013). Even in populations that carry health insurance and have multiple beneficial options for both health care and maintenance of wellness, low levels of health literacy may prevent people from utilising what is available to them (Fincham, 2013). Health literacy is essential for people to understand exactly what they are taking in the way of medication and why they need to take medication, or to adhere to a wellness programme, too often not thought to be important

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

(Bailey, Oramasionwu, et al., 2013; Fincham, 2013; Kalichman et al., 2013). Understanding the terminology and terms of reference of a wellness programme that includes medication is not only important for the individual but also for communities (Bailey, McCormack, Rush, & Paasche-Orlow, 2013; Bailey, Oramasionwu, et al., 2013). An understanding of the nature of communicable disease and the importance of the treatment programme is especially pertinent in communities affected by Tuberculosis and HIV, due to the high risk of drug-resistant strains of disease (Bailey, Oramasionwu, et al., 2013; Kalichman et al., 2013). In an effort to reduce the attrition in antiretroviral (ARV) medication roll-outs a health literacy and treatment counselling programme was concomitantly instituted for patients with lower literacy and lower education levels (Kalichman et al., 2013). It was found that those that received the educational intervention had far greater adherence to medication and lifestyle management and, ultimately, far lower viral loads than those who did not (Kalichman et al., 2013).

Ultimately health literacy has to be translated into a value for health information and for health itself, which should precede, or run concurrently with, the process of further health education (Fetro, 2010; E. S. Jackson, Tucker, & Herman, 2007). A literature search for health values and health information values among young people in the education system turned up few results and the quantification of health values remains elusive. In the opinion of Hochbaum, wellness values and wellness information are developed throughout life and depend heavily on early life experiences, during which the child receives information which shapes behaviour, but which may not necessarily be underpinned by reason (Hochbaum, 2010). Changing health behaviour that may have been developed through a reward and punishment process is less than easy (Hochbaum, 2010). As young people mature and enter the higher education system, reason underpins the information they receive; however, there will always be the challenge of changing because of reasoning or continuing with learned

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

behaviour (Hochbaum, 2010). One study found that, as college students mature and become more self-sufficient, a health promoting lifestyle intervention may build upon the value of health and information they receive is used to improve actual health and lifestyle, which is implicated in many of the studies reviewed in this chapter (E. S. Jackson et al., 2007).

The theory of planned behaviour takes the stance that once the individual has the information they require to make a positive change, in which they perceive a value, then behaviour moves from being random to being planned and ultimately becomes a habit (Hyun, Min, & Kyung, 2015). Habit strength is important for the entrenchment of health promoting behaviour, such as exercise (Maher & Conroy, 2015). The formation of habits that come from knowledge and reason have a far greater chance of becoming entrenched (Brand & Schweizer, 2015; Maher & Conroy, 2015). There is nevertheless the situational impulsivity to contend with, especially when suddenly faced with an equally or even more pleasant alternative (Brand & Schweizer, 2015). Students who were offered a choice between going to the gym and going to the movies were more likely to go to the movies, even if they had previously planned a gym session (Brand & Schweizer, 2015). Habit strength may well have a strong influence on an already entrenched behaviour, such as physical activity; however, for those who are instituting change, action planning may be a useful tool, where the habit is not yet fully entrenched (Maher & Conroy, 2015). This may not have any success, however, in instituting a new habit, such as exercise, if sedentary behaviour has been the long term norm (Maher & Conroy, 2015). Whereas the value for health and exercise as well as the information with which to make a decision may be entrenched, resolve, is another matter entirely and, like the locus of control, has to come from within (Brand & Schweizer, 2015).

An investigation into the use of nutrition labels by Korean college students revealed that, given sufficient information on nutrition with which to make an informed decision, students chose to take cognisance of nutrition labels in planning their food intake (Hyun et

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

al., 2015). Two factors that were prominent in those who chose to use nutrition labels in making their food choices were confidence in understanding the nutrition information and locus of control (Hyun et al., 2015). As implicated by Fetro (2010) and the American Association of Health Education (2010), changes in planned behaviour are more likely to take place if the health literacy programme is entwined with an active health education, lifestyle management or wellness promotion, programme.

One health value that does seem to be predominant is that of self-esteem (Bushman, Moeller, & Crocker, 2012). Over the years there appears to be a change in the way that young people view themselves and self-esteem rates higher than other rewards, such as favourite foods, sex, alcohol, receiving money or seeing friends (Bushman et al., 2012). The benefit of self-esteem could potentially be used to encourage health-enhancing behaviour (Bushman et al., 2012). Care needs to be taken with this approach as too much emphasis on self-esteem can also lead to self-deception, which over the longer term can lead to additional problems of not accepting reality, or even cheating, to gain esteem-boosting rewards (Chance, Norton, Gino, & Ariely, 2011).

3.2.4.2 Wellness promotion and educational intervention. The American Association of Health Education (AAHE) issued a statement that gave cognisance to both the complexity of an individual's health and their right to health education. People are multidimensional, they do not just consist of a body, or 'body, mind and spirit', but exist as complex interactive and interrelated components of physical, intellectual, emotional, spiritual and socially functioning entities (AAHE, 2010). Neither are individuals passive participants in a static wellness paradigm but actively participate in the evolving wellness process (AAHE, 2010). Good health requires an active and positive effort directed toward total well-being of the whole person, by and large, efforts have larger potential for success when operating within a system that values individual, family and societal well-being (AAHE, 2010). Education in

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

health helps individuals and communities seek out appropriate wellness and lifestyle options that move them toward optimal wellness, thereby overcoming the debilitating effects of economic deprivation, the lack of balance, disease and deprivations of life (AAHE, 2010).

The ultimate goal of health education is to enable individuals to use knowledge in ways that transform unhealthy habits into healthy habits (AAHE, 2010). They are, however, not expected necessarily to do this alone (AAHE, 2010). The objective for health education is to provide learners with the skills to judge the health-related messages they receive in terms of their potential benefit and to reach beyond health as an end, thereby utilising health enhancing skills as a means for achieving their life goals (AAHE, 2010).

A systematic review of studies conducted on very young pre-school children and their parents with obesity and disease prevention in mind, that was based on either education, physical activity, or both education and physical activity was disappointing (Monasta et al., 2011). It was found that over the longer term Body Mass Index (BMI) taken at 5, 10 or 13 years of age remained, for the main part, unaffected (Monasta et al., 2011). The authors of the study conceded that perhaps BMI had not been the best outcome measurement and that education, which did not take into consideration cultural, social or economic factors, may also not be very effective (Monasta et al., 2011). Another study conducted with respect to a more holistic approach with obese Latino adolescents had a very different outcome; however, BMI was not so much the focus as an overall change in wellness and reduction of risk for metabolic disease (Weigensberg et al., 2014). Results showed that, after a wellness education intervention programme, there were significant improvements in both physical activity and reduction of stress, both protective factors in the risk for metabolic disease (Weigensberg et al., 2014). Other factors not taken into consideration in the review by Monasta et al. (2011) may be those of agency and locus of control.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

In a study conducted in the US, which also aimed at providing education with respect to meal planning and portion control, the concept of hope was brought into play (Nothwehr et al., 2013). The study was conducted in a community primary care setting, amongst a group of residents who were mainly women with either high school or uncompleted high school education (Nothwehr et al., 2013). The authors of this study defined 'hope' as 'a uni-dimensional concept involving the perception that goals can be met' (Nothwehr et al., 2013). This, in turn, involves 'agency' in which the individual feels a sense of successful determination in meeting goals and that there are specific pathways to success (Nothwehr et al., 2013). There was a direct and strongly positive association between the number of behavioural strategies used to improve diet and the measure of 'hope' (Nothwehr et al., 2013).

Peer education may have a better impact on cultural minority groups, as the peer educators have a better understanding of the cultural and social anomalies of that particular sector of the population. In a number of studies conducted among Latino Americans, the impact of peer education on behaviour change and nutritional outcomes was quite positive, especially with respect to diabetes education and improvement of nutritional intake overall (Pérez-Escamilla, Hromi-Fiedler, Vega-López, Bermúdez-Millán, & Segura-Pérez, 2008). Among the reasons given for the success was the fact that information given by older, female members of a community with social work and/or education experience may be more culturally acceptable (Pérez-Escamilla et al., 2008).

Enhancing the social and emotional skills of young people is also an important factor in overall wellness and academic success (Sancassiani et al., 2015). In a review of studies on school-based promotion of mental wellness Sancassiani et al. found a need to go beyond the traditional problem-based approach (Sancassiani et al., 2015). Interventions that embraced a positive focus on building inherent social and psychological skills would make a better

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

contribution to growth and development (Sancassiani et al., 2015). This is in keeping with the salutogenic approach taken by Antonovsky and, more recently, by Becker (Antonovsky, 1990; Becker et al., 2010). Sancassiani et al. recommended a sequenced whole-school approach to mental wellness that implements a stepped, focussed and explicit wellness education programme (Sancassiani et al., 2015).

The goal of a healthy lifestyle course in the undergraduate setting is to build fundamental health literacy and health awareness skills, whilst promoting and supporting voluntary and positive health behaviour change (Ansari & Stock, 2010; Brookins-Fisher et al., 2010). Today's higher education students are at a turbulent time of their lives when they are often in the process of re-evaluating their self-concept, which may involve either constructive or destructive behaviour (Brookins-Fisher et al., 2010). A healthy lifestyle course embedded into the undergraduate curriculum which focuses on physical, social, environmental, intellectual and spiritual wellness can be an effective method of promoting wellness in this particular age group (Brookins-Fisher et al., 2010). This not only builds knowledge with respect to health-related lifestyle choices but also provides skills and motivation for change which are important determinants of a successful outcome and life-long health maintenance (Brookins-Fisher et al., 2010). The successful integration of a lifestyle education programme into the mainstream curriculum of Pennsylvania State University followed several other university initiatives to build health education and wellness promotion programmes into their existing curriculum (Brookins-Fisher et al., 2010). Students were assessed with respect to two tasks: A behaviour modification plan and a wellness portfolio which included a health profile questionnaire (Brookins-Fisher et al., 2010). The results of this endeavour found that students grasped the idea of wellness being multi-dimensional committed to making a personal change in health behaviour and managed effectively to plan the desired change (Brookins-Fisher et al., 2010).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

In Australia, a positively focussed resilience building programme was built into the main college curriculum. This focussed on overall wellbeing and stress reduction in college students (Stallman, 2011). The course received high satisfaction scores and 90% of the students found that at least one of the six modules was useful to them. The satisfaction and increase in knowledge translated into at least one self-reported positive lifestyle change (Stallman, 2011).

The most comprehensive review, to date, that linked a health awareness education programme with subsequent health behaviour, subjective health status, satisfaction with their education experience and their academic results was conducted among university students in the UK (Ansari & Stock, 2010). This study appeared to be the first to identify formally the interconnection between educational satisfaction, health and academic performance, among university students (Ansari & Stock, 2010). The findings of the study indicated that, whilst most students were happy with their educational experience of the health awareness module, this had no bearing on their actual academic marks (Ansari & Stock, 2010). Three aspects of academic success were measured, those of importance placed on obtaining good grades, performance compared to other students and actual academic marks (Ansari & Stock, 2010). It was found that health behaviour and subjective health scores were associated with higher academic marks and performance that was generally better than peer performance (Ansari & Stock, 2010).

A further study conducted across seven universities in the UK found that students have a higher number of stress and health concerns than the general population but do not always seek assistance (Ansari et al., 2011). It was felt that a health education programme in university was a vital part of the students' well-being and therefore their education and ultimate success (Ansari et al., 2011). Students who took part in this study reported high levels of health awareness (85% for females and 81% for males) and 90% of females, 88% of

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

males reported good, very good or excellent subjective health ratings (Ansari et al., 2011).

Findings in this study appeared to be similar to those in the Europe and the US (Ansari et al., 2011). The second study, however, was not correlated with academic output.

A wellness project developed in Hong Kong focussed on the holistic psychosocial development of college students. The programme contained learning units on interpersonal, intrapersonal, social, behavioural, spiritual, and goal-setting skills (Daniel T. L. Shek et al., 2012). The qualitative evaluation, conducted via the analysis of student diaries found that the intervention was effective in developing resilience, self-efficacy and leadership skills (Daniel T L Shek & Sun, 2012).

3.2 The Impact of Wellness on Education in Southern Africa

Within the Southern African region there has been little research on the impact of health on education, in general, or within the university setting. Adverse effects of ill-health on the development of the population follow similar patterns to other developing and rapidly urbanising countries with respect to obesity, hypertension and CVD as well as risk of early adult onset type 2 diabetes (Delisle et al., 2011; Kengne et al., 2007; Kirigia et al., 2009; Micklesfield et al., 2013; Vorster et al., 2007). Not only are these health-related problems increasing, they are increasingly found in late adolescence and early adulthood (Kengne et al., 2007; Kirigia et al., 2009; Sodjinou et al., 2008; Vorster et al., 2007).

In Southern Africa the health and education system have to contend with both the emerging problems as well as the traditional problems of lack of food security and disparities in access to care (World Health Organisation, 2010a). Additionally, this region has the world's highest degree of infection with HIV and TB, often occurring concurrently (World Health Organisation, 2009). A few isolated studies with respect to the effects of ill-health on education and education interventions to improve health have been conducted, which are discussed in this and the next section of this chapter.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

3.2.1 Adverse effects of ill-health on education. The predominant adverse effect of ill-health on education in Southern Africa concerns the dual burden of HIV and the concurrently rising, opportunistic TB infections (Boutayeb, 2009). Survival to older childhood with vertically acquired HIV infection is rapidly becoming the norm rather than the exception (Ferrand et al., 2010). As these young people progress through the education system, the system itself may find itself ill-prepared for their needs (Ferrand et al., 2010; Pufall et al., 2014). Additionally, these youngsters may have developmental and educational challenges that are unique to their situation (Pufall et al., 2014). The predominant cause of acute hospitalisation among adolescents who were currently attending high school in Harare, Zimbabwe, was found to be HIV related, mainly due to adult-spectrum opportunistic infections (Ferrand et al., 2010). The problem of prolonged and/or frequent hospitalisation of adolescents has obvious implications for completing school and progressing to higher education, a problem which was previously unforeseen due to the expectation of a low survival rate for HIV infected children (Ferrand et al., 2010).

Whilst loss of educational opportunities due to HIV infection are common across southern Africa there is an additional loss of educational years in those who are not infected but are affected due to loss of an HIV infected parent (Pufall et al., 2014). Older adolescents may have to remain in the home to care for sick siblings or parents (Pufall et al., 2014). In Eastern Zimbabwe, more than 90% of adolescents are enrolled in school; however, between 73% and 79% of young people between the ages of 15 and 24 actually completed high school, the attrition being largely due to HIV/AIDS related circumstances (Pufall et al., 2014).

3.2.2 Wellness intervention effects on educational outcomes. As sub-Saharan Africa is still the main hub of new HIV infections, many of the health intervention programmes in the education system have focussed their efforts on HIV infection reduction

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

(Jewkes, 2010). Life skills courses and HIV prevention programmes have been instituted within the education system in a number of countries in the region, however, mainly in the secondary school system (Jewkes, 2010). It was hoped, initially, that these interventions would help to dispel myths, reduce prejudices and increase the level of awareness and self-protection (Jewkes, 2010). The biggest fear was that the health care system would not match up to the new demands placed on it for intervention and treatment (Jewkes, 2010). These fears turned out to be unfounded; however, the interventions were largely unsuccessful, mainly due to flaws in the delivery, power disparities between learners and teachers and inappropriate facilitation (Jewkes, 2010). Programme failures not only failed to address the health-related problems but also did nothing to increase the developmental or educational output (Jewkes, 2010).

Adolescent girls and young women in Southern Africa are particularly vulnerable with respect to HIV infection due, in part, to their being less able to negotiate condom use, male circumcision or monogamy (Dellar, Dlamini, & Abdool Karim, 2015). Although there are a number of educational interventions for HIV prevention, there is little in the way of uniformity or evaluation of these programmes (Dellar et al., 2015). Faith based organisations in Southern Africa are generally well organised, have good communications systems and are trusted by the majority of the population (Mpofu, Nkomazana, Muchado, Togarasei, & Bingenheimer, 2014). As such, faith based organisations may be well placed to deliver health education messages to their congregations (Mpofu et al., 2014).

One beacon of hope was found in Botswana, one of the worst affected areas with respect to HIV infection in Southern Africa (Mpofu et al., 2014). Two Pentecostal church interventions were investigated that combined youth health education with biblical studies, focussing particularly on HIV prevention (Mpofu et al., 2014). Both educational interventions had five key components; those of factual evidence based information, preventative

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

measures, infusion of community norms, biblical teachings and a focus on future wellness (Mpofu et al., 2014). These components, however, were not in equal proportion and a large emphasis was placed on biblical teachings by both the institution and the recipients (Mpofu et al., 2014). Outcomes of the study found that these interventions were especially helpful to younger church members and played a major role in the decrease of new HIV infections (Mpofu et al., 2014). For older youths and those who are already sexually active, the programmes had a lesser positive impact (Mpofu et al., 2014). The authors recommended a greater enhancement of the evidence basis and factual component of these faith-based organisation's health education programmes, but gave credence to the positive involvement to date. (Mpofu et al., 2014).

3.3 The Impact of Wellness on Education in South Africa

South Africa, to a large extent, follows a similar pattern of wellness and educational impact of wellness (or lack thereof) as many other emerging middle income, rapidly urbanising economies (Allender et al., 2010; T. Campbell & Campbell, 2007; C. Day et al., 2014; Delisle et al., 2011; Kahn et al., 2007; Kengne et al., 2007). Non-communicable chronic diseases of lifestyle are on the increase, requiring both national planning and national education interventions (C. Day et al., 2014; De Villiers et al., 2012). In some areas, years of life lost due to preventable lifestyle-related diseases have overtaken those of HIV and TB combined (C. Day et al., 2014). This is especially the case where Antiretroviral therapy has been instituted at relatively early stage and the long-term outcome of the HIV infection is now one of chronic disease management, as opposed to an infection crisis (Degroote, Vogelaers, & Vandijck, 2014). In this emerging scenario, the health-care focus needs to be the long-term maintenance of quality of life (Degroote et al., 2014). Against this background, socio-economic determinants of self-rated health play a major role in South Africa (J M Cramm & Nieboer, 2011). The poorer levels of society have the most to lose with respect to

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

poor levels of health and inadequate education (J M Cramm & Nieboer, 2011; De Villiers et al., 2012). In return, poor levels of education and unemployment contribute to poor health outcomes, thus creating a cycle of poor health, poor education outcomes, ongoing poverty and low standards of living (J M Cramm & Nieboer, 2011).

The opportunity to improve the health of learners may require earlier intervention, especially with respect to nutrition and physical activity (De Villiers et al., 2012). An evaluation of 100 urban and rural primary schools in disadvantaged areas of the Western Cape found that the school environment was not very conducive to health, or the formation of healthy eating habits and adequate exercise among learners or their parents (De Villiers et al., 2012). As nutritional and exercise habits are formed early in life, a missed opportunity will impact later on (De Villiers et al., 2012). Nutritional status of adolescents is of particular concern, as many were born at the end of the apartheid era and suffered nutritional deprivation and food insecurity in the first few years of life, leading to stunting (Kimani-Murage, 2013). In the last few years, urbanisation, better food security and access to Westernised style food outlets, has led to obesity, the combination of these factors increases the risk for early metabolic disease and type 2 diabetes (Kimani-Murage, 2013).

HIV continues to be a problem and ignoring this fact due to other newer chronic disease concerns may reverse the gains made to date, as the country still has a disproportionate number of people infected with, or affected by HIV (HEAIDS, 2012). There are currently around 5.6 million people infected with HIV; however, the country also has the largest ARV rollout and has made the most progress towards reducing new infections within the region. (HEAIDS, 2012). HIV has had an adverse effect on higher education in South Africa, yet higher education also has a role to play in mitigating the damage and making further progress through skills development and research (HEAIDS, 2012). Nutrition and HIV co-impact on one another, for being HIV positive requires better nutritional care.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Conversely, being undernourished, or badly nourished, impacts on the success of HIV treatment (Kimani-Murage, 2013).

Added to these existing concerns in the wellness of young people is the emerging and increasing problem of alcohol consumption amongst the young. Alcohol consumption has been found to increase from a 22% incidence in early adolescence to 66% in late adolescence in Soweto (formerly, the country's largest township and currently a major city in its own right) (Ramsoomar, Morojele, & Norris, 2013). Although alcohol use is more prevalent in young males, it is increasing in females (Ramsoomar et al., 2013). It appears that maternal marital status and years of education are correlated with both alcohol use and remaining in school for adolescents (Ramsoomar et al., 2013). Where the mother is married, has a better education and higher socioeconomic status, the adolescent is more likely to refrain from alcohol use and to remain in the education system (Ramsoomar et al., 2013).

Among the health targets for this country are two that focus specifically on adolescents; the reduction of adolescent overweight and obesity and the increase in physical activity among adolescents (C. Day et al., 2014). As less than 50% of South African adolescents are engaged in moderate to medium levels on physical activity on a daily basis, this problem and its impact on obesity and later metabolic health is of increasing concern (Micklesfield et al., 2014; Monyeki, Neetens, Moss, & Twisk, 2012). HIV education remains on the agenda for higher education intervention for South Africa (HEAIDS, 2012).

3.3.1 The impact of wellness on South African higher education. There is an acknowledged health inequality in South Africa that disadvantages those of lower socioeconomic status (Ataguba et al., 2011). This does not necessarily mean that young people from a lower socioeconomic background, with compromised health, will not enter the South African higher education system. International research has demonstrated that the educational aspirations of adolescents from disadvantaged backgrounds, if accommodated, could

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

compensate over the longer term for the socioeconomic disadvantage (Madarasova Geckova, Tavel, van Dijk, Thomas, & Reijneveld, 2010; Noble & Henderson, 2011). As the socioeconomic status is generally linked to health status and long-term wellness outcomes, providing a means for adolescents to realise their academic aspirations can improve both the socioeconomic standing and the health prospects of a disadvantaged population (Madarasova Geckova et al., 2010; Noble & Henderson, 2011).

The higher education system in South Africa has increasingly attempted to redress the situation with regard to those students from disadvantaged backgrounds that seek to progress their education and improve their future socioeconomic standing (DHET, 2012, 2013). As a result of changes in policy and the introduction of four year extended programmes, many students will enter the system with a double set of challenges, those of educational disadvantage and a concomitant health disadvantage (DHET, 2012).

3.3.2 Wellness promotion in South African higher education. The learner-centred approach to higher education is gaining ascendancy in South Africa, particularly in the higher education sector and, even more importantly, in the new four year programme structure (DHET, 2013). This applies equally to wellness promotion and health education programmes (Brouse et al., 2005; Brown Wright, 2011). There are five basic principles to applying the learner-centred approach: The balance of power is equal, with the lecturer facilitating but recognising that the learner brings knowledge to the classroom; the course content is functional and practically relevant; the teacher is a not only a facilitator of a learning community, but also a part of it; the students take responsibility for their own learning; assessment is mutually agreed upon (Brown Wright, 2011).

There is an acknowledged social class achievement gap, not only in South Africa but across the board in Higher Education (N. M. Stephens, Hamedani, & Destin, 2014). Students whose parents have a higher education, tend to succeed, and those whose parents do not, have

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

a higher attrition rate and a lower chance of academic success (N. M. Stephens et al., 2014). Student preparedness and wellness promotion in institutions of higher education in South Africa has to date focussed on the inclusion of life skills and academic preparedness into the first-year curricula (Snyders et al., 2005; Van Heerden, 2005; Weimann, 2011). These programmes engaged the students in the development of study skills, social skills and academic literacy with the inclusion of some information on health and wellness (Snyders et al., 2005; Van Heerden, 2005; Weimann, 2011). With no disrespect to the authors and their good intentions, however, the student demographics and the student needs have changed; an employer study found that the content was no longer a good fit for young people from disadvantaged backgrounds entering the work integrated learning and student internship environment (Griesel & Parker, 2009; Weimann, 2011). In a study conducted among first time university entrants whose parents did not have a higher education, it was found that academic bridging courses that focussed on study skills were not what the students required (N. M. Stephens et al., 2014). A learner-centred peer-mentorship programme, which was aimed at building psychological resilience, confidence, interpersonal and social skills that supported their personal goals, worked much better in closing the social-academic gap with respect to academic success (N. M. Stephens et al., 2014). This does not mean that student preparedness or academic literacy is not important; however, student wellness requires a holistic, facilitated, learner-centred evidence-based and focussed approach (Cornelius-White, 2007; Gwandure, 2010; Van Lingen et al., 2011). From this perspective, how a programme is taught is of equal importance as to what is taught.

A student-centred learning intervention that placed the locus of control upon the students, with respect to HIV prevention, was conducted among students in the University of Witwatersrand, Gauteng (Gwandure, 2010). The Gwandure study found that there was a significant disparity between knowledge and awareness of HIV/AIDs and the necessary

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

behaviour change required to reduce the risk of infection (Gwandure, 2010). The study found that changing not so much what was delivered in the way of information but the method of delivery (being student-centred) and the locus of control, was key to closing the gap between knowledge and protective, risk reducing behaviour, with respect to HIV (Gwandure, 2010).

3.3.3 Wellness and higher education outcomes in the Eastern Cape. Student-centred holistic learning has become the focus for teaching and learning in an undergraduate nursing course delivered in the Eastern Cape, South Africa (Van Lingen et al., 2011). It is acknowledged that nursing graduates will eventually serve as role models for the wellness of their patients (Van Lingen et al., 2011). As nurses in South Africa have been found to be at higher risk for non-communicable diseases of lifestyle, a study conducted in the Western Cape sought to determine the underlying reasons (Phiri, Draper, Lambert, & Kolbe-Alexander, 2014). The study found that nurses are all too aware of the risks of disease and have a desire to maintain a healthy lifestyle; however, the stressful work environment, shifts and lack of support for a healthy lifestyle were not conducive to wellness in the workplace (Phiri et al., 2014). Phiri et al. maintain that a health promotion programme should support nurses in managing stress (Phiri et al., 2014). Infusing a holistic wellness orientated curriculum design into education in general and nursing in particular, may well serve the South African health and educational requirements better (Griesel & Parker, 2009; Van Lingen et al., 2011). An undergraduate nursing programme in the Eastern Cape that incorporated counselling on wellness, but left the locus of control in the domain of the students, improved student wellness overall (Van Lingen et al., 2011). Additionally, it was found that there were indications that students who had higher wellness scores over the duration of the course also had better academic outcomes (Van Lingen et al., 2011). In this particular group of students, social, emotional and spiritual wellness scores were higher and

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

more indicative of better academic scores than physical and environmental wellness scores (Van Lingen et al., 2011).

As far as the researcher is aware, the Van Lingen et al. (2011) and the Gwandure (2010) studies are the only such learner-centred wellness intervention studies within the higher education sector conducted in the region to date. The current study under evaluation is possibly the only evaluation of a holistic educational lifestyle management/wellness intervention in South Africa so far.

3.4 The Rationale for the Study in Walter Sisulu University

The Millennium Development Goals (MDGs), agreed upon by the United Nations member states are supposed to be met by 2015; however, for most of the lower income developing countries and many of the middle income countries these goals have not been met (Shaikh, 2014). For some lower income states and in some areas of wealthier nations the goals set are unlikely to be met in the near future (Shaikh, 2014). In developing nations and poorer areas of middle income countries, the finance, manpower and technology, required to support a health system that has a disease-focussed approach, is far less than those of developed nations, which have greater resources (Shaikh, 2014). In the opinion of Shaikh, a re-think is perhaps required, especially in respect of health (Shaikh, 2014). Shaikh maintains that a more holistic and decentralised approach to community health may serve to improve well-being sufficiently for it to impact positively on the other MDGs, such as improvement in education, HIV management and the eradication of poverty (Shaikh, 2014). Day et al. contend that, with respect to South Africa, what is needed in order to maintain the goals met so far, and to meet those unmet goals with respect to health, is a post-2015 workable, disease prevention plan (C. Day et al., 2014).

The Eastern Cape Province is the second poorest province in the country; additionally the Wild Coast and surrounding rural area, which is the main catchment area for students

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

attending Walter Sisulu University, is one of the most socioeconomically deprived in the province (Mitchell & Andersson, 2011). Students from this area are less likely to have parents who are educated beyond secondary school, secure or clean water sources, or household food security (Mitchell & Andersson, 2011). Although registered for a food and nutrition oriented programme of study, many students coming from socioeconomically deprived backgrounds relate to food as a measure of security (Labadarios, Mchiza, et al., 2011; Labadarios, Steyn, et al., 2011). These students may have little concept of nutritional impacts on health, or what other components of lifestyle may be involved in maintaining wellness (Kimani-Murage et al., 2012).

In the immediate region of the university water safety is of particular concern, due to the rising problem of informal settlements impacting on the peri-urban and semi-rural areas and the problem of faecal contamination of local water sources (Chigor, Sibanda, & Okoh, 2013). Health disparities are among the widest in the region and, despite government clinic service availability, many cannot access services due to lack of transport and long walking distances (Mitchell & Andersson, 2011). Chigor et al. have called for community health education with respect to use of the local non-tap water sources in the Buffalo River area (Chigor et al., 2013). There is a greater need for both educational and health service / disease prevention redress among this population (Mitchell & Andersson, 2011).

Redress of the disparities in health and education are provided for in Walter Sisulu University under the new DHET provision with respect to four-year extended programmes (DHET, 2012). The course under investigation formed one of three academic enhancement courses in the first-year National Diploma: Consumer Science at WSU in the Eastern Cape (Walter Sisulu University, 2012b). The on-going monitoring and evaluation of health education and wellness promotion programmes can contribute to both the mitigation of health

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

disparities in the region, as well as the implementation of an evidence based holistic education provision (Mata & Davis, 2012).

Consumer science graduates who have experienced a holistic wellness intervention programme may, in turn, provide a source of human resource that can assist further in alleviating the disparities in education and health within the region (Newson et al., 2013). Consumer science has a role to play in promoting appropriate consumer choices, especially with respect to how financial resources are spent and the food choices that the consumer may make (Mittler, Martsof, Telenko, & Scanlon, 2013; Newson et al., 2013). Consumer science graduates form a publicly accessible and, perhaps, less intimidating source of consumer information than a health care professional, especially where the information is linked to products and consumer goods (Mariotti et al., 2010). Consumer science graduates from WSU may provide a useful resource in this disadvantaged area, to both the university with respect to on-going research, and to the community from the university-community engagement perspective (Mittler et al., 2013). In the final analysis health-related messages with respect to nutrition and hygiene may be more acceptable when delivered by an extension educator from the recipients own community (Perkins, Mincemoyer, & Lillehoj, 2006).

In order to provide a means of redress and to address the on-going community wellness needs within this area, the wellness education programme within the university has to be academically sound and educationally and medically effective. The lifestyle management programme that has been integrated into the first-year curriculum of these disadvantaged consumer science students has to address the wellness of the students, as well as the requirements of the broader community in which they will eventually function, in a portable and sustainable manner (Sohoni et al., 2010).

In order to pursue the on-going improvement required of this type of wellness management programme, the learning outcomes of the curriculum, as well as the method of

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

delivery, must be on a par with recent progress in both health and education (Brown Wright, 2011; Butler & Dawkins, 2007). The researcher's intention was to access information that would identify both the quantitative and qualitative impact of this programme, whilst gaining insight into the underpinning reasons for its impact, in order to inform the improvement of the programme over time (Carr et al., 2011). Most meaningful, with respect to the viability of this particular redeveloped course, was the information gathered as to how this programme, and its resulting impact on wellness, affected the academic achievement of the participants. The body of information gathered is intended to inform the viability of wellness programmes within this institution, and to improve upon the development and delivery of holistic lifestyle management education in this particular population group of socioeconomically disadvantaged students.

3.5 Conclusion

Despite extensive searching within the Pub-Med and Chapel-Hill Libraries, as well as EBSCO-Host and Elsevier Science, there were relatively few studies to date on the impact of total wellness on educational outcomes. There were, however, results available from a number of studies on particular aspects of wellness on the educational outcomes of children and, to some extent, on adolescents and adults. These studies focus most notably on the impact of nutrition and physical activity on academic outcomes and school completion. A few studies have been done with respect to the more psychosocial aspects of wellness, in particular, emotional intelligence and overall success in adults. These studies have been discussed in this chapter, mainly in the global, but also the regional and local context, for which there was limited information.

The results of the impact of physical and psychosocial wellness on the outcomes of educational development in the wider context and how opportunities may have been enhanced or compromised due to ill-health has been drawn out. The researcher discussed

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

what has been found with respect to the overall impact of wellness on education globally, which began with the link between economic poverty and poor health. These circumstances, which translate into insufficient education, in turn, leading to the inability to make appropriate health-related decisions, or to improve one's overall health and lifestyle circumstances, were discussed. How education itself impacted on health and how wellness promotion and better health can translate into academic success was reviewed alongside the outcome of studies on the impact of wellness on education within the region.

The impact of wellness within the South African Higher Education context encompasses not only the global patterns of wellness and educational outcomes but also the complicating problems of the HIV/AIDS and TB epidemics seen within South Africa. Additionally, there are complex health-related problems experienced by populations in socioeconomic developmental transition, which applies to Southern Africa in general and South Africa in particular. These issues were discussed before moving on to how this played out in the local arena of the Eastern Cape Province.

In the final part of the literature review the author rationalised the study within the chosen university. The review discussed the intervention in the light of it being both a wellness enhancing intervention and a rational approach to evaluating solutions to the problem of ill-health that impact negatively on the students' academic development.

CHAPTER FOUR

Methodology and Research Methods

The author will first discuss the overall aims, and then the specific and secondary objectives of this study. The theoretical perspective of the intervention and a reiteration of the salutogenic basis for the study will be reviewed. Thereafter the underlying ontological viewpoint of the researcher will be discussed. This will be followed by an in-depth discussion of the research approach taken and the theoretical methods applied, followed by a discussion of the application of these methods, within the context of this study.

The methods and practicalities of the participant selection will be discussed and the demographics of the intervention group of students will be reported. The author will discuss how the collection of data was organised and executed. The development and piloting of questionnaires and the complex issue of organising the collected information into relevant data analysis software programmes will be given. The methods of analysis and how the results were obtained will be dealt with before concluding with the validity and reliability of the methods employed.

4.1 Aim and Objectives of the Study

The aim of this study was to enquire into both **objective and subjective** impacts of a holistic, redeveloped, lifestyle management educational programme (entitled ‘Introduction to Lifestyle Management’) on a group of socioeconomically disadvantaged consumer science students in their first year of study at an institution of Higher Education. The primary objective of the study was to measure the impact and effectiveness of the interactive and holistic ‘Introduction to Lifestyle Management’ education course. This course addressed, specifically, the needs of students from disadvantaged socioeconomic backgrounds, where such information is unlikely to have been made available, or to have been substantially

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

supported, within the home environment. Specific secondary objectives included the following:

- The objective measurement of any change in levels of wellness of the participants.
- The overall impact of the programme on changes in lifestyle management and the reasons for the impact.
- Evaluation, from the perspective of the students, of the educational programme and its areas of success and challenge.
- Comparison (by statistical correlation) of the levels of individual wellness with the level of academic achievement of the participants.

The overarching purpose of the study is to determine both the effectiveness of the programme currently in use for this group of students and to ascertain, ultimately, where and how this programme can be improved. Such decisions can only be made in the light of the evidence emanating from this current piece of research. The results of the measurement of effectiveness will assist in addressing both improvements in the content of the programme, from the perspective of the objective wellness outcomes, and the method of delivery, from the perspective of the participants' experience.

4.2 The Ontological Viewpoint

This study was couched in the framework of Antonovsky's salutogenesis approach to health (Antonovsky, 1990), which provided the theoretical perspective for this pragmatic critical enquiry into the impact of an educational wellness programme on the selected participants. This study is couched in an emancipatory theory, not uncommon in more recent mixed methods research, which involves taking the stance of the minority or lesser advantaged population (Cresswell & Plano-Clark, 2011). The epistemology, which forms a theoretical background to this study, is viewed through the lens of the socioeconomically disadvantaged. Such populations, who are frequently marginalised, are unlikely to have the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

opportunities that the promotion of salutogenic factors would bring, and would not normally be involved in the salutogenic framework of wellness promotion. (Van-Lenthe et al., 2009).

Aaron Antonovsky, a prominent medical sociologist, departed from the normal mode of thinking in the late 1980's and 1990's and proposed that it would be more productive to study wellness and investigate the factors that make people well, as opposed to studying illness and disease (Antonovsky, 1990). Further, in the opinion of Antonovsky, the implementation of salutogenic (wellness promoting) factors would obviate, to an extent, the need for traditional diagnosis and mitigation of disease (Antonovsky, 1990; Eriksson & Lindstrom, 2006; Juvinya-Canal, 2013). Wellness promotion, however, is not a tangible entity that can be utilised as a treatment or therapy. Wellness needs to be developed within an individual or a group of people and that requires, to an extent, an educational intervention (Kobau et al., 2011; LaFontaine et al., 2006; Lelinneth et al., 2006; Lodi-Smith et al., 2010).

The intervention utilised in this study is based on a salutogenic perspective within a holistic lifestyle management educational programme. This programme focuses on the development of underlying personal strengths and takes a positive and supportive approach to facilitating informed decision-making and concordance, with respect to health and wellbeing. These aspects of health promotion have been found to be constructive in maintaining healthy behaviour (Brouse et al., 2005; Carpenter et al., 2010; Ellery, 2007).

In the context of this study the five main aspects of salutogenesis have been applied. The concept of health was defined holistically and applied to physical; career; intellectual; psychological; environmental; social; and spiritual wellness, as opposed to the absence of disease (Becker et al., 2010; World Health Organisation, 2003a). The salutogenic theory of measuring wellness as opposed to taking a medical history was also applied to this study and a validated wellness questionnaire was used to gather data (Eriksson & Lindstrom, 2006; Gradidge & De Jager, 2011). The intervention focussed on building physical and

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

psychological resilience, as well as resistance to stress, and coping skills, which were measured in the data capture and analysis. Physical and psychological wellness have been linked to academic success (Ansari et al., 2011), as has the promotion of psychological well-being and emotional intelligence (Kernan et al., 2008; Romanelli et al., 2006). The focus on an assets based approach to overall wellness enhancement pervaded the entire lifestyle management programme in order to create a culture of physical, environmental, psychosocial and spiritual wellness in the study participants (Ellery, 2007; Lindstrom & Eriksson, 2005; Lundman et al., 2010; Strohecker, 2005). The collection and analysis of data also focussed on what the students had gained and the wellness status pre-, post- and post-post-intervention from their own individual and personal perspectives. In the final analysis, the author has attempted to triangulate the salutogenic wellness perspective of the theoretical stance, with the practical application of measuring quantitatively their wellness and changes in degree of wellness, with the emancipatory and qualitative viewpoint of the disadvantaged student's perspective on the intervention.

A paradigm, or world-view, consists of a set of beliefs and assumptions that underpins the basis for a given enquiry. The paradigm encompasses the epistemological or ontological standpoint of the researcher (Cresswell & Plano-Clark, 2011). It is not unusual in mixed methods research for there to be more than one paradigm and to reflect, to some extent, a measure of methodological eclecticism (Teddlie & Tashakkori, 2010). The scientific method used by a researcher seeks to deal with information in a way that makes sense of the way the world works (Polgar & Thomas, 2013). The positivist view of the scientific method helps us to describe, explain and, in some aspects, predict the world around us; however, it is not the only valid interpretation (Polgar & Thomas, 2013). Advances in science have contributed to changes in the way in which we explain the world, and the post-positive paradigm recognises that there are different perspectives to reality, depending on what is being observed and

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

measured and the stance of the observer (Polgar & Thomas, 2013). Embedded in the post-positive paradigm is the pragmatic combination of quantitative and qualitative methodology, common to research in both health and social sciences (Polgar & Thomas, 2013).

This enquiry predominantly took the epistemological stance of constructivism, often associated with qualitative enquiry, which maintains that meaning is constructed out of the object of the research (Cresswell & Plano-Clark, 2011). The participants' experiential participation in the educational process constructed the meaning that they made from their experience in this study. In this form of enquiry, research is shaped from the 'bottom up' by the participants, who provided their own understanding, shaped by their social and educational participation in the programme (Cresswell & Plano-Clark, 2011). In this instance, the emancipatory stance of taking the perspective of a group of disadvantaged individuals into consideration, and aspects of pragmatism were contained in the theoretical perspective and research intervention (Cresswell & Plano-Clark, 2011; Teddlie & Tashakkori, 2010).

4.3 Research Approach

This study took a pragmatic mixed methods approach to a critical evaluation of a lifestyle management, wellness education course, within the higher education sector. The pragmatic position maintains that research methods are not intrinsically linked to specific philosophical positions (Maxwell & Mittapali, 2010). Research methods can be combined on the basis of their practical utility and are research question driven; the approach to research may therefore be informed by any, or a number of, paradigms (Maxwell & Mittapali, 2010). Pragmatism has therefore been promoted as the appropriate philosophical stance for mixed methods research (Cresswell & Plano-Clark, 2011; Maxwell & Mittapali, 2010).

Notwithstanding the research question, the research method additionally needs to consider the intention of the researcher with respect to the participants and/or the beneficiaries of the study (Cresswell & Plano-Clark, 2011). The emancipatory theory applied to mixed methods

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

research takes the theoretical stance in favour of the underrepresented, with one goal being to address the social justice aims of the research (Cresswell & Plano-Clark, 2011). In this study the research has been viewed through the emancipatory lens of the socioeconomically disadvantaged students, for whom the promotion of salutogenic factors may have been limited.

Mixed methods research has emerged recently as a third option that stands apart from either quantitative or qualitative approaches, which is pragmatic and distinctly research question driven (Teddlie & Tashakkori, 2009). The research design extends from the research question (Morse, 2010). This involves ascertaining which components of the question would be deductive (quantitative) and which parts of the question cannot be answered by the quantitative analysis and would require a qualitative strategy (Morse, 2010). The combination of quantitative statistical findings with qualitative descriptions of cases, which exemplify these findings, has the potential to generate new understanding in educational evaluation that neither quantitative nor qualitative evaluation may achieve alone (Sammons, 2010). The methodology used employed a 'what works' approach. The researcher used an objective, quantitative correlational evaluation of outcomes, together with a subjective, constructivist approach to the qualitative evaluation of the programme employed. This type of methodology using both quantitative and qualitative data analysis is a major feature of mixed methods research (Cresswell & Plano-Clark, 2011).

Research in health and social science is often divided between quantitative and qualitative methods. It is acknowledged, however, that both methods may be employed together, regardless of the theoretical perspective, the rationale being that the question is answered, in part, by both quantitative and qualitative data analysis (Al-Hamdan & Anthony, 2010; Barnett-Page & Thomas, 2009). Mixed methods research is becoming increasingly popular in both health and social sciences, such that the 'what' in the outcome is answered by

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

quantitative analysis and the 'why' by qualitative evaluation (Gil-Rodriguez & Hanley, 2011; Hiebert, Domene, & Buchanan, 2011). The rigour of qualitative research has been questioned and remains controversial in some areas of health (D. J. Cohen & Crabtree, 2008). Provided that the research criteria are relevant to the question and that validity and reliability form part of both the process and the outcome, the qualitative aspect of research can be as valid as the quantitative aspect (D. J. Cohen & Crabtree, 2008). The general approach to the qualitative part of the research was that of constructive critical enquiry, which contained aspects of narrative research, which are common features of qualitative evaluation (Cresswell & Plano-Clark, 2011; Gil-Rodriguez & Hanley, 2011).

In some respects, the method employed has many aspects of pre-post-test design in that pre-test data were gathered; an intervention ensued, followed by post-test data gathering. Under normal circumstances, this kind of pre-test post-test single group design is not recommended in experimental research as it has the disadvantages of being vulnerable with respect to validity (Robson, 2002). One such threat would be that of influence from other events occurring apart from the intervention. The design can be strengthened by isolating the group so that other effects have a minimal influence (Robson, 2002). In this instance, we were dealing with a homogenous cohort of students receiving the same educational input both within the intervention course and in courses other than the intervention course. Notwithstanding the reservations with respect to using the pre-test post-test design with a single group it is commonly employed in the social and behavioural sciences (T. D. Cook & Campbell, 1979). The predominant advantage of this design is that it provides a baseline measurement against which change due to the experimental intervention can be assessed (Cramer & Howitt, 2004). Without a pre-test, it is not possible to know whether scores have increased, stayed the same or reduced. It also shows whether the means of the research participants are similar prior to the subsequent measurement (Cramer & Howitt, 2004).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

The broad approach has been to gather quantitative demographic data and conduct initial quantitative measurements of wellness as well as to gather quantitative and qualitative information on the prior health information and current pre-intervention health priorities in the research group. In this instance, the research participants were a group of socioeconomically disadvantaged students entering their first year of Higher Education in the Eastern Cape, South Africa. The pre-intervention assessments were done in order to establish baseline demographic and wellness data. The intervention then ensued, which consisted of a structured facilitated holistic wellness education programme. Thereafter, quantitative changes in wellness as a result of the course were measured, alongside the qualitative reasons for change or lack of change, as well as the resultant impact of the course on academic progress in this group. These measurements were taken and the evaluations were conducted, both at the end of the programme and at 15 weeks post-intervention. Academic results were gathered mid-year and at the end of the academic year.

(See Table 1).

For the purposes of this mixed methods study the pragmatic quantitative deductive and qualitative inductive logic has been applied in a parallel mixed design (known as a concurrent or simultaneous design) (Teddlie & Tashakkori, 2009). Two distinct sets of data collection and analysis methods were used simultaneously, so as to address the research question in an overall quantitative plus qualitative design that answered the research question and interfaced at the level of the results (what has occurred and why it has occurred) (Morse, 2010).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 1

Timelines for Data Gathering and Types of Data Analysis

<u>Month and Year</u>	<u>Measurement</u>	<u>Analysis</u>
February 2013	Pre-Course WQHE	Quantitative
February 2013	Pre-Course RGQ	Quantitative and Qualitative
February – November 2013		
Intervention took place		
June 2013	Mid-Year Academic Results	Quantitative
November 2013	Post-Course WQHE	Quantitative
November 2013	Post-Course RGQ	Quantitative and Qualitative
January 2014	Year-end Academic Results for 2013	Quantitative
March 2014	Post-Post-Course WQHE	Quantitative
March 2014	Post-Post-Course RGQ	Quantitative and Qualitative

Note: WQHE = Wellness Questionnaire for Higher Education; RGQ = Researcher Generated Questionnaire.

Differences between the qualitative and quantitative methods used in this study occurred at the level of data management and the inherent differences between the way in which quantitative and qualitative data were analysed, the results interpreted and inferences made (Cresswell & Plano-Clark, 2011; Teddlie & Tashakkori, 2009). Both descriptive and correlational research analysis was used. This formed the basis of the quantitative research data gathering, management and analysis of the WQHE and the demographic and quantitative question analysis of the researcher generated questionnaires (StatSoft, 2012). A constructivist approach, with aspects of narrative research, were used for the qualitative data management and analysis (O'Cathain, Murphy, & Nicholl, 2007). Regardless of the methods, it is deemed possible for qualitative and quantitative methods to be used that suit the purposes of the study (Al-Hamdan & Anthony, 2010).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

4.4 Participant Selection

The full 2013 cohort of students in the first-year National Diploma in Consumer Science programme was offered the opportunity to participate in this study and to evaluate this newly upgraded course, which forms a part of their regular first-year curriculum. There is, however, a discrepancy between the food and nutrition orientation of the Consumer Science programme, the consumer science profession, and the disadvantaged background of students registering for the programme. This is because the WSU catchment population is predominantly from the poorer, most disadvantaged areas of the Eastern Cape, with some intake from the lower socioeconomic sector of the urban Mthatha and East London schools (Council on Higher Education, 2011). In this population, wellness promotion in general and that of the promotion of salutogenic factors in particular, is noticeably absent (J M Cramm et al., 2011; Mitchell & Andersson, 2011). The participating students took the new Lifestyle Management programme evaluated in this study (Appendix 1) as opposed to the older version of life skills which has, to date, had limited success, both within and beyond the boundaries of the institution (CLTD, 2011; Weimann, 2011).

The research sample is the target population, or group of individuals in which the researcher is interested and which best represents the population as a whole, without going to the expense of studying everyone who meets the criteria and conditions of the study (Polgar & Thomas, 2013). To answer a research question the researcher needs to engage in a suitable sampling procedure that involves a three step process, that of determining the location for the research, the participants for the research and how these participants will be selected (Cresswell & Plano-Clark, 2011). These steps are applied to all research, although there are differences in how they may be addressed, depending on whether the research is quantitative, qualitative or mixed methods research (Cresswell & Plano-Clark, 2011).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

The location and the participant group have been largely determined by the nature of the problem, the aim of the research and the rationale for this critical enquiry. The question of participant selection was addressed along the pragmatic lines which, to some extent, involved the consideration of beneficence. The researcher had to ask, in this respect, whether or not it would be fair to leave anyone out. The method of sampling to some extent employed blending of two types of procedures. Purposive sampling is often applied to qualitative research where it is used to illustrate particular issues or circumstances (Polgar & Thomas, 2013). Aspects of purposive sampling have been employed in that participants were intentionally selected, after informed consent was requested (Appendix 2), on the basis that they will personally experience the key concept under enquiry, in this case the intervention programme, as a matter of course (Cresswell & Plano-Clark, 2011). This description would apply to this particular group of students; however, it was not the main sampling method utilised. Census sampling requires that all of the specific population within a defined boundary be included in the research sample (Reierson Draugalis & Plaza, 2009). Census sampling is not often used in health research as it generally involves a large population and is expensive to conduct (Polgar & Thomas, 2013). A census sample would require that the information would be collected from every member of a specific population, given that the population as a whole met the research criteria (Reierson Draugalis & Plaza, 2009; Sahebalzamani & Mohammady, 2014). In this instance, the whole population of a given education class within the university was, in fact, used. All members of this population who completed the course were participants in the study and provided the information required, which would, in this respect, qualify this group as the 'census' (Reierson Draugalis & Plaza, 2009). In this instance census sampling may be a better description of the sampling method used for the study.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

In terms of the number of participants, there was a need to select a small enough number to provide in-depth qualitative information about the impact of the programme, which may range from two to three people in a narrative study to 20 to 30 people in a grounded theory project (Cresswell & Plano-Clark, 2011). For a census to be valid as a method of sampling, an approximate 90% (between 85 and 100 percent, depending on the size of the population) would need to be involved (Reierson Draugalis & Plaza, 2009). For a large number of participants this may prove extremely difficult; however, with a small research group, a census is possibly the only way in which to get a statistically valid number of responses (based on a p-value of 0.5) (Reierson Draugalis & Plaza, 2009).

In this instance the class size under consideration was self-limiting to 38 students, two of whom did not complete their first year of university and two of whom registered too late to provide a baseline set of data. The study therefore had 34 students who took part from the initial data gathering session through to the final 15 week post-post-data gathering session. The two types of data provided enough information to be useful, whilst the number of students assured data manageability for the purposes of the study.

All the study participants were first-year first time entry students. Two classes were combined, the first year of the four-year foundation provision (extended programme), which had 26 registered students at the time of initial data gathering and the first year of the three-year programme, which had 10 registered students. Data from two participants were excluded on the basis of the fact that they did not complete the course of study that year. All of the participants came from the lower socio-economic strata within the university catchment area and required external funding for their studies. In many respects the intervention group were culturally and linguistically homogenous. Although the language of teaching and learning is English (Walter Sisulu University, 2007), all the students registered on this programme were Black and had the ability to speak isiXhosa (CLTD, 2014). There were no international

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

students registered on this particular programme during 2013 (CLTD, 2014). All students were unmarried at the commencement of the course and remained so for the duration of the intervention and data collection. There were two respects in which the students differed from one another, that of gender and age.

The combined class as a whole was predominantly female. The gender skew in terms of the ratio of female to male students is fairly common in consumer science. This particular class presented a reasonably normal, if less than ideal gender profile, as seen in Table 2.

Table 2

Gender Distribution for the Research Sample

Gender	Frequency	Percent
Female	26	76.5
Male	8	23.5
Total	34	100.0

The ages of the students fell into two main age distribution categories, as represented in Table 3. The majority of students fell into the younger age group, which is typical for students who are first-year first time entry into an extended programme and for whom the extended curriculum programmes are intended (DHET, 2012). There was no missing data for both Tables 2 and 3.

Table 3

Age Group Distribution for the Research Sample

Age Group	Frequency	Percent
17-20	23	67.6
21-24	11	32.4
Total	34	100.0

4.5 Data Collection

Many research studies benefit from a mixed methods approach to data collection that include differing collection strategies (Teddlie & Tashakkori, 2009). Such strategies may include observations, unobtrusive measures, focus groups, interviews, questionnaires and tests (Teddlie & Tashakkori, 2009). There are also different ways of dealing with data, such that observational qualitative data can be quantified and, in some instances, descriptive data can be qualified, which blurs the distinction between the two types of data (Teddlie & Tashakkori, 2009). Techniques for gathering data can be placed along a continuum from the highly structured (quantitative end of the spectrum) to the highly unstructured (qualitative end of the spectrum) (Teddlie & Tashakkori, 2009). Data collection in mixed methods studies involves a number of sequential steps, depending on the type of mixed method study used and the relationship between the quantitative and qualitative data (Cresswell, 2010). For this study three types of instruments were used, two questionnaires and student academic transcripts. One questionnaire (the WQHE) and the academic transcripts were highly structured (Quantitative); the Researcher Generated Questionnaire (RGQ) employed a mixture of structured, semi-structured and unstructured questions (quantitative and qualitative). In this instance a QUAN + QUAL method was used such that the two research questionnaires were administered at the same time, ensuring that the quantitative and qualitative data were gathered simultaneously (Cresswell, 2010), the timeline for which was given in Table 1.

Two questionnaires, as well as two sets of academic transcripts, were used to collect biographical, quantitative and qualitative data for this study. Questionnaires were answered confidentially and coded against the participant's student number for internal identification and to match sets of questionnaires from the same student. Both questionnaires were in the English language medium, which is the official language of education at WSU and in which

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

students must prove competent on entry to the Consumer Science Programme (Walter Sisulu University, 2007, 2012a). The language of administration was English; however, a bilingual English/isiXhosa speaking facilitator remained present throughout each of the data gathering sessions. This ensured that should any participant (who are predominantly isiXhosa speaking), have questions or difficulties in understanding any of the questions or procedures, assistance could be given in the vernacular language. A registered psychologist from the centre for HIV/AIDS was also present in order to facilitate the administration of the WQHE Questionnaire. The approximate time for answering both questionnaires was 45-60 minutes, which took one half of a learning unit session and was conducted during class time for the first two data gathering sessions and in a free afternoon for the final data gathering session. The time plan for the year long course accommodated an introductory session for the explanation of the study, consent and answering pre-course questionnaires, and a year-end review and data gathering questionnaire session.

4.5.1 The Wellness Questionnaire for Higher Education. The Wellness Questionnaire for Higher Education (WQHE) is a quantitative wellness evaluation questionnaire developed by the Student Counselling, Career and Development Centre of Nelson Mandela Metropolitan University (NMMU) (De la Harpe, Van Lingen, & De Jager, 2011). The questionnaire is a psychometric measurement of aspects of health and wellbeing, incorporating seven domains of wellness, these being physical, career, intellectual, environmental, social, emotional and spiritual wellness (Appendix 3) (De la Harpe et al., 2011). The questionnaire was developed in response to the need for a standardised wellness assessment tool in South African Higher Education (De la Harpe et al., 2011).

The WQHE contains a total of 119 questions, for which a total wellness score of 476 is possible. These questions are divided between each of the seven wellness domains, which are scored as subscales of the main wellness scale. Each of these subscales additionally

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

contained primary factors that 'group' questions which deal with specific wellness factors within that particular domain (Gradidge & De Jager, 2011).

Physical wellness, for instance, as a subscale has a total of 25 questions, for which there are five primary factors. These are: Physical exercise (three questions); nutrition – regularity balance and quantity (four questions); nutrition – healthy content and quality (five questions); self-care and safety – risk avoidance (four questions) and, self-care and safety – protective behaviour (nine questions) (Gradidge & De Jager, 2011). The WQHE physical wellness domain asks students to rate how statements, such as 'I eat breakfast every morning', or 'I drink 6-8 glasses of water per day', relate to their own lives, along a scale from A (almost never, which scores 0) to E (almost always, which scores 4) (Gradidge & De Jager, 2011). These are then totalled both as primary factors and as a subscale for physical wellness, which has a maximum score of 100 (Gradidge & De Jager, 2011).

Career wellness contains 16 questions divided between three primary factors, those of career choice and decision making (six questions); career competence (five questions) and ongoing professional development (five questions) (Gradidge & De Jager, 2011). In the primary factor of career choice and decision making students are asked to rate how statements such as 'My career choice is in line with my values' and 'I enjoy my field of study' relate to their own lives, along a scale from A (almost never, which scores 0) to E (almost always, which scores 4). These are then totalled both as primary factors and as part of the subscale for career wellness (Gradidge & De Jager, 2011).

Intellectual wellness contains 13 questions, divided into three primary factors, those of intellectual challenge, knowledge expansion, creative and critical thinking (Gradidge & De Jager, 2011). The social, emotional and spiritual wellness domains deal with the socio-psychological and affective aspects of wellness; social and emotional wellness subscales each

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

contain five primary factors and spiritual wellness contains three (Gradidge & De Jager, 2011).

Spiritual wellness does not deal with issues of religion *per se* but with the primary factors of connectedness and spiritual practice (six questions); meaning and purpose (four questions); and values (four questions) (Gradidge & De Jager, 2011). Examples of the latter include the statement ‘my values and principles guide my daily life’ and ‘my everyday actions are guided by my beliefs’ (Gradidge & De Jager, 2011). Environmental wellness has ten questions and contains no primary factors (Gradidge & De Jager, 2011).

A secondary scale for life satisfaction is also drawn from the WQHE (Gradidge & De Jager, 2011). There is no separate subscale or domain; however, answers to questions from other subscales that relate to life satisfaction make up the secondary life satisfaction score. There are nine questions for which the scores are totalled to give a secondary score for life satisfaction. Examples include: ‘I make use of opportunities to expand my knowledge’ taken from the primary factor of knowledge expansion within the subscale for intellectual wellness and, ‘my spirituality allows me to feel a sense of peace in times of stress’ taken from the primary factor for connectedness and spiritual practice within the subscale for spiritual wellness (Gradidge & De Jager, 2011).

The WQHE was administered at the commencement of the intervention, at the end, and 15 weeks post-intervention. This provided ongoing information about the wellness state of the individual students before, at the end and 15 weeks after the programme, and measured quantitative changes in wellness across the holistic spectrum. The questionnaire is quantitative in the way that it gave indicators of levels of wellness and changes in levels of wellness, but did not afford the student the opportunity to discuss why or how they made changes in any aspect of wellness. The questionnaire was developed specifically for the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

South African student population and has been used by NMMU in student counselling units (Gradidge & De Jager, 2011).

4.5.2 Researcher generated participant questionnaires. The quality of data gathered may depend on how the participants view the legitimacy of the research, in addition to how they understand the questions asked (Biering, Becker, Calvin, & Grobe, 2006; Teddlie & Tashakkori, 2009). The design of a questionnaire is important as particularly negatively or positively worded questions may ‘lead’ the research participant into negative or positive answers (Biering et al., 2006). It is therefore important in the initial stages to ensure the ‘neutralisation’ of a questionnaire, so that the participant has no expectations of the researcher or the outcome of the research, and feels free to give the answers that they feel are most appropriate to their situation (Biering et al., 2006). The legitimacy of the research and the full explanation of what was being conducted and why, was discussed with the participants in the initial consent and information gathering session (described under the sections on consent and beneficence). The questionnaire generated by the researcher (RGQ) was piloted among a small group of staff prior to its finalisation and the ethical consent procedures.

The RGQ was a semi-structured pencil-and-paper questionnaire that consisted of three parts. Firstly, demographic information (age, gender and marital status) was requested. Secondly, quantitative questions about sources of prior (in the pre-course questionnaire) or current (in the post-course questionnaires) information and health priorities were asked (e.g. ‘which aspects of health are currently important to you?’). The aspects of health relating to information and priorities for the students corresponded to those which made up the learning units of the intervention programme. Questions relating to health and lifestyle management education (e.g. ‘from which sources did you get the information that you now have on health?’) were also asked, in order to establish how much information students gained from

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

external sources and how much from the intervention programme. Finally, qualitative questions were asked on the personal impact of the intervention programme (e.g. ‘which learning sessions made the biggest impact on how you currently live your life?’; ‘What changes in lifestyle have you made?’). There was a pre-intervention version (Appendix 4), a post-intervention version (Appendix 5), and a 12-15 week post-post-intervention version (Appendix 6), which was administered 15 weeks after the academic year-end data gathering. Questions one to eight were identical with respect to the quantitative information sought, so as to draw out basic and comparative statistical information on all three questionnaires. Further qualitative open questions reflected the timing of the questionnaire, e.g. whether it is pre- or post-intervention related information, which requested information on either prior expectations or subsequent perceptions of the programme. The latter investigated which parts of the programme were most and least successful for the individual and what the drivers behind success, or lack thereof, may have been. The information provided formed the basis of the qualitative data gathering and balanced the objective measurements with subjective reasoning behind the objective data.

4.5.3 Academic transcripts. The third set of data came from the mid-year and year-end academic transcripts. Transcripts gave a percentage year mark to date for each of the subjects taken for each individual student. Transcript marks for both mid-year and year-end results were tabulated into a statistical package spreadsheet, from which several sets of data for individual participants, and the class as a whole, could be generated. Examples include average class marks per academic subject and average class marks per individual. As these are generated from an automated system it is taken that the information output is expected to be both valid and reliable. Average class marks are also generated by the HEMIS system used by the university to inform DHET reports and were available to the researcher. From these data it was possible to draw a comparison between areas of course effectiveness

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

and individual levels of wellness, compared to academic marks for the class as a whole and for each individual participant. The researcher recognises that there are limitations to the link between wellness and academic performance due to other influences, as a cohort; however, influences such as facilitator performance, classroom environment and learning and teaching facilities remained constant. Individual variances came to light in the questionnaire responses.

4.5.4 Validity and reliability. Reliability is a precondition of validity such that the instrument of measurement needs to demonstrate consistency in its use (Oppenheim, 1999). The content validity, which seeks to establish that the questions are a well-balanced sample of the content domain, and the construct validity, which shows how well a test links with a set of theoretical assumptions, can be expressed in terms of a correlation coefficient (Oppenheim, 1999). Reliability of the WQHE questionnaire, as well as the content and construct validity, were established in a recent study, which demonstrated that student responses to the WQHE were in line with the theoretical concepts of wellness (Van Lingen & De Jager, 2011). The WQHE was approved for use in higher education and classified by the Psychometrics Committee of the Professional Board for Psychology of the Health Professions Council of South Africa in 2011 as a reliable and valid instrument for the measurement of wellness (De la Harpe et al., 2011; Van Lingen & De Jager, 2011). The WQHE is an accepted psychometric assessment tool currently in use in Higher Education and the reliability and validity have been established (Gradidge & De Jager, 2011; Van Lingen & De Jager, 2011).

The researcher has generated semi-structured questionnaires in previous (unpublished) research studies. The questionnaires for this study were reviewed by an external proof reader who looked at the issues of language, grammar and ambiguity. Further, the questionnaires were piloted by a senior language lecturer and six life skills lecturers. Four

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

returned comments and made suggestions for minor amendments, which did not substantially affect the content of the information, and which the researcher effected. The questionnaires were submitted to, and passed by, the WSU Research Ethics committee. The validity of the researcher generated questionnaire, however, emanates from the fact that answers are generated from the research participant's own perspective and are therefore not subject to any external intervention or opinion (Oppenheim, 1999).

Reliability is dependent upon the data management, discussed in the following subsection. In this instance the quantitative data was analysed using the Statistical Package for Social Sciences (SPSS) and the qualitative data by NVivo. Both packages are commercially established reliable data analysis software packages used in many institutions of Higher Education. IBM international is the host and developer for the SPSS programme which has been licensed for use in academia and is the accepted most widely used statistical analysis software package (Greasley, 2008). As with any software package, however, the reliability depends on the correct use of the package and the choice of statistical analysis within the programme. To this extent the researcher has followed the set procedures given and explained within the data analysis (Chapter five), which procedures were used for the analysis of the data and why. QSR International (Pty) Ltd is the host and developer of the NVivo qualitative data management software packages. Nvivo8 was used for the purposes of this research and the programme is licensed for use in academia (Bergin, 2011). The reliability depends on the set procedures being followed for the data management; however, decisions made relating to the coding and analysis of the information are those of the researcher.

4.6 Data Analysis

Data analysis in mixed methods research generally requires one to analyse separately the quantitative data using quantitative (statistical) methods and the qualitative data using qualitative (narrative analysis) methods (Cresswell & Plano-Clark, 2011). For both

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

quantitative and qualitative data analysis there are similar data management procedures that need to be undertaken (Cresswell & Plano-Clark, 2011). These are: preparing the data for analysis, which involves ‘coding’ the data; finding suitable methods for exploring the data; analysing the data; and interpreting the data (Cresswell & Plano-Clark, 2011). For both quantitative and qualitative data management these are linear processes (Cresswell & Plano-Clark, 2011).

Data analysis from this study reveals both quantitative statistical information and qualitative informed reasoning that would be interpreted in the light of the criteria for the enquiry and the outcomes being measured. Quantitative descriptive explorative analysis of the data provided the initial demographic information as to the participants’ age, gender and previous wellness education, as well as their academic abilities and degree of progression. This informs the basis of a comparison between effective wellness education, changes in wellness, reasons for change and areas of academic success, both for individuals and the cohort. Quantitative correlational data analysis provided information on the links between the students’ value of information and the wellness scores and between the levels of wellness and academic achievement. The qualitative analysis informs those parts of the intervention that worked best and least and, most importantly, indicates the underlying reasons for successes and disappointments. The body of information gives an indication of the potential viability of this programme and the way forward towards its meaningful further development.

4.7 Descriptive Statistics

In this study, the statistical analysis will, in essence, do four things. Firstly, it will describe the research population: who they are, what they know, where the knowledge comes from, what their values or priorities are for information, and their wellness, at various stages of the intervention and what changes took place (quantitative descriptive statistics). Secondly, it will look for relationships between the variables of value of information and health

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

(quantitative correlational statistics). Thirdly, it will look at why certain changes took place and the possible reasons for the relationships between the changes (qualitative constructive narrative data analysis). Finally, the second correlational statistical analysis will ascertain the connection between the students' health and student academic transcript marks.

4.7.1 Quantitative data analysis. Data in quantitative research is analysed by applying statistical methods of mathematical analysis to a set of data, termed 'raw data', in order to organise and summarise the information (Polgar & Thomas, 2013). The researcher begins with the quantitative statistical analysis. Quantitative data contains information that is 'quantifiable' and numerical; it has a value in that it can be counted (Jack et al., 2010). This type of information is drawn out from quantitative statistical analysis for which there are two types of statistics, descriptive statistics and inferential statistics (Jack et al., 2010).

Descriptive statistics give an overview, or 'overall picture', of what the research population looks like, and gives simple summaries of the sample and what has been measured in the sample (Jack et al., 2010). Descriptive statistics give numerical facts but these are not statistically significant, they simply describe in quantifiable terms a picture of the research population and a quantifiable overview of what happened to this population.

Once having first described the research population and measured to some extent the quantifiable changes that may have taken place as a result of an intervention, inferential statistics go beyond the description of the sample (Jack et al., 2010). Inferential statistics give an indication of the direction of change and 'infer' from the data what may happen in the future, should the current direction and trend of change continue along the same continuum (Jack et al., 2010; StatSoft, 2012). Inferential statistics include that of correlational statistics, the analysis of relationships between variables (StatSoft, 2012).

Empirical quantitative research will also fall into one of two categories, that of experimental research, or correlational research (StatSoft, 2012). In experimental research the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

variables themselves are manipulated and the effects of the manipulation on the other variables will be measured (StatSoft, 2012). An example of this would be if we took two variables, eating fresh fruit and drinking orange juice, and correlate these with the frequency of the population suffering from colds. After this, we could change (manipulate) one of the variables, perhaps change the orange juice for a vitamin supplement; we then re-measure the frequency of colds in people taking the supplement.

In correlational research (such as this study), we are not going to influence the variables, but measure them and look for relationships between them, that is, whether or not there is a relationship between certain aspects of health (one variable) and the student marks (another variable). In science, there is no way in which to provide meaning other than finding relationships between two quantities or qualities (variables) (StatSoft, 2012). These statistical outcomes will tell the researcher which changes are dependent on one another, or in some way related (correlated) to one another, to what extent and whether or not this is relevant or meaningful (i.e. statistically significant) (StatSoft, 2012).

4.7.1.1 Descriptive statistical analysis. Descriptive statistical analysis was used to draw out information on three aspects of the participants. Firstly they describe the demographics of the research population. Secondly they were generated for the calculation of initial scores for the participants' value of information on the various aspects of wellness and changes in the value of information across the time of the intervention programme. Finally, the analysis of the WQHE scores and changes in scores across the time of the intervention were calculated. Descriptive statistics may be used to 'crunch' or condense data into typical values which include measures of central tendency 'means values' and measures of variability, range and standard deviation (Polgar & Thomas, 2013). This enables the researcher to condense the raw data in order to convey to the reader descriptive information on the research population and the research findings (Polgar & Thomas, 2013). Descriptive

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

statistics, however, only describe a given population and its properties and do not necessarily provide statistically significant comparative information (Bhattacharjee, 2012; Greasley, 2008). The descriptive analysis therefore needs to proceed to the inferential analysis (Bhattacharjee, 2012; Greasley, 2008), in this case the correlational research analysis, which forms the statistical basis for the quantitative data management, relates to the research questions and the secondary research objectives.

4.7.1.2 Correlational statistical analysis. A fundamental aim of research in the health sciences is to establish the nature of a relationship between two or more sets of health-related observations, or clinical data (Polgar & Thomas, 2013). For such purposes, correlational statistics is an essential tool in the health sciences, which is used to determine quantitatively whether, or not, two sets of measurements are related, in addition to whether, or not, this relationship is valid and reliable (Polgar & Thomas, 2013). A correlation is the measure of a relationship between two or more variables (Greasley, 2008; StatSoft, 2012). A correlation can also indicate the direction and the strength of the two variables, if it is depicted as a graph, or scatterplot (Greasley, 2008). It is more common, however, to depict the correlation as a table (Greasley, 2008). The variables concerned should be measured on an interval scale or converted to an interval scale (StatSoft, 2012). An interval scale is one in which the distance between two points on the scale are equal (StatSoft, 2012). An example would be where, in a percentage interval scale, the distance between 23% and 24% would be the same as the distance between 25% and 26%.

In this particular study, much of the information to be gained from the correlation can also be deduced from the descriptive statistics. The correlational tables, however, quantify the relationship between the two sets of descriptive statistics, and give an indication as to their significance. For the purposes of this study, the raw score of the value of information was converted to a percentage of the possible score along an interval scale, as these values were

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

correlated with wellness, for which the raw score was also converted to the percentage of the possible score. This is to avert miscalculations due to any anomalies between the two sets of data, which have different possible maximum scores. We could now correlate the two variables as the types of measurement were comparable (percentages along an interval scale).

Correlation coefficient scores have a range from -1.0, which is a perfect negative correlation, through to 0.0 (zero) which represents no correlation, to +1.0, which is a perfect positive correlation (StatSoft, 2012). This means that in a positive correlation, the two variables rise or fall together, i.e. as the nutritional status (variable 1) rises, the score for physical wellness (variable 2) rises (StatSoft, 2012). We may, in a given population, have a weak correlation or no correlation between the variables of nutrition and wellness depending on the population's circumstances. If we had a negative correlation in the previous example that may indicate that something was wrong, either with the statistical analysis, or the situation under investigation. There are instances, however, where a negative correlation is to be expected and may be significant (Greasley, 2008). If the correlation being measured was perhaps between nutritional status (variable 1) and days in hospital (variable 2), a negative correlation may be found, such that the better the nutritional status, the fewer the days in hospital.

There are a number of different ways in which a correlation can be measured. The most widely used calculation is that which measures the relation between two linear variables, both calculated on an interval scale (StatSoft, 2012). The Pearson correlation is known as the simple linear correlation (Pearson r) (StatSoft, 2012). It is this calculation of the correlation that has been used in the data analysis for this study. Other types of correlation calculation include the Spearman's Test (Spearman's ρ), used for non-parametric correlations, or Kendall's tau used for ordinal measurements (Greasley, 2008; StatSoft, 2012).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Whilst it may be important to deduce whether or not two variables have a relationship, it is also important to deduce whether or not the relationship has a strong or a weak correlation (Greasley, 2008). It should be statistically significant enough for it not to have been obtained by chance (Greasley, 2008). The strength of a correlation lies upon a scale ranging from -1 through to +1. In general, when seeking a positive correlation between two variables, a value which lies between 0.1 and 0.4, would be classified as a weak correlation and a value that lies between 0.5 and 1.0 would be classified as a strong correlation (Greasley, 2008; Polgar & Thomas, 2013).

In this study two sets of correlational statistics have been calculated, the first is the correlation between the students' value of information, as determined by the RGQs, pre-, post- and post-post-intervention and student wellness, as determined by the WQHE. In the second set of correlational statistics, the correlation between the students' wellness and their academic scores mid-year and year-end are given. In the following sets of data, presented in Chapter five the Pearson r is referred to as 'r' and the 'Sig' or degree of correlational significance (probability of occurring by chance) is referred to as 'p'. The 'p' value gives information on the reliability of the results (Greasley, 2008; Polgar & Thomas, 2013). For a 'p' value of 0.001, the probability of the result having occurred by chance is 1 in 1000 or 0.01%; the result therefore has a 99.9% confidence interval. A high 'r' value and low 'p' value indicates a higher degree of statistical significance and a low probability of chance giving it a high confidence interval (reliability score) (Greasley, 2008; Polgar & Thomas, 2013).

4.7.1.3 The Statistical Package for the Social Sciences (SPSS). The WQHE responses were coded and analysed using the Statistical Package for the Social Sciences (SPSS) statistical analysis software package. This is currently the most widely used software for statistical analysis of quantitative data (Bhattacharjee, 2012; Greasley, 2008). There are

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

two important types of statistical analysis for which SPSS has been generally used in health and wellness research. Firstly, that of descriptive statistical analysis of large amounts of data emanating from a large number of participants, a significantly larger number of variables, or both, for which it would not be possible, correctly and effectively, to compute manually (Alves', Neves, Delà Coleta, & Oliveira, 2012). An example of such research is provided by Alves' et al., in which 340 health care professionals were asked to rate their job satisfaction across seven different multiple choice domains (Alves' et al., 2012). Descriptive data was successfully extracted using SPSS giving means averages for the group and comparisons across the domains (Alves' et al., 2012). Secondly, correlational data analysis, requiring a two-step process in which descriptive data is correlated in order to ascertain a relationship between them, requires complex analytical calculation which can only reasonably be effected with the use of an adequate data analysis programme, such as SPSS (Greasley, 2008; Juozulynas, Butikis, Venalis, Narkauskaitė, & Jurgelėnas, 2011). An example of the successful use of SPSS in correlating the quality of life with other socioeconomic factors, such as health, social, economic, environmental and age related conditions among 1,200 research participants is provided by Juozulynas et al. (Juozulynas et al., 2011). This research provided information on the multiple factors that affect changes in the quality of life among middle aged persons (45-50) years of age and how they relate to one another as opposed to assessing a single relationship between health and quality of life, or economics and quality of life (Juozulynas et al., 2011). The two-step process of extracting descriptive information, followed by the correlating of variables in order to establish relationships between them, was the aim of the researcher, therefore justifying the use of this particular package (SPSSv20) for this research.

The SPSS package however is not without its flaws, in some respects its strength that of long-standing use and familiarity in the field of social sciences and health research may

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

also be its shortcoming. Graphically there are more limitations with this package, with respect to charting data in a single step. The SPSS package does not have the ability to split and analyse clustered data, in a single step termed a 'breakdown analysis' (StatSoft, 2012).

4.7.1.4 Analysis of the WQHE questionnaire responses. The analysis of the WQHE responses was used to garner objective and measurable wellness levels of each research participant in each of the main wellness areas (physical, career, intellectual, environmental, emotional, social and spiritual wellness), which formed the coded interval dependant variables of the data. The participants completed the questionnaire on a separate answer sheet and scored according to the general instructions given on the WQHE and the WQHE answer sheet. The answers to the WQHE were coded according to the Table of Domains (Appendix 3) for entry into the SPSS database. Each of the primary factors represented a separate variable for which individual scores were obtained; these were subtotaled to obtain subscale scores for the seven wellness domains. Scores for life satisfaction were totalled and entered as a separate variable.

Initially descriptive statistics (means averages and standard deviations) were drawn out of the WQHE. The academic transcripts were also analysed using SPSS; drawing out both cohort and individual means averages. These two sets of data provide a platform for inferential correlational analysis comparing the academic performance of the participants and levels of wellness, using a 'Pearson r' simple linear correlation (StatSoft, 2012).

4.7.1.5 Quantitative analysis of the researcher generated questionnaires (RGQs).

The RGQs were subject to two kinds of data analysis. As such they were coded accordingly for entry into the relevant database. Questions one to five related to demographic information which required only simple ordinal coding (e.g. female = 1 male = 2), from which descriptive statistics (frequency tables, means averages and standard deviations) were drawn using SPSS.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Question six was subject to interval variable analysis and comparative pre-, post- and post-post-comparison. This was coded along a scale for which the value of information on the variables of wellness was scored according to the level of importance for the individual participant. 'Very important' scored three points, 'important' scored two points, 'not too important' scored one point and 'not important at all' scored zero. The statistical output was used in two ways; firstly, to compare the value of information placed by the participants on the components of the intervention programme pre-, post and post-post-course. Secondly, these values were correlated with the descriptive output of the wellness questionnaire in order to establish whether or not there was a relationship between the two sets of information.

4.7.1.6 Academic transcripts. The academic transcripts provided only numerical information and, as such, could only be analysed quantitatively. These were subject to a two-step analysis. Firstly, the descriptive analysis of the means average marks per student and for the group were drawn out. Secondly, these data was correlated with the pre-, post- and post-post-course, overall wellness scores and the wellness scores for each of the seven WQHE wellness domains (the subscales and primary factors within the subscales).

4.7.1.7 Statistical management of outlier scores and grouped scores. Many observed variables are normally distributed, which is why the 'normal distribution' represents a 'general feature' of empirical reality. The distribution of many test statistics is normal or follows a form derived from the normal distribution. In this sense, the normal distribution represents one of the empirically verified elementary 'truths about the general nature of reality,' and its status is one of the fundamental laws of natural sciences. The exact shape of the normal distribution (the characteristic "bell curve") is defined by a function that has only two parameters: mean and standard deviation (Clegg, 1998; Greasley, 2008; StatSoft, 2012). The problem of skewed results from data analysis may occur in the first instance when we try to use a normal distribution-based test to analyse data from variables that are themselves not

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

normally distributed, such as a chi-square test or T-test (StatSoft, 2012). In the second instance, skewed results may occur when there are a few distinct outlier scores in a group of relatively normal scores, which do not deviate significantly from the mean (Clegg, 1998). Where scores that deviate and significantly skew the statistical analysis are included in the data analysis, a true statistical picture of the results cannot ensue (StatSoft, 2012). It is recommended that provided that 90% of the data falls within a reasonable frame of scores the outlier scores should be removed from the analysis in order to give a more truthful picture of the findings (Clegg, 1998).

Where groups of correlated data appear to be widely split or there are clusters around a statistical point or narrow range then it is useful to produce a scatter plot in order to view graphically how the scores are split and / or grouped. Decisions can then be made as to how best to manage the data. In many instances where there is a definite clustering, it would be productive to analyse the clusters separately. This is known as a 'breakdown' and in some statistical analysis programmes can be effected with the use of a 'breakdown tree' (StatSoft, 2012). In SPSS the clustered groups of data need to undergo a correlational analysis as separate groups (Greasley, 2008). In this study, such a clustering in fact occurred and the procedure followed was that of re-analysing and correlating the data for the high performing students. These students showed a distinctly different statistical profile from those who performed less well.

4.7.2 Qualitative data analysis. The aim of the qualitative part of the research in a mixed methods study is to ensure that, aside from the quantitative data, the participants had the opportunity to engage with the research and the researcher, by adding their personal opinions, thoughts and observations on their own terms (Polgar & Thomas, 2013). The qualitative data in health research aims to understand participants in their own social environment and to garner information on their experience from their own personal

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

perspective (Polgar & Thomas, 2013). Qualitative data analysis used from questions seven to the end of the three researcher generated questionnaires was used to analyse narrative information, drawing out categories (themes) and subcategories of the narrative (Cotton, Stokes, & Cotton, 2010). In essence the same procedures as for quantitative data are used, such that the data needs to be prepared, explored and analysed; however, the methods of doing this are different. Data needs to be broken down into small manageable units to which a label is assigned, called a 'code'; these are then grouped into 'themes' which are separate ideas (Cresswell & Plano-Clark, 2011). Since the RGQs from question seven onwards were semi-structured, the question topics provided ideal codes for use in the data analysis. For large amounts of data or large numbers of participants, qualitative computer software programmes have distinctive advantages (Bergin, 2011; Cresswell & Plano-Clark, 2011). These include the ability to store text, enable the researcher to block and label text segments with codes and organise codes into visual diagrammatic information, which allows the researcher to see the relationship between codes and themes (Bergin, 2011; Cresswell & Plano-Clark, 2011). One must, however, also acknowledge that although a computerised analysis programme can manage data, it is the researcher that makes the connections between the codes and themes and who is ultimately responsible for the interpretation of the text (Bergin, 2011).

4.7.2.1 Use of NVivo qualitative data analysis package. Successful research relies on the quality of the data management and analysis, and this is no less the case for qualitative data as would be for quantitative data (Bergin, 2011; O'Neill, 2013). NVivo 8 was used for this particular study and is one of the most frequently utilised programmes for qualitative data management (Bergin, 2011; O'Neill, 2013; Palys & Atchison, 2012). Advantages of this particular programme are that it produces an auditable record of what the researcher has done with the data and forces the researcher to be more specific, reflective and reflexive with

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

respect to the analytical process (O'Neill, 2013). Additionally, the programme provides transparency such that the data and the coding can be interrogated for authenticity (O'Neill, 2013). There are four stages to the use of this programme for qualitative data management. These are: Descriptive (entering the data sources into NVivo); topic (organising and coding the data); analytic (analysing the data and producing visual information); and conclusive (drawing answers from the data) (O'Neill, 2013). Use of an auditable computerised qualitative data management programme ensures that the subjective opinions and views of the research participants are objectively managed, so that the researcher is compelled to deal with all of the data on an equitable basis (Palys & Atchison, 2012).

4.7.2.2 Qualitative analysis of the researcher generated questionnaires (RGQs). The RGQs were imported into NVivo 8 and coded according to the semi-structured nature of the questionnaires. In question seven of the pre-course RGQ the participant is asked 'which of the above areas of health is the most important for you?' The theme is 'Health Priority'; sub-themes are taken from the participants' answers, e.g. 'nutrition' or 'future planning'. In question nine of the post-course RGQ the participants are asked 'overall, which of the learning sessions made the biggest impact on how you live your life currently?' The theme is 'impact of learning sessions'; sub-themes include water intake, nutrition and self-expression. Analysis of open questions contained within these questionnaires draws out the themes and sub-themes of the narrative, which were explored for similarities between the participants and connections between the sub-themes and themes. The analysis provided information as to why changes in wellness have or have not taken place. In addition, information about which parts of the intervention were successful, which were not and what the underlying reasons may be, were also drawn out.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

4.8 Procedure and Timelines

The research process took place between February 2013 and March 2014, with the explanation of the research, request for consent and gathering of data, starting in February 2013 and ending in March 2014 (see Table 1). The researcher gave information about the research and the procedures to the participants in order for them to give informed consent (Appendix 2). The WQHE was administered in the presence of a registered counselling psychologist and the researcher generated questionnaire by the course facilitator and a registered clinical social worker, both on the permanent staff of WSU. The questionnaires were written in the English language medium which is the medium of learning and teaching at WSU; however, all members of the university counselling team and the facilitator are bilingual (isiXhosa and English). All of the questionnaires were administered within the normal timetable of the class and in the same university classroom setting in which the course itself was conducted. As the data gathering sessions preceded the lunchtime recess, lunch was provided for the participants on all three occasions. Such procedures for gathering data are an important part of ensuring that research participants, particularly those from vulnerable groups, are placed in a situation in which they are both familiar and comfortable (Fassinger & Morrow, 2013). The researcher was present at all data gathering sessions; however, apart from giving information about the research and answering questions related to the research, did not actively participate in the data gathering procedures.

4.9 Ethical Considerations

Although the main goal of the study is to find credible answers to the research question, such answers are acceptable only if they are obtained under conditions of beneficence and ensure the wellbeing of the study participants (Teddlie & Tashakkori, 2009). Ethical issues, such as handling of sensitive information and disclosing the purposes of the research, are important considerations (Cresswell & Plano-Clark, 2011). In this instance the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

nature and purpose of the research was fully disclosed in the information and consent letter as well as by the researcher in the initial data gathering session. All the information questionnaires and consent forms were coded so as to ensure student anonymity; these were secured in a locked cabinet.

Research approval from the institution where the research is being conducted and/or the supervising institution needs to be sought in addition to the consent of the study participants, before any study can ethically take place (Teddlie & Tashakkori, 2009). Ethical consent was sought by the researcher and granted by WSU in April 2012 before commencing with any procedure related to research using the WSU staff and student information, as per the regulations of WSU. The ethics committee is aware that the study is being conducted as part of a doctoral degree with NMMU. Ethical consent from NMMU was sought in November 2012 and granted in December of that year.

4.9.1 Compliance with legislation. As far as the researcher can ascertain, the study does not conflict with any state legislation. The course of study is not a compulsory requirement of higher education across the board but is the policy of WSU for first-year students. Privacy of the students has been carefully protected with a coding system for all questionnaire responses. All students consented to the use of their information and there was no discrimination against any student who could not provide a full set of data for this study.

4.9.2 Informed consent. Informed consent is required for any study engaging human research subjects or information belonging to other parties. As this is a compulsory education programme as part of the educational process, participation in the programme is automatic for the students concerned. Consent to use their information was obtained in writing after a verbal and written explanation of the research and its purpose had been given. This was done prior to the initial gathering of baseline data. A period of two hours during the university scheduled academic time was set aside for the initial address by the researcher in which the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

aims, objectives and purpose of the research were given. A full explanation of the new programme, the expectations of the participants and the support of the researcher and programme facilitator were assured. A letter of consent is appended to this document (Appendix 2). At this session, during which the baseline data was also gathered, students were provided with lunch in the form of sandwiches, muffins and juice.

4.9.3 Confidentiality. An explanatory letter, research request and confidentiality statement, signed by the researcher, was given to each participant who signed consent. No students withheld consent and the full class of first-year students participated in the research. Questionnaires were answered anonymously, but coded against the participant's student number for internal identification and to match sets of questionnaires from the same student at subsequent data gathering sessions. The student numbers and codes were known only to the researcher and were kept in a locked cabinet in a locked office.

4.9.4 Bias. On previous occasions of piloting a new programme, the researcher has facilitated the course of study. In order to avoid bias, and the possibility of researcher influence, this was not the case in this instance. The facilitator of the course was an experienced permanent university staff member who generally takes this class and was willing to facilitate the course for the duration of the study. The facilitator has no stake in the outcome of this investigation and is thus impartial to the results of this study.

4.9.5 Risk. There is a degree of risk to any research study and this needs to be ascertained in the planning stage of the project (Teddlie & Tashakkori, 2009). In research projects where there is minimal risk, participants experience no risk beyond what would ordinarily occur during the normal course of events (Teddlie & Tashakkori, 2009). As this is an educational programme, which is a normal part of the academic curriculum, no potential harm was foreseen. If the student participants had any psychological or educational difficulties regarding this particular lifestyle management course, or the questionnaires, that

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

the facilitator was not capable of dealing with, they would have been referred to the student-counselling centre. There were no reported instances of referral to the counselling unit during the research process that was connected with the research or the student's participation.

4.9.6 Beneficence. The direct benefits are that students participated in a new, fully evidence based programme of education in lifestyle management using the most modern best practice educational methods of teaching and learning. They have had the most recent evidence on disease prevention with which to make informed decisions about their own health and well-being. This gives the participants the opportunity to make the best decisions about their own personal wellness programme. The indirect benefits are that they have had the opportunity to have their opinion on this programme taken into consideration and this will inform any revisions to the future course curriculum and its method of delivery. Students have participated in the process that affects future students. Additionally, all future students will benefit from the programmes being developed and from the results of a fully researched and evaluated process of education in this field.

4.10 Conclusion

The author discussed the overall aims and the specific and secondary objectives of this study. The theoretical perspective of the intervention and a reiteration of the salutogenic basis for the study were reviewed. Thereafter the underlying ontological viewpoint of the researcher was discussed. This was followed by an in-depth discussion of the research approach taken, the theoretical methods applied and a discussion of the application of these methods within the context of this study.

The methods and practicalities of the participant selection were discussed and the demographics of the intervention group of students reported on. The author discussed how the collection of data was organised and executed. The development and piloting of questionnaires and the complex issue of organising the collected information into relevant

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

data analysis software programmes was given. The methods of analysis and how the results were obtained were dealt with before concluding with the validity and reliability of the methods employed.

CHAPTER FIVE**Data Analysis and Findings**

The aim of this study was to enquire into both objective and subjective impacts of a holistic, redeveloped, lifestyle management educational programme (entitled ‘Introduction to Lifestyle Management’) on a group of socioeconomically disadvantaged consumer science students in their first year of study at an institution of Higher Education. The primary objective of the study was to measure the impact and effectiveness of the interactive and holistic ‘Introduction to Lifestyle Management’ education course. Specific secondary objectives included the following:

- The objective measurement of any change in levels of wellness of the participants.
- The overall impact of the programme on changes in lifestyle management and the reasons for the impact.
- Evaluation, from the perspective of the students, of the educational programme and its areas of success and challenge.
- Comparison (by statistical correlation) of the levels of individual wellness with the level of academic achievement of the participants.

The data analysis and results will follow the order of these objectives. The quantitative analysis will deal with the objective impact of the intervention as far as the student wellness perception is concerned. The researcher will begin with two sources of information, the researcher generated questionnaire and the WQHE, which will be analysed separately and compared to one another, with respect to the students’ amount and sources of health and wellness related information, wellness information values and wellness scores. This will be followed by an objective analysis of any changes in levels of wellness across the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

period of the study. The participants' health and wellness information values will also be compared to the WQHE overall wellness scores and the broader wellness category scores.

The next set of results from the data analysis will deal with the second objective and look quantitatively at specific aspects of wellness and the resulting changes across the period of the study that amount to the total quantitative impact of the programme. The quantitative impact will give a descriptive picture of the overall wellness scores, the life satisfaction scores and the specific sub-categories of wellness for this group of students. The qualitative analysis will thereafter look at the subjective impact of the intervention and the reasons behind the results of the quantitative analysis. These results will be compared to the qualitative information gleaned from the researcher generated questionnaire, which will shed light on the reasons for changes in wellness.

Thirdly, the researcher will look at the qualitative analysis of the impact of the educational programme from the participants' perspective – the difference between what was expected and what the students felt they received with regard to the quality of the programme post-course and on reflection 15 weeks later. Both the areas of success and the challenges will be analysed. The question of constructive positive changes to the programme will also be dealt with.

Lastly, overall and specific areas of wellness will be correlated with, and compared to, the mid-year and year-end academic achievement. The extrapolation of results from the third source of information, the students' academic transcripts, will be incorporated into the comparison of the wellness broader category and sub-category analysis. The effect of the qualitative impact of the intervention on the students' academic achievement will be drawn out. Thereafter, the researcher looks at the specific aspects of this analysis in terms of the top and the bottom of the cohort of students and their respective academic achievements, where these results are significant to the study. We continue with the first set of descriptive

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

statistics, which looks at the students' situation with respect to their knowledge and value of health-related information.

5.1 Students' Amount, Sources and Value of Wellness Information

5.1.1. Pre-course amount of information. The participants came to the university from high schools which were either urban,² township³, or based in rural areas, with differing levels of pre-course information from a variety of sources, as given below. Firstly the tabled information was extracted, which shows the number of responses in each category (given as frequency) and the overall percentage of responses compared to the group (100%). Of the 34 students who completed the whole course and all of the questionnaires, there was no missing data.

The majority of students came to the university with some information; a smaller number felt they had a lot of information with the minority of students having had little or no information whatsoever. This is given in Table 4.

Table 4

Pre-Course Amount of Health Information

	Frequency	Percentage
None or very little	4	11.8
Some information	23	67.6
A lot of information	7	20.6
Total	34	100.0

² In the South African context, this would be inner city or suburban areas inhabited by all races and sectors of the population, who are generally employed.

³ In the South African context, this would be the outlying peri-urban formal settlements, which were previously segregated by race and which are still predominantly inhabited by people of colour.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.1.2 Pre-course sources of information. Further analysis of the amount and sources of information, extracted from a multiple response question in the researcher generated questionnaire, gave a more specific view of where the pre-course lifestyle and wellness information had come from. Students were given the option to choose as many responses as were relevant and there was more than one source of information for many of the respondents (see Table 5). Once again there was no missing data and all students had provided the information required on the questionnaire.

The total number of responses from the 34 students was 124. Most of the students had received information from more than one source. Of the options given for where students had obtained their information, school had provided most of the information. Information gained from life orientation or life skills classes was superseded in amount of information by the life science classes. It appears that such classes provide a significant source of wellness information for students, before entering the university.

Table 5

Pre-Course Sources of Health Information

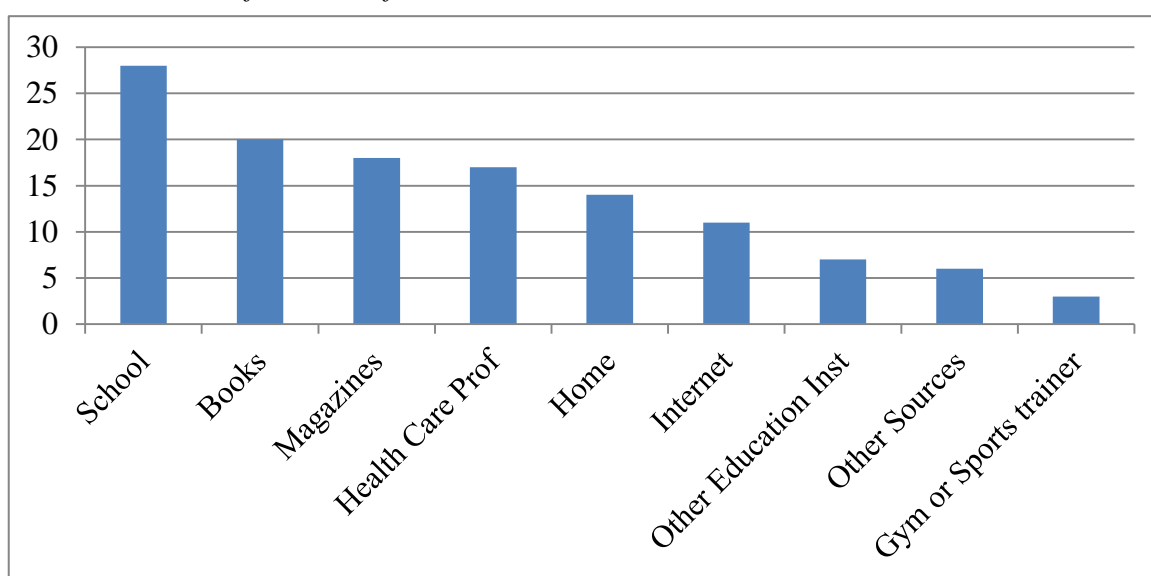
	Responses	
	N	Percentage
School	28	22.6
Home / parents / grandparents	14	11.3
Other educational institution	7	5.6
Health care professional / clinic sisters	17	13.7
Gym / sports trainer / sports club	3	2.4
Books	20	16.1
Magazines	18	14.5
Internet	11	8.9
Other Sources	6	4.8
Total	124	100.0

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Books, magazines, the clinic sisters⁴ and other health care professionals, were additional and significant sources of information on health. At this stage, the internet was not a significant source of information; however, access to the internet for students from rural areas may well have been limited. The least selected source of information had been gym or sports club trainers. The pre-course sources of information are depicted graphically in Figure 1, in descending order of frequency, for visual clarity.

Figure 1

Pre-Course Sources of Health Information



5.1.3 Post-course amount of information. Post-course data revealed that the majority of students felt that they had received a lot of useful information during the Introduction to Lifestyle Management course. Many students felt that they had at least received the amount of information that they needed, with the minority being of the opinion that they had a reasonable amount of information.

⁴ In South Africa, primary health care clinics are placed in urban, township and rural areas and, although a visiting doctor (MD) may be present on occasion, these are predominantly operated and managed by specialised registered professional nurses.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 6

Post-Course Amount of Health Information

	Frequency	Percentage
Some information but not as much as you feel you need	1	2.9
A reasonable amount of useful information	2	5.9
A lot of useful information	19	55.9
As much information as you feel you needed	12	35.3
Total	34	100.0

In response to the question on amount of information the participants answered as shown in table 6. Only one participant was dissatisfied with the amount of information they received, feeling that this was not as much as they felt they needed (see Table 6). This information is meaningful only when taken into account alongside the sources of information, which follows in the next sub-section.

5.1.4 Post-course sources of information. Once again, students were allowed as many choices as was applicable to the question and could choose more than one option, with respect to the sources of information they had received. Analysis of the sources of information revealed that, for the majority of students, the information on the course was supplemented by other courses taken, as well as access to the internet, the clinic sisters and use of the library. The responses as per the post-course questionnaire are given in Table 7.

The Consumer Science curriculum in the first year of both the four-year extended and the three-year course, includes courses on physiology and nutrition, as well as basic food science (Walter Sisulu University, 2012a). Unlike the pre-course sources of information, the internet had provided a significant source of information for students at this point in their university life.

For students who come from rural areas and those from lower socioeconomic backgrounds, access to the internet is significantly improved by attendance at university,

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

where computer laboratories are made available, along with limited amounts of free internet access and downloading of information. The university clinic sisters and other health care professionals had also proved to be significant sources of information, as had books, use of the library and library staff. Magazines were additional sources of information; however, magazines were less significant in the provision of information than books. Home and family were not as influential as providers of information; however, many students were resident in the university accommodation and this is probably to be expected. The Centre for HIV/AIDS and gym or sports trainers were not significant sources of health and wellness information.

Table 7

Post-Course Sources of Health Information

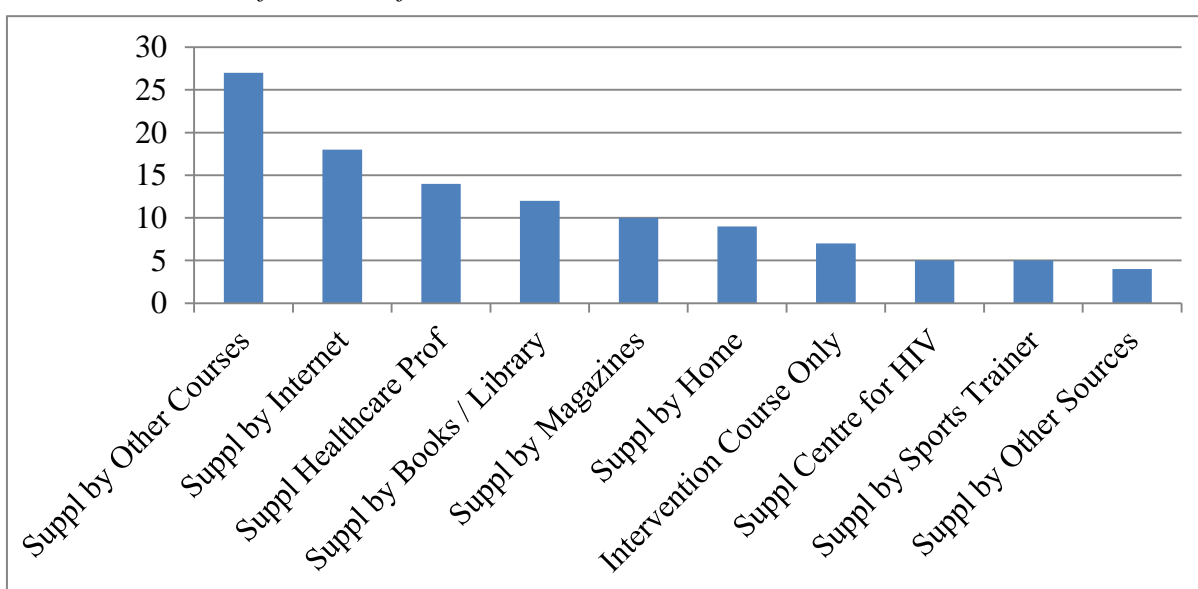
	Responses	
	N	Percentage
The course has been my only source of information	7	6.3
The course info supplemented by other courses	27	24.3
The course info supplemented by home / parents / grandparents	9	8.1
The course info supplemented by health care professional / clinic sisters	14	12.6
The course info supplemented by centre for HIV/AIDS	5	4.5
The course info supplemented by gym / sports trainer / sports club	5	4.5
The course info supplemented by books / use of library / librarians	12	10.8
The course info supplemented by magazines	10	9.0
The course info supplemented by the internet	18	16.2
The course info supplemented by other sources	4	3.6
Total	111	100.0

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Since the centre for HIV/AIDS is consistently present on the campus, the low numbers of students who felt that the information provided by the centre is somewhat surprising. The provision of information from sports trainers is not much more than that experienced at school. These could be both areas of concern and of opportunity, as will be discussed in the next chapter. This information is presented graphically in Figure 2, ranked in order from the highest to the lowest level of responses.

Figure 2

Post-Course Sources of Health Information



5.1.5 Post-post-course amount of information. Students completed the intervention course at the end of November 2013. Further data were gathered and an analysis was made in order to ascertain whether or not students had retained information, sourced further information and to ascertain how the participants felt on reflection about the amount of information that they had after the completion of the course. All of the students responded to the question and there was once again no missing data.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 8

Post-Post-Course Amount of Health Information

	Frequency	Percentage
None or very little	0	0
Some information but not as much as you would have liked	0	0
A reasonable amount of useful information	3	8.8
A lot of useful information	30	88.2
Only the information that is important to you	1	2.9
Total	34	100.0

The 15 week post-post-course data for the amount of information the students had at that point in time are given in Table 8. The number of students who felt that they had a lot of information actually increased between the end of the course and the first term of the subsequent academic year, 15 weeks after the end of the course. A far smaller number felt that they had a reasonable amount of information and only one student felt they had at least the information that was important to them. All students, at this point, felt that they had as much information as they needed and there were no students who were dissatisfied with the amount of information, or who felt that, at this stage, they had had insufficient information. The sources of students' information follow in the next sub-section.

5.1.6 Post-post-course sources of information. Since the amount of information retained or accessed by students had actually increased, as per the numbers of students who felt that they had a lot of useful information, the sources of such information would be valuable in order to ascertain where the information had come from. Additionally, this would give an indication of the extent to which students had broadened their own knowledge unassisted by the course facilitator. Once again, students were given the option of choosing as many options, with respect to sources of information as they wished, on the participant post-post-course questionnaire. The sources of the participants' wellness information fifteen

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

weeks post-post-course are depicted in Table 9 and as a graph in Figure 3 in order of the highest to the lowest number of responses. Only one student chose not to give a response to this question.

Table 9

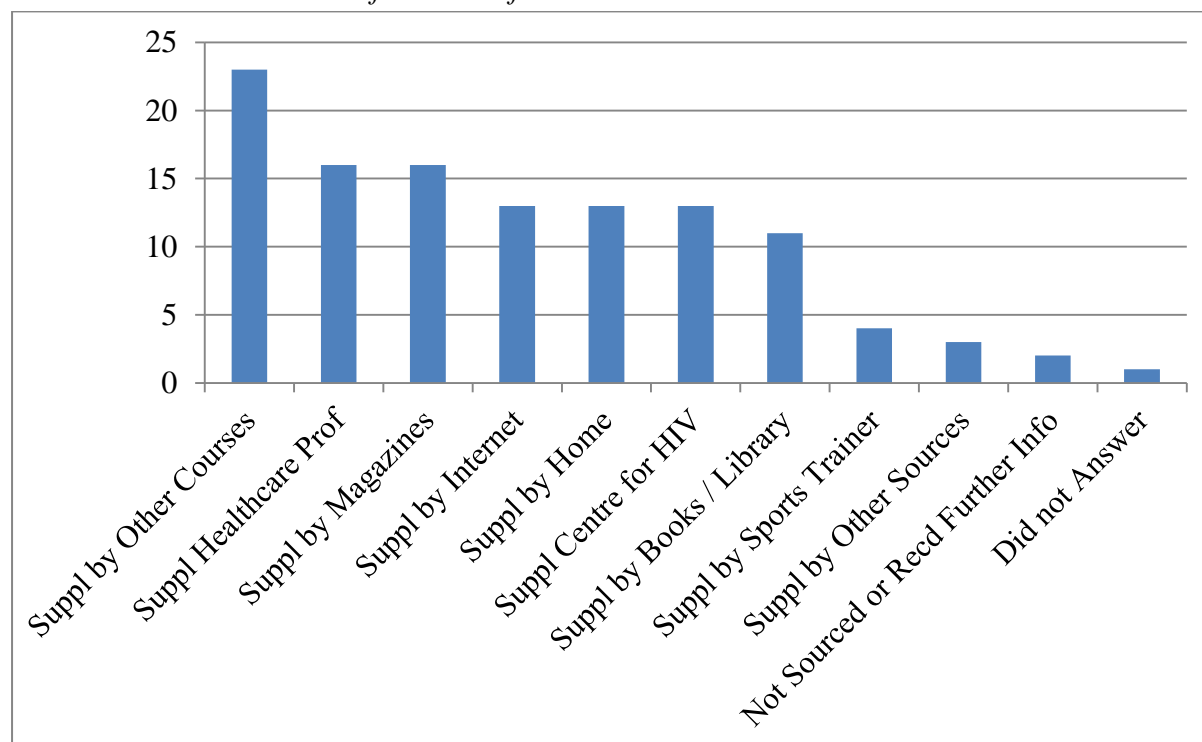
Post-Post-Course Sources of Health Information

	Responses	
	N	Percentage
I have not sourced or received further information	2	1.7
Other courses on my programme of study	23	20.0
Home / parents / grandparents	13	11.3
Health care professional / clinic sisters	16	13.9
The Centre for HIV/AIDS	13	11.3
Gym / sports trainer / sports club	4	3.5
Books	11	9.6
Magazines	16	13.9
Internet	13	11.3
Other Sources	3	2.6
Did not Answer	1	0.9
Total	115	100.0

The following graph depicts the above information ranked from the highest to lowest number of responses by students who had accessed information from that particular source (see Figure 3). Significantly, only two participants had not sourced further information. The majority of students felt that the information provided was supported substantially by other courses within their programme. The clinic sisters and health care professionals, magazines, the centre for HIV/AIDS, the internet, as well as books and library services, also provided significant sources of further information. Again, sports trainers were not a significant source of information.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Figure 3

Post-Post-Course Sources of Health Information

Now that we have a picture of the students' amount and sources of information, we are going to view the value that students placed on the various aspects of health-related information given in the intervention course. There were a total of twenty-two aspects of health that underpinned one or more learning units in the intervention programme; students rated the value of information on these aspects of health pre-, post- and post-post-course.

Wellness values were reflected in the priorities that students gave to information on particular aspects of health. Students were asked to rank the importance of information on various aspects of personal health before, at the end of the intervention course and fifteen weeks post-post-course, as either very important, important, not too important, or not important at all. A numerical value was assigned to the answers given, with very important rating 3; important 2; not too important 1; and not important and no answer rating 0. A descriptive statistical sum of scores, as well as a means average for each variable, was

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

calculated. This allowed for quantification of the students' value of information with respect to specific aspects of health. The aggregate tabled and graphical information is given in the following three sub-sections, for pre-, post- and post-post-course.

5.1.7 Pre-course value of information. The participants' values with regard to specific aspects of health information were taken before the intervention course, to ascertain the extent to which knowledge on these particular aspects of health were or were not important. The ranked statistical analysis is revealed in Table 10.

The maximum score possible for any given value of information was a score of 102 (a maximum score of 3 points x 34 being the number of respondents). Knowledge of intrapersonal skills (knowing oneself well); nutrition; planning one's own future; water intake; clean air; optimism and time management, were rated highest before the course, with information on intrapersonal skills in the top place. Only one respondent placed knowledge of intrapersonal skills second on the ranking as 'important' rather than 'very important'.

Intrapersonal skills scored 101 out of a possible 102, nutrition and future planning came a close second in importance, both scoring 100. Information on water intake, clean air and optimism and time management also ranked high in value, over 90% of the possible score. It is to be noted, however, that information with regard to happiness; setting priorities; faith; exercise; stress management; HIV; self-expression; use of medication and interpersonal skills all ranked between 78% and 90% of the possible total score.

There was a significant drop-off in scores for the final six items with regard to the value of information that students placed on these aspects of health and wellness. Information on sun exposure; bacteria; zoonosis; recreational drug use; use of alcohol and smoking rated the lowest in information value. Some reasons for this will be revealed in the qualitative analysis of the students' comments.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 10

Pre-Course Value of Health Information

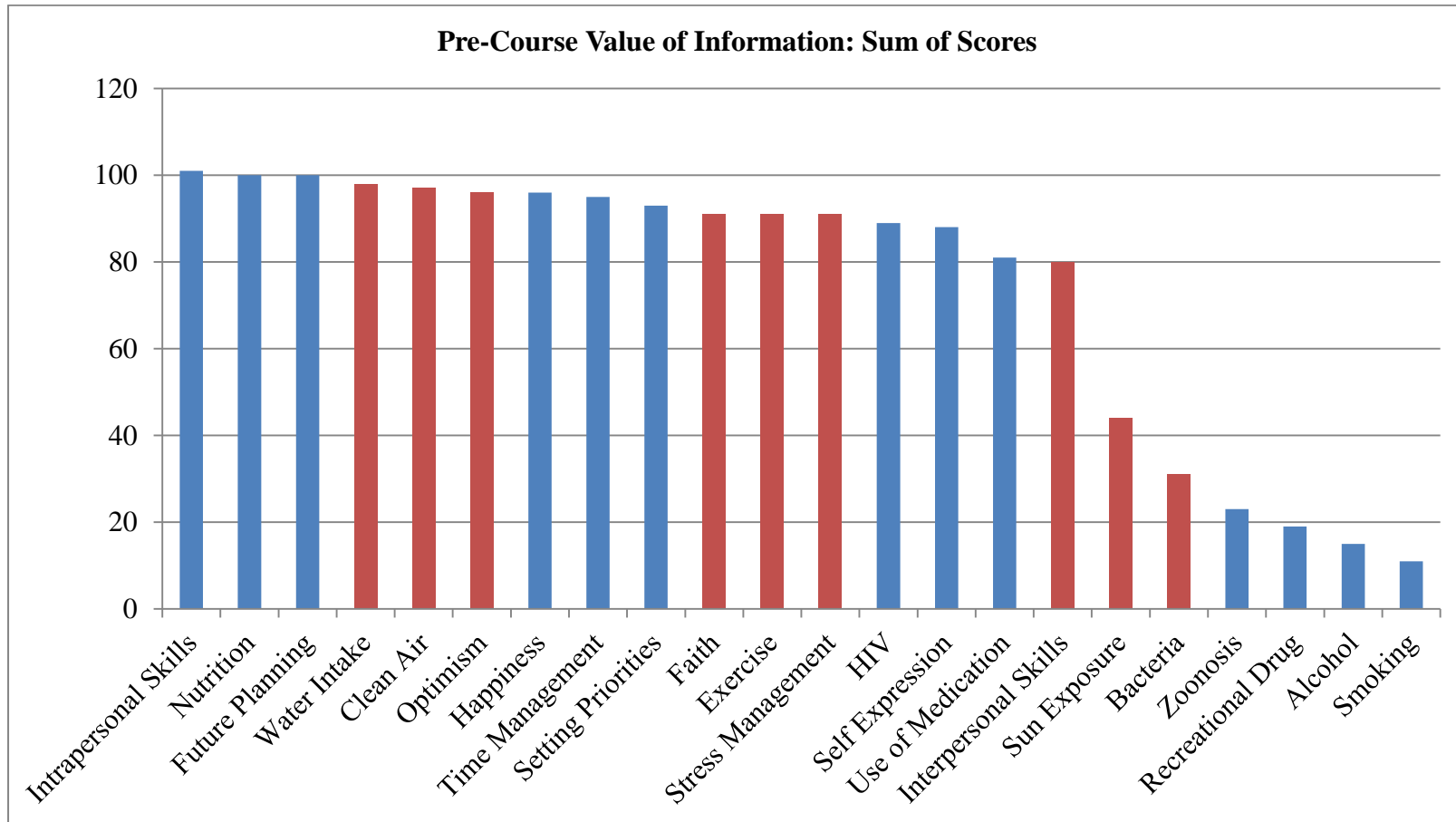
	Sum	Mean	Std. Deviation	Variance
Intrapersonal Skills	101	2.97	0.171	0.029
Nutrition	100	2.94	0.239	0.057
Future Planning	100	2.94	0.239	0.057
Water Intake	98	2.88	0.327	0.107
Clean Air	97	2.85	0.359	0.129
Optimism	96	2.82	0.459	0.210
Time Management	96	2.82	0.521	0.271
Happiness	95	2.79	0.479	0.229
Setting Priorities	93	2.74	0.511	0.261
Faith	91	2.68	0.535	0.286
Exercise	91	2.68	0.475	0.225
Stress Management	91	2.68	0.535	0.286
HIV	89	2.62	0.985	0.971
Self-Expression	88	2.59	0.500	0.250
Use of Medication	81	2.38	0.779	0.607
Interpersonal Skills	80	2.35	0.597	0.357
Sun Exposure	44	1.29	0.836	0.699
Bacteria	31	0.91	1.055	1.113
Zoonosis	23	0.68	1.065	1.135
Recreational Drug Use	19	0.56	0.927	0.860
Alcohol	15	0.44	0.960	0.921
Smoking	11	0.32	0.912	0.832

At that point in time students had not received any information with respect to health and wellness from the university, were unaware of the syllabus of the course and were not in possession of a study guide. The value of information was therefore uninfluenced by the course. The students completed the course of study in full before the post-course questionnaire was administered. The graphical representation is depicted in Figure 4.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Figure 4

Pre-Course Value of Health Information



Information is ranked in descending order of the actual sum of the scores for wellness information values.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.1.8 Post-course value of information. The participants' values on the varying aspects of information were taken again at the end of the intervention in order to ascertain the extent to which knowledge on particular aspects of health after the course had, or had not changed, in levels of importance (see Table 11).

Table 11

Post-Course Value of Health Information

	Sum	Mean	Std. Deviation	Variance
Future Planning	102	3.00	0.000	0.000
Intrapersonal Skills	101	2.97	0.171	0.029
Water Intake	101	2.97	0.171	0.029
Setting Priorities	100	2.94	0.239	0.057
Time Management	100	2.94	0.239	0.057
Clean Air	98	2.88	0.327	0.107
Optimism	98	2.88	0.409	0.168
Nutrition	97	2.85	0.558	0.311
HIV	95	2.79	0.729	0.532
Happiness	94	2.76	0.431	0.185
Stress Management	94	2.76	0.496	0.246
Self-Expression	92	2.71	0.462	0.214
Exercise	92	2.71	0.629	0.396
Faith	88	2.59	0.557	0.310
Interpersonal Skills	78	2.29	0.799	0.638
Sun Exposure	74	2.18	0.797	0.635
Use of Medication	63	1.85	1.158	1.341
Bacteria	43	1.26	1.136	1.291
Zoonosis	37	1.09	1.334	1.780
Recreational Drug Use	20	0.59	0.925	0.856
Alcohol	12	0.35	0.812	0.660
Smoking	11	0.32	0.843	0.710

In general, post-course scores, regarding the value placed on health and wellness-related information, were slightly higher than pre-course scores. Although nutrition and

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

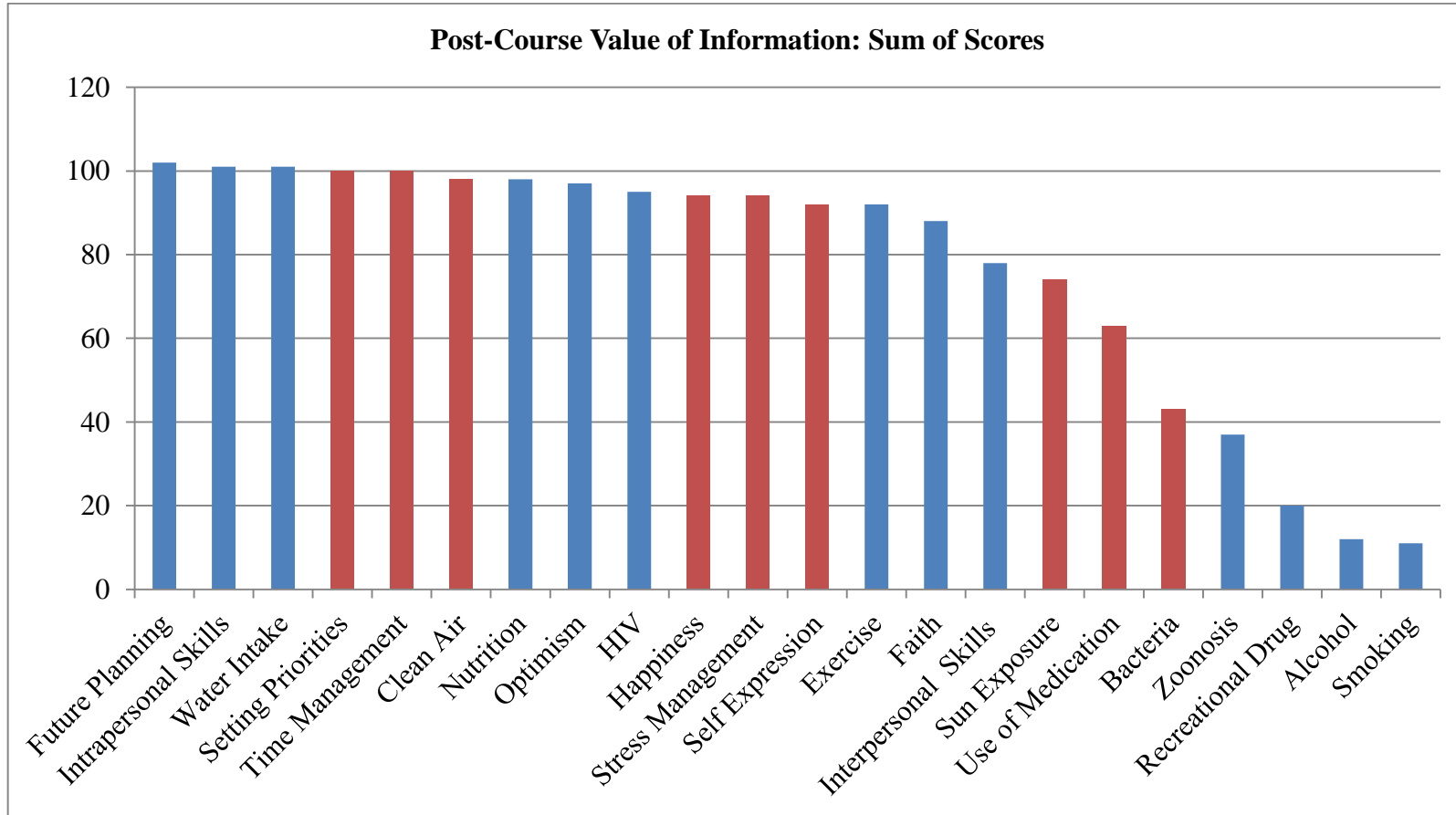
optimism still ranked as very important, they were superseded somewhat by the necessity of information on future planning, setting priorities and time management. This could have had something to do with the time of year (final examinations and academic year-end) and the pressures induced by the post-strike catch-up plan that called for prioritisation and time management. It is to be noted that information with respect to planning one's own future and adequate intake of drinking water, as well as intrapersonal skills, still ranked high among the students' wellness values. Future planning scored a full 102, and the high score of 101 for intrapersonal skills had not changed. The value of information on water intake rose compared to pre-intervention. The value of intrapersonal skills still far outweighed the value of interpersonal skills in this group of students. The value of information on clean air changed by only one point and nutrition, although no longer at the top end of the scale, fell by only three points. The value of information on optimism; stress management; happiness; self-expression and faith changed very little, and all remained in the range of 86% to 96% of the full total score possible.

The value of information placed on interpersonal skills, sun exposure and use of medication were towards the middle range of scores and the lower end of the table; however, the scores for information on sun exposure; zoonosis; bacteria and other pathogenic microorganisms, although ranking low on the list of values of information, still scored more points than before the course. As far as the five lowest ranking value scores are concerned, there was little change between the pre- and post-course ranking for recreational drug use, alcohol and smoking. Information on zoonotic diseases, bacteria and other pathogenic microorganisms, although ranking low on the list of values of information, still scored more points than before the course. The graphical representation is given in Figure 5.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Figure 5

Post-Course Value of Health Information



Information is ranked in descending order of the actual sum of the scores for wellness information values.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.1.9 Post-post-course value of information. The aggregated table for the fifteen week post-post-course values, with regard to information on wellness, is given in Table 12.

Table 12

15 Weeks Post-Post-Course Value of Health Information

	Sum	Mean	Std. Deviation	Variance
Future Planning	102	3.00	0.000	0.000
Water Intake	101	2.97	0.171	0.029
Nutrition	100	2.94	0.239	0.057
HIV	99	2.91	0.288	0.083
Exercise	99	2.91	0.288	0.083
Time Management	98	2.88	0.327	0.107
Setting Priorities	98	2.88	0.327	0.107
Intrapersonal Skills	98	2.88	0.537	0.289
Clean Air	97	2.85	0.359	0.129
Optimism	96	2.82	0.387	0.150
Stress Management	96	2.82	0.387	0.150
Happiness	94	2.76	0.431	0.185
Self-Expression	91	2.68	0.475	0.225
Faith	90	2.65	0.544	0.296
Interpersonal Skills	85	2.50	0.508	0.258
Use of Medication	76	2.24	0.781	0.610
Sun Exposure	62	1.82	0.999	0.998
Bacteria	40	1.18	1.218	1.483
Zoonosis	37	1.09	1.357	1.840
Recreational Drug Use	19	0.56	1.021	1.042
Alcohol	14	0.41	0.821	0.674
Smoking	9	0.26	0.790	0.625

The final questionnaire on the value of information on wellness was administered 15 weeks after the end of the course, once students had returned from the summer recess and started their second year of study. This gave the students the opportunity for reflection and mitigated the conditions of stress surrounding the year-end examination period. Information

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

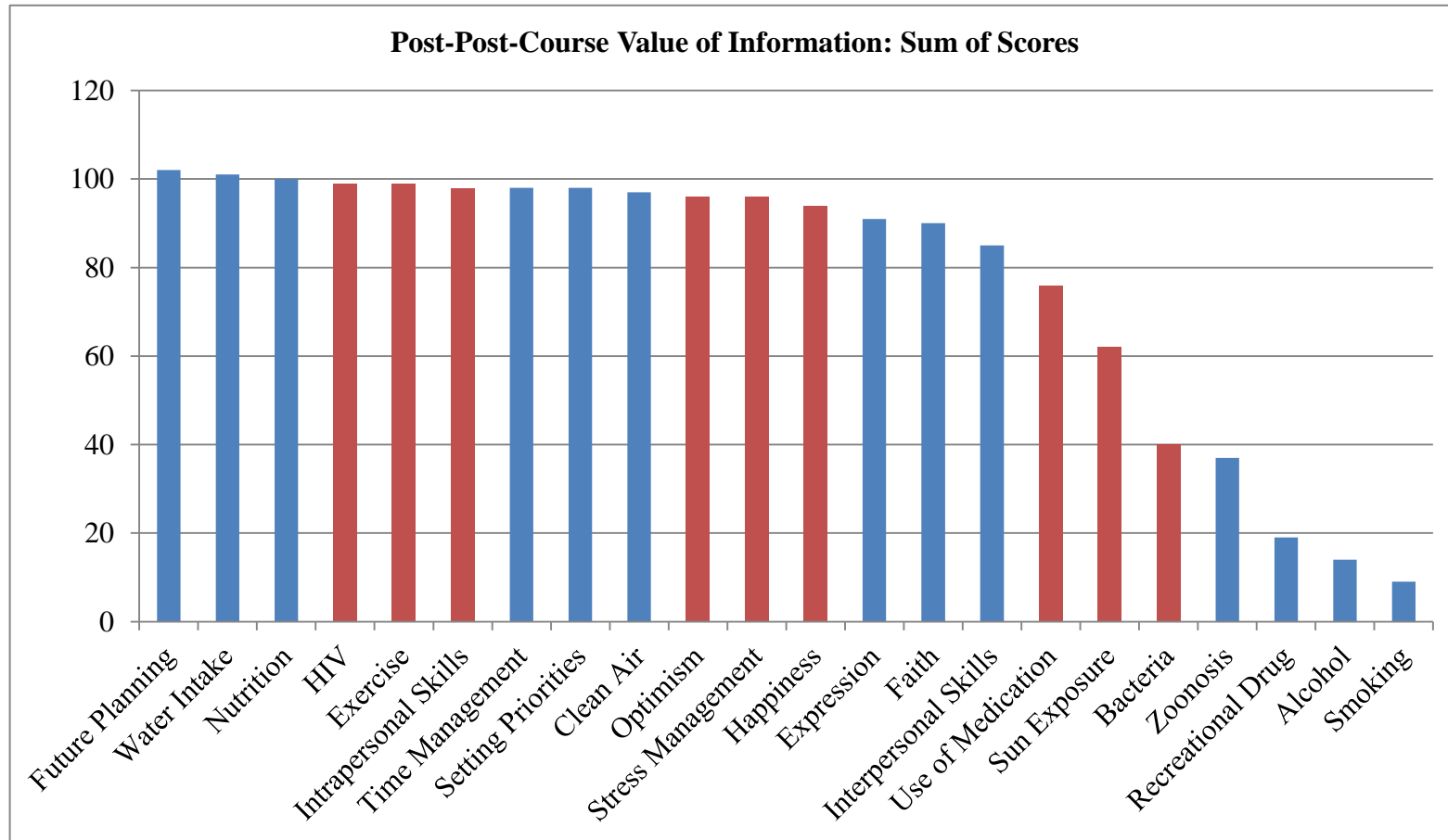
on planning one's own future, followed by water intake, nutrition; HIV and exercise (which ranked the same), were highest ranking values of the students, 15 weeks after the end of the intervention programme. Values were not significantly different, with the exception of the values of sun exposure; zoonosis; HIV bacteria and exercise, all of which had risen significantly. The value of information on sun exposure rose by 23 points; zoonosis by 13 points and on HIV by 10 points; bacteria 9 points; that of exercise had risen 8 points from ranking eleventh with a point score of 91 before the intervention, to a score of 92 post-intervention and 99 post-post-intervention. The value of information on nutrition had fluctuated somewhat, ranking 100 pre-course, dropping to 98 post-course and rising back to 100 post-post-course. The post-course ranking may have been affected by the fact that nutrition as a scientific subject is also a major subject for student consumer scientists. These will be viewed in the next section.

Over the course of the intervention and up until 15 weeks after this little changed with regard to the ranking of the value of information on smoking, the use of alcohol and recreational drug use. Although the value of information on sun exposure and zoonosis ranked low overall, there was nevertheless an increase in the number of students that regarded the information as 'very important', so the actual point scores increased. The value of information on sun exposure also changed significantly from a point score of 44 pre-course to 74 post-course and decreased to 62 post-post-course. The graph depicting the post-post-course values is provided in Figure 6.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Figure 6

15 Weeks Post-Post-Course Value of Health Information



Information is ranked in descending order of the actual sum of the scores for wellness information values.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.1.10 Comparison of pre-, post- and post-post-course values. Table 13, gives a comparison of the pre-course, post-course and 15 week post-post-course value of information. The value placed on information with regard to many aspects of wellness remained relatively stable from the beginning to the end of the intervention course and beyond. The value of information on nutrition; clean air; optimism and recreational drug use did not change at all between pre-course and 15 weeks post-post-course. For many of the information values (future planning, intrapersonal skills, water intake, time management, setting priorities, stress management, happiness, self-expression, faith, interpersonal skills, use of medication, alcohol and smoking), there were minor changes; however, for the main part, these represented too small a change to be noteworthy. There were a few aspects of wellness for which moderate (more than 5%) to major (17%) changes in the value of information took place across the time of data collection.

The value of information on exercise, bacteria and micro-pathogens, HIV and zoonotic disorders, as well as sun exposure, increased. The value of information on exercise increased by eight points from a score of 91 to 99 (out of a possible score of 102), representing an increase of 7.8%. Information on bacteria ranked towards the bottom of the list of values; however, the value of information increased by nine points, from a score of 31 to 40, representing an increase of 8.8%. Bacteria and micro-pathogens, along with HIV, zoonotic disorders and sun exposure, came into the intervention course of study in the second module on environmental wellness. This was an issue that had not been previously part of the course.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 13

Comparison of the Detailed Pre-, Post- and 15-Week Post-Post-Course Value of Health Information

	Pre-Course Sum	Post-Course Sum	Post-Post-Course Sum	Variance pre-course : post-post-course
Future Planning	100	102	102	+2
Intrapersonal Skills	101	101	98	-2
Water Intake	98	101	101	+3
Nutrition	100	97	100	0
HIV	89	95	99	+10
Exercise	91	92	99	+8
Time Management	96	100	98	+2
Setting Priorities	93	100	98	+5
Clean Air	97	98	97	0
Optimism	96	98	96	0
Stress Management	91	94	96	+5
Happiness	95	94	94	-1
Expression	88	92	91	+3
Faith	91	88	90	-1
Interpersonal Skills	80	78	85	+5
Use of Medication	81	63	76	-5
Sun Exposure	44	74	62	+18
Bacteria	31	43	40	+9
Zoonosis	23	37	37	+14
Recreational Drug Use	19	20	19	0
Alcohol	15	12	14	-1
Smoking	11	11	9	-2

The subject of zoonotic disorders was introduced as a full learning unit, with information on HIV being a specific zoonotic disorder that continued in the following four learning units. Although the value of information had ranked near the bottom of the list for

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

both subjects, this value increased significantly. The value of information on HIV increased by 10 points from 89 to 99, representing a 9.8% increase in value of information, whilst the value of information on zoonotic disorders rose by 14 points from 23 to 37, a 13.7% increase. The most surprising increase in the value of information was that of sun exposure, which increased overall by 18 points from 44 to 62 (after having reached a peak of 74 at the end of the course), representing an overall increase of 17.6%. This was the largest increase in the change in the value of information over the period of the study.

The value of information overall remained reasonably stable with the above-mentioned exceptions. How this translates into actual wellness scores is viewed in the next section of the statistical analysis (5.2), where the information received from the wellness questionnaires is analysed and correlated with wellness scores. Whilst it is acknowledged that change can be challenging, it is also reasonable to expect that, due to the intervention, some change in wellness would ensue (E. S. Jackson et al., 2007). This is dealt with in the following sub-section.

5.2 Students' Wellness Pre-, Post- and Post-Post-Course

Student wellness was measured using the Nelson Mandela Metropolitan University (NMMU) Wellness Questionnaire for Higher Education (WQHE), an approved and registered wellness evaluation tool (De la Harpe et al., 2011). A descriptive statistical analysis was made of the overall wellness scores and the life satisfaction scores, followed by the various components of wellness as per the WQHE. The WQHE Table of Domains was used to identify and score the students' responses with respect to the variable components of wellness. There are two significant measures used when describing quantities or measures of central tendency – one is the mean, and the other the standard deviation from the mean (Clegg, 1998). In the following set of tables the mean average wellness score for the group is used, which gives an overall view of the group wellness pre-, post- and post-post-

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

intervention. The interpretation of the means average for the WQHE Table of Domains is as follows (De la Harpe et al., 2011):

- Percentage scores equal to or higher than 85% = excellent
- Percentage score between 70% and 84% = good
- Percentage scores between 55% and 69% = room for improvement
- Percentage scores less than 55% = poor

The standard deviation tells us that some students will not have scored the mean average as individuals, and gives an indication by how much scores for individuals may have varied. If the variance (or standard deviation) is high, then the mean average might not be the best 'average' to use as it might mean that there are a number of extreme measures, or that some scores cluster around an extreme measure (Clegg, 1998). A means average can be used to describe a group when the mean clusters around the most typical score and the standard deviation is relatively small compared to the range of possible scores.

A standard deviation will give the range of the majority of scores, hence it will mitigate against the 'outliers', or extreme scores, where perhaps one person scored 0 and another 100. In this research the possible range would be 0-100 (Clegg, 1998). A standard deviation of 12.283 for pre-course physical wellness (as in Table 14) means that, although the lowest individual score was 29 and the highest 86, the majority of the student scores fell between 51.22 and 75.78, therefore giving the average of 63.50, an approximate 88% confidence score for the group as a whole. The standard deviation is not in itself statistically significant in descriptive statistical analysis, but should be read alongside the mean average, in order to give an indication of where the majority of the research population scores fell (Clegg, 1998). In this respect it gives a better indication of the most meaningful range of scores, rather than the actual range of scores, which may include one or two extreme scores by a small number of individuals that are not 'typical' of the group as a whole (Clegg, 1998).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

The overall wellness scores for the complete cohort of students over the entire time of the intervention and data gathering is given in the next sub-section. The following sub-sections give the pre-, post- and post-post-course wellness scores for the sub-scale categories of wellness where we can see how the various aspects of wellness score and where these aspects of wellness score with respect to being good or requiring improvement.

5.2.1 Pre-course student wellness. A baseline measurement score of each of the main sub-scale categories of student wellness (as per the Table of Domains) was taken prior to the commencement of the intervention. The results of the main sub-scale categories of wellness, as per the Table of Domains, given as a percentage of the achievable score, are given in Table 14. Prior to the intervention the overall wellness score, as a percentage of the total score achievable, was 72.6 on average for the group. There was no missing data.

Table 14

Pre-Course Main Sub-Scale Category Wellness Scores

	N	Minimum	Maximum	Mean	Std. Deviation
Physical Wellness	34	29	86	63.50	12.283
Career Wellness	34	14	100	81.74	14.977
Intellectual Wellness	34	40	88	68.97	12.916
Environmental Wellness	34	40	92	67.09	14.892
Social Wellness	34	46	94	73.91	12.741
Emotional Wellness	34	54	100	78.88	11.273
Spiritual Wellness	34	54	100	78.94	12.028
Total Score for Wellness	34	53	95	72.56	9.918

Overall wellness and all other domain subscale scores ranked as ‘good’ as per the interpretation for the WQHE; however, intellectual, environmental and physical wellness scores demonstrated room for improvement. At this point no scores fell into either the category for ‘excellent’ or the category for ‘poor’. Career wellness, followed by spiritual and emotional wellness, ranked the highest and physical wellness the lowest. Career wellness, however, had the highest standard deviation, with the majority of students scoring between

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

66.7 and 96.7 and five students scoring outside of this range. Despite the scores for physical wellness ranking the lowest, the standard deviation indicates a slightly more stable and typical score. The next set of data gives the descriptive statistical analysis for the post-course student wellness scores taken after the full intervention programme at the end of the academic year.

5.2.2 Post-course student wellness. The students' average overall wellness score increased from 72.56% pre-course, to 76.26%, post-course. The post-course main areas of wellness, given as a percentage of the achievable score, as seen in Table 15, indicate that spiritual wellness ranked the highest (an increase of 3.06%) followed by career wellness, which had dropped by 1.03% and emotional wellness which had risen slightly (0.69%). It did not, however, significantly change the ranking and only minor differences were observable in the emotional and career wellness.

Table 15

Post-Course Main Sub-Scale Category Wellness Scores

	N	Minimum	Maximum	Mean	Std. Deviation
Physical Wellness	34	23	82	67.82	9.980
Career Wellness	34	66	95	80.71	8.516
Intellectual Wellness	34	48	92	72.44	10.405
Environmental Wellness	34	50	92	75.50	10.816
Social Wellness	34	53	93	77.91	9.469
Emotional Wellness	34	43	98	79.47	11.150
Spiritual Wellness	34	45	100	82.00	12.973
Total Score for Wellness	34	54	87	76.26	6.921

All post-course scores for the wellness domains, with the exception of that of physical wellness, fell into the range between 70% and 84%, interpreted as 'good'. The standard deviation within the career wellness scores was relatively low, indicating that the score is more typical for the majority of the students. Physical wellness still ranked the lowest on the scale indicating 'room for improvement' but increased by 4.32%, over the pre-course score.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

The standard deviation was also fairly low giving an indication that both the lowest score of 23 and the highest of 82 were due to individual outlier scores, the more typical scores fell between the ranges of 57.9 to 77.7. This was followed again by intellectual and environmental wellness at the bottom of the scale; however, these scores also increased over the pre-course scores, with moderate standard deviations.

The final sub-set set of data in this section gives the analysis of the post-post-course student wellness scores for the main wellness domains. This set of data was taken 15 weeks after the year end, after the pressure of both main and supplementary examinations. At this point in time students had time to reflect on the information received, source any further information they felt they required and implement some of the changes that they may have wished to make.

5.2.3 Post-post-course student wellness. The 15-week post-post-results of the intervention is given in Table 16, also as a percentage of the total achievable scores of the main sub-scale categories of wellness, as per the Table of Domains. Table 16 shows a further increase in overall total wellness of 1.36% to 77.62% of the achievable score. At this point the means average for all scores fell between 70% and 84%, rated as 'good' as per the WQHE interpretation of scores. The standard deviation is also relatively low, indicating that only three students fell outside of the range of 68.70% to 86.54%, with the majority falling within a much narrower range than the 53% to 95% range indicated.

The 15-week post-post-course main categories of wellness indicate that emotional wellness now ranked highest at the top of the scale (with a moderately larger standard deviation) followed by career wellness and spiritual wellness now having slightly dropped. Physical, intellectual and environmental wellness's were the lowest ranking, but still gained on the pre- and post-course percentages. Physical wellness had the lowest standard deviation which indicates that the score is more 'typical' for the group as a whole.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 16

Post-Post-Course Main Sub-Scale Category Wellness Scores

	N	Minimum	Maximum	Mean	Std. Deviation
Physical Wellness	34	49	92	71.97	9.886
Career Wellness	34	48	98	81.79	10.435
Intellectual Wellness	34	38	96	72.76	13.209
Environmental Wellness	34	30	97	76.41	15.264
Social Wellness	34	55	96	78.41	11.314
Emotional Wellness	34	44	100	81.97	11.411
Spiritual Wellness	34	50	100	80.65	12.429
Total Score for Wellness	34	53	95	77.62	8.917

Additionally, the physical wellness score improved sufficiently to rank in a higher category for wellness, indicating a good level of wellness for the majority of the participants as opposed to indicating 'room for improvement' (see Table 16).

5.2.4 Comparison of overall wellness scores. The overall wellness scores totalled the scores for all questions 1-119 on the Table of Domains and included all primary factors of wellness in the sub-scales, in addition to those questions that related to life satisfaction, which were contained in the primary factor sub-scale questions. The comparison of overall wellness scores can be seen in Table 17.

Table 17

Comparison of Pre-, Post- and 15-Week Post-Post-Course Overall Total Wellness

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	53	95	72.56	9.918
Post-Course	34	54	87	76.26	6.921
Post-Post-Course	34	53	95	77.62	8.917

Over the course of the intervention the scores all remain in the range between 70% and 84% rating as 'good', as per the interpretation of the WQHE Table of Domains for overall wellness. Despite there being no change between the pre- and 15-week post-post-intervention minimum and maximum scores for students, the overall mean average score for

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

the group rose from the pre-course baseline data to the post-course data by 3.7% and rose again at the 15 week post-post-course data collection by a further 1.36%. Overall the total average rise in wellness scores across the 14-month time period was 5.06%. The standard deviation fell between the pre- and post-course data collection and rose slightly post-post-course but overall remained under 10%, which lessened the range of the most typical scores significantly (see Table 14). The life satisfaction score constitutes a sub-section of the WQHE, the score being calculated from a number of questions embedded with various sections of the questionnaire that denote whether or not an individual is generally happy with their life at that particular time. A comparison of the life satisfaction sub-scale scores over the same period is given in the sub-section that follows.

5.2.5 Comparison of overall life satisfaction scores. The life satisfaction scores, which are part of the overall wellness scores, were calculated separately. On the Table of Domains (Appendix 3), the life satisfaction score separates out the answers for questions 27, 28, 46, 69, 95-97, 109 and 115, that relate to the individual perception of aspects of psychosocial wellness that indicate how satisfied with their life the individual may be at that point in time. These scores, calculated pre-course, post-course and 15-weeks post-post-course, rose from the pre-course to the post-course data collection by 1.15%, but slightly dipped at the post-post-course data collection by 0.76%; however, still retaining an overall increase of 0.39%. Although there was a broad range between the minimum and maximum scores, the standard deviation was consistent, between 10.5 and 11.7; the bulk of the scores therefore range between 71.2 and 91.7. In essence 3 to 4 students gave outlier scores outside of this range (see Table 18).

These changes are very small (an overall 0.39%) and it would be difficult to determine whether they are meaningful as a group, although there may be individual students at the upper end of the range whose scores increased significantly (86% - 91.7%) as there are

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

also those at the lower end of the range (71.2% -85%) whose scores did not. It is to be noted that the pre-course score for life satisfaction is already high, and the scores across the time of the intervention remained in the upper range of the 70-84% that is interpreted as a 'good' life satisfaction score. This may indicate that the students were not unhappy with their lives in general, either at the onset of the year, or throughout the course of the intervention. The small amount of movement and the relative consistency of the standard deviation could, in this instance, relate to a certain amount of stability on behalf of the students. This is despite the difficult circumstances under which they had studied in the year of the intervention, having had a protracted lecturer strike and significant levels of stress.

Table 18

Comparison of Pre-, Post- and 15-Week Post-Post-Course Life Satisfaction

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-Course	34	58	100	81.29	10.495
Post-Course	34	53	97	82.44	11.662
Post-Post-Course	34	56	100	81.68	10.519

For ease of comparison the next set of data in the section on changes in specific aspects of wellness, will look at the main wellness domains across the time-line of the intervention and gathering of data. These will give the changes pre-, post- and post-post-course for the individual wellness domains and the primary factors, as per the WQHE question paper and score sheet.

5.3 Changes in Specific Aspects of Wellness

5.3.1 Changes in the main wellness domains. The main wellness sub-scale categories, as per the Table of Domains, pre-course, post-course and 15 weeks post-post-course for the students as a group are given in the following sub-sections. The degree of change between pre- and post-course, post-course and 15 weeks post-post-course, and the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

overall change between pre-course and 15 weeks post-post-course can be seen, along with the standard deviation from the main score. This gives a better indication of the most typical range as opposed to the actual range of scores which include individual ‘outliers.’ The main categories of wellness are compared in order to give an overall descriptive statistical view before the researcher moves on to give the specific sub-categories of wellness. The scores of the main categories of wellness are given in the same order as the WQHE and the Table of Domains.

5.5.1.1 Physical wellness scores. The change in physical wellness between the pre- and post-course indicates an increase of 4.32% with a further increase between the post-course and post-post-course of 4.15%, giving an overall pre-course to post-post-course increase of 8.47%. Despite having the lowest ranking among the categories of wellness in the WQHE, the scores for physical wellness represents the second highest gain in wellness scores overall. The WQHE interpretation of these scores shows that physical wellness increased sufficiently to move from a ranking of ‘room for improvement’, to a ranking of ‘good’, over the course of the intervention.

There is also a low to moderate standard deviation, indicating that the range of scores falls more closely towards the mean average than the actual range of scores indicates. There was one student who scored exceptionally low, two who scored moderately low and one who scored exceptionally high; however, the indication, especially for the post- and post-post-course scores, is that there is an overall improvement as well as a reasonable stability for the given means average (see Table 19).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 19

Pre-, Post-, and Post-Post Course Physical Wellness

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	29	86	63.50	12.283
Post-Course	34	23	82	67.82	9.980
Post-Post-Course	34	49	92	71.97	9.886

5.5.1.2 Career wellness scores. The change in career wellness between the pre- and post- course indicates a decrease of 1.03% with a slight increase between the post-course and post-post-course of 1.08%, giving an overall pre-course to post-post-course increase of 0.05%. Scores, according to the WQHE interpretation, rank as 'good' throughout the intervention. The means average changes are very small and the initial score is quite high; however, the standard deviation for pre-course scores is moderate with a large range. One student scored exceptionally low and another exceptionally high prior to the intervention, with the majority of students falling into a range between 66.76 and 96.72. The mean dropped slightly post-course as did the standard deviation, indicating perhaps a more realistic view of their career choice on behalf of the students. The slight increase in scores, as well as in standard deviation, fell between the two previous scores; however, considering the very small degree of change and removing the two outlier low and high scores, the results appear to indicate an overall career wellness stability (see Table 20).

Table 20

Pre-, Post-, and Post-Post Course Career Wellness

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	14	100	81.74	14.977
Post-Course	34	66	95	80.71	8.516
Post-Post-Course	34	48	98	81.79	10.435

5.5.1.3 Intellectual wellness scores. The change in intellectual wellness between the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

pre- and post-course indicates an increase of 3.47%, with a small to moderate standard deviation, which suggests a range of 62.04% to 82.84% for the majority of students. One student scored particularly low and one fairly high; only four other students fell just outside of this range. There was a further increase between the post-course and post-post-course of 0.032%, giving an overall pre-course to post-post-course increase of 3.79%. Intellectual wellness scores, as per the WQHE interpretation, rose from the level of 'room for improvement' to the level of 'good'. The standard deviation also rose significantly, suggesting that the post-course score might be more stable and representative of this group of student's intellectual wellness at the end of the course. Although the gain was small for a group of first-year university students, some gain in intellectual wellness would be expected (see Table 21). There may be a limiting factor to be considered, as scores for intellectual wellness may have been adversely affected by the interruption in classes during the third term of the year.

Table 21

Pre-, Post-, and Post-Post Course Intellectual Wellness

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	40	88	68.97	12.916
Post-Course	34	48	92	72.44	10.405
Post-Post-Course	34	38	96	72.76	13.209

5.5.1.4 Environmental wellness scores. The change in environmental wellness between the pre- and post-course indicates an increase of 8.41%, with a standard deviation post-course suggesting that the majority of students scored between 64.68% and 86.32%. A small number of students scored particularly high or low. A further increase between the post-course and post-post-course of 0.91% gave an overall pre-course to post-post-course increase of 9.32%. This is quite a significant gain and, despite the lower ranking on the value

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

of information scores for zoonotic disorders and bacteria, the value of fresh air, clean and adequate water intake, may be reflected in this increase in score for environmental wellness. As per the WQHE interpretation of scores, environmental wellness rose from the level of ‘room for improvement’ to that of ‘good’. The standard deviation, however, for the post-post-course score, suggests a wider spread of scores, indicating that the means average was perhaps less typical of the students as a group (see Table 22). Although not asked for in the researcher generated questionnaire, recycling and conservation of resources also appear to be important for this group of students, as is reflected in the detailed environmental wellness scores on the WQHE, which will be discussed in the next section.

Table 22

Pre-, Post-, and Post-Post Course Environmental Wellness

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	40	92	67.09	14.892
Post-Course	34	50	92	75.50	10.816
Post-Post-Course	34	30	97	76.41	15.264

5.5.1.5 Social Wellness Scores. The change in social wellness between the pre- and post course indicates an increase of 4.0% with a further increase between the post-course and post-post-course of 0.5%, giving an overall pre-course to post-post-course increase of 4.5%. Throughout the intervention the students’ scores remained in the category of ‘good’ with regard to the WQHE interpretation of the level of social wellness. Across the board the standard deviation is moderate with the post-course standard deviation in the lower level, indicating that this is the more stable and typical means average for this group of students. The overall increase in wellness across the pre- to post-post-course scores is lower than the average overall increase in wellness score (see Table 23). This possibly reflects the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

importance of information on interpersonal skills ranking lower than that of intrapersonal skills for this group of students.

Table 23

Pre-, Post-, and Post-Post Course Social Wellness

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	46	94	73.91	12.741
Post-Course	34	53	93	77.91	9.469
Post-Post-Course	34	55	96	78.41	11.314

5.5.1.6 Emotional wellness scores. The change in emotional wellness between the pre- and post-course indicates an increase of 0.59%, with a further increase between the post-course and post-post-course of 2.5%, giving an overall pre-course to post-post-course increase of 3.09%. Again, this increase is lower than the average increase in overall wellness (see Table 24). This small post-post-course increase may have occurred, in part, because of the generally high level of emotional wellness initially prior to the course. An increase in academic year-end stress, followed by a significant decrease in stress, could also have had an impact on these scores. This will be discussed in the next chapter. The WQHE interpretation places these scores in the category of ‘good’, as per the students’ level of emotional wellness, across the intervention.

Table 24

Pre-, Post-, and Post-Post Course Emotional Wellness

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	54	100	78.88	11.273
Post-Course	34	43	98	79.47	11.150
Post-Post-Course	34	44	100	81.97	11.411

The standard deviation for the emotional wellness scores is moderate and fairly consistent, indicating that the majority of students scored within a reasonably limited range,

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

with a few students scoring particularly high or low. Taken together with the very small variation in scores across the time of the intervention and data gathering, this may also indicate a reasonable amount of emotional stability on the part of the students.

5.5.1.7 Spiritual wellness scores. The change in spiritual wellness between the pre- and post-course indicates an increase of 3.06%, with a slight decrease between the post-course and post-post-course of 1.35% and an overall pre-course to post-post-course increase of 1.71%. Spiritual wellness was also rated as ‘good’ across the intervention time. There is a moderate and consistent standard deviation, which somewhat narrows the range of scores of the majority of the student group (see Table 25). Reasons why there was a decrease in spiritual wellness between the end of the course and the 15 week post-post-course data gathering are not clear. The scores themselves are not particularly significant, as the overall increase is slight and the initial spiritual wellness score is quite high. These scores could simply indicate a measure of spiritual wellness stability.

Table 25

Pre-, Post-, and Post-Post Course Spiritual Wellness

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	54	100	78.94	12.028
Post-Course	34	45	100	82.00	12.973
Post-Post-Course	34	50	100	80.65	12.429

We have viewed the changes in the main wellness domains over the course of the intervention; however, these domains are themselves composed of a number of primary factors of wellness. For example, physical wellness is not just one single entity but, as discussed earlier in this work, is composed of exercise, nutrition, risk taking behaviour and protective behaviour, all of which affect physical wellness.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

With the exception of environmental wellness, a stand-alone domain, all of the other wellness domains are underpinned by primary factors. In the set of tables that follow; Tables 19-25, the pre-, post- and post-post-course main wellness sub-scale categories, which contain the primary factors, are given for clarification and comparison across the time of the data collection.

5.3.2 Changes in the composite primary factors of wellness. Descriptive statistical analyses for the detailed primary factors that make up the sub-scales of the composite areas of wellness, within the Table of Domains, that underpin the main aspects of the student's wellness profile, as a group, are given in detail in the next set of tables. The descriptive analyses will unpack the specific areas of wellness that comprised the above results, giving a more in-depth view of the aspects of wellness that changed across the time of the intervention, to the post-post-course data gathering. As for the previous set of data, the means averages have been taken for the group but need to be interpreted in the light of the range of scores and, specifically, the standard deviation from the means. Each specific area of wellness is given in the set of tables that follow.

5.5.2.1 Composite changes in physical wellness. The following tables (Tables 26-30) give the detailed changes in the specific composite areas of physical wellness from the pre-course, post-course and 15 week post-post-course data analysis of wellness scores. Physical wellness, overall, sustained a significant gain during and after the course for this group of students of 8.47%.

Exercise, as an aspect of physical wellness, increased overall in the group from 30.12% up to 48.79% (a gain of 18.78%) and was not only sustained but slightly increased to 50.91% 15 weeks post-course (see Table 26). This represented an overall gain of 20.79% and the highest gain in the specific primary factors of the sub-scales of wellness scores.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 26

Pre-, Post- and Post-Post-Course Physical Wellness, Exercise

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	0	75	30.12	19.863
Post-Course	34	17	75	48.79	15.986
Post-Post-Course	34	0	100	50.91	23.517

Notwithstanding the increase, the scores overall remained 'poor' as per the WQHE interpretation of scores. There was, however, a broad range of individual scores and a moderate to high standard deviation from the means average. Some students, both pre- and post-post-course, scored zero and showed no change in physical activity. Post-course changes saw all students taking some form of exercise, with a lower standard deviation. This was not, however, sustained for a number of students, post-post-course. The post-post-course means average was higher; however, with the maximum possible spread of scores and the high standard deviation, the majority of students scoring between 27.39% and 74.43%. With outlier scores of both '0' and 100%, this still represents a broad range and the means average is not a typical student score. Despite this, there are a number of individuals who have significantly improved their physical wellness; especially their physical activity, which shows in the percentage of overall improvement.

The nutritional balance of food, which includes regularity of meals and quantity of food intake, by this group of students, decreased slightly over the academic year and at the end of the course, was a little less than it had been at the beginning (see Table 27). According to the WQHE interpretation of scores, there was 'room for improvement'. It is clear that advice that was given during the course was actually followed to some degree 15 weeks post-post-course, as the balance of food intake rose somewhat. Again the standard deviation is

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

moderate to high, especially post-course where the overall means average dropped and the range of scores expanded.

Table 27

Pre-, Post- and Post-Post-Course Physical Wellness, Nutritional Balance

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	25	100	59.97	17.930
Post-Course	34	0	87	58.15	18.516
Post-Post-Course	34	12	100	63.06	17.434

To be noted is the post-post-course score where the means average is the highest and the standard deviation the lowest, giving a range of 45.63% to 80.49% for the majority of the students. Given the range of the outlier scores of 12% and 100% the means average is not very representative of the majority of the student's scores, but does suggest that the majority veered towards the upper range post-post-course rather than the lower range.

Not factored into the equation was the number of students resident at home vs. those in university residences, where food meal times may be affected by cooking facilities as well as the disruptions in the academic year, and the provision of food services for students in residence. There are individual students that have improved on their nutritional balance and the correlation of nutritional balance with wellness values and academic marks will be discussed further in this work. These statistics cannot be considered in isolation as they are also linked to nutritional quality. This is depicted in the following table (Table 28).

The students' perceived quality of their food intake rose significantly, even though the regularity of food may have been less than desirable; what was actually eaten showed a distinct measure of improvement (see Table 28). The nutritional quality of food rose by 5% between the beginning and the end of the course and continued to rise another 6.76%, 15 weeks post-post-course, giving a total of 11.76% improvement over the period of the study.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Notwithstanding this rise there remained ‘room for improvement’ as per the WQHE interpretation of the students’ scores. The standard deviation from the means average for the student’s scores is moderate to high and, in the pre-course score, is possibly too large to make the means average a typical student score.

Table 28

Pre-, Post- and Post-Post-Course Physical Wellness, Nutritional Quality

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	10	100	52.50	24.595
Post-Course	34	25	80	57.50	15.727
Post-Post-Course	34	25	90	64.26	15.722

Prior to the intervention the students’ nutritional quality scores covered a fairly broad range, which lessened over the duration of the study. The post-post-score demonstrated a significant improvement in the means average score for nutritional quality and, together with a lower standard deviation, may signify that a larger number of students fell into the range of 48-54% to 79.98% percentage scores. Despite the wider range of scores, as with exercise, it is clear that some students made significant improvements in the nutritional quality of their diet.

Risk avoidance and protective behaviour were the next two sets of questions on the WQHE that reflect the student’s behaviour with respect to physical wellness. Physical risk avoidance, which includes aspects of self-care and safety, asks students about physical checks for signs of illness, avoidance of sun, rest and sleep. The students’ scores for risk avoidance are represented in Table 29.

Overall there was ‘room for improvement’ across the intervention time as per the WQHE interpretation of scores. There was, however, a modest improvement in the means average scores between the pre- and post-course score for risk avoidance of 3.62% and a further increase of 4.67% post-post-course, giving an overall increase in risk avoidance

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

scores of 8.29%, which indicates some improvement on the part of a number of individual students.

The standard deviation from the means average is moderate to high; however, this decreased, post- and post-post-course. The post-post-course standard deviation gave a range of 48.57% to 80.25% for the majority of students, with a number of students scoring particularly low or very high. The means average is not typical for this group but gives a trend towards the upper range of scores for the majority.

Table 29

Pre-, Post- and Post-Post-Course Physical Wellness, Risk Avoidance

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	25	87	56.12	17.648
Post-Course	34	19	87	59.74	16.382
Post-Post-Course	34	25	94	64.41	15.844

The correlation of risk avoidance with the value of information with regard to medicine, knowledge of zoonotic disorders and HIV and academic marks will be discussed further in this work. One should note that interpretation of risk avoidance needs to be considered alongside that of protective behaviour, which is the final component set of scores that make up the full physical wellness profile. The WQHE questions on protective behaviour looked at the components of wellness that took into consideration protective behaviours regarding sun exposure, recreational drugs, and inappropriate use of medicines, alcohol intake and smoking into consideration as well as unsafe sexual practices.

The scores are presented in Table 30. There is a small improvement in the means average scores for protective behaviour of 2.15% between the pre- and post-course-scores, with a further small increase of 2.88% post-post-course. This gives a total improvement in protective behaviour scores of 5.03%. The ranges, however, are substantial and the standard

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

deviations for the pre- and post-course scores are moderate to high. The WQHE interpretation of the average scores is that of ‘excellent’, across the time of the intervention.

Table 30

Pre-, Post- and Post-Post-Course Physical Wellness, Protective Behaviour

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	19	100	85.44	15.691
Post-Course	34	6	100	87.59	16.901
Post-Post-Course	34	67	100	90.47	8.504

The minimum score post-post-course, however, rises substantially, while the standard deviation almost halves. The range for the majority of students falls between 81.97% and 98.97% trending towards the top range of score possible, with only a few outlying scores outside of this range. This is perhaps more significant of positive change for the majority of students than the percentage of improvement in the means average overall. The second domain to be considered is that of career wellness.

5.5.2.2 Composite changes in career wellness. The following tables give the detailed changes in the specific composite areas of career wellness from the pre-course, post-course and 15 week post-post-course data analysis of wellness scores. Career wellness overall sustained a very small gain during and after the course for this group of students of 0.05%. The composite areas of career wellness are viewed in detail in Tables 31 to 33 and are briefly discussed. There was a slight post-course drop in the means average scores for career choice and decision-making of 0.59%, which rose again by 1.83% post-post-course, giving an overall improvement of 1.23% over the period of the study. This is a very small change and the standard deviation is moderately high, with a broad variance between student scores.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 31

Pre-, Post- and Post-Post-Course Career Wellness, Career Choice

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	37	100	82.68	13.098
Post-Course	34	50	100	82.09	11.183
Post-Post-Course	34	33	100	83.91	14.083

The majority of post-post-course scores ranged from 69.83% to 97.99%, the lower scores being the outliers in this domain. The average scores can be interpreted as ‘good’ across the time of the intervention. It appears that the majority of students were reasonably happy with their career choice throughout the period of study. This is neither statistically significant, nor particularly descriptive of this group as a whole and one cannot infer any meaning from this score as it stands.

The career competence scores (see Table 32), followed a similar pattern to the career choice scores, as there was a dip in the mean average scores between the pre-course and post-course data collection. Post-post-course data saw the scores once again rise slightly higher than pre-course by 0.29%. This is far too small a number to be of any significance.

Table 32

Pre-, Post- and Post-Post-Course Career Wellness, Career Competence

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	0	100	81.18	18.051
Post-Course	34	55	95	78.09	11.349
Post-Post-Course	34	45	100	81.47	12.645

Average scores across the timeline can be interpreted as ‘good’ for the group as a whole. There is a moderate to large standard deviation, particularly pre-course, which dropped by the end of the course, rising only slightly post-post-course. There is nothing in the scores that indicates that they are descriptive of the group; however, to be noted is that in the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

pre-course testing there were a number of students with scores in the categories of ‘room for improvement’ and ‘poor’ with one student scoring zero. Both post-course and post-post-course, this was not the case and, despite the broader range and larger standard deviation, it is clear that for those students who had been at the lower end of the scale, some improvement in career competence had taken place. Post-course, the majority of the students scored between 66.74% and 89.44% and post-post-course, the majority of students scored between 68.82% and 94.12% indicating that most of the students had scored towards the upper end of the full range of scores given. Given the fact that there had been little change overall, it appears that, as for career choice, the feeling of career competence was quite high throughout the term of the intervention and data collection.

Table 33

Pre-, Post- and Post-Post-Course Career Wellness, Professional Development

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	0	100	81.32	20.050
Post-Course	34	60	100	81.47	10.337
Post-Post-Course	34	55	100	80.00	9.455

As for career choice and career competence, ongoing professional development followed a very similar pattern of starting out with rather high scores before the intervention, rising only slightly by the end and dropping slightly post-post-course (see Table 33). Pre-course scores had a large standard deviation, indicating that the majority of the pre-course scores varied between 61.27% and 81.37%. This dropped post-course and post-post-course; indicating that, despite the slight overall drop in mean average scores by the end of the data collection 15 weeks post-post-course, the means average score was between 70.54% and 89.46% with fewer students scoring in the lower range.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

This follows a similar pattern to the other two composite scores of the career wellness subscale, with little overall change, but significant improvement in scores for those students who had started out at the lower end of the wellness domain. Career wellness may be linked in some respects to intellectual wellness in that both may elicit the students' perception of educational stimulation and interest that the overall programme of study has for them.

5.5.2.3 Composite changes in intellectual wellness. The following tables give the detailed changes in the specific composite areas of intellectual wellness from the pre-course, post-course and, 15 week post-post-course data analysis of wellness scores. An overall pre-course to post-post-course increase of 3.79% occurred in intellectual wellness. The composite analysis is given in Tables 34 to 36.

Intellectual challenge scores overall sustained a small gain after the course of 4.47%, with a slight 0.64% drop post-post-course for this group of students. The range of scores and standard deviation, however, are moderate to large, especially pre-course, but dropped at the end of the course and diminished slightly again 15 weeks post-post-course. The majority of students' post-post-course still scored in the upper levels of the range of 61.55% to 88.75% (see Table 34). As per the WQHE interpretation, these means average scores would be viewed as 'good' with respect to this area of wellness.

Some gain in intellectual challenge in the first year of university would be expected, regardless of whether or not students took a wellness oriented lifestyle management programme. As this is accompanied by the lower standard deviation pre-course to post-course and post-post-course, this could indicate a tendency towards more homogenisation, or stability, with respect to the intellectual challenge. This is not necessarily significant in respect of the intervention course, or the programme of study as a whole.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 34

Pre-, Post- and Post-Post-Course Intellectual Wellness, Intellectual Challenge

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	33	96	71.32	16.086
Post-Course	34	46	100	75.79	13.644
Post-Post-Course	34	46	100	75.15	13.603

Knowledge expansion dropped by 3.94% from a pre-course means average of 68.12% to a post-course means average of 64.18%; however, the standard deviation was rather high pre-course, but also dropped post-course, giving a range of 48.11% to 80.25% with a minority of students scoring outside of this range (see Table 35). The WQHE interpretation of the means average score would rate these scores as having 'room for improvement'.

Table 35

Pre-, Post- and Post-Post-Course Intellectual Wellness, Knowledge Expansion

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	33	100	68.12	18.953
Post-Course	34	42	92	64.18	16.067
Post-Post-Course	34	33	92	67.91	14.825

Taken together with the rather small gain in intellectual challenge, this drop in score could be due to the challenges experienced by the students during the academic strike. For a protracted period of time, students were left to study with minimal input and academic supervision. The catch-up period contained much condensed work and shortened contact time with a lot of self-reliance on the part of the students. Post-post-course, the score recovered significantly but not quite to the pre-course levels. The standard deviation was also lower, with most students still scoring reasonably high in the range between 53.08% and 82.74%.

Critical and creative thinking scores increased pre-course to post-course by a means average of 7.44%, whilst the standard deviation dropped, giving a post-course range of

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

60.30% to 85.88%, with a small minority of students falling outside this range (see Table 36).

Overall these means average scores can be interpreted as moving from that of having ‘room for improvement’ to that of a ‘good’ level of wellness in this area.

Table 36

Pre-, Post- and Post-Post-Course Intellectual Wellness, Critical and Creative Thinking

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	31	100	65.65	18.557
Post-Course	34	44	100	73.09	12.793
Post-Post-Course	34	0	100	72.79	20.866

The higher levels of critical thinking could, in part, be due to the challenges that caused the low levels of improvement in intellectual challenge and drop in the perception of knowledge expansion post-course. The students had to deal with their own decision making with regard to their studies and were left to help themselves to a large degree for much of the third term of the academic year in which the intervention took place. Post-post-course critical thinking took a slight dip in means average score, with a higher standard deviation and a broader range of scores. Reasons for this are not immediately apparent; however, the post-post-course drop was very slight.

5.5.2.4 Composite changes in social wellness. Social wellness scores overall increased post-course by 4.0%, with an overall rise of 4.5% pre-course to post-post-course. The standard deviation dropped slightly post-course, but increased post-post-course. The overall changes are relatively small with a moderately large standard deviation, which is not generally significant with respect to the students as a group. The composite scores that make up the area of social wellness tell a slightly different story, giving an indication of where students have remained static with respect to social wellness and where they have made

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

reasonable improvement. Tables 37 to 41 give the results for the students' WQHE social wellness scores.

Table 37

Pre-, Post- and Post-Post-Course Social Wellness, Meaningful Relationships

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	50	100	81.03	14.023
Post-Course	34	50	100	84.12	13.510
Post-Post-Course	34	45	100	83.24	12.903

In the area of meaningful relationships there was a very small gain, post-course, of 3.09% means average with a slight drop in standard deviation, which was nevertheless still moderately high (see Table 37). Overall scores indicate a 'good' level of social relationship wellness as per the WQHE interpretation of scores. The majority of students scored between 70.61% and 97.63%, with the minority (5 students) scoring below 70.61%. The means average scores post-post-course dropped slightly; however, the standard deviation dropped also, indicating a slight stabilisation of scores across the group, with the majority of students scoring between 70.34% and 96.14%, not significantly different from the post-course scores. The small rise in the scores for meaningful relationships, in line with the overall rise in social wellness, may be due to the new environment that students found themselves in and could be more indicative of the situation rather than the effects of the intervention. This is not very meaningful but will be viewed later in this work in the light of the value of information, with respect to interpersonal skills.

Social skills means average scores can also be interpreted as 'good' for the group as a whole and increased modestly post-course by 5.32%, whilst the standard deviation dropped, which narrowed the range of scores for the majority of the students in the group to between 68.71% and 91.35%.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 38

Pre-, Post- and Post-Post-Course Social Wellness, Social Skills

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	31	100	74.71	16.127
Post-Course	34	56	100	80.03	11.315
Post-Post-Course	34	37	100	79.15	15.086

Post-post-course scores dropped slightly by 0.88%, giving an overall pre-course to post-post-course rise of 4.44% overall. The standard deviation increased, broadening the range of student scores to between 64.06% and 94.24%, this still placed the majority of students in the upper region of the scale. A significant number of students (11 in total), however, scored outside this range, with some students scoring 100% and an outlier low score of 37%. This skewed the scores towards the upper range (see Table 38). The means average post-post-course is not very representative of the group, and the drop in scores is not at all significant, as a number of individual students had clearly improved their degree of social skills.

Table 39

Pre-, Post- and Post-Post-Course Social Wellness, Giving and Receiving Caring

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	25	100	80.97	18.300
Post-Course	34	58	100	84.06	14.009
Post-Post-Course	34	58	100	88.06	12.020

Social wellness with respect to giving and receiving caring increased in the means average scores, which began with a relatively high standard deviation that fell post-course and post-post-course, indicating a stabilisation of the range of scores of the students as a group. The interpretation of the means average score places the students in the range of 'good' for the pre- and post-course scores, moving into the range of 'excellent', post-post-

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

course. The post-course means average score rose by 3.09%, with a standard deviation that places the majority of the students in the range of 70.05% to 98.07%, there being a small number of outlier scores well below this range. Post-post-course, there was a further increase in the means average score of 4.0%, giving an overall pre-course to post-post-course rise of 7.09%. The small drop in standard deviation placed the majority of the students in the ranges between 76.04% and 100%, with a lesser number of students scoring lower in the range (see Table 39).

Overall, throughout the study, there were some students who consistently scored high in this area of social wellness; the number of students scoring higher in the range appeared to increase over the duration of the study. This indicates that, although a minority of students have a high capacity for giving and receiving caring, despite the intervention, there were students who had initially scored lower down the range, whose capacity in this area increased.

Table 40

Pre-, Post- and Post-Post-Course Social Wellness, Tolerance and Respect for Differences

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	56	100	86.68	13.202
Post-Course	34	56	100	86.74	12.712
Post-Post-Course	34	50	100	86.38	13.232

In the area of tolerance and respect for differences, student scores from pre-course to post-course and post-post-course hardly moved, in respect of both means average scores and standard deviation as well as the range of scores. Overall scores can be interpreted as ‘excellent’ for the students as a group. The very small changes of an increase of 0.06% post-course and a drop of 0.36% post-post-course, with little change in standard deviation and range, indicate that neither the intervention, nor the students’ circumstances made any

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

difference in this area of social wellness (see Table 40). This could mean that the students are relatively stable and those who scored in the higher ranges, relatively tolerant and resistant to adverse influence. For those in the lower ranges, the statistical outcome could indicate a resistance to change in their views of others, or perhaps little interaction with those who are different from themselves, in part due to the homogeneity of the group under study.

Table 41

Pre-, Post- and Post-Post-Course Social Wellness, Social Responsibility

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	12	87	45.24	21.035
Post-Course	34	0	94	53.71	19.836
Post-Post-Course	34	19	87	55.79	19.246

In the area of social responsibility, the scores, especially compared to other areas of social wellness, were rather low. The WQHE interpretation of these means average scores would categorise them as 'poor'. This is an area of wellness that students appeared to find particularly challenging, with low minimum scores, and a zero post-course score. The majority of students appeared to have made some gains; however, with a broad range of scores and a high standard deviation, these gains were clearly not achieved across the board. The pre-course to post-course increase in means average scores rose by 8.47% with a standard deviation post-post-course that brought most of the students into the range of 36.54% to 75.04% (see Table 41). The outlier scores were both above and below this without any significant skew towards one end or the other of the standard deviation. In this particular aspect of social wellness, despite the increase in the means average score, there was no indication of improvement in the correlational analysis with the academic marks, as will be seen later in this chapter.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.5.2.5 Composite changes in emotional wellness. The change in emotional wellness was rather insignificant, with an increase in the means average score from pre-course to post-course of 0.59% with a further 2.5% rise post-post-course, giving an overall increase of 3.09%. All scores had a similar moderate standard deviation, slightly over 11%. The composite scores do not show a great differential with the exception of emotional management. These are given in Tables 42 to 46.

Table 42

Pre-, Post- and Post-Post-Course Emotional Wellness, Awareness Understanding and Acceptance of Own Emotions

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	39	100	77.06	15.057
Post-Course	33	36	100	77.67	14.888
Post-Post-Course	34	32	100	79.24	15.989

Over the time of the intervention the means average scores could be interpreted as 'good' for awareness, understanding and acceptance of one's own emotions, for the group as a whole. With regard to this area of wellness there was a very small increase of 0.61% from the pre-course to the post-course means average score; however, the standard deviation was fairly large with a post-course range for most students of 62.78% to 92.56%. It appears as if the majority of students scored in the upper ranges, but this was not much different to the pre-course scores. Post-post-course means average scores rose by a further 1.57% giving an overall increase of 2.18%, which is a very small gain; however, with a rise in the standard deviations of scores, for the majority of students, scores were not significantly different (see Table 42).

Table 43 looks at the scores for the students' emotional management, for which there appears to have been a significant gain in the means average score of 6.09% from the pre-

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

course to the post-course scores and a further 2.91% increase post-post-course. The scores can be interpreted as moving from having ‘room for improvement’ pre-course to ‘good’ post-course and post-post-course.

Table 43

Pre-, Post- and Post-Post-Course Emotional Wellness, Emotional Management

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	33	100	68.88	18.864
Post-Course	34	42	100	74.97	15.223
Post-Post-Course	34	42	100	77.88	14.740

The standard deviation decreased, indicating a more stable score amongst the students that ended post-post-course towards the upper range. An overall means average increase of 9.0% was attained with a post-post-course standard deviation which placed the majority of students in the range of 63.14% to 94.62%, 15 weeks after the end of the intervention. The outlier scores were more towards the bottom of the full range of scores.

Emotional wellness, with respect to positive-negative affect-balance, is given in Table 44, in which students looked at statements that deal with the enjoyment of life and how students feel about themselves generally. It is to be noted that neither the minimum nor the maximum scores changed at all across the data gathering and there was very little change in means average scores, or the standard deviation. Scores were in the upper range of the WQHE interpretation of a ‘good’ level of wellness. The overall increase in means average scores from pre-course to post-post-course scores was only 1.3%, which is too small to be meaningful in any way.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 44

Pre-, Post- and Post-Post-Course Emotional Wellness, Affect-Balance

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	44	100	82.79	15.914
Post-Course	34	44	100	83.03	16.962
Post-Post-Course	34	44	100	84.09	16.221

The standard deviation post-post-course gave the majority of students a means average score between 67.87% and 100%. Scores for this domain were generally high to begin with and the majority of students tended to score in the upper ranges. The scores appear to be unaffected by the intervention for the majority of students who appear, on the whole, to be resiliently positive about themselves.

Realistic self-appraisal is the next factor in emotional wellness to be considered, the descriptive analysis of which is depicted in Table 45. This shows very little movement in the means average score as well as the standard deviation. There was a rise in the means average of only 0.38% from the pre-course to the post-course data gathering. There was a further rise of 0.94% post-post-course, giving an overall means average rise of 1.32%, with a final standard deviation of 73.4% to 98.32% for the majority of the students. Scores for this area of wellness were on the cusp of 'good' to 'excellent' for the group as a whole, across the time of the intervention.

Table 45

Pre-, Post- and Post-Post-Course Emotional Wellness, Realistic Self-Appraisal

	N	Minimum %	Maximum %	Mean &	Std. Deviation
Pre-Course	34	50	100	84.44	13.707
Post-Course	34	56	100	84.82	12.369
Post-Post-Course	34	50	100	85.76	12.563

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

The standard deviation was moderately high, with the full range of scores in the upper ranges. The students began with a relatively high score in this area which they maintained throughout the course of the study. Descriptive statistical scores for this area of emotional wellness appear to have been unaffected by the intervention; however, this could also indicate a high level of resilience in the face of adverse conditions among the students and a measure of emotional stability. It is to be noted that the value of intrapersonal skills (knowing oneself) also scored high in the value students placed on wellness information.

Stress management represents the final composite score that makes up the full range of emotional wellness; this is given in Table 46. There was a small gain in the means average score from the pre-course to the post-course of 0.91%, and a slightly larger rise in score post-post-course of 2.92%, giving an overall improvement of 3.83%. This increase is too small to be meaningful as it stands; however, the standard deviation dropped considerably and the minimum score rose. These scores were at the top of the range of 'good' across the time of the intervention, as per the WQHE interpretation of wellness scores.

Table 46

Pre-, Post- and Post-Post-Course Emotional Wellness, Stress-Management

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	42	100	80.41	15.721
Post-Course	34	42	100	81.32	15.943
Post-Post-Course	34	58	100	84.24	11.455

The final rise of 3.83%, with a post-post-course standard deviation of 72.78% to 95.70% for the majority of the students, places them further in the upper range of the means average. Taken with the rise in the minimum scores, it appears that those students at the lower end of the range pre- and post-course had gained more pre-course to post-post-course. As will be seen in the qualitative analysis, which will be viewed later in this work, stress

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

management found a significant standing as an important issue when considering wellness and lifestyle changes for a number of students. For a number of students emotional wellness was tied in with that of spirituality and, as will be seen in the qualitative analysis, for some it is one and the same thing in many respects. The final composite scores to be discussed are those of spiritual wellness.

5.5.2.6 Composite changes in spiritual wellness. The change in spiritual wellness was rather insignificant with an increase in means average score from pre-course to post-course of 3.06%, which dropped post-post-course by 1.35%, giving an overall pre-course to post-post-course rise of only 1.71%. Throughout the period of the study, the moderate standard deviation remained reasonably constant, also indicating that the majority of students scored in the upper regions of the range. The composite scores do not show any major differential in scores either. The composite scores are given in Tables 47 to 49.

Table 47

Pre-, Post- and Post-Post-Course Spiritual Wellness, Connectedness and Spiritual Practice

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	37	100	70.68	18.209
Post-Course	34	25	100	75.24	20.259
Post-Post-Course	34	42	100	74.15	15.739

In the area of connectedness and spiritual practice there was a small rise in the means average score of students pre-course to post-course of 4.56%; however, the standard deviation was fairly high, placing the majority of students in the range of 54.98% to 95.5% (see Table 47). The outlier scores were in the lower range. Post-post-course scores depict a drop in the means average score by 1.09% giving an overall rise in score pre-course to post-post-course of only 3.47%; however, the minimum score rose and the standard deviation dropped. This narrowed the range of scores for the majority of students to between 58.41%

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

and 89.89%, placing the majority of students in the upper range of scores, with a smaller number of outlier scores above and below this range.

The overall means average across the time of the intervention, can be interpreted as ‘good’ as far as this spiritual connectedness is concerned. As the increase in scores is so small there appears to have been little change for the majority of the students in this area. Taken with the decrease in standard deviation and the increase in minimum scores, it appears as if some students who were lower in the range of scores, pre- and post-course, showed improvement post-post-course.

The means average scores for the meaning and purpose in life showed little change, with high maximum scores and minimum scores in the upper range, which can be interpreted as ‘excellent’, across the time of the intervention. The standard deviation was moderate to high and rose along with the rise in score post-course. Both the standard deviation and the means average score dropped post-post-course.

Table 48

Pre-, Post- and Post-Post-Course Spiritual Wellness, Meaning and Purpose

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	62	100	85.53	11.973
Post-Course	34	56	100	87.85	13.496
Post-Post-Course	34	63	100	86.15	13.080

From pre-course to post-course the increase was 2.32%, which dropped post-post-course, giving an overall change of only 0.62%, with a range of 73.07% to 99.23% for the majority of students (see Table 48). This cannot be considered significant in any way and, taken with the almost static minimum and maximum range of scores; it appears as if this area of spiritual wellness remained unaffected by the intervention. The scores could also indicate a degree of stability in this area. The fact that students scored rather high from the beginning to

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

the end, may indicate that this is an area of wellness that was developed earlier in life and maintained throughout the first year of university.

There was little movement in the means average scores for values in this component of spiritual wellness, with little change in the standard deviation which was moderate throughout the course. This aspect of wellness rose only slightly in means average score from pre-course to post-course by 1.47%, dropping post-post-course to give an overall rise of only 0.74%, which is not meaningful in this context (see Table 49). The interpretation of the overall means average scores, as per the WQHE, falls somewhat at the cusp of 'good' to 'excellent' across the time of the intervention.

Table 49

Pre-, Post- and Post-Post-Course Spiritual Wellness, Values

	N	Minimum %	Maximum %	Mean %	Std. Deviation
Pre-Course	34	50	100	84.44	12.599
Post-Course	34	44	100	85.91	12.691
Post-Post-Course	34	50	100	85.18	13.621

The overall range showed little movement, with a slight dip in minimum scores post-course, recovering to pre-course minimum scores post-post-course. It appears that spiritual values, like other aspects of spiritual wellness, showed no change due to the intervention, with students having relatively high scores throughout. The scores indicate that students demonstrate stability in this area and that, in all possibility, this aspect of spiritual wellness, like that of meaning and purpose, was developed earlier in life and maintained. This completes the first set of data that has been drawn out and which will come under discussion in the following chapter. The second set of data concerns the first set of correlational statistics, those of comparing the student's wellness values to their actual wellness scores.

5.4 Correlation between Students' Value of Health Information and Wellness

For this cohort of students, the descriptive statistics in the previous sections showed clear and positive improvements in both the value they placed on certain aspects of information with respect to their health as well as improvements in the actual health scores. Whether or not one directly influenced the other will be shown in the first set of correlational data, which follows.

There were twenty two variables of information for which the students were asked to rate the value pre-, post- and post-post-intervention. These did not necessarily correspond directly to the sub-scales of wellness measured in the WQHE. The researcher therefore matched the variables concerning value of information with the most appropriate of the seven domains of the WQHE - those of physical wellness; career wellness; intellectual wellness; environmental wellness; social wellness; emotional wellness and spiritual wellness.

Additionally, the primary factors of each domain, as given in the Table of Domains, were matched to specific information value variables. For example, the variable for the value of information on nutrition was matched to the domain of physical wellness, as well as to the primary factors within that subscale, of nutritional balance and nutritional quality, in the Table of Domains and the WQHE. The full pairing of variables to the WQHE Table of Domains and the composite Primary Factors is shown in Table 50.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 50

Pairing of Value of Information Categories with WQHE Wellness Domains and Primary Factors

Wellness Variable – Paired With:	WQHE Wellness Domain	And with Primary Factor
Value of Information on:		
Nutrition	Physical Wellness	Nutritional Balance
Nutrition	Physical Wellness	Nutritional Quality
Smoking	Physical Wellness	Protective Behaviour
Alcohol	Physical Wellness	Protective Behaviour
Use of Medication	Physical Wellness	Protective Behaviour
Recreational Drug Use	Physical Wellness	Protective Behaviour
Exercise	Physical Wellness	Exercise
Water Intake	Physical Wellness	Nutritional Quality
Clean Air	Physical Wellness	Protective Behaviour
Sun Exposure	Physical Wellness	Protective Behaviour
Bacteria	Environmental Wellness	None
Zoonosis	Environmental Wellness	None
HIV	Physical Wellness	Protective Behaviour
Intrapersonal Skills	Emotional Wellness	Self-Acceptance
Intrapersonal Skills	Emotional Wellness	Self-Appraisal
Interpersonal Skills	Social Wellness	Meaningful Relationships
Setting Priorities	Career Wellness	None
Time Management	Career Wellness	Career Competence
Stress Management	Emotional Wellness	Stress Management
Optimism	Emotional Wellness	Emotional Management
Happiness	Emotional Wellness	Affect Balance
Faith	Spiritual Wellness	None
Self-Expression	Intellectual Wellness	Creative Thinking
Future Planning	Career Wellness	Professional Development

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

The correlational data output resulted in a total of three sets of forty seven correlational tables being calculated (141 tables) for this section of data. For the majority of variables there was no correlation to be found between the value of information and the student's wellness scores. There were a small number of exceptions, however, for which a significant correlation was found. Therefore, for the sake of clarity, tables for the correlational values with WQHE wellness scores will be shown for the sets of variables for which a positive correlation was found. For all other correlational values, the statistical findings will be given in Table 51 accompanied by footnotes where a brief explanation is warranted. This is in order to avoid the repeated insertion and reporting of tables that convey no further meaning and add no new information to the study.

5.4.1 Variables for which no correlations were found. The following Table (Table 51) summarises the pre-, post-, and post-post-course results for the analysis of the correlation between the students' value of information on the aspects of health / health variables and the WQHE Wellness Domains as well as the relevant Primary Factors with which the variables were paired (see Table 50). This summary is given for results for which there were no correlations to be found.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 51

Pre-, Post-, and Post-Post-Course Correlations between the Value of Information on Categories of Health and WQHE Wellness Domains and Primary Factors

Correlation Between	And	'r'-values	'p'-values
Pre-course value of information on nutrition	Physical Wellness	r = 0.021	p = 0.908
Pre-course value of information on nutrition	Physical Wellness: Nutritional Balance	r = -0.036	p = 0.841
Pre-course value of information on nutrition	Physical Wellness: Nutritional Quality	r = -0.040	p = 0.821
Post-course value of information on nutrition	Physical Wellness	r = 0.021	p = 0.906
Post-course value of information on nutrition	Physical Wellness: Nutritional Balance	r = -0.101	p = 0.571
Post-course value of information on nutrition	Physical Wellness: Nutritional Quality	r = -0.040	p = 0.821
Post-post-course value of information on nutrition	Physical Wellness	r = 0.243	p = 0.166
Post-post-course value of information on nutrition	Physical Wellness: Nutritional Balance	r = 0.285	p = 0.103
Pre-course value of information on smoking	Physical Wellness:	r = 0.122	p = 0.493
Pre-course value of information on smoking	Physical Wellness: Protective Behaviour	r = 0.099	p = 0.578
Post-course value of information on smoking	Physical Wellness:	r = 0.61	p = 0.730
Post-course value of information on smoking	Physical Wellness: Protective Behaviour	r = 0.225	p = 0.201
Post-post-course value of information on smoking	Physical Wellness:	r = 0.039	p = 0.826
Post-post-course value of information on smoking	Physical Wellness: Protective Behaviour	r = 0.116	p = 0.513
Pre-course value of information on alcohol	Physical Wellness:	r = 0.014	p = 0.938
Pre-course value of information on alcohol	Physical Wellness: Protective Behaviour	r = 0.039	p = 0.828

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 51

Pre-, Post-, and Post-Post-Course Correlations between the Value of Information on Categories of Health and WQHE Wellness Domains and Primary Factors cont...

Correlation Between	And	'r'-values	'p'-values
Post-course value of information on alcohol	Physical Wellness:	r = 0.124	p = 0.486
Post-course value of information on alcohol	Physical Wellness: Protective Behaviour	r = 0.162	p = 0.361
Post-post-course value of information on alcohol	Physical Wellness:	r = 0.109	p = 0.541
Post-post-course value of information on alcohol	Physical Wellness: Protective Behaviour	r = 0.080	p = 0.652
Pre-course value of information on medication	Physical Wellness:	r = 0.222	p = 0.208
Post-course value of information on medication	Physical Wellness:	r = 0.122	p = 0.492
Post-course value of information on medication	Physical Wellness: Protective Behaviour	r = 0.034	p = 0.846
Post-post-course value of information on medication	Physical Wellness:	r = 0.118	p = 0.508
Post-post-course value of information on medication	Physical Wellness: Protective Behaviour	r = 0.074	p = 0.679
Pre-course value of information on drug use	Physical Wellness:	r = 0.034	p = 0.848
Pre-course value of information on drug use	Physical Wellness: Protective Behaviour	r = 0.047	p = 0.790
Post-course value of information on drug use	Physical Wellness:	r = 0.003	p = 0.989
Post-course value of information on drug use	Physical Wellness: Protective Behaviour	r = 0.122	p = 0.491
Post-post-course value of information on drug use	Physical Wellness:	r = 0.061	p = 0.733
Post-post-course value of information on drug use	Physical Wellness: Protective Behaviour	r = 0.056	p = 0.755

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 51

Pre-, Post-, and Post-Post-Course Correlations between the Value of Information on Categories of Health and WQHE Wellness Domains and Primary Factors cont...

Correlation Between	And	'r'-values	'p'-values
Pre-course value of information on exercise	Physical Wellness:	r = 0.075	p = 0.672
Pre-course value of information on exercise	Physical Wellness: Exercise	r = -0.060	p = 0.736
Post-course value of information on exercise	Physical Wellness: ⁵	r = 0.055	p = 0.758
Post-course value of information on exercise	Physical Wellness: Exercise	r = 0.311	p = 0.073
Post-post-course value of information on exercise	Physical Wellness:	r = 0.148	p = 0.403
Post-post-course value of information on exercise	Physical Wellness: Exercise ⁵	r = 0.003	p = 0.985
Pre-course value of information on water intake	Physical Wellness:	r = 0.098	p = 0.581
Pre-course value of information on water intake	Physical Wellness: Nutritional Quality	r = 0.151	p = 0.395
Post-course value of information on water intake	Physical Wellness:	r = 0.103	p = 0.562
Post-course value of information on water intake	Physical Wellness: Nutritional Quality	r = 0.084	p = 0.636
Pre-course value of information on clean air	Physical Wellness:	r = -0.010	p = 0.954
Pre-course value of information on clean air	Physical Wellness: Protective Behaviour	r = 0.157	p = 0.376
Post-course value of information on clean air	Physical Wellness:	r = -0.192	p = 0.276
Post-course value of information on clean air	Physical Wellness: Protective Behaviour	r = 0.161	p = 0.363

⁵ Although there is an apparent weak correlation in the 'r' value, the 'p' value; however, was too high to be reliable, or to be statistically significant.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 51

Pre-, Post-, and Post-Post-Course Correlations between the Value of Information on Categories of Health and WQHE Wellness Domains and Primary Factors cont...

Correlation Between	And	'r'-values	'p'-values
Post-post-course value of information on clean air	Physical Wellness:	r = 0.24	p = 0.891
Post-post-course value of information on clean air	Physical Wellness: ⁶ Protective Behaviour	r = 0.331	p = 0.056
Pre-course value of information on sun exposure	Physical Wellness:	r = -0.039	p = 0.828
Pre-course value of information on sun exposure	Physical Wellness: Protective Behaviour	r = -0.243	p = 0.166
Post-course value of information on sun exposure	Physical Wellness:	r = -0.289	p = 0.098
Post-course value of information on sun exposure	Physical Wellness: Protective Behaviour	r = -0.159	p = 0.368
Post-post-course value of information on sun exposure	Physical Wellness:	r = -0.190	p = 0.282
Post-post-course value of information on sun exposure	Physical Wellness: Protective Behaviour	r = -0.084	p = 0.635
Pre-course value of information on bacteria	Environmental Wellness	r = -0.166	p = 0.349
Post-course value of information on bacteria	Environmental Wellness	r = -0.106	p = 0.550
Post-post-course value of information on bacteria	Environmental Wellness	r = -0.193	p = 0.273

⁶ In this last set of scores there is a higher 'r' value which would appear to give a weak correlation; however, the 'p' value is just outside the range for reliability and statistical significance with a confidence factor of 94.4%.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 51

Pre-, Post-, and Post-Post-Course Correlations between the Value of Information on Categories of Health and WQHE Wellness Domains and Primary Factors cont...

Correlation Between	And	'r'-values	'p'-values
Pre-course value of information on zoonosis	Environmental Wellness ⁷	r = -0.347	p = 0.044
Post-course value of information on zoonosis	Environmental Wellness	r = -0.158	p = 0.372
Post-post-course value of information on zoonosis	Environmental Wellness	r = -0.251	p = 0.153
Pre-course value of information on HIV	Physical Wellness:	r = -0.086	p = 0.627
Pre-course value of information on HIV	Physical Wellness: Protective Behaviour	r = 0.059	p = 0.742
Post-course value of information on HIV	Physical Wellness:	r = -0.167	p = 0.344
Post-course value of information on HIV	Physical Wellness: Protective Behaviour	r = -0.113	p = 0.526
Post-post- course value of information on HIV	Physical Wellness:	r = -0.022	p = 0.901
Post-post-course value of information on HIV	Physical Wellness: Protective Behaviour	r = -0.082	p = 0.647
Pre-course value of information on intrapersonal skills	Emotional Wellness	r = 0.155	p = 0.382
Pre-course value of information on intrapersonal skills	Emotional Wellness: Self-Acceptance	r = 0.271	p = 0.122
Pre-course value of information on intrapersonal skills	Emotional Wellness: Self-Appraisal	r = -0.033	p = 0.853

⁷ This depicts a weak negative correlation; however, it could indicate that although awareness of the environment existed, which affected environmental wellness scores, the awareness of zoonosis did not.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 51

Pre-, Post-, and Post-Post-Course Correlations between the Value of Information on Categories of Health and WQHE Wellness Domains and Primary Factors cont...

Correlation Between	And	'r'-values	'p'-values
Post-course value of information on intrapersonal skills	Emotional Wellness	r = 0.166	p = 0.348
Post-course value of information on intrapersonal skills	Emotional Wellness: Self-Acceptance	r = 0.117	p = 0.518
Post-course value of information on intrapersonal skills	Emotional Wellness: Self-Appraisal	r = 0.140	p = 0.429
Post-post-course value of information on intrapersonal skills	Emotional Wellness	r = -0.010	p = 0.954
Post-post-course value of information on intrapersonal skills	Emotional Wellness: Self-Acceptance	r = 0.064	p = 0.721
Post-post-course value of information on intrapersonal skills	Emotional Wellness: Self-Appraisal	r = -0.116	p = 0.512
Pre-course value of information on interpersonal skills	Social Wellness: Meaningful Relationships	r = 0.209	p = 0.235
Post-course value of information on interpersonal skills	Social Wellness	r = 0.104	p = 0.557
Post-post course value of information on interpersonal skills	Social Wellness	r = 0.169	p = 0.340
Post-post-course value of information on interpersonal skills	Social Wellness: Meaningful Relationships	r = 0.139	p = 0.434
Pre-course value of information on setting priorities	Career Wellness	r = 0.157	p = 0.375
Post-course value of information on setting priorities	Career Wellness	r = 0.083	p = 0.640
Post-post course value of information on setting priorities	Career Wellness	r = 0.073	p = 0.683

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 51

Pre-, Post-, and Post-Post-Course Correlations between the Value of Information on Categories of Health and WQHE Wellness Domains and Primary Factors cont...

Correlation Between	And	'r'-values	'p'-values
Pre-course value of information on time management	Career Wellness	r = 0.028	p = 0.877
Pre-course value of information on time management	Career Wellness: Career Competence	r = 0.095	p = 0.592
Post-course value of information on time management	Career Wellness ⁸	r = 0.319	p = 0.066
Post-course value of information on time management	Career Wellness: Career Competence	r = 0.013	p = 0.941
Post-post-course value of information on time management	Career Wellness	r = 0.640	p = 0.720
Post-post-course value of information on time management	Career Wellness: Career Competence	r = -0.213	p = 0.226
Pre-course value of information on stress management	Emotional Wellness	r = 0.069	p = 0.697
Pre-course value of information on stress management	Emotional Wellness: Stress Management	r = -0.55	p = 0.758
Post-course value of information on stress management	Emotional Wellness	r = 0.217	p = 0.218
Post-course value of information on stress management	Emotional Wellness: Stress Management	r = 0.099	p = 0.577
Post-post-course value of information on stress management	Emotional Wellness	r = 0.129	p = 0.467
Post-post-course value of information on stress management	Emotional Wellness: Stress Management	r = 0.153	p = 0.387

⁸ The apparent correlation due to a high 'r' score is mitigated by the fact that the 'p' score shows a confidence interval of 94.4%, which falls outside of the acceptable range for statistical significance.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 51

Pre-, Post-, and Post-Post-Course Correlations between the Value of Information on Categories of Health and WQHE Wellness Domains and Primary Factors cont...

Correlation Between	And	'r'-values	'p'-values
Pre-course value of information on optimism	Emotional Wellness	r = 0.241	p = 0.170
Pre-course value of information on optimism	Emotional Wellness: Emotional Management	r = 0.074	p = 0.677
Post-course value of information on optimism	Emotional Wellness	r = 0.222	p = 0.207
Post-course value of information on optimism	Emotional Wellness: Emotional Management	r = 0.276	p = 0.114
Post-post-course value of information on optimism	Emotional Wellness	r = 0.136	p = 0.443
Post-post-course value of information on optimism	Emotional Wellness: Emotional Management	r = 0.225	p = 0.201
Pre-course value of information on happiness	Emotional Wellness	r = 0.208	p = 0.238
Pre-course value of information on happiness	Emotional Wellness: Affect Balance	r = 0.002	p = 0.989
Post-course value of information on happiness	Emotional Wellness	r = -0.121	p = 0.494
Post-course value of information on happiness	Emotional Wellness: Affect Balance	r = -0.090	p = 0.612
Post-post-course value of information on happiness	Emotional Wellness	r = 0.122	p = 0.492
Post-post-course value of information on happiness	Emotional Wellness: Affect Balance	r = 0.077	p = 0.666
Pre-course value of information on faith	Spiritual Wellness	r = 0.175	p = 0.322
Post-course value of information on faith	Spiritual Wellness	r = 0.227	p = 0.197
Post-post-course value of information on faith	Spiritual Wellness	r = 0.175	p = 0.323

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 51

Pre-, Post-, and Post-Post-Course Correlations between the Value of Information on Categories of Health and WQHE Wellness Domains and Primary Factors cont...

Correlation Between	And	'r'-values	'p'-values
Pre-course value of information on self-expression	Intellectual Wellness	r = 0.285	p = 0.103
Pre-course value of information on self-expression	Intellectual Wellness: Creative Thinking	r = 0.236	p = 0.180
Post-course value of information on self-expression	Intellectual Wellness	r = 0.110	p = 0.537
Post-course value of information on self-expression	Intellectual Wellness: Creative Thinking	r = 0.189	p = 0.285
Post-post-course value of information on self-expression	Intellectual Wellness	r = -0.017	p = 0.922
Post-post-course value of information on self-expression	Intellectual Wellness: Creative Thinking	r = -0.016	p = 0.928
Pre-course value of information on future planning	Career Wellness	r = 0.063	p = 0.722
Pre-course value of information on future planning	Career Wellness: Professional Development	r = 0.048	p = 0.786

There was no correlational analysis possible between the students' post-course or post-post-course value of information on future planning and career wellness. This is because the value of information remained at constant full score of 102, whilst the WQHE subscale scores for career wellness dropped in the means average. The WQHE primary factor scores for professional development showed little movement and remained stable.

There were only four areas of wellness for which correlations were found between the variables for health information and the students' wellness. The following sub-section depicts the tables for which a positive correlation between the variable for health information and the students' wellness were found, with brief explanations of the findings.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.4.2 Variables for which a positive correlation was found.

5.4.2.1 Value of information on nutrition and wellness. The table for the correlation between the value of information on nutrition and the students' wellness follows. Table 52 shows that there is a significant, albeit weak, positive correlation between the post-post-course value of information on nutrition and the post-post-course WQHE wellness scores of the students for physical wellness: nutritional quality ($r = 0.351$, $p = 0.042$). The 'p' value gives the probability of this result occurring by chance is 42 in a thousand or 4.2%; the result therefore, has a 95.8% confidence score for reliability.

Table 52

Correlation between Post-Post-Course Value of Information on Nutrition and Physical Wellness: Nutritional Quality

		Post-Post-Course Value of Information - Nutrition	Post-Post-Course WQHE Physical Wellness - Nutritional-Quality
Post-Post-Course Value of Information - Nutrition	Pearson Correlation	1	0.351*
	Sig. (2-tailed)		0.042
	N	34	34
Post-Post-Course WQHE Physical Wellness - Nutritional-Quality	Pearson Correlation	0.351*	1
	Sig. (2-tailed)	0.042	
	N	34	34

* Correlation is significant at the 0.05 level (2-tailed).

The confidence interval of 95.8% (taken from a p value of 0.042), shows that this could not have been obtained by chance and that the post-post-intervention scores for the students' value of information on nutrition predicted the scores for the WQHE post-post-course physical wellness: nutritional quality. The overall mean post-post-course WQHE physical wellness: nutritional quality score had increased, particularly in the lower ranges of scores.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.4.2.2 Value of information on medication and wellness. In the next set of data the value of information on the use of medication correlated with the WQHE wellness scores for pre-course physical wellness and protective behaviour is given as shown in Table 53.

Table 53

Correlation between Pre-Course Value of Information on Use of Medication and Physical Wellness: Protective Behaviour

		Pre-Course Value of Information - Use of Medication	Pre-Course WQHE Physical Wellness - Protective-Behaviour
Pre-Course Value of Information - Use of Medication	Pearson Correlation	1	0.363*
	Sig. (2-tailed)		0.035
	N	34	34
Pre-Course WQHE Physical Wellness - Protective-Behaviour	Pearson Correlation	0.363*	1
	Sig. (2-tailed)	0.035	
	N	34	34

* Correlation is significant at the 0.05 level (2-tailed).

In Table 53 the pre-course correlation of the students' value of information on the use of medication correlated directly with their pre-course scores for the primary factor of protective behaviour, within the WQHE domains. There is a weak but significant positive correlation shown ($r = 0.363$, $p = 0.035$) at the 0.05 level. The 'p' value shows a confidence interval of 96.5%, showing that the correlation is statistically reliable and not likely to have been obtained by chance.

The descriptive statistics show that the use of medication scored highly pre-course (81 out of a possible score of 102) as did the pre-course physical wellness protective behaviour scores, with a means average of 85.44%. The two scores were predictive of one another prior to the intervention.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.4.2.3 Value of information on water intake and wellness. In the next set of data the value of information on water intake correlated with the WQHE wellness scores for physical wellness and the primary factor of nutritional quality (which contained specific questions on water intake) is discussed. Findings reveal that post-post-course there is a weak, but significant, positive correlation was found between the students' post-post-course value of information on water intake and the post-post-course WQHE subscale score for physical wellness ($r = 0.357$, $p = 0.038$).

Table 54

Correlation between Post-Post-Course Value of Information on Water Intake and Physical Wellness

		Post-Post-Course Value of Information - Water Intake	Post-Post-Course WQHE Physical Wellness - Full Percentage
Post-Post-Course Value of Information - Water Intake	Pearson Correlation	1	0.357*
	Sig. (2-tailed)		0.038
	N	34	34
Post-Post-Course WQHE Physical Wellness - Full Percentage	Pearson Correlation	0.357*	1
	Sig. (2-tailed)	0.038	
	N	34	34

* Correlation is significant at the 0.05 level (2-tailed).

The correlation is significant at the 0.05 level as there is less than a 5% likelihood that the correlation is due to chance. The 'p' value shows that the statistical correlation has a 96.2% confidence interval. There was also a more strongly significant positive correlation between the post-post-course value of information on water intake and the post-post-course WQHE score for the primary factor of nutritional quality, as can be seen in Table 55 ($r = 0.441$, $p = 0.009$). This correlation is statistically significant at the 0.01 level. In effect, this means that the 'r' value is approaching the strongly significant value, being just a little short

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

of the 0.5 on the scale of significance. The 'p' value shows that the possibility of the result having been obtained by chance is less than 0.01%; in this instance the result has a 99.9% confidence interval.

Table 55

Correlation between Post-Post-Course Value of Information on Water Intake and Physical Wellness: Nutritional Quality

		Post-Post-Course Value of Information - Water Intake	Post-Post-Course WQHE Physical Wellness - Nutritional-Quality
Post-Post-Course Value of Information - Water Intake	Pearson Correlation	1	0.441 **
	Sig. (2-tailed)		0.009
	N	34	34
Post-Post-Course WQHE Physical Wellness - Nutritional-Quality	Pearson Correlation	0.441 **	1
	Sig. (2-tailed)	0.009	
	N	34	34

** Correlation is significant at the 0.01 level (2-tailed).

The descriptive statistics demonstrate that the value of information on water intake remained high throughout the intervention, although it dropped post-post-course by three points; this matched the students' means average for their WQHE nutritional quality. The correlation suggests that the intake of water may predict to some extent the scores for nutritional quality post-post-intervention.

To be taken into consideration is the fact that the post-post-course value of information on nutrition also correlated with post-post-course scores for the WQHE wellness with respect to nutritional quality. This information will be further explored in the qualitative data analysis and discussed in the following chapter.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.4.2.4 Value of information on interpersonal skills and wellness. In the next set of data the value of information on interpersonal skills, correlated with the WQHE wellness scores for the subscale of social wellness and the primary factor of meaningful relationships, is discussed. The students' pre-course value of information on interpersonal skills showed a positive correlation with the WQHE subscale score for overall social wellness. Table 56 shows that there is a 98.2% confidence interval for this correlation ($r = 0.402$, $p = 0.018$).

Table 56

Correlation between Pre-Course Value of Information on Interpersonal Skills and Social Wellness

		Pre-Course Value of Information - Interpersonal	Pre-Course WQHE Social Wellness - Full Percentage
Pre-Course Value of Information - Interpersonal	Pearson Correlation	1	0.402*
	Sig. (2-tailed)		0.018
	N	34	34
Pre-Course WQHE Social Wellness - Full Percentage	Pearson Correlation	0.402*	1
	Sig. (2-tailed)	0.018	
	N	34	34

* Correlation is significant at the 0.05 level (2-tailed).

For the primary factor score for meaningful relationships, however, there is no significant correlation. In the post-course data the above situation is reversed, as can be seen by the information in Table 57. Post-course there is no correlation between the value of information on interpersonal skills and the WQHE subscale for social wellness. There is, however, a positive correlation between the students' post-course value of information on interpersonal skills and the WQHE primary factor score for meaningful relationships ($r = 0.433$, $p = 0.011$). Table 57 shows the 'p' value as giving a 98.9% confidence interval for this score.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 57

Correlation between Post-Course Value of Information on Interpersonal Skills and Social Wellness: Meaningful Relationships

		Post-Course Value of Information - Interpersonal	Post-Course WQHE Social Wellness - Relationships
Post-Course Value of Information - Interpersonal	Pearson Correlation	1	0.433*
	Sig. (2-tailed)		0.011
	N	34	34
Post-Course WQHE Social Wellness - Relationships	Pearson Correlation	0.433*	1
	Sig. (2-tailed)	0.011	
	N	34	34

* Correlation is significant at the 0.05 level (2-tailed).

These statistical analyses confirm the descriptive statistical data. Although the values placed on information on interpersonal skills increased moderately over the course of the intervention, as did the WQHE scores for overall social wellness, these were not always directly proportional to one another. The WQHE scores for meaningful relationships were highest post-course but dipped in the following term. This could have been influenced by changes in the classes and residence allocation in the following academic year.

5.5 Qualitative Impact of the Intervention

The qualitative impact of the intervention was taken from the responses to the pre-, post- and post-post-course RGQ's from question seven onwards. Most of the responses were brief and the amount of information with which the researcher had to work was somewhat disappointing. There are two ways in which these data can be viewed, one is to quantify the data in order to obtain some means of comparative analysis, and the other is to analyse the data qualitatively in order to obtain the underlying reasons for the analytical outcome (Al-Hamdan & Anthony, 2010). In this instance, students were forthcoming as to what they did and what they found important but less than forthcoming as to why. The amount of

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

qualitative data obtained was, in this respect, disappointing. That having been said, this could possibly have something to do with the students' own personal development, their ability to express themselves and the amount of confidence they had in articulating their thoughts (Healey, Mason O'Connor, & Broadfoot, 2010). First-year students who have not been accustomed to the learner-centred approach of higher education may not have had the opportunity to give any opinion prior to their engagement in this programme (Healey et al., 2010). As will be seen there is more qualitative opinion given in the post-course and post-post-course RGQs than in the pre-course RGQ, as students perhaps gained more confidence and ability to express themselves.

Notwithstanding the reticence of the new learners, there may have been some benefit in offering a more structured questionnaire to this group of students as opposed to a semi-structured questionnaire. Some of the participants provided answers to direct questions with which they felt comfortable, but did not provide reasons for their answers, perhaps because they had not expected to be asked for the reasons (Healey et al., 2010). More direct questioning may have elicited more responses. Nevertheless, the researcher worked as best possible with the information at hand. This was coded to ascertain recurring themes and sub-themes in the students' responses. Themes were broadly labelled according to the relevant areas of the three RGQs, which were collated and used as source documents. A total of fifteen themes were drawn out of the three main documents. Sub-themes were determined by the students' responses and references to each response were recorded. These were analysed and are depicted in the graphical information given under the relevant sub-headings.

Questions seven and eight were identical on all three questionnaires and followed on from question six, which ascertained how important certain areas of information were to the students. The two questions ascertained not only which of the areas of health were most important (as opposed to information on health), but also the reasons why they were

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

important. On the pre-course questionnaire, questions nine and ten also looked at what the least important areas of health were to the students and, again, why this was the case. The answers will be compared to the descriptive statistics, which looked at the students' value of information on specific areas of health. The post-course RGQ (question 12) and post-post-course RGQ (question 10) ascertained actual changes in the students' lifestyle management and wellness practices, which were due to the intervention programme. These will be reported in the next section, which will look at the qualitative aspects of change in wellness priorities and lifestyle management practices.

The subjective qualitative impact of the intervention that pertain to the areas of change in wellness reports on the students' answers to questions eleven, seventeen and eighteen in the post-course RGQ and question nine in the post-post-course RGQ. These questions deal with the learning sessions within the intervention programme that directly impacted on the students' lifestyle. Thereafter, in the final sub-section, the researcher examines the qualitative impact of the educational programme. This is ascertained from the answers to questions nine, ten and thirteen to sixteen in the post-course RGQ and from the answers to questions nine and eleven to fourteen in the post-post-course RGQ. In the penultimate subsection, the researcher reports on the students' future intentions with respect to the knowledge they have gained from the intervention programme. Answers are taken from the post-course RGQ question nineteen and post-post-course RGQ question seventeen. Finally students' comments, with regard to changes they feel should be made to this programme, are taken from the answers to the post-post-course RGQ questions fifteen and sixteen.

5.6 Comparison of Qualitative Changes with Wellness

In order to view the aspect of change to the students' wellness in context, the researcher examined the areas of health that, for the participants, constituted their priorities

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

(as opposed to their value for information). In many instances, these were similar or the same; however, in the qualitative section of the questionnaire, the opportunity arose for students to give more than one area of priority as a response. Additionally, the participants were able to give reasons for their choices. Priorities pre-course, post-course and post-post-course changed for many of the participants as some needs for health and wellness improvement were met and as changes in needs took place over time. Priorities, in turn, informed in many instances areas of health in which students had attempted to make positive changes. Where examples of actual student responses are given, student questionnaires were coded for protection of their privacy and all students had the same response code throughout the study in order to facilitate a comparison over the three sets of questionnaires.

5.6.1 Students' wellness priorities and changes in priorities. The pre-, post- and post-post-course RGQs ascertained what the students' wellness priorities were at that point in time, in addition to the reasons they had for these particular wellness priorities. There were twenty two areas of health that were options for the students.

5.6.1.1 Pre-course wellness priorities. Prior to the intervention, out of the twenty two options, there were eleven areas of health that were given as a priority for the participants. The number of times each was coded is given in Figure 7.

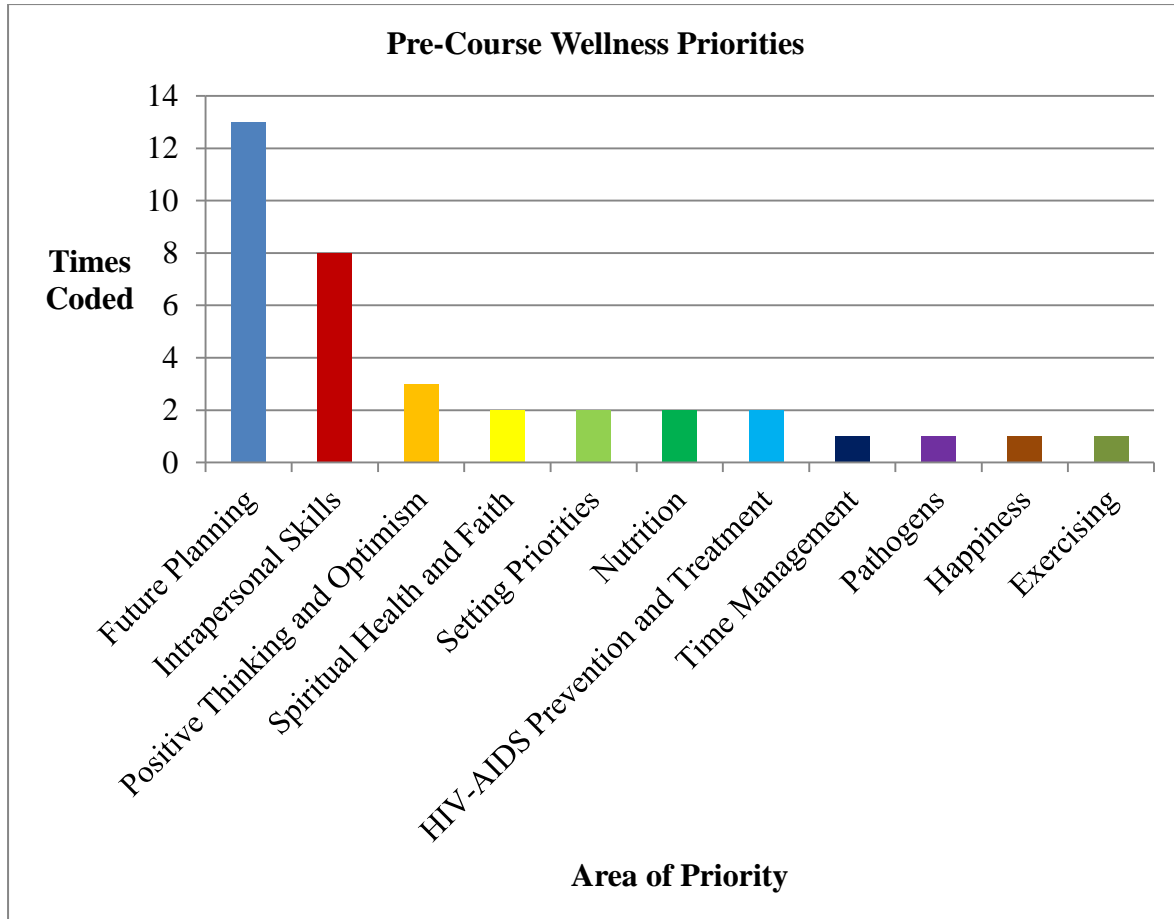
It is clear that, for a large number of students, planning their future was extremely important to them, prior to the intervention, with intrapersonal skills the next highest priority for a significant number of participants. Whilst the number of responses for each area of priority is depicted in Figure 7, Figure 8 gives a detailed analysis of the pre-course responses to questions seven and eight. The sub-themes of health priorities arising out of the students' responses are given, along with the reasons for the students' choice of health priorities. Some areas of health were priorities for only one or two students who may have given more than one reason for their choice. Such areas include exercising, happiness, pathogenic bacteria,

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

time management, HIV/AIDs prevention and treatment, nutrition, setting priorities, spiritual health and faith. Positive thinking and optimism was a priority for three students.

Figure 7

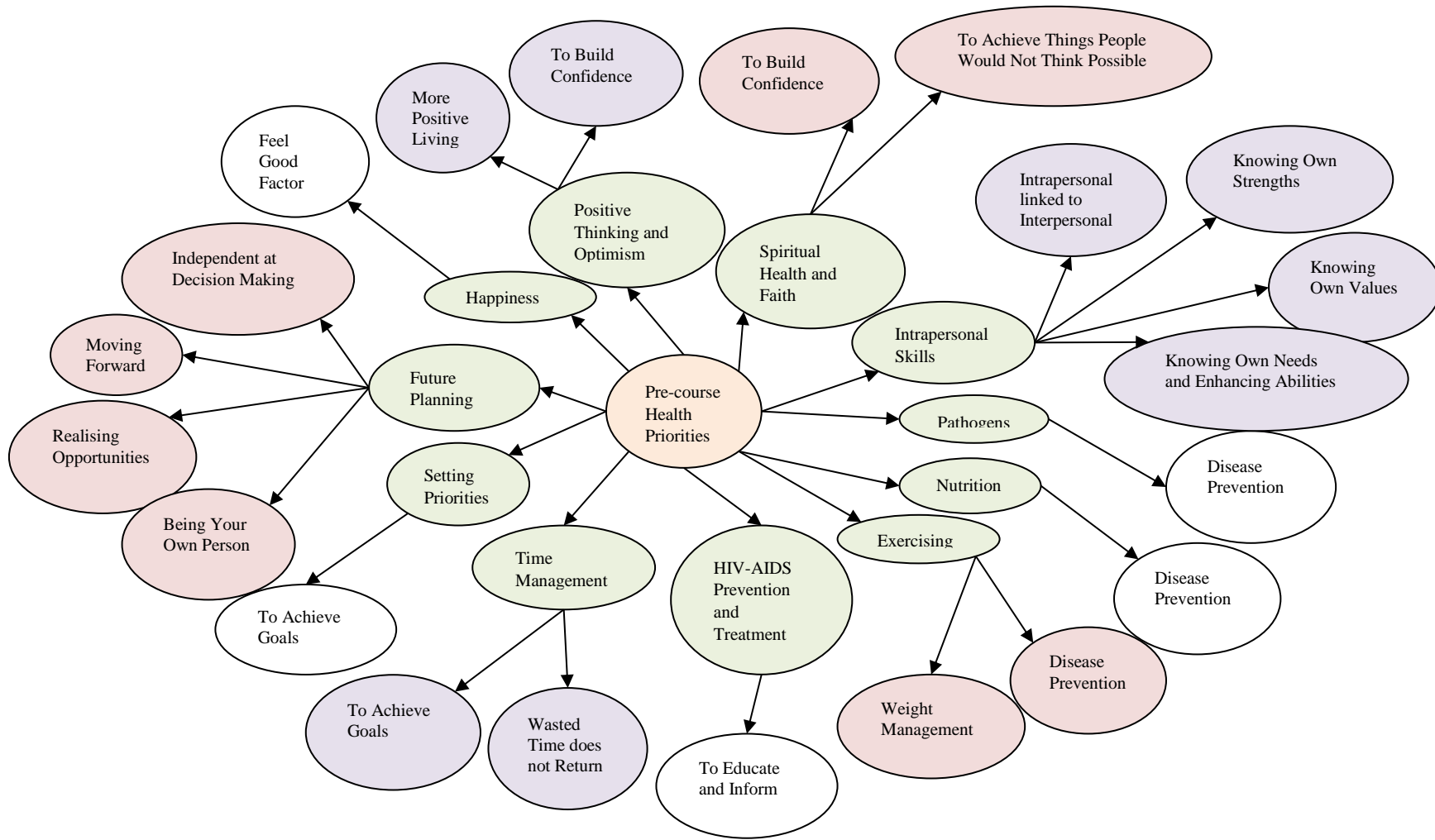
Students' Pre-Course Wellness Priorities: Numbers of Coded Responses



IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Figure 8

Students' Pre-Course Health Priorities and Reasons for Choices

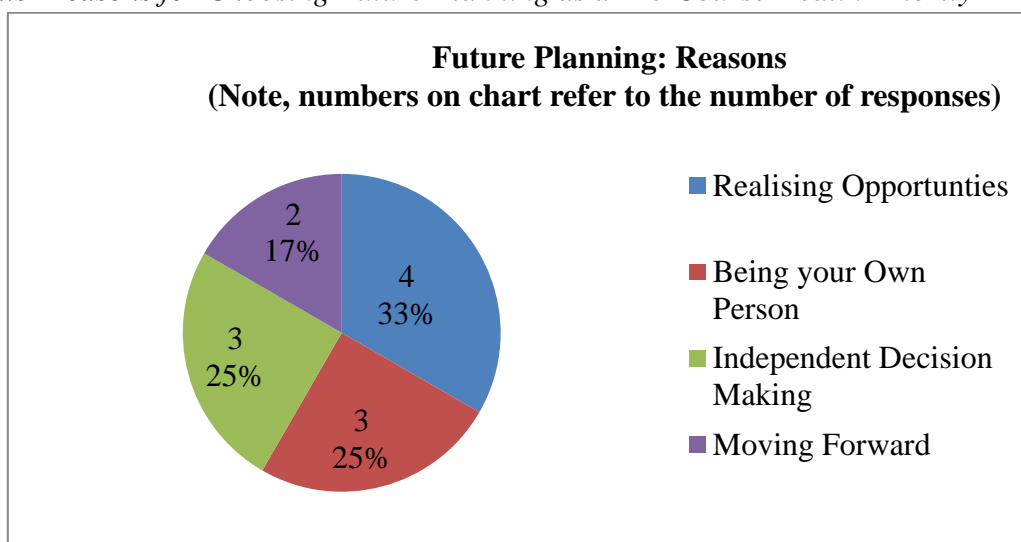


IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

For the thirteen students for whom future planning was the most important area of health, twelve gave reasons (one declined to do so); the reasons cited, along with the actual numbers and percentages of responses, are depicted in Figure 9.

Figure 9

Students' Reasons for Choosing Future Planning as a Pre-Course Health Priority



Examples of actual student responses with respect to question seven were all very brief, and virtually identical (planning my own future; knowing myself; nutrition, etc.); with respect to question eight, which asked for reasons for their answer on the pre-course questionnaire, examples are given for the two highest health priority areas. For the largest response on future planning, some of the more explanatory examples from the coded participants follow. N.B. quotes are taken verbatim from the students' responses.

CODE 004 "It is very important to me because my future is in my hands no one has to choose or plan my future. I am the one who is going to make my own decisions that can lead me to success".

CODE 014 "It is important because in order for me to move forward in life I must plan my future".

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

CODE 019 “It is normal to plan your future seeing yourself after some time as person you want to be and making your parents and yourself proud. Without planning things cannot happen because you have no dreams”.

CODE 023 “It is important because I have to plan my future by myself. Because at the end of the day I must be what I want to be”.

CODE 032 “To know how my future will be, to succeed in my plans for the future, to grab every opportunity that comes”.

Decision-making and making the right choices appeared to be uppermost in many of the student’s minds at this point at the beginning of the academic year and before the intervention took place. For eight students, intrapersonal skills was cited as the most important health priority, the reasons given included knowing one’s own personal needs (three responses) and knowing one’s own strengths and values (each two responses). The idea that one should get to know oneself before one can successfully interact with others also elicited two responses. Examples of some of the more explanatory student’s responses follow.

CODE 001 “I think knowing myself well is the most important thing to me because if I know myself very well it is easy to know what I do or don’t need, how to or not to do things. It helps know what your strengths and what needs are, to enhance your abilities and accept the things you cannot change”.

CODE 006 “Knowing myself well is very important in order for other people to know me. I must first know myself and I think that is very important”.

CODE 011 “By knowing yourself well you will be able to have confidence about yourself and you’ll be able to know your values in life”.

CODE 025 “It is simply because in order to behave and get along with other people around you and accept the life you are living you have to know who you are first and have

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

self-love so that you can be able to love others as well and have peace in life and in the environment”.

CODE 026 “So I could not fall into the wrong traps end up doing all occult stuff, due to unknown identity”.

For these students, there appears to be a realisation that one needs to be self-aware especially with respect to one’s own strengths and shortcomings and that intrapersonal knowledge perhaps precedes interpersonal knowledge, that of knowing how to get along with others. Three reasons for choices arose out of more than one sub-theme; those of building confidence, achievement of goals and preventing disease.

Building confidence was given as a reason for choosing spirituality and faith as a health priority, as well as for that of choosing positive thinking and optimism.

CODE 028 “Positive thinking and planning my own future with faith” “Because in this life you need faith and to think positive then all your thoughts about planning your future will be achieved. All this gives you a strong confidence in life”.

Achievement of goals arose as a reason for making time management a priority, as well as for that of setting priorities.

CODE 005 “Setting priorities in your life” “Because when setting priorities in your life you have time frame which will help you to do by all means to fulfil your goals at the right time”.

Disease prevention was given as a reason for choosing nutrition, as well as being given as a reason for the focus on exercise. With respect to the same two questions the following answers were obtained from the students who chose nutrition, and exercise as their wellness priorities.

CODE 009 “Nutrition goes along with almost everything that is above when you have a nutritious lifestyle you can (mitigate diseases) that you come across because you have a

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

healthy body and also a strong (one), so it is not easy for diseases or bacteria to enter your system easily”.

CODE 024 “It is important because by exercising your body you as a person will be protecting your body from getting diseases such as ‘flu and minimising your body’s chances of getting a heart attack because your heart will get used to beating fast in an emergency. Also exercising helps to maintain body weight”.

The two highest numbers of coded responses, those of future planning and knowing oneself (intrapersonal skills), correlates to the descriptive statistical outcome of the value of information, intrapersonal skills and future planning having obtained the two highest scores. Information on nutrition was also valued highly; however, only two participants placed this as their primary health priority. This could possibly mean that the students possessed insufficient information on nutrition at that time, or that the priority was superseded by that of future career/study planning out of necessity.

The mean pre-course total wellness score was 72.56%, which fell in the range of ‘good’ in so far as total wellness is concerned. Career wellness had the highest pre-course WQHE wellness score with a mean average of 81.74%. This also falls into the range of ‘good’ as far as wellness is concerned and might be accounted for by the high priority that students placed on future planning, pre-course. Intrapersonal skills followed as far as pre-course priorities were concerned with eight students placing this as their highest priority. Spiritual and emotional wellness were the next two highest pre-course WQHE wellness scores, these being 78.94% and 78.88% respectively; also ‘good’ scores in this area of wellness, which might be accounted for by the priority placed on the intrapersonal factor of ‘knowing oneself’.

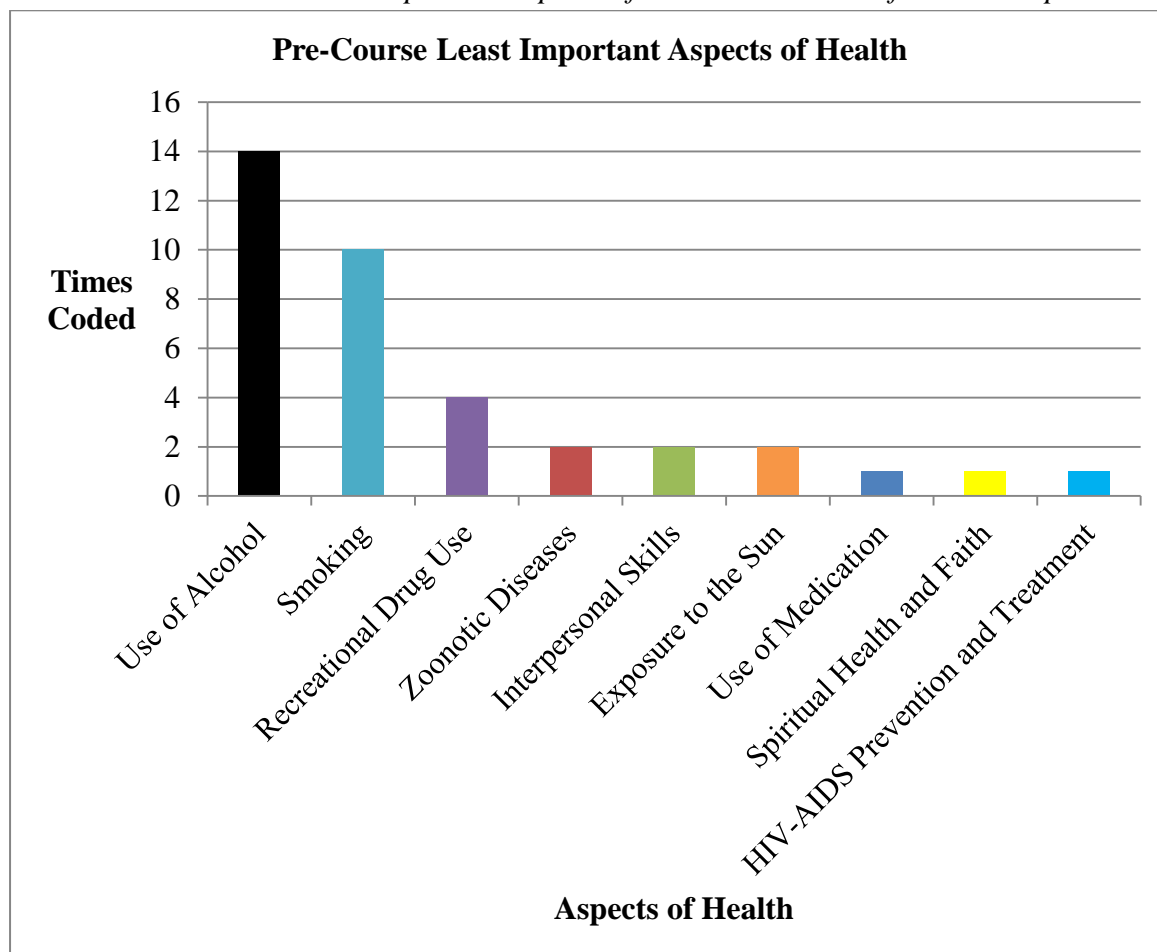
The pre-course questionnaire asked students about the areas of health that were least important to them at that time (question nine) and the reasons for their choices (question ten).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

It appears that the students unilaterally interpreted this question as asking why they would not participate in certain behaviour (as opposed to this being a general area of health). The sub-themes and number of times these were coded are given in Figure 10. The full range of responses with reasons given for these responses is depicted in Figure 11.

Figure 10

Students' Pre-Course Least Important Aspects of Health: Numbers of Coded Responses



Use of alcohol, followed by smoking and recreational drug use, had the most number of coded responses with regard to areas of least priority for the students. HIV/AIDS spiritual health and use of medication were respectively the choices of only one person, whilst exposure to the sun, interpersonal skills and zoonotic disorders were each chosen by two participants.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Given the high numbers of HIV infected people in the country and the high profile of the problem, the fact that it was not important for one of the students was surprising; however, the reason given perhaps in some way reflects the progress made in respect of the fear and stigma of the disease.

CODE 037 “It is because I can live with HIV and AIDS with a whole life, so I’m not stressed with HIV and AIDS because it is an incurable disease”.

With respect to spiritual health and use of medication, reasons given by the two students concerned reflect opposite sides of the coin with respect to spirituality, these were:

CODE 033 “I believe that I succeed in most of the things I do without having great faith and spirit”.

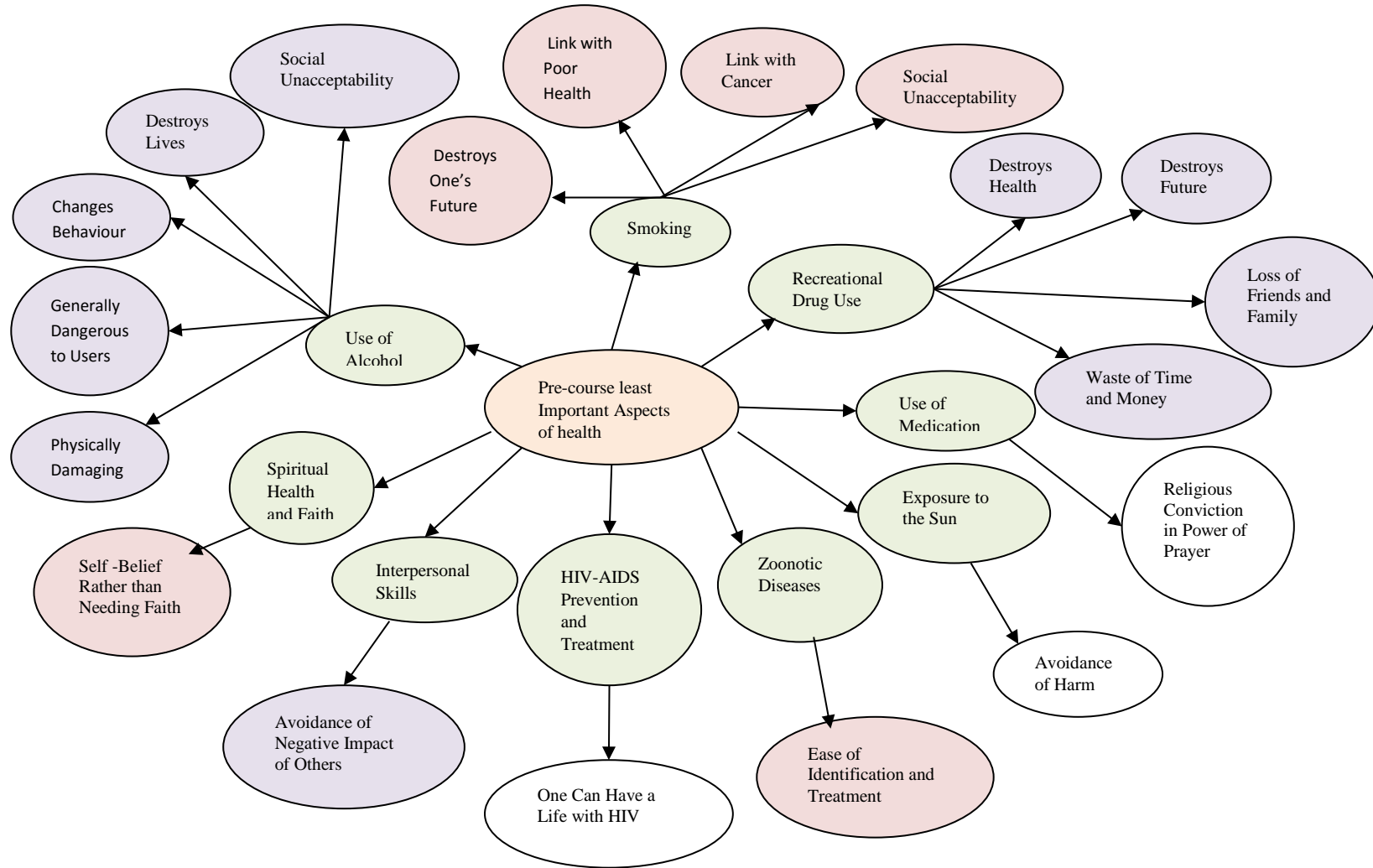
CODE 026 “Because I am a Christian I really don’t believe I should use medication to heal. If I don’t sleep well when ill I pray for my illness and I definitely get well – eventually”.

With regard to alcohol, smoking and recreational drug use, there were similar reasons for the choices made. Both smoking and alcohol were deemed to be socially unacceptable, physically damaging and physically dangerous. Both smoking and recreational drug use were deemed to destroy one’s future and alcohol to destroy one’s life. With respect to recreational drug use, loss of friends and family, waste of time and money and the destruction of health each had one response, whilst the destruction of one’s future was cited as a reason by all four students for whom this was the least important aspect of health.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Figure 11

Students' Pre-Course Areas of Least Priority and Reasons for Choices

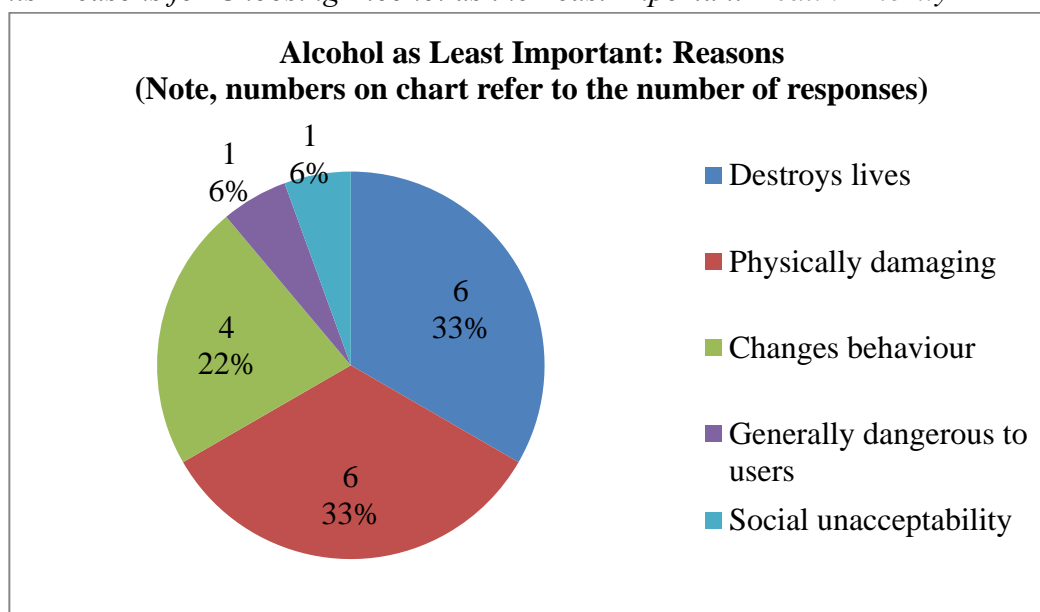


IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

The reasons given for the fourteen respondents who felt that alcohol was the least important aspect of health are depicted in Figure 12. Some students had more than one reason for their choice. The predominant opinions (six participants) are that alcohol destroys lives and is physically damaging.

Figure 12

Students' Reasons for Choosing Alcohol as the Least Important Health Priority



Examples of actual student responses for the reasons behind not using alcohol follow.

CODE 002 “Because it damages parts of the body in human beings, in students it destroys the future. It also changes the original behaviour of a person. In other words, it creates criminals around the country”.

CODE 005 “If you used alcohol you lose your mind and you can do things which you can regret you’re self for at the end of the day and alcohol damages brain cells”.

CODE 022 “It is not important to me because I once used alcohol but instead of feeling good I just felt very worthless, and I was called names because of using it, it is also not right for my health”.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

CODE 024 “Because when people are under the influence of it (alcohol) they make bad decisions and those decisions later affect the people they love like many road accidents are caused by people who are under the influence of it, so we end up losing the people we love”.

CODE 028 “They are good to use (drugs alcohol and cigarettes) but as the time goes on they destroy the beautiful life of a person and make a person not to dream of his/her future”.

CODE 034 “They (smoking, alcohol, recreational drugs) do not (make) any positive contribution in my life, by using them eventually they will lead to destructive things that will later destroy my ultimate goal in life. Using them will turn you into someone that neither me or my family will be proud of, I will not have any purpose in life”.

CODE 038 “They destroy people’s lives they end up useless and ill. Smoking can cause cancer and drinking can cause jaundice. As a future business woman I don’t think these two can help me to become successful in future”.

Smoking was chosen as the least important aspect of health for ten of the participants; however, once again, some students had more than one reason for their choice. The links between smoking, poor health and cancer were predominant reasons given for the participants’ choice, this being depicted in Figure 13. The choices with regard to the four least important aspects of health correspond to the same four aspects of health at or near the bottom of the scale, with respect to the students’ pre-course value of information. The reasons given also indicate how the students feel about their future, as planning their future was a high priority and its possible destruction, due to substance use, at the bottom of the scale. Examples of the actual student’s responses follow:

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

CODE 006 “Smoking can be very dangerous, it can cause cancer and I have seen many people suffering from cancer so I don’t want to see myself smoking or suffering from cancer and smoking at times can even lead to death”.

CODE 007 “Because it causes the lung cancer affects respiration also does not give any vitamin to the body but only gives bad health, such as bad mouth and many more diseases which can lead to death”.

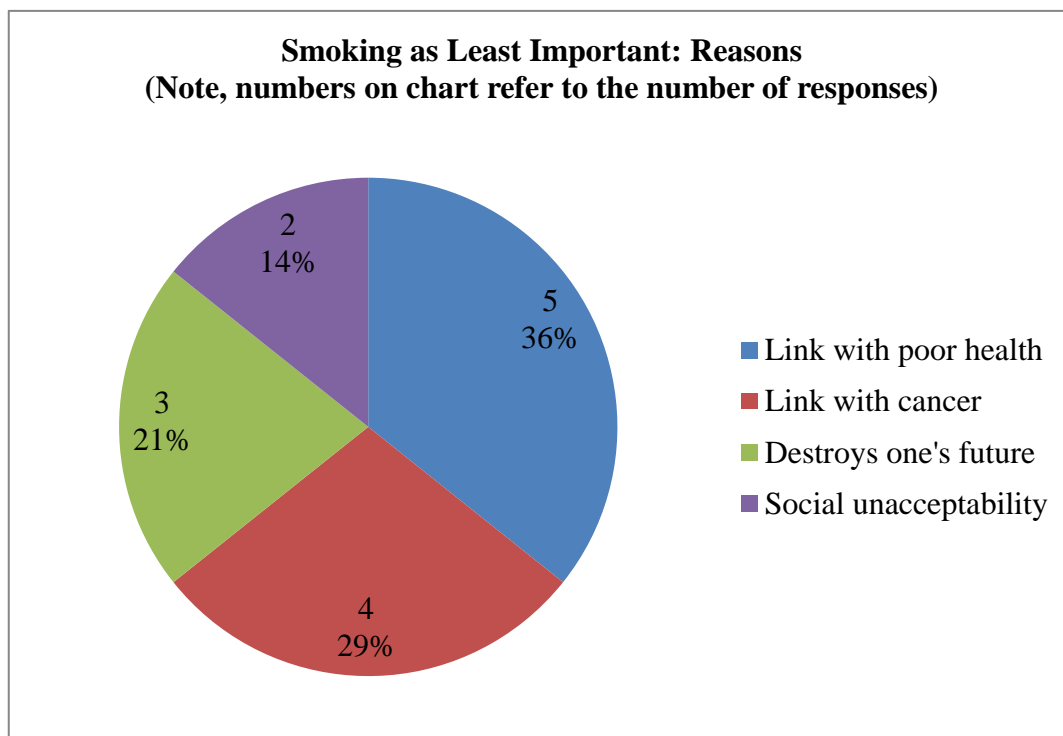
CODE 010 “Smoking is not good for health and it kills. There’s nothing that is ever said that is positive (about) smoking except it’s dangerous”.

CODE 011 “If I smoke I will get diseases like cancer so that is why it is not important to me”.

CODE 032 “I hate people who smoke and I don’t see the reason for them to smoke, because smoking is not good for anyone’s health”.

Figure 13

Students’ Reasons for Choosing Smoking as the Least Important Health Priority

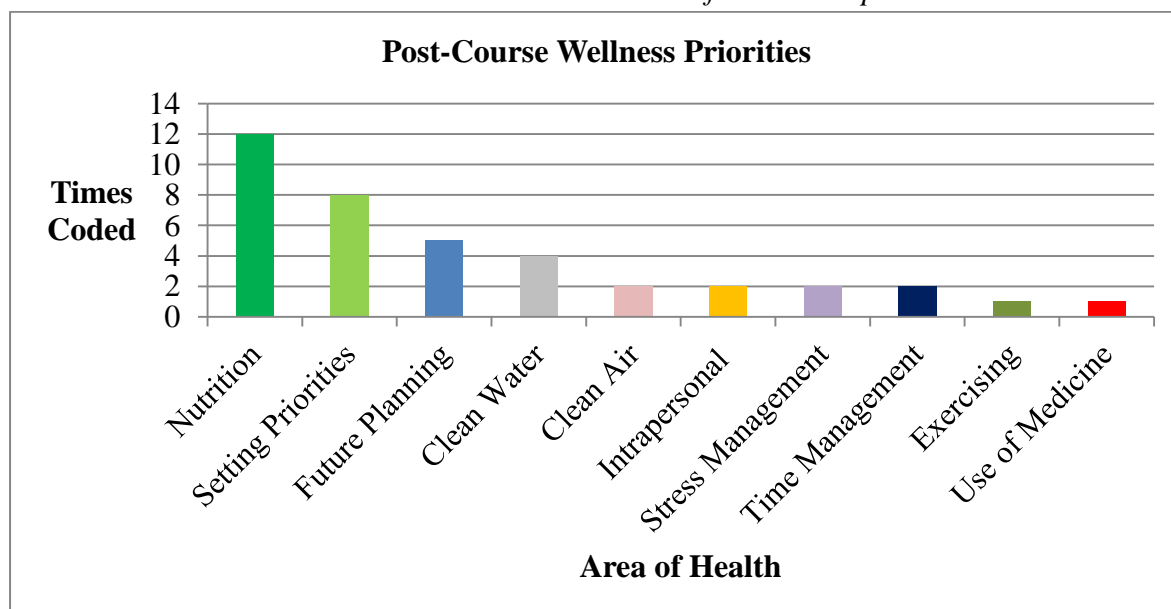


IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.6.1.2 Post-course wellness priorities. The post-course RGQ ascertained what the students' wellness priorities were at the end of the intervention, in addition to the reasons they had for these particular wellness priorities. Future planning and intrapersonal skills were once again priorities for some students, as was nutrition and time management. Other aspects of health, which did not feature previously, appeared on the list of post-course wellness priorities, such as clean water, clean air, stress management and interpersonal skills. The number of times each priority was coded is given in Figure 14.

Figure 14

Students' Post-Course Wellness Priorities: Numbers of Coded Responses

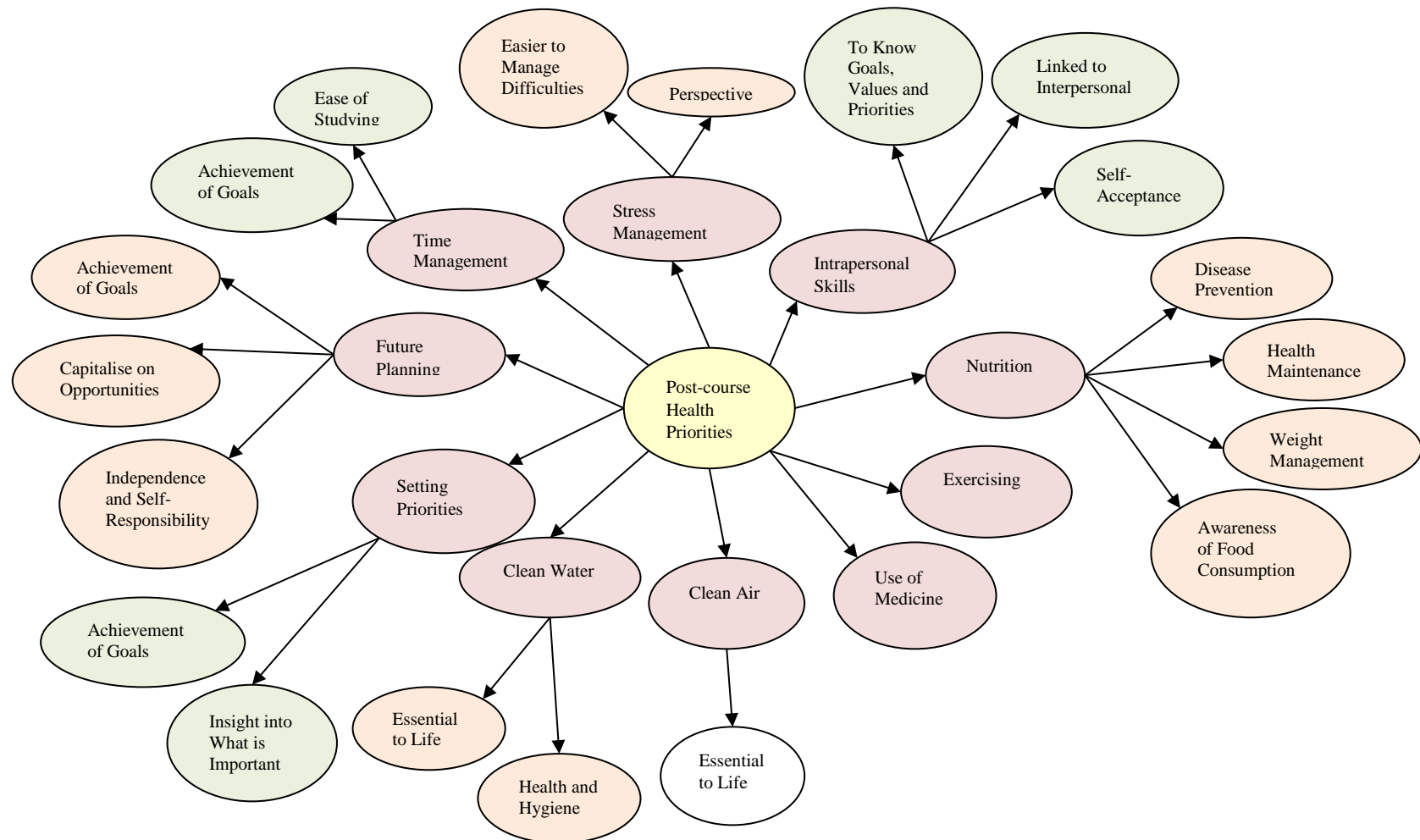


The responses coded under the theme of 'Post-Course Health Priorities' is depicted in Figure 15. The sub-themes of health priorities arising out of the students' responses are also given, along with the reasons for the students' choice of health priorities. Some of the reasons for choices of health priority spanned more than one aspect, such as 'achievement of goals', given as a reason for choosing time management, future planning and setting priorities. Students who chose exercising and use of medicine as health priorities, however, did not give reasons for their choice.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Figure 15

Students' Post-Course Health Priorities and Reasons for Choices

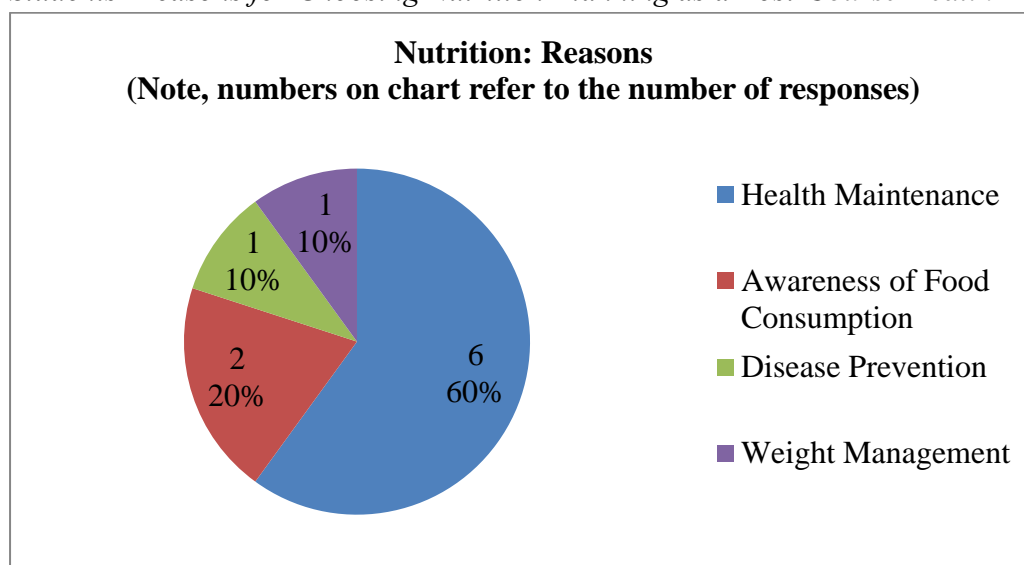


IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

The area of health that features most prominently as a post-course priority was nutrition, the reasons for which are depicted in Figure 16. The main reasons given were those of maintenance of health and general wellbeing. Awareness of food consumption, disease prevention and weight management were also reasons behind some of the students' choices.

Figure 16

Students' Reasons for Choosing Nutrition Planning as a Post-Course Health Priority



Examples of the actual student responses follow.

CODE 005 “Nutrition is important because it broadens our mind and makes us wise about what we consume and what we should do in order to maintain our life”.

CODE 007 “It’s because our body, for it to function, it needs nutrients and without the nutrients some organs cannot function effectively. Nutrition is important because when you have consumed something you get energy to do work and also to able to (be) alive. Nutrition prevents diseases such as kwashiorkor which is being caused by lack of vitamins in the body”.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

CODE 008 “It is important to me because my health status determines a lot of the other functions about my life and affects all of them greatly. It also determines how far I will end up in my future plans”.

CODE 010 “It is Nutrition important to me because I believe a person has to eat healthy in order to shine healthy and be able to apply knowledge and skills”.

CODE 019 “I have learnt more about my diet and what to eat or not, now I know healthy food and how to keep myself healthy. I also know the amount of diet to take per day especially the healthy one”.

CODE 037 “It is because it teaches me a lot, I gained the important information in nutrition I know how to balance the diet”.

Setting priorities and future planning were the main choice for eight and five students respectively. Achievement of goals (reason given by five students) and insight into what is important (reason given by four students) were behind the choice of setting priorities. Reasons given for future planning were, again, achievement of goals (three students), to capitalise on opportunities and to achieve independence and self-responsibility (one student each). Examples of student responses are given.

CODE 004 “It is important because if you plan your future you develop many skills to try harder in order to achieve what you have planned about your own future”.

CODE 006 “It is important because planning for the unknown is very... because I can never know what might happen in the future if I don’t use the opportunities that I’ve been given now”.

CODE 014 “Because in order to achieve and have a sustainable life you must set your priorities and your life will be in shape”.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

CODE 027 “It is important because setting priorities for my life is the opportunity to achieve my own goals and fulfil my dreams. Who knows how to translate your plans into action”.

CODE 034 “ I am growing up I have to learn about what kind of environment this world is except knowing my home environment that does not have other things the world has. I need to know what is important that is going to come handy in future. Planning my future now gives me a structure of how things I want them to be”.

CODE 036 “I have developed so many skills in planning my own future, so now I am aware about the things I was not aware of before. It is very important to me, because I like to be independent and have responsibility”.

CODE 038 “It’s important because setting your priorities makes you know how to set your goals and make sure that you make your goals come true”.

CODE 039 “Because priorities make life very easy no matter you are doing something you are referring to your priorities”.

The students’ post-course value of information rated nutrition highly with a score of above 95% of the maximum; however, future planning had the highest possible score. This factor might account for its placement as a main priority by five students, in addition to the achievement of goals featuring prominently as a reason behind some of the other choices of health priority. In terms of wellness, the post-course WQHE total wellness score increased slightly, which remain in the range of ‘good’ as did the mean value of the post-course WQHE physical wellness score, which remained, however, in the range of having ‘room for improvement’. The post-course WQHE score for nutritional balance, within the WQHE domain of physical wellness did not improve, but that of nutritional quality rose by 5%, which may be accounted for, in some respect, by the increase in the number of students who regarded this aspect of health as a priority.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Altogether, the nutritional aspect of health did not score high in the WQHE and it is noted that, despite holding this aspect of health in high regard, it may have been challenging for students to implement change. This will be viewed in the next sub-section.

The high regard for setting priorities, future planning and the achievement of goals featuring prominently as a reason behind some of the priorities may account for the high score of career wellness; although only that of the primary factor of professional development within the WQHE domain of career wellness had increased marginally from pre- to post-course (by 0.15%) to 81.47%, which is in the upper range of 'good' in respect to wellness scores.

Exercise and use of medicine were both a post-course priority for only one student. Exercise, in particular, improved hugely from a mean average score of 30.12% to 48.79% as a primary factor within the WQHE domain of physical wellness; however, still remained 'poor' in relation to other aspects of health and the possible score achievable. Use of medicine fell into the primary factor of protective behaviour, which improved slightly post-course over the pre-course score (2.15%).

5.6.1.3 Post-post-course wellness priorities. The post-post-course RGQ ascertained what the student's wellness priorities were 15 weeks post-intervention, in addition to the reasons they had for these particular wellness priorities. At this stage the students had begun their second year of study and had some time in which to implement what they had learned from the lifestyle management programme. Analysis of the post-post-course RGQ revealed fifteen aspects of health that appeared to be a priority for students. Many of the participants chose more than one aspect of health as a priority. The qualitative analysis showed that there were 45 references with respect to post-post-course health priorities. Future planning again scored high with nine students citing this as a priority. Achievement of goals, which is closely linked to future planning and career wellness, was given as a reason for the choices of

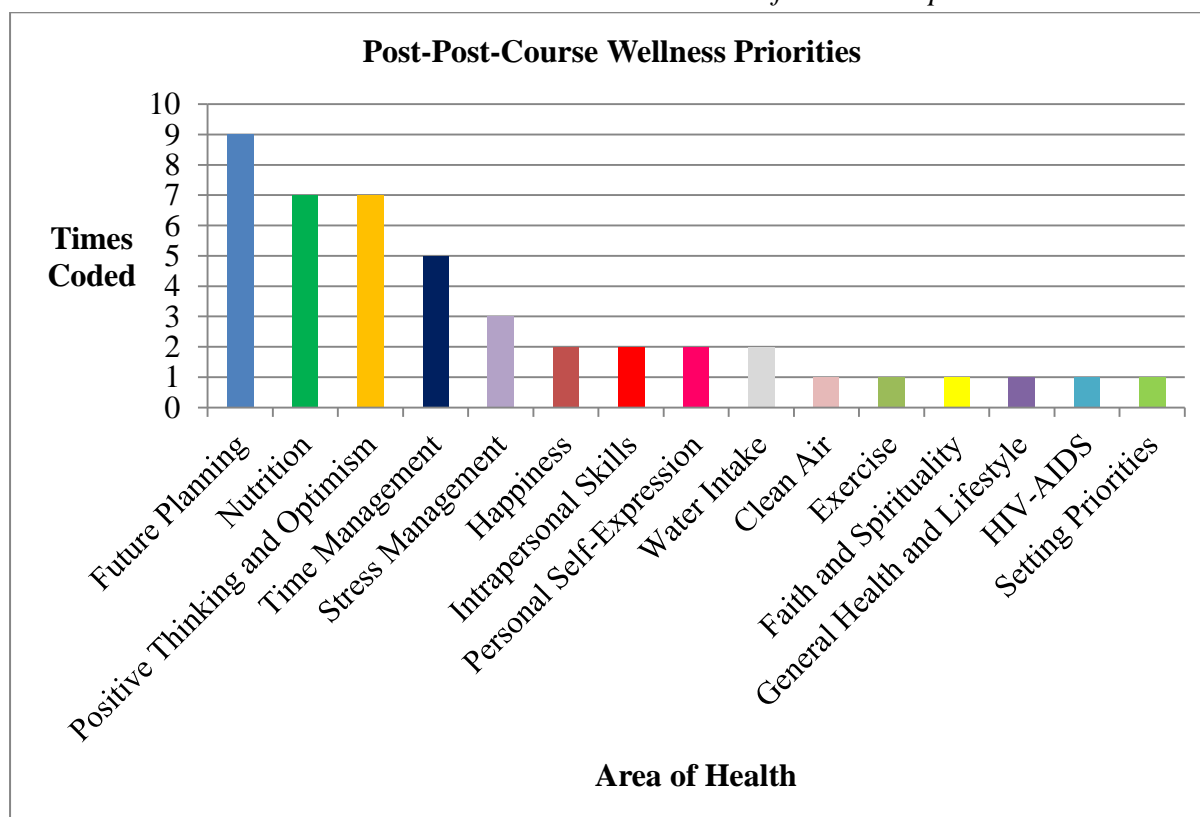
IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

setting priorities, positive thinking and optimism and stress management by some students.

The number of responses to the theme of post-post-course health priorities is given in Figure 17.

Figure 17

Students' Post-Post-Course Wellness Priorities: Numbers of Coded Responses



The responses coded under the theme of 'Post-Post-Course Health Priorities' is depicted in Figure 18. The sub-themes of health priorities arising out of the students' responses are also given, along with the reasons for the students' choice of health priorities. Post-post-course, there appeared to be a far broader range of health priorities; whereas there were nine pre-course, and ten post-course.

Despite the broader range of responses for the post-post-course health priorities, the reasons given were not so disparate. With regard to future planning, 'personal responsibility' emerged as a reason for most (five responses) as well as that of achieving goals (two responses). This aspect of health was also linked to intrapersonal skills (one response) as well

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

as positive and constructive thinking (one response). Maintenance of health was the main reason given for the choice of nutrition (seven responses) with two participants also citing optimum physical and mental function. Achievement of goals was the main reason for the choice of positive thinking and optimism (five responses), with gaining a better perspective on challenges cited by four participants and improvement in self-esteem and self-confidence by one. With regard to time management, this was predominantly linked back to the achievement of priorities (four responses) and the fact that wasted time does not return. Achievement of goals was also linked to stress management (one response) with two participants citing personal need for stress management as their reason for this choice of priority. Altogether, the achievement of goals was mentioned nine times by students as a reason for their choice of health priority.

With respect to future planning which was high on the list with respect to information, some students made the following comments:

CODE 002 “Because there is no one plans for your future, even your parents can not plan for your future and also it’s because my future depends on my hands and my hands are on my body”.

CODE 025 “It is important to plan a brighter future for myself now so that when my elders are gone I can survive in this world on my own and not struggle & that needs positively to know I am capable and can make it no matter how hard”.

CODE 026 “Because I have learned that the coach of my life and future occurrences is myself. If I do not plan it to a course of my benefit my morals and values then there will be a problem along the way”.

CODE 030 “Because I’m not getting any younger and I need to plan my own future because in a few years’ time I will no longer be dependent on my parents I need to look out

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

for myself and make good life choices so that I have the best that I want and need to survive in this world”.

CODE 031 “Planning my own future is very important to me because I want to see myself doing great things in future I want to know how I’m going to live my life and what I’m going to do in order to have a brighter future”.

Examples of student responses, which were linked to the achievement of goals; the following comments were made by some of the students:

CODE 004 “Positive thinking is very important because many things you achieve them by thinking positively but if you don’t have positive thinking you don’t achieve because of negative thinking”.

CODE 009 “Stress management is very important to me, because when I’m under a lot of stress my mind switches off and the only thing I am able to think about is what is really stressing me. So when I manage my stress levels I am able to achieve a lot and gain focus and control of things”.

CODE 028 “Because of my age I have to know where to head in life and how I can be successful in what I want, how to prioritise my life and set goals to achieve”.

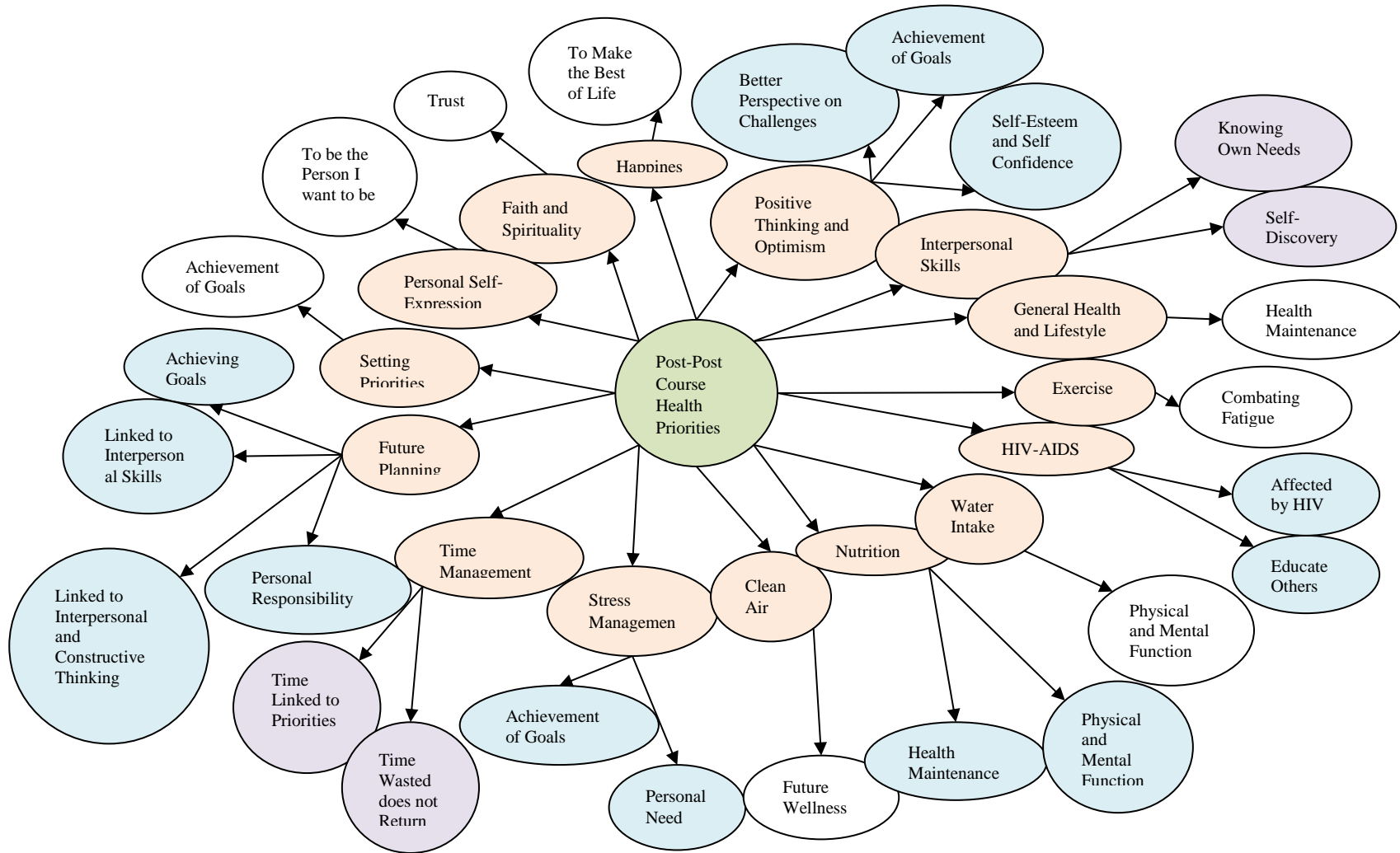
A small number of students had multiple priorities and gave multiple but loosely linked reasons for those priorities, this was a significant improvement from the previous brief answers given. The following students had clearly thought about their situation with regard to their priorities, the reasons for these and how they viewed their future at this point:

CODE 010 “I intend eating healthy and drinking enough water in order for my body and mind to function properly so that I can plan or be able to think positive and constructive things and plan my future”.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Figure 18

Students' Post-Post-Course Health Priorities and Reasons for Choices



IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

CODE 034 “Nutrition is important because I regard it as an essential mechanism for living a long life. Planning my future will guide me into what I am looking for in life. Positive thinking will motivate me in carrying on, not giving up too easily regardless of the circumstances. Personal self-expression will help me to reduce my stress levels by talking about what is or may be troubling me. Time management will help me to ensure everything is done on time”.

The future is clearly very important to this cohort of students, as most of the comments made are with respect to improving their future, for which they hold themselves responsible. This links to the students’ post-post-course value of information where future planning had the highest possible score. The value of information on nutrition post-post-course also scored high (98%), along with optimism (94%). Other health priorities chosen by students were among the higher scored items in the post-post-course value of information, whilst those at the lower end of the values scale, such as alcohol, smoking, recreational drugs, zoonotic diseases, bacteria, sun exposure and use of medication, were not among the students’ health priorities at all.

The students’ post-post-course WQHE score for overall total wellness had a mean average of 77.62%, which was good and had improved slightly over pre- and post-course scores. Physical wellness also improved over the pre- and post-course scores to a total of 71.97%, rising out of the category of ‘room for improvement’ into that of ‘good’. The primary factor of exercise improved yet again but only slightly to 50.91%; however, this still remains in the category of ‘poor’ and is the post-post-course priority of only one student. Nutritional balance rose to 63.06% (a rise of 3.99% across the time of the intervention), and nutritional quality rose to 64.26% (a rise of 11.76% across the time of the intervention). The change in wellness priorities and more focus on nutrition as a means of maintaining health may have had some impact on these scores. Post-post-course, the WQHE domain of career

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

wellness rose very slightly to 81.79%, still remaining in the category of 'good'. Scores for the primary factors of career choice and career competence rose slightly, but the primary factor of professional development dropped; however, the changes were too small to be significant and all scores still remained in the category of 'good' with respect to the WQHE wellness scores. This may correspond to the high value placed on future planning and the students' high prioritisation of future planning together with the achievement of career and personal goals.

Regardless of the value placed on information on various aspects of health, or that of the choices of the participants with regard to health goals and their reasons for the choices, actual wellness changes may be less than easy to implement. In the next sub-section, the changes in wellness and lifestyle attempted by the participants in the intervention are given, post-course and post-post-course.

5.6.2 Students' changes in wellness and lifestyle management. The post-course RGQ (question 12) and post-post-course RGQ (question 10), asked students about the changes in lifestyle they had made at that point. Out of the 34 participants in this study, 32 had, at the end of the course of intervention (post-course), made some changes to their lifestyle. A total of 44 specific changes were made by 32 participants, with four having made some non-specific changes and three citing general 'disease prevention' as a lifestyle change. Many students attempted to change more than one area of their life during the course of the year. Figure 19 gives the summary of the changes made and the number of times these specific or non-specific changes were coded.

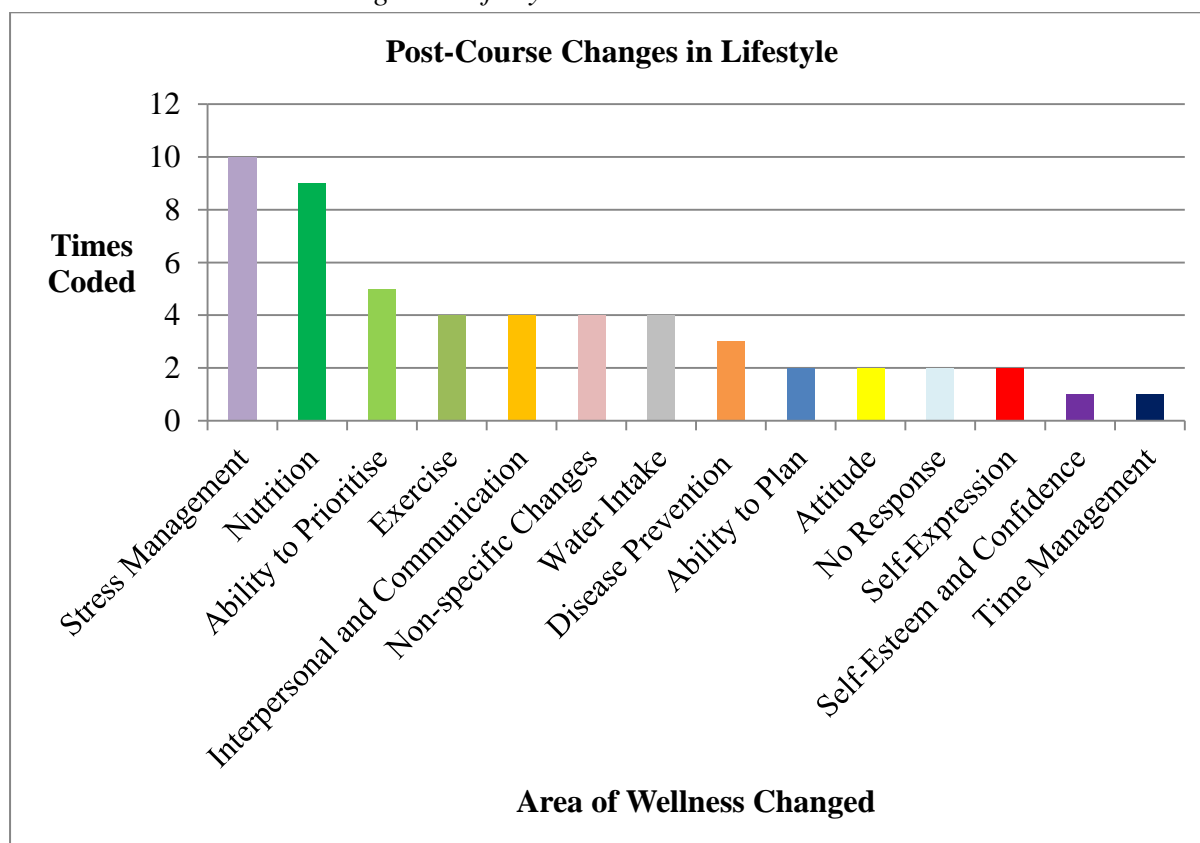
Stress management was the area of wellness that engaged the largest number of students (ten), followed by nutrition (nine) and the ability to prioritise (five). In the analysis of the post-course health priorities, only two students had given stress management as a health priority; however, a far greater number had, in fact, attempted to do something positive

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

about their stress levels. Post-course, the WQHE primary factor of stress management increased slightly by 0.91%, which is not particularly significant, but at 81.32% this was in the upper range of ‘good’ with respect to wellness.

Figure 19

Students’ Post-Course Changes in Lifestyle



Some of the comments from the students follow:

CODE 002 “I know how to manage stress because I apply all the techniques that my lifestyle management lecturer taught me and I always manage the stress”.

CODE 004 “I’ve changed because now I am able to manage time and stress and I’m also able to express things that I want to express now I’m able to eat a healthy balanced diet in order for me to be healthy”.

CODE 007 “I’ve changed the way I think now I’m always positively minded therefore less stress for me. I’ve change my priorities now they are settled according to the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

way of my importance. I've changed the way I deal with stress, now I'm opened-up I talk about the things that make me feel sad.”

CODE 008 “Thanks to the stress management session we had in the course I have formulated ways to cope with academic and personal stresses and it has improved my concentration and I have developed a more optimistic mind. The life planning sessions also help because even though I know what I wanted to be and have in the future I did not know of the steps I need to take to get where I want to be”.

CODE 010 “I now know how to deal with stressful situations e.g. home (family) friends and be able to communicate better with others. I now know how to react to stressful situations without hurting people around. All in all I can control my behaviour and anger”.

CODE 032 “I now know how to manage stress. I don't just sit while I am stressed and take it off to other people. I exercise or burst a balloon or just cry a lot”.

Conversely, twelve students had given nutrition as a health priority post-course; however, nine managed actually to effect some changes to their diet. This may have paid off, as seen in the increase in nutritional wellness, reflected in the increase in nutritional balance and nutritional quality, post-course. Water intake had changed for the better for four students and this may additionally have been reflected in the WQHE primary factor of nutritional quality. Comments with respect to nutritional changes follow:

CODE 006 “My diet has changed my attitude has changed because I have been able to exercise patience and maturity”.

CODE 024 “It changed the way I eat because firstly I used to eat everything without thinking about how it is going to affect me especially food that contains fats I liked them very much before starting lifestyle management”.

CODE 026 “Nutrition, I am now too cautious about diet I take food that is good for my health and that has turned my world around”.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

CODE 013 “Now I know how many glasses (of water) I may have a day and I always keep a bottle of water with me everywhere I go”.

CODE 014 “What I’ve changed is the way I balance my diet and I exercise twice a week and I always drink water”.

For some students there was an acknowledgement that, although they had tried to make changes in some areas of their life, in other areas there were challenges, as commented on by this student:

CODE 033 “I tried to reduce the amount of deep fried food I eat. I have started exercising three days a week but in terms of stress management I think I still need to work on it”.

The ability to prioritise had improved for five students and the ability to plan had improved for two. Although post-course, only one student had prioritised exercise, four had attempted to increase the amount of exercise in which they engaged, again reflected in both comments of the students and the increase in the WQHE score for the primary factor for exercise in the domain of physical wellness. Interpersonal and communication skills had changed for four students and attitude had improved for two. The WQHE primary factors of social skills, tolerance and caring, however, were not the focus of the student’s priorities but, nevertheless, improved somewhat post-course, remaining ‘good’ with respect to wellness scores. Self-expression, self-esteem and confidence had improved for a smaller number of students, as had time management.

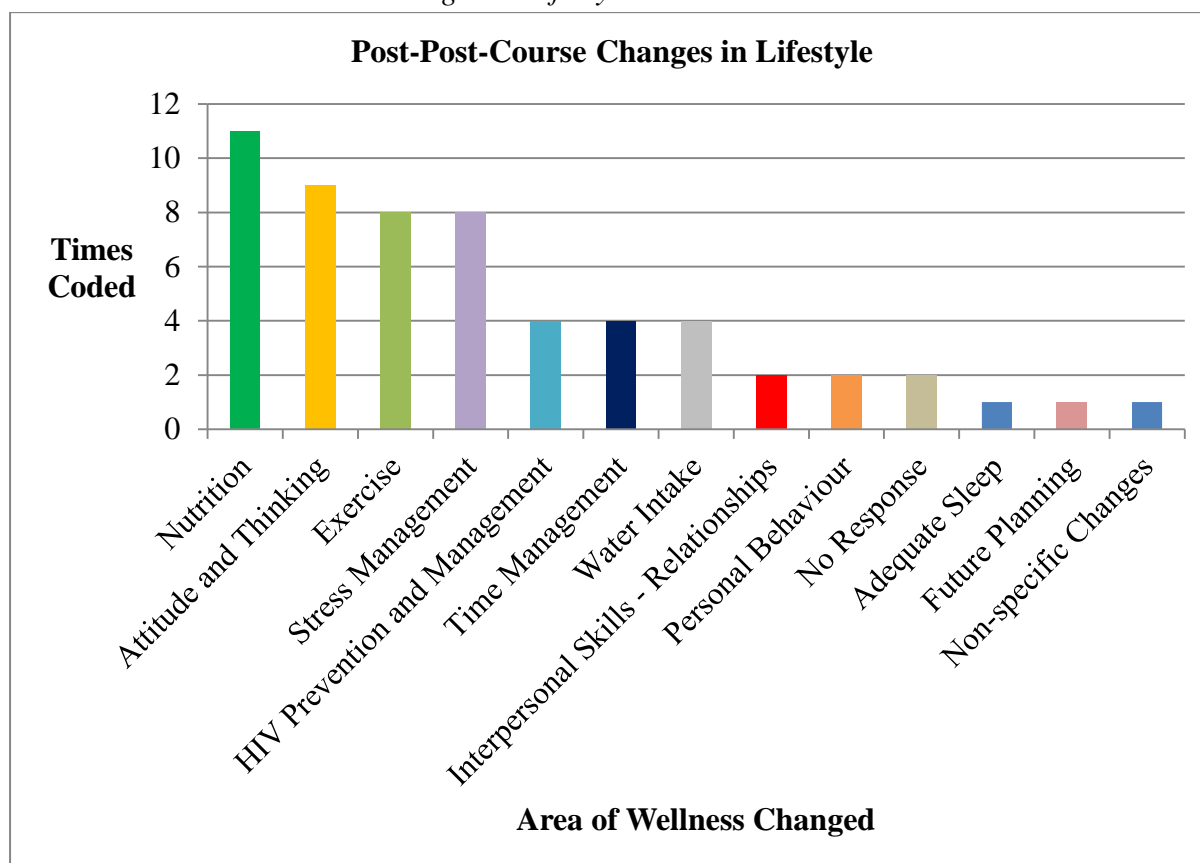
Figure 20 gives the analysis of the students’ post-post-course changes in lifestyle. Out of the 34 participants, 32 had made a total of 55 lifestyle related changes and two participants had declined to answer the question. Post-post-course, nutrition had taken the lead with regard to changes in health-related behaviour, with eleven students having attempted some positive change to their diet, despite the fact that it was a priority for only seven students.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Additionally, the improvement in water intake had been maintained by four students. This compares to the improvement in WQHE post-post-course scores for the primary factors of nutritional balance and nutritional quality, within the physical wellness domain, which rose by 4.91% and 6.76% respectively. The number of students engaging in exercise post-post-course doubled from four to eight, although only one student had cited this as their health priority post-post-course.

Figure 20

Students' Post-Post-Course Changes in Lifestyle



Some examples of students' post-post-course responses with respect to lifestyle changes were:

CODE 009 "I am now able to view my life or myself in another perspective. I am able to have control of my life, although there is still room for disappointment. I have seen the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

risks of not living a healthy lifestyle, so I decided to start exercising and that also helped to relax the mind”.

CODE 010 “I’m now able to manage stress and think positive about current problems. I exercise, get enough sleep and drink enough water”.

CODE 020 “The course has taught me so much about life and how important it is to make sure that you live healthy and also eat healthy as well and exercise”.

CODE 024 “Before the course I’ve been struggling with eating healthy I used to like sweets, food with high fat content, but now things have changed I am more to healthy food I managed to eat and set myself a healthy diet”.

CODE 033 “I have changed the way I do things, how I manage time and the way I react to stress I have tried exercising when I’m feeling stressed and I find it helpful to me”.

CODE 034 “I have now started eating more healthy food than before and also I have started exercising. The HIV/AIDS session made me more aware of the disease its impact on an individual infected and to treat that particular individual’s family”.

The WQHE score for the primary factor of exercise rose very slightly over the post-course score by 2.12%; however, exercise *per se* had experienced the biggest rise in wellness scores across the span of the intervention. Post-post-course, eight students were still engaging with stress management, down from ten post-course. The WQHE score for stress management post-post-course, however, rose by 2.12%, pushing the level from ‘good’ almost to the point of ‘excellent’. Adequate sleep may also have helped in improving the stress factor. Four students made an effort with respect to time management, whereas previously this had been only one. Although not a primary factor in the WQHE scores, time management, along with future planning, may affect career wellness and possibly be a hidden factor in feelings of career competence, which rose slightly by 3.38%. HIV prevention and treatment was actively instituted by four students, this lifestyle factor had not appeared on the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

previous post-course analysis of lifestyle changes, neither had improvement in personal behaviour (two students) or adequate sleep (one student). The WQHE score for protective behaviour rose slightly by 2.88%, but encompasses a number of behaviours besides those related to HIV.

In the next sub-section, the researcher will present the findings on the impact of the educational programme that pertain to the above areas of change in wellness. The participants' subjective opinions of the learning units, and which of these did or did not have an impact on their lifestyle management, will be reviewed.

5.7 The Qualitative Impact Pertaining to Behavioural Changes

Reasons behind the behavioural changes were ascertained in the post-course RGQ (question 11) and the post-post-course RGQ (question 9). These questions looked at the learning sessions that had made the biggest impact on the students. The sessions that had made little or no impact, and the reasons why, were ascertained in the post-course RGQ (questions 17 and 18).

Post-course, thirty students answered the question that pertained to the impact of the learning sessions: "Overall which learning sessions made the biggest impact on how you live your life?" Out of the total number of participants, thirty answered this question and four declined to answer. Figure 21 presents a graphical summary of these results. The learning session on stress management had the biggest impact on thirteen of the thirty students, followed by the learning sessions on HIV/AIDS (six students), exercise and time management (each four students). Stress management was also the area of lifestyle change for the largest number of students post-course. Exercise was an area of change for four students, the same number for whom the corresponding learning session had an impact.

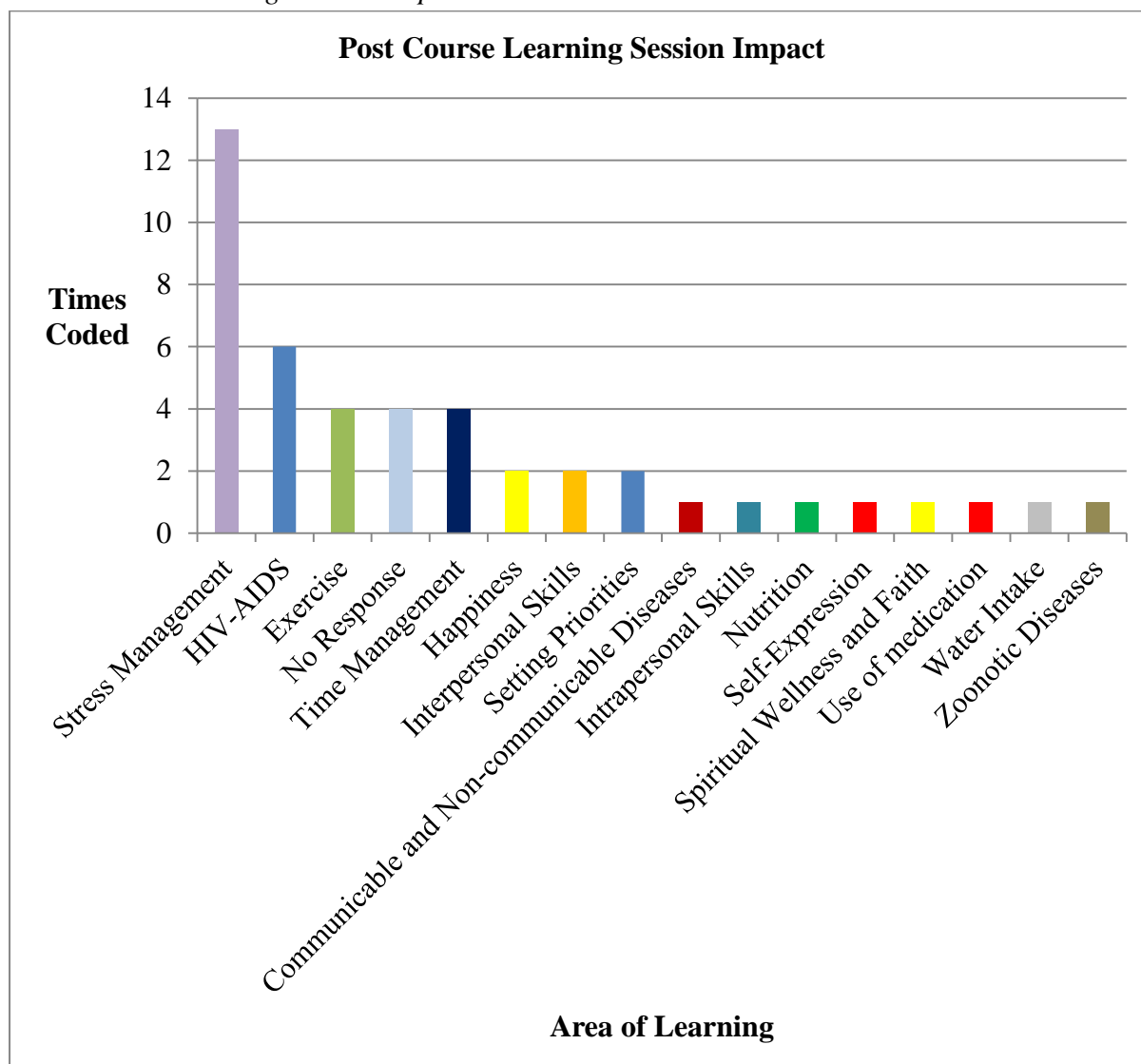
Although the learning sessions on HIV/AIDS made an impact, changing lifestyle in relation to this aspect of wellness is perhaps more subtle and not so easily measurable.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Despite the fact that nutrition was a major area of change for students post-course, only one student cited this as the learning session, which made the most impact on them. This could be due to the fact that nutrition, as a separate subject area, is included in the consumer science curriculum. Time management was also an area of impact as far as the learning session was concerned; however, there was only one student, post-course, who managed to effect a change in lifestyle in this respect. Post-post-course, however, the number of students who cited time management as an area of change corresponded to the post-post-course impact of learning sessions.

Figure 21

Post-Course Learning Session Impact



IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Student comments with respect to question eleven were not very forthcoming, and mainly gave the number or title of the learning session, most of the comments made by students pertained to actual lifestyle changes made (question twelve) as per the previous subsection. There were a few brief comments, however, that were revealing:

CODE 007 “Stress management sessions, the sessions has helped me to deal with the stress and how to overcome the situation whereby one experiences stress. I have learned to know the symptoms of stress and how to react towards it”.

CODE 025 “HIV/AIDS Learning sessions Zoonotic, communicable and non-communicable diseases”.

CODE 032 “I have learnt that HIV is just a disease like any others if you treat it with care. Lifestyle management made me know deep about it”.

The post-course RGQ attempted to ascertain which of the learning sessions had made little or no difference to the students and the possible reasons for this. There were only three students who cited specific learning sessions and who, additionally, gave reasons for their choices. Drug and alcohol abuse made no impact on one student due to the fact that these areas of health are not a consideration and not a part of their or their family’s lifestyle. Another student gave smoking as an area of little or no impact due to the fact that education on smoking is covered in other parts of the curriculum (nutrition and physiology). Spirituality had no impact, one who stated that they were still uncertain as to which side of the faith issue they stood on. The remainder of the participants stated that there were no learning sessions that did not have an impact to some degree.

The question with regard to the learning session that had the most impact was asked again in the post-post-course RGQ, the graphical summary for which is presented in Figure 22. This question was asked fifteen weeks after the intervention took place and answers were

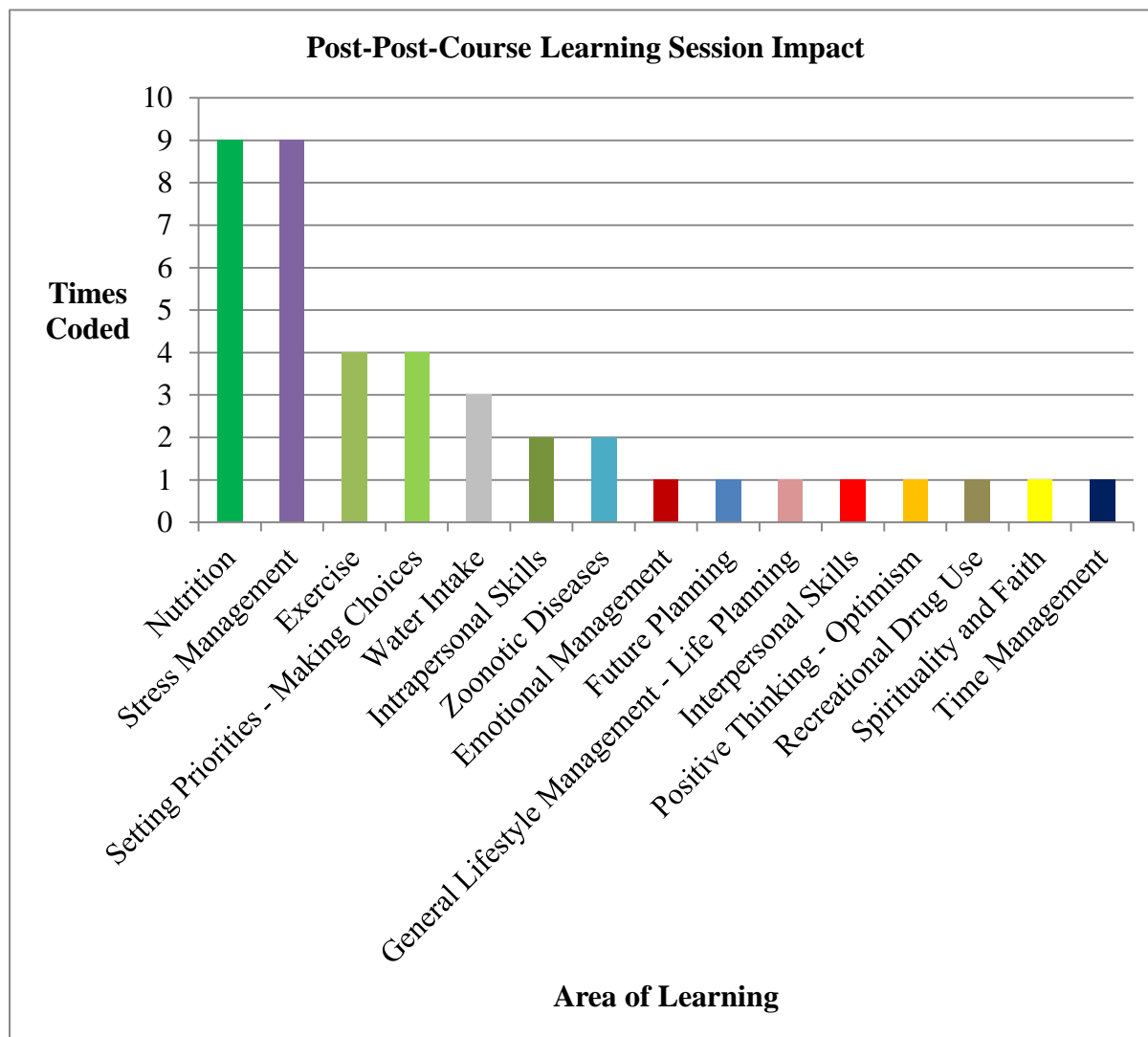
IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

given on reflection of the course of intervention. Although the learning session on nutrition was cited as having an impact on only one student, post-course, upon reflection the nutrition related learning sessions were cited as having had the biggest impact by nine students, post-post-course. An equal number of students felt that the learning session on stress management had made the biggest impact on them; this was three less than post-course but corresponds to just one more than the number of students who actually changed their lifestyle, post-post-course, with respect to stress management. Exercise and setting priorities were each given as the session having made the most impact on students for four of the participants. Change in lifestyle with respect to exercise, however, was made by eight students.

Lifestyle change, with respect to planning, was made by only one student, but the issue of priorities and making choices may well have influenced the participants with respect to time management, an area in which four students had improved their lifestyle. The learning session devoted specifically to time management, post-post-course, had the most impact on only one student. Use of medication and happiness were not mentioned post-post-course as areas of impact; however, emotional management was, as was positive thinking and optimism. The impact of the learning sessions on zoonotic diseases and water intake rose slightly, there was little change to other areas of impact, which were similar for post-course and post-post-course. The post-post-course questionnaire did not ascertain the reasons for the impact; however, the changes made as a result of the impact were given in the previous sub-section. The post-post-course questionnaire attempted to ascertain what, if anything, the students felt needed to change with respect to the programme; this, alongside the ease or difficulty of lifestyle change and the students' intentions for the use of their knowledge, is discussed in the next sub-section.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Figure 22

Post-Post-Course Learning Session Impact**5.8 Qualitative Impact of the Educational Programme**

Changes in lifestyle and the impact of the learning sessions with respect to these changes were discussed in the previous sub-section. The post-course RGQ (questions nine and ten), also asked students which parts of the lifestyle management course had been completely different from their expectations, and in which ways they were different.

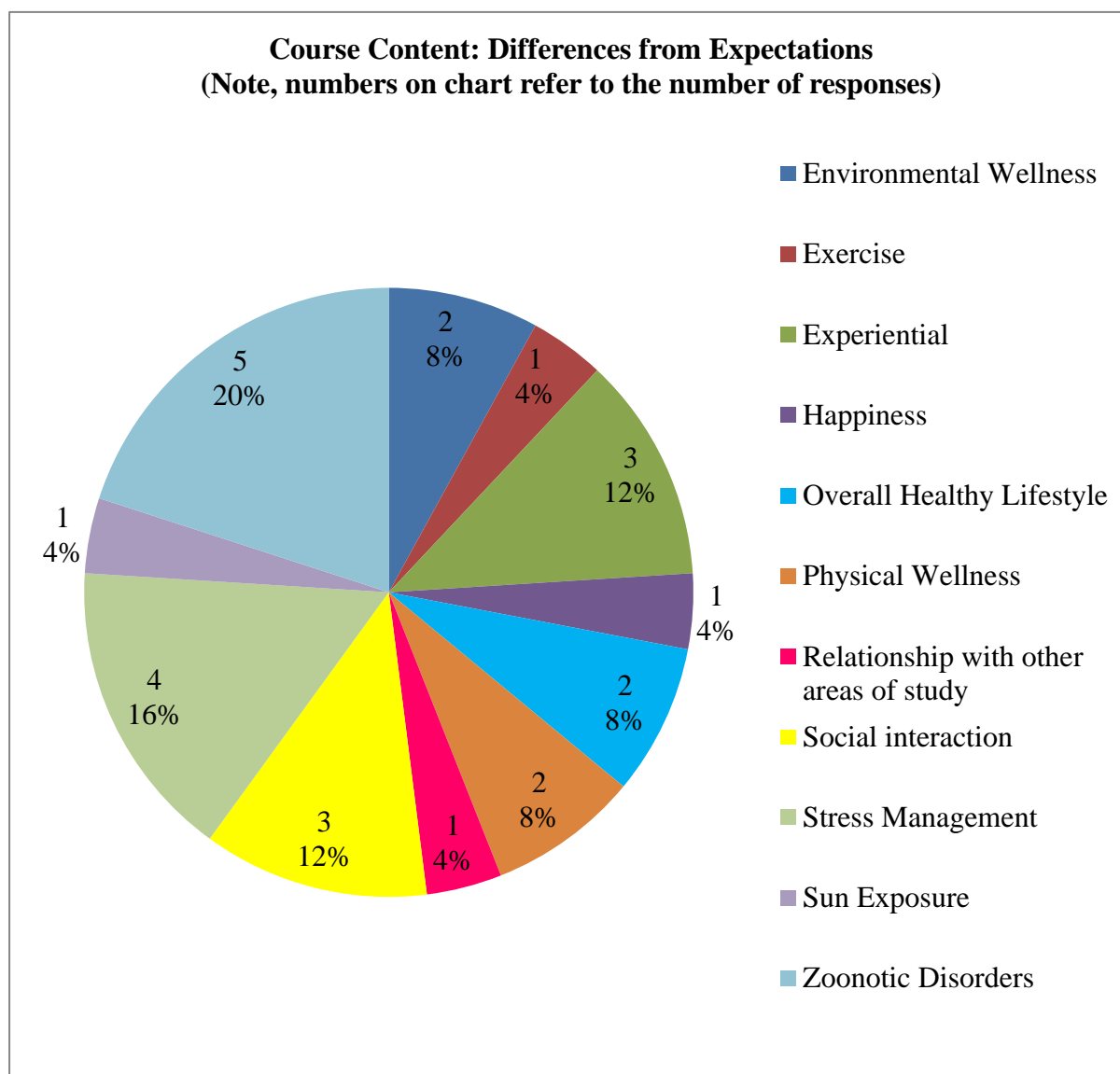
5.8.1 Departures from student expectations. Out of the 27 participants who answered this question (seven declining to answer), eleven participants felt that the course was no different from their expectations and two participants had no prior expectations of the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

intervention course. The remaining fourteen participants that were forthcoming on the issue of the departure of the programme from their prior expectations gave, in some instances, more than one area where they had been surprised. Figure 23 gives the span of learning sessions which had not been 'quite' as expected by the students.

Figure 23

Areas of the Intervention Programme that were Different from Student Expectations



There were two aspects to the departure from prior expectations, one being the actual content and the other being the delivery of the programme. Firstly the researcher will discuss the content aspect.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

The learning sessions on zoonotic disorders, which included those of HIV/AIDS origin, prevention and treatment, held the biggest surprise for students. Reasons given for the differences between the programme and prior expectations included the fact that students had not realised that HIV emanated originally from animals, they had little prior understanding of the origins of HIV. A number of students thought that it was only rabies that could be transmitted to people from animals; Ebola, Dengue, Brucellosis and Anthrax never came to mind. Student comments included the following:

CODE 001 “First of all I did not know what diseases from animals were called or knew if they had a name. I always thought I knew all there was to know about HIV/AIDS but when it was unpacked to us in class I did not believe how little I knew”.

CODE 004 “I did not know that diseases that people have come from animals and I did not expect that this course will elaborate more about how these diseases come from”.

CODE 024 “I did not know too much about these diseases I thought I knew because I only knew rabies”.

CODE 030 “I thought I will get the same information and know about the virus but the lecture was so different in such a way that I got new information, useful information and knowledge about the virus/disease”.

CODE 032 “I was expecting that Mam would talk about the weak things that we know about HIV/AIDS but she got deeper into it and told us things that we didn’t which were a good information”.

In respect of the stress management learning session, students became aware that there were physical exercises that could help, such as yoga, and that there was a connection between stress and happiness as well as stress and exercise. This latter aspect was cited by one student, who realised for the first time that exercise was, in fact, an essential aspect of health. One student responded with the following comment:

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

CODE 033 “I never realised how important happiness is to one’s health. I did not know how much damage stress can impose to one’s life and how we can manage stress”.

With respect to environmental wellness, both students who responded had assumed that the whole module would be about nature – they were surprised that people were included in this and are taken as a part of the environment. Responses were:

CODE 008 “I thought environmental wellness only had to do with just the physical environment not considering the people living in it”.

CODE 009 “When physical wellness was introduced I thought it would only be about keeping fit and in shape but to what I have learnt it also included nutrition on types of food that are good for health. I thought environmental wellness would deal about nature only but to what I’ve been taught it deals with everything that surrounds a person”.

Two students thought that physical wellness was about keeping fit and had not taken nutrition into account, or the connection between health and certain food groups. One of these students realised for the first time that sun exposure could be damaging, a fact that prior to the course they had not taken seriously. The comment made was:

CODE 002 “Nutrition – during first term I thought that when you eat food you just eat, I did not expect to select foods from different food groups and I never thought of that. Exposure to the sun, in earlier (times) I thought that to expose your skin to the sun important I did not expect that it is dangerous to our skin”.

Some aspects of the course that were a departure from the expectations of students were linked, not so much as to what was delivered, but how it was delivered. Working in groups was contrary to expectations for three students, as was the experiential learning, such as storytelling, artwork and actual physical activities, such as yoga exercises. Comments included the following:

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

CODE 006 “I thought that we were going to be isolated from each other just like the other classes but this class was different from others because we had groups we got some very good tips on how to reduce stress levels etc”.

CODE 007 “Each and every session we had activities that we are expected to do, everyone has to participate in class you have to open up. Most of the sessions were done in groups and all activities we have done are effectively to our courses”.

CODE 013 “In that when you want to slower your levels of stress first do some funny games like yoga”.

CODE 019 “Doing drama performing and also doing drawings which is fine art”.

CODE 025 “Activities like acting and group work that included drawing and expressing ourselves in terms of what we are good at”.

One student found it surprising that the programme linked to other areas of study and was not isolated from the rest of the curriculum:

CODE 007 “At first I thought this course was about life, nature, food and career. I didn’t expect that it’s related to the course that we are also doing”.

These aspects of the impact of the course will be discussed further in chapter six, which will discuss the findings and the impact of the findings more fully.

5.8.2 Impact of the course on the management of lifestyle changes. Other than ascertaining the impact of the learning sessions with respect to lifestyle changes and the students’ expectations, both the post-course RGQ (questions 13-16 inclusive) and the post-post-course RGQ (questions 11-14 inclusive) sought to ascertain whether or not the changes in lifestyle were made easier or harder by the intervention course. Post-course, 25 students felt that the course had made it easier for them to effect lifestyle changes, whilst four students stated that the course did not necessarily make changes easier, but did make them manageable. Five students stated that the course did not make the changes easier at all. Post-

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

post-course, 29 students felt, on reflection, that the intervention course had made the lifestyle management changes easier, whilst five still maintained that the course had not made the changes easier.

5.8.3 Students' evaluation of the course. In the post-post-course RGQ students were asked two questions about whether or not they feel the course needs to be changed and, if so, why (questions 15 and 16). Out of the total number of participants, 29 felt that no changes should be made to the course and five declined to answer this question. Of those who answered, sixteen gave reasons why they felt that no changes should be made. The predominant answer given (by six participants) was that the course meets their lifestyle management needs.

Three of the participants stated that the course, as it stands, had changed their lives significantly, whilst three participants also felt that the course of intervention had been the most educational one that students had taken during the year. Two participants stated simply that there was no need for change whilst one felt that it prevented regretful decision-making and another that the current programme is well organised. The analysis of the reasons given is presented in Figure 24. Some of the students' actual comments included the following:

CODE 007 "Because when the programme continues like that surely there will be less people who take unnecessary decisions that they surely regret about".

CODE 008 "Because all that I have learnt on the programme intertwines a lot of different aspects of my life and serves as a form of guideline".

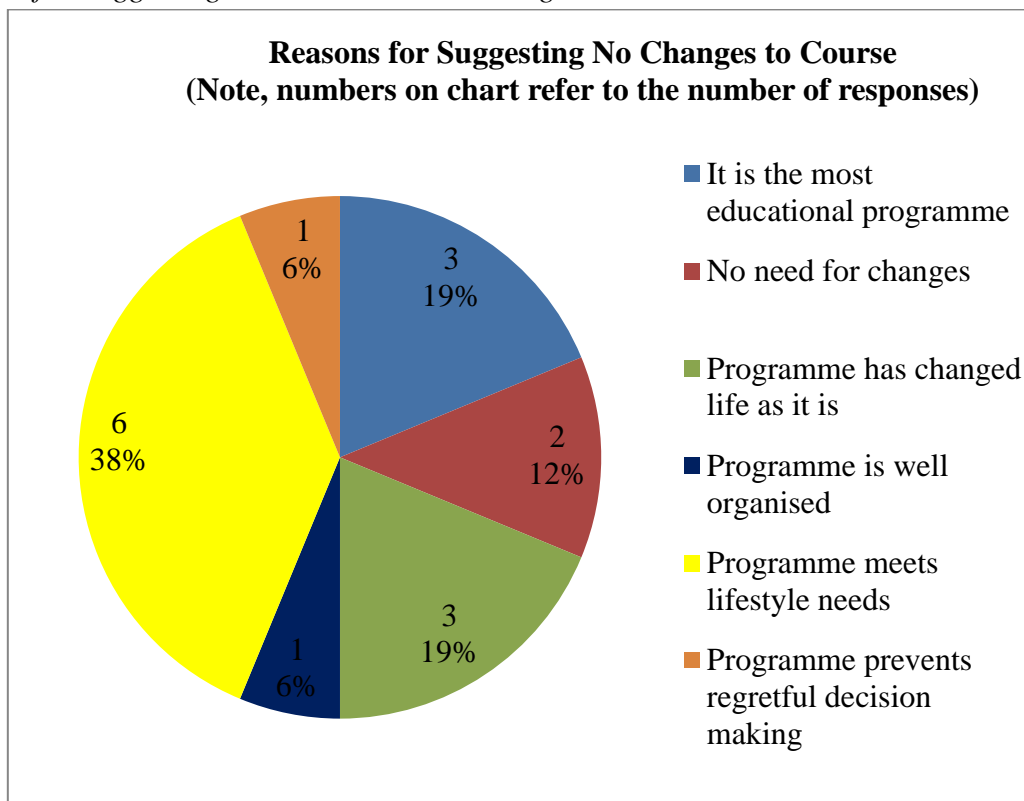
CODE 025 "It is the most educational programme even though we are learning about things we may think we know they are what we need to be informed of".

CODE 034 "Everything I have learned it has been a great help in understanding most of the things people that are not aware will get the opportunity to learn something that will have a positive change in their lives".

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Figure 24

Reasons for Suggesting That There are no Changes to the Course



5.8.4 Students' intentions with regard to use of their knowledge. The final questions on the post-course RGQ (question nineteen) and the post-post-course RGQ (question seventeen) asked students: "How do you intend to use the course you have completed or the knowledge you have gained from the course in the future, for yourself or for others?" The responses post-course, as in Figure 25, and post-post-course, Figure 26 were not too dissimilar.

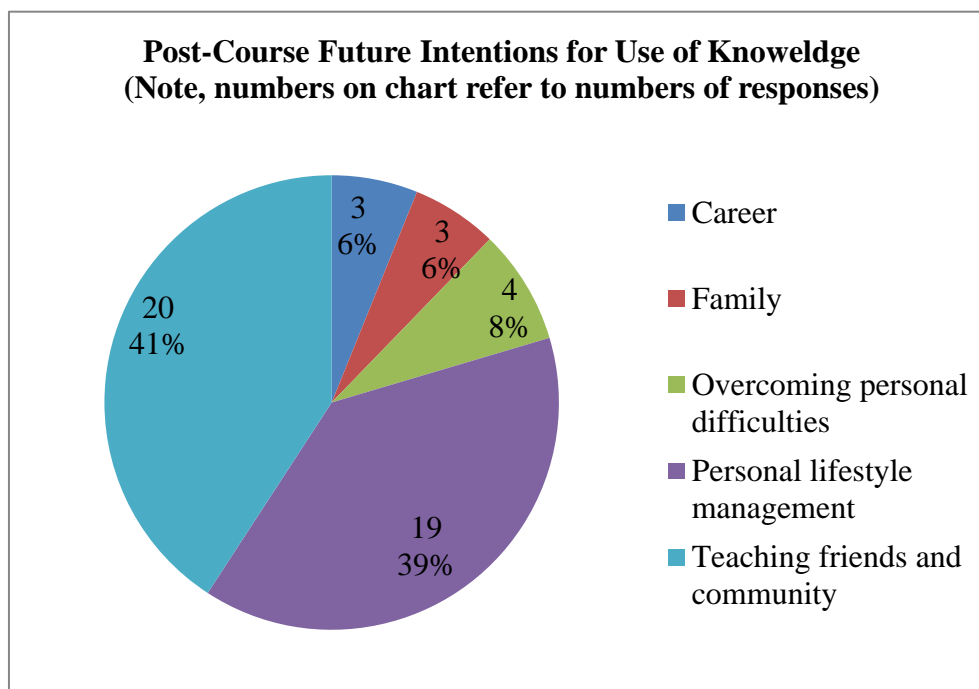
Post-course, many students had more than one intention for the future use of their knowledge. For the majority of students, using the information gained to teach their friends and members of their community was paramount, whilst the improvement of their own lifestyle management was almost equally important. Overcoming specific personal difficulties (such as stress management or weight management) was given by four students as

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

their main future intention. Using the programme to help family members, or in their future career, were each given as future intentions by three students.

Figure 25

Students' Post-Course Future Intentions for Use of Knowledge



The following examples of student comments were fairly typical for the overall responses:

CODE 001 “I believe in the future. I am going to need all the skills I have gained in this course, communication skills for job interviews, time management skills for working effectively, mental and physical wellness for a stable life and good mood”.

CODE 005 “The course has been helpful to me in different ways physical, emotional and mentally and I have learnt some skills like time management, stress management lastly how to be assertive, that was very difficult to me”.

CODE 006 “I am hoping to pass this information to my siblings, friends and family because this course has really transformed me to be a different person”.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

CODE 024 “I am going to use the knowledge on a daily basis by making sure that I live a healthy life and implement the skills (and pass them on) to other family members”.

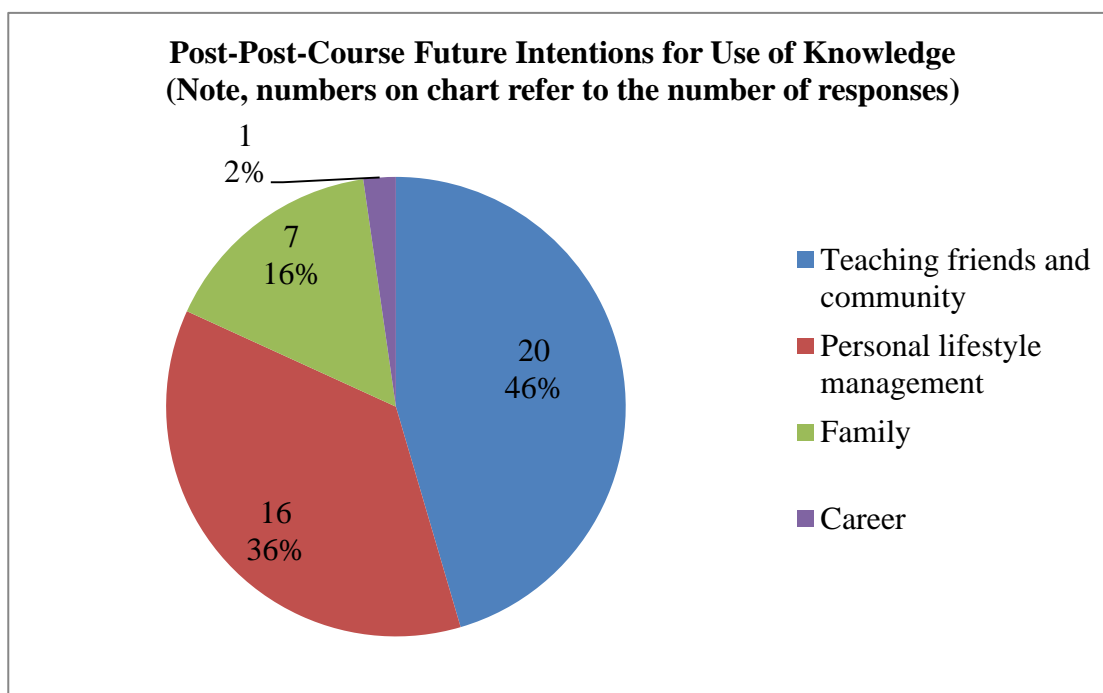
CODE 025 “I am going to apply it in my daily life and teach the others as well to make a change and a better future for my community”.

CODE 034 “I can make wise decisions relating to my wellbeing and also I am able to educate my siblings about what I have learned so that even they can have an opportunity to make wise decisions”.

Fifteen weeks post-course, having had some time to reflect on the answer and perhaps follow through with some of the intentions stated at the end of the year, there were minor changes to the answers to this same question. This can be seen in Figure 26. Once again, many students had more than one intention for the future use of their knowledge.

Figure 26

Students' Post-Post-Course Future Intentions for Use of Knowledge



IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

One example of the change from personal use to teaching others is seen from the post-course response from the following student:

CODE 001 “I intend on using what I have learnt from this course for my family, I want to make sure people round me have the information I got from this course”.

The same number of students as before had the intention of using their knowledge to teach friends and community members about lifestyle management and improvement in health and wellness. The number of students who intended to use their knowledge solely for the improvement of personal lifestyle management dropped from nineteen to seventeen. Those who intend to help their family improve their lifestyle, and consequently their health, rose from three to seven, whilst only one student had the intention of using the knowledge in their future career. Overcoming personal difficulties no longer featured in the post-post-course intentions. This may be due either to success in having achieved the desired changes, or the acknowledgement that personal improvement would be ongoing.

Examples of the comments from students that were more forthcoming about their intentions included the following:

CODE 006 “I’m hoping to pass the information to other students, relatives, siblings and friends just to educate them more about their lifestyle management and how they would change it”.

CODE 007 “Through this course I know how to prioritise things according to their importance. I know how to stand for myself and defending from the things that are against my will. In future I know and I apply this skill in dealing with stress exercise regularly as well. I know how to say no to the things I don’t like”.

CODE 009 “The things that I have learnt in this course will help me facing challenges that may come across me. I will now be able to read the signs of anything that I come across.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

It will also be helpful because I will now be able to advise others who may face similar obstacles like mine”.

CODE 031 “The knowledge I have gained in this course I’m going to use it in my community to change their lifestyle and in future I’m going to be a professional nurse so I’m going to teach them about important things in life and things need to be changed in order someone to live a healthy lifestyle like not to drink alcohol or smoke and drugs”.

CODE 034 “Most people are not fully educated about most things by obtaining the knowledge I have gained it will help me in counselling people to make better decisions for themselves by using the knowledge acquired to prove to them the importance of certain things in life”.

CODE 036 “I help my parents and siblings at home by telling them, ways of facing life as it approaches one, I tell them about the food types, how bad or good the food can be for one’s life, lastly how to manage the stress and the good effects of exercise”.

In the final analysis, most students wanted to not only help themselves but also saw the benefit of the programme with respect to helping their family and others around them. To some extent, as can be seen from the descriptive statistics and the correlation of values with wellness, in addition to the qualitative analysis, most of the participants in this study made some attempt to implement their knowledge and improve their wellness. In the next section we will view how wellness at the end of the course correlated with academic marks.

5.9 Comparison of Students’ Wellness Scores with Academic Achievement

In this section, two sets of correlational statistics have been calculated. The first set, given earlier in this chapter, examined the correlation between the students’ value of information, as determined by the RGQs, pre-, post- and post-post-intervention, and student wellness, as determined by the WQHE. The second set of correlational statistics follows, in which the correlation between the students’ wellness and their academic scores mid-year and

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

year-end are given. Two types of data were used, the WQHE scores for wellness, as used for the previous set of correlational statistics, and the students' aggregate examination marks.

Mid-year aggregate marks were calculated from the mid-year transcripts of all students in the cohort for all subjects taken. Teaching and learning for all of the students was comparable and there were no differences in the teaching and learning for the major subjects within this course. In the second semester there was a change of lecturer and method of teaching and learning, for one group of students, for the major subject of food and food science. In order to prevent the possibility of skewing the academic results for part of the group at the year-end, as a result of this change, the year-end marks for this particular subject were omitted from all of the transcripts for the whole cohort of students. Out of ten subjects taken, the aggregate year-end mark was calculated on the nine subjects for which the teaching and learning was comparable across the cohort. Outlier scores that significantly skewed the results for the main cohort of students were taken out of the main post-course statistical output.

Initially the researcher correlated the pre-course wellness scores with the mid-year academic achievement, then the post-course wellness scores with the mid-year academic achievement. Secondly, the researcher correlated the post-course wellness scores with the year-end academic achievement and the post-post-course wellness scores with the year-end academic achievement. As for the previous set of correlational statistics, the generation of tabled information was extensive; resulting in a total of 132 tables (33 wellness scores x 4 sets of academic scores). Where there was no correlation to be found, in order to avoid the repetition of tables, which was not meaningful to the study, only the statistical data is presented. Tables for the correlation of wellness with academic achievement will be presented where a significant positive correlation has been found.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.9.1 Pre-course wellness and mid-year marks. The following data gives the correlation of pre-course wellness with the academic transcripts of the student marks mid-year. It is to be noted that there was no correlation at all to be found within these data set. The pre-course wellness was measured before any educational intervention. By the time that students sat mid-year exams, in which they were academically reasonably successful, the level of wellness had possibly changed. The correlational calculations are given nevertheless for the sake of comparative analysis and completion of the information. The correlational calculations are given first for the overall wellness and life satisfaction, followed by the main wellness domains and the primary factors that make up each domain.

Correlational calculations between the students' pre-course WQHE score for the primary domain of total wellness and the students' mid-year transcript of academic achievement were $r = -0.152$, $p = 0.391$. For the secondary domain of life satisfaction and the students' mid-year transcript of academic achievement, these were $r = -0.160$, $p = 0.365$.

Correlational calculations between the students' pre-course WQHE domain of physical wellness and the students' mid-year transcript of academic achievement were $r = 0.170$, $p = 0.338$. Correlational calculations between the WQHE primary factors of physical wellness were: exercise ($r = -0.076$, $p = 0.668$), nutritional balance ($r = 0.196$, $p = 0.265$), nutritional quality ($r = 0.223$, $p = 0.225$), risk avoidance ($r = -0.055$, $p = 0.759$), and protective behaviour ($r = 0.131$, $p = 0.459$).

Correlation calculations between the students' pre-course WQHE domain of career wellness and the students' mid-year transcript of academic achievement were $r = 0.032$, $p = 0.859$. Correlational calculations between the WQHE primary factors of career wellness were: career choice ($r = 0.178$, $p = 0.472$), career competence ($r = -0.015$, $p = 0.932$) and professional development ($r = -0.004$, $p = 0.982$).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Correlational calculations between the students' pre-course WQHE domain of intellectual wellness and the students' mid-year transcript of academic achievement were $r = -0.135$, $p = 0.446$. Correlational calculations between the WQHE primary factors of intellectual wellness were: intellectual challenge ($r = -0.009$, $p = 0.961$), knowledge expansion ($r = -0.089$, $p = 0.617$) and critical and creative thinking ($r = -0.218$, $p = 0.216$).

The WQHE domain of environmental wellness contains no primary factors. There was no correlation between the students' pre-course WQHE domain of environmental wellness and the students' mid-year transcript of academic achievement ($r = -0.027$, $p = 0.880$).

Correlation calculations between the students' pre-course WQHE domain of social wellness and the students' mid-year transcript of academic achievement were $r = -0.022$, $p = 0.901$. Calculations for the primary factors of meaningful relationships were: $r = 0.039$, $p = 0.828$, social skills ($r = 0.144$, $p = 0.418$), social caring ($r = 0.143$, $p = 0.421$), social responsibility ($r = -0.326$, $p = 0.060$), and social tolerance ($r = 0.070$, $p = 0.694$) within the domain of social wellness.

Correlational calculations between the students' pre-course WQHE domain of emotional wellness and the students' mid-year transcript of academic achievement were $r = -0.175$, $p = 0.323$. Correlational calculations between the WQHE primary factors of emotional wellness were: self-acceptance ($r = -0.084$, $p = 0.635$), emotional management ($r = -0.042$, $p = 0.813$), affect-balance ($r = -0.318$, $p = 0.067$), self-appraisal ($r = -0.112$, $p = 0.528$) and stress management ($r = -0.097$, $p = 0.586$).

Correlational calculations between the students' pre-course WQHE domain of spiritual wellness and the students' mid-year transcript of academic achievement were $r = 0.104$, $p = 0.558$. Correlational calculations between the WQHE primary factors of spiritual

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

wellness were: spiritual connectedness ($r = 0.130$, $p = 0.464$), spiritual meaning ($r = 0.070$, $p = 0.696$), and spiritual values ($r = -0.024$, $p = 0.893$).

5.9.2 Post-course wellness and mid-year marks. The following data gives the correlation of post-course wellness with the academic transcripts of the student marks mid-year. The post-course wellness was measured after the educational intervention. The mid-year exams were reasonably successful; however, they were sat at the time in which students had received only partial information on wellness. It is to be noted that there was again no correlation to be found in these data set; however, the correlational calculations are given nevertheless for the sake of comparative analysis and completion of the information. The correlational calculations are given first for the overall wellness and life satisfaction, followed by the main wellness domains and the primary factors that make up each domain.

Correlational calculations between the students' post-course WQHE score for the primary domain of total wellness and the students' mid-year transcript of academic achievement were $r = -0.005$, $p = 0.978$. For the secondary domain of life satisfaction and the students' mid-year transcript of academic achievement, these were $r = -0.041$, $p = 0.817$.

Correlational calculations between the students' post-course WQHE domain of physical wellness and the students' mid-year transcript of academic achievement were $r = -0.068$, $p = 0.704$. Correlational calculations between the WQHE primary factors for physical wellness were: exercise ($r = -0.248$, $p = 0.157$), nutritional balance ($r = -0.376$, $p = 0.028$), nutritional quality ($r = 0.006$, $p = 0.975$), risk avoidance ($r = -0.137$, $p = 0.441$) and protective behaviour ($r = 0.203$, $p = 0.249$) within the domain of physical wellness and the students' mid-year transcript of academic achievement. Although there appeared to be a weak negative correlation between the primary factor of nutritional balance and the students' mid-year transcript of academic achievement, this is the only correlation in the data set and it falls into a negative value. There is nothing meaningful that can be deduced from this result.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Correlational calculations between the students' post-course WQHE domain of career wellness and the students' mid-year transcript of academic achievement were $r = 0.213$, $p = 0.225$. Correlational calculations between the WQHE primary factors of career wellness were: career choice ($r = 0.122$, $p = 0.493$), career competence ($r = 0.180$, $p = 0.308$) and professional development ($r = 0.189$, $p = 0.285$).

Correlational calculations between the students' post-course WQHE domain of intellectual wellness and the students' mid-year transcript of academic achievement were $r = 0.128$, $p = 0.471$. Correlational calculations between the WQHE primary factors for intellectual wellness were; intellectual challenge ($r = 0.264$, $p = 0.132$), knowledge expansion ($r = -0.135$, $p = 0.447$) and critical and creative thinking ($r = 0.031$, $p = 0.861$).

The WQHE domain of environmental wellness contains no primary factors.

Correlational calculations between the students' post-course WQHE domain of environmental wellness and the students' mid-year transcript of academic achievement were $r = -0.137$, $p = 0.439$.

Correlational calculations between the students' post-course WQHE domain of social wellness and the students' mid-year transcript of academic achievement were $r = -0.063$, $p = 0.724$. Correlational calculations between the WQHE primary factors for social wellness were: meaningful relationships ($r = 0.178$, $p = 0.313$), social skills ($r = -0.088$, $p = 0.621$), social caring ($r = 0.127$, $p = 0.474$), social tolerance ($r = -0.097$, $p = 0.586$) and social responsibility ($r = -0.275$, $p = 0.115$).

Correlational calculations between the students' post-course WQHE domain of emotional wellness and the students' mid-year transcript of academic achievement were $r = -0.057$, $p = 0.750$. Correlational calculations between the WQHE primary factors for emotional wellness were: self-acceptance ($r = -0.069$, $p = 0.703$), emotional management ($r = -$

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

0.059, $p = 0.738$), affect-balance ($r = -0.206$, $p = 0.242$), self-appraisal ($r = -0.012$, $p = 0.947$) and stress management ($r = 0.134$, $p = 0.350$).

Correlational calculations between the students' post-course WQHE domain of spiritual wellness and the students' mid-year transcript of academic achievement were $r = 0.031$, $p = 0.863$. Correlational calculations between the WQHE primary factors for spiritual wellness were: spiritual connectedness ($r = -0.042$, $p = 0.812$), spiritual meaning ($r = 0.103$, $p = 0.563$) and spiritual values ($r = 0.105$, $p = 0.554$).

This concludes the correlation of the students' wellness scores with the mid-year academic transcripts of marks, from which there was little to be gained. The following set of data, however, show a somewhat different scenario and this will be presented in the next sub-section.

5.9.3 Post-course wellness and year-end marks. The following data gives the correlation of post-course wellness with the academic transcripts of the student year-end marks. The post-course wellness was measured after the educational intervention. The marks at the end of the year were slightly lower than the mid-year exam results. The year-end exams were nevertheless successful, with no student having failed the year entirely. The examinations were sat at the time when the students had received all of the information on wellness, notwithstanding university disruptions to the academic timetable and the necessity for some of the learning units to be conducted in a blended learning mode. Initially results were calculated for all 34 participating students; there were, however, four outliers, i.e. participants whose wellness and marks lay well outside the general parameters of the rest of the results. These skewed the results considerably, as is demonstrated in Table 58 and Figures 26 and 27.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 58

Correlation between Post-Course WQHE Total Wellness Scores and Year-End Academic Performance: Full Cohort (N = 34)

		Post-Course WQHE Percentage Score for Total Wellness	Year-End Transcript Aggregate Percentage Mark
Post-Course WQHE Percentage Score for Total Wellness	Pearson Correlation	1	0.051
	Sig. (2-tailed)		0.773
	N	34	34
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.051	1
	Sig. (2-tailed)	0.773	
	N	34	34

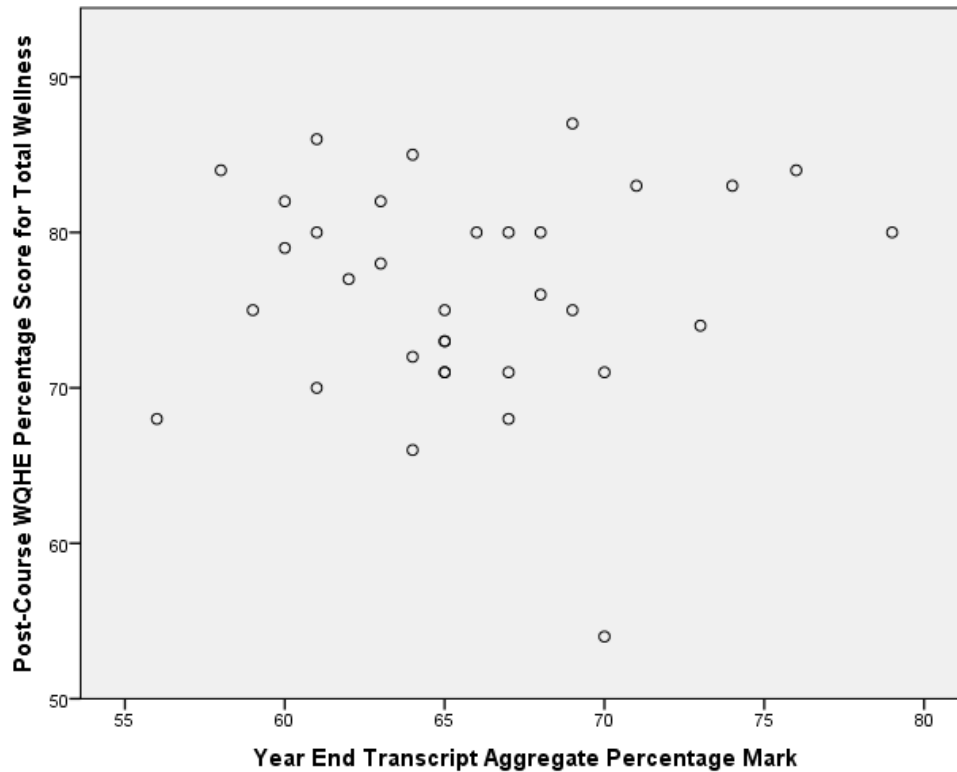
An initial look at this result, where $r = 0.051$ and $p = 0.773$, would indicate that there was no correlation between the year-end WQHE overall wellness and the student marks. We need to take into account the results of the descriptive statistics that indicated some outlier scores in student wellness. The scatterplot graph in Figure 27 shows that a large number of the results are loosely grouped around an upper mid-line, but there are four distinct outlier scores that are clearly seen in Figure 28 when the scores which veer towards the statistical 'norm' are blocked out.

5.9.3.1 Statistical management of outlier scores. The scatterplot graph in Figure 27 gives the total result of all 34 study participants, including those that scored for wellness and student marks far outside the median of the rest of the group of participants. An examination of the scores against the statistical norm and standard deviation points resulted in the identification of four specific outlier scores, as depicted in Figure 28.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Figure 27

Post-Course Scatterplot Graph of the Correlation of the WQHE Total Wellness Scores with Year-End Transcripts: N = 34

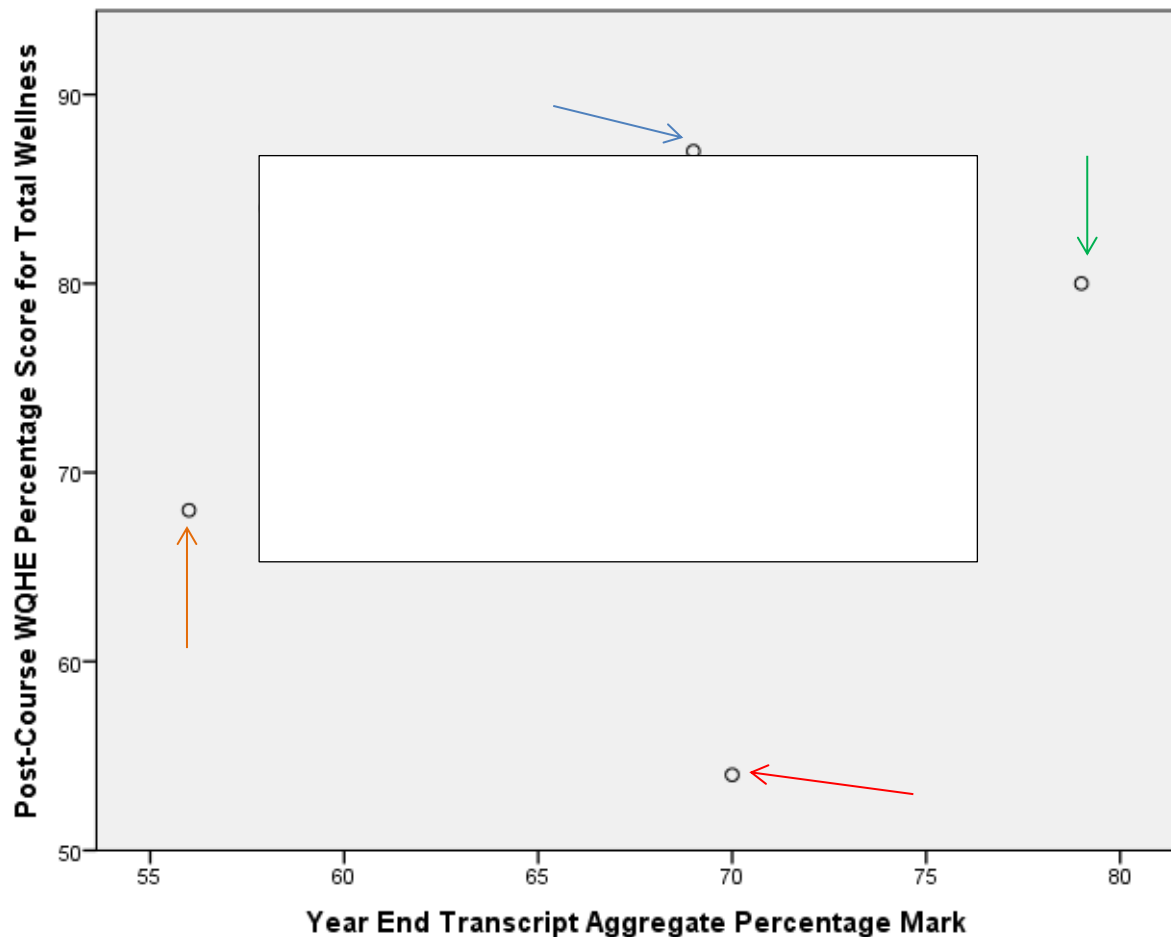


In Figure 28, we can see that there are anomalies to the median scores of the group and four specific cases of participants scoring outliers. In the score with the red arrow, the participant clearly had high year-end marks but was very negative about their subjective level of wellness, scoring in the range of 'poor'. In the score with the orange arrow, the participant scored better but with 'room for improvement' in wellness; however, only just passed the course.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Figure 28

Post-Course Outlier Scores within the Correlation of the WQHE Total Wellness Scores with Year-End Transcripts: N = 34



In the score with the blue arrow the student had the highest WQHE wellness score but comparatively average aggregate marks for the year. In the score with the green arrow the student had the highest year-end marks, with several distinctions, but the wellness scores were for the most part good but not excellent. For all other participants, the standard deviation between the WQHE and the year-end marks was lower. Correlations for the students scoring in the upper range of academic aggregate marks were also somewhat grouped. The correlation between the 30 participants (N = 30) who fell within a reasonable standard deviation of the correlation is given in the following set of tables.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.9.3.2 Post-course correlational data output. In the following set of data the correlation is given for the remainder of those participants who fell within a reasonable standard deviation from the median scores. These form the majority of the body of participants with no outstanding outlier scores. The researcher will begin with the correlational data results for the overall wellness scores and the life satisfaction scores, before moving to those of the primary wellness domains and their subsuming primary factors for wellness. Only the tables for which there is a positive correlation will be shown; however, as per the previous sets of results, all of the correlational output data will be given for the purposes of comparison and completion of the data.

Table 59

Correlation between Post-Course WQHE Total Wellness Scores and Year-End academic performance: Excluding Outliers

		Post-Course WQHE Percentage Score for Total Wellness	Year-End Transcript Aggregate Percentage Mark
Post-Course WQHE Percentage Score for Total Wellness	Pearson Correlation	1	0.362*
	Sig. (2-tailed)		0.049
	N	30	30
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.362*	1
	Sig. (2-tailed)	0.049	
	N	30	30

* Correlation is significant at the 0.05 level (2-tailed).

Table 59 shows that there is a weak to moderate positive correlation between the WQHE scores for total wellness and the students' year-end transcript of academic achievement ($r = 0.362$, $p = 0.049$). The 'p' value gives a 95.1% confidence interval for this score and demonstrates that it is unlikely to have been obtained by chance. There was no correlation between the students' post-course WQHE score for the secondary domain of life

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

satisfaction and the students' year-end transcript of academic achievement ($r = 0.178$, $p = 0.346$).

There was no correlation between the students' post-course WQHE domain of physical wellness and the students' year-end transcript of academic achievement ($r = 0.286$, $p = 0.125$). There is also no correlation between the primary factors of exercise ($r = -0.194$, $p = 0.304$), nutritional balance ($r = -0.088$, $p = 0.645$), nutritional quality ($r = 0.079$, $p = 0.676$), or risk avoidance ($r = 0.283$, $p = 0.130$) within the domain of physical wellness and the students' post-course transcript of academic achievement.

Table 60

Correlation between Post-Course Physical Wellness: Protective Behaviour and Year-End Academic Performance

		Post-Course WQHE Physical Wellness - Protective-Behaviour	Year-End Transcript Aggregate Percentage Mark
Post-Course WQHE Physical Wellness - Protective-Behaviour	Pearson Correlation	1	0.390*
	Sig. (2-tailed)		0.033
	N	30	30
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.390*	1
	Sig. (2-tailed)	0.033	
	N	30	30

* Correlation is significant at the 0.05 level (2-tailed).

There is a significant positive correlation to be found between the primary factor of protective behaviour and the year-end transcript of academic achievement ($r = 0.390$, $p = 0.033$). The correlation has a confidence interval of 96.7%, as shown in Table 60.

With respect to career wellness in Table 61 we see that there is a positive and moderate to strong correlation between the students' post-course WQHE scores and the students' year-end transcript of academic achievement ($r = 0.473$, $p = 0.008$). The correlation

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

shows a confidence interval of 99.2%, which is highly significant in demonstrating that the result could not have been obtained by chance.

Table 61

Correlation between Post-Course Career Wellness and Year-End Academic Performance

		Post-Course WQHE Career Wellness - Full Percentage	Year-End Transcript Aggregate Percentage Mark
Post-Course WQHE Career Wellness - Full Percentage	Pearson Correlation	1	0.473**
	Sig. (2-tailed)		0.008
	N	30	30
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.473**	1
	Sig. (2-tailed)	0.008	
	N	30	30

** Correlation is significant at the 0.01 level (2-tailed).

With respect to the primary factors within this domain, there was no correlation between the student's post-course primary factor of professional development ($r = 0.257$, $p = 0.171$) and the students' year-end transcript of academic achievement. Table 62 shows that there is, however, a positive correlation between the factor of career choice and the students' year-end transcript of academic achievement ($r = 0.386$, $p = 0.035$), with a confidence interval of 96.5%.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 62

Correlation between Post-Course Career Wellness: Career-Choice and Year-End academic Performance

		Post-Course WQHE Career Wellness - Career-Choice	Year-End Transcript Aggregate Percentage Mark
Post-Course WQHE Career Wellness - Career-Choice	Pearson Correlation	1	0.386*
	Sig. (2-tailed)		0.035
	N	30	30
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.386*	1
	Sig. (2-tailed)	0.035	
	N	30	30

* Correlation is significant at the 0.05 level (2-tailed).

Table 63

Correlation between Post-Course Career Wellness: Career-Competence and Year-End Academic Performance

		Post-Course WQHE Career Wellness - Career- Competence	Year-End Transcript Aggregate Percentage Mark
Post-Course WQHE Career Wellness - Career- Competence	Pearson Correlation	1	0.417*
	Sig. (2- tailed)		0.022
	N	30	30
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.417*	1
	Sig. (2- tailed)	0.022	
	N	30	30

* Correlation is significant at the 0.05 level (2-tailed).

Table 63 shows that there is also a moderately positive correlation between the students' post-course WQHE primary factor of career competence and the students' year-end

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

transcript of academic achievement ($r = 0.417$, $p = 0.022$), with a confidence interval of 97.8%, which could not have been obtained by chance.

Within the domain of intellectual wellness, there was no correlation with the academic transcripts. Correlational calculations between the students' post-course WQHE domain of intellectual wellness and the students' year-end transcript of academic achievement were $r = 0.114$, $p = 0.549$. Correlational calculations for the primary factors of intellectual challenge were $r = 0.206$, $p = 0.275$, knowledge expansion ($r = -0.203$, $p = 0.281$), and critical thinking ($r = 0.167$, $p = 0.378$).

The WQHE domain of environmental wellness contains no primary factors. There was no correlation between the students' post-course WQHE domain of environmental wellness and the students' year-end transcript of academic achievement ($r = 0.226$, $p = 0.230$).

There was no correlation between the students' post-course WQHE domain of social wellness and the students' year-end transcript of academic achievement ($r = 0.109$, $p = 0.566$). There was also no correlation between the WQHE primary factors of meaningful relationships ($r = 0.187$, $p = 0.321$), social skills ($r = 0.082$, $p = 0.668$), social caring ($r = 0.228$, $p = 0.226$), social tolerance ($r = 0.089$, $p = 0.641$), or social responsibility ($r = -0.133$, $p = 0.483$).

There was no correlation between the students' post-course WQHE domain of emotional wellness and the students' year-end transcript of academic achievement ($r = 0.114$, $p = 0.547$). There was also no correlation between the WQHE primary factors of self-acceptance ($r = 0.297$, $p = 0.118$), emotional management ($r = 0.321$, $p = 0.084$), affect-balance ($r = -0.251$, $p = 0.181$), self-appraisal ($r = -0.126$, $p = 0.508$), or stress management ($r = 0.188$, $p = 0.321$) within the domain of emotional wellness and the students' year-end transcript of academic achievement.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

There was no correlation between the students' post-course WQHE domain of spiritual wellness and the students' year-end transcript of academic achievement ($r = 0.105$, $p = 0.580$). There was also no correlation between the WQHE primary factors of spiritual connectedness ($r = 0.005$, $p = 0.980$), spiritual meaning ($r = 0.216$, $p = 0.251$), or spiritual values ($r = 0.128$, $p = 0.500$) within the domain of spiritual wellness and the students' year-end transcript of academic achievement.

As can be seen from the statistical analysis, the positive correlations for the post-course wellness domains and the students' year end marks are within the overall wellness and the career wellness domains, as well as that of protective behaviour, within the domain of physical wellness. The second set of correlations between wellness and academic marks follow, in which we view the correlations between the post-post-course wellness and year-end academic transcripts for the same set of students.

5.9.4 Post-post-course wellness and year-end marks. In the following set of data the correlation is given for the same group of participants who fell within a reasonable standard deviation from the median scores. These form the majority of the body of participants with no outstanding outlier scores. At this point in time the students had had time for reflection with respect to lifestyle changes. They also had the chance to implement some of the changes, which may have positively affected their wellness status in some of the wellness domains. There were no further academic transcripts, however, with which to compare their post-post-course wellness and the year-end transcripts were utilised for comparison. As per the previous data sets, we begin with the correlational calculations for the overall wellness and the sub-scale of life satisfaction, to be followed by the calculations for the WQHE wellness domains and their respective primary factors.

No significant correlation was found between the students' post-post-course WQHE total wellness scores and the students' year-end transcript of academic achievement ($r =$

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

0.332, $p = 0.073$). To be taken into consideration is that the 'r' score shows a weak correlation; however, the 'p' score gives a confidence interval of 92.7%. This is marginally outside of the 'p' value required for a significant correlation. There was also no correlation between the students' post-post-course WQHE score for the secondary domain of life satisfaction and the students' year-end transcript of academic achievement ($r = 0.261$, $p = 0.164$).

In respect of physical wellness there were no correlations, calculations were for the domain of physical wellness and the students' year-end transcript of academic achievement ($r = 0.224$, $p = 0.233$). Correlational calculations between the WQHE primary factors of exercise were $r = -0.193$, $p = 0.307$, nutritional balance ($r = 0.150$, $p = 0.429$), nutritional quality ($r = 0.318$, $p = 0.087$), risk avoidance ($r = 0.172$, $p = 0.363$) and protective behaviour ($r = 0.270$, $p = 0.248$).

Career wellness, however, showed once again a correlation between the wellness scores and the year-end academic transcript marks, as seen in Table 64.

Table 64

Correlation between Post-Post-Course Career Wellness and Year-End Academic Performance

		Post-Post-Course WQHE Career Wellness - Full Percentage	Year-End Transcript Aggregate Percentage Mark
Post-Post-Course WQHE Career Wellness - Full Percentage	Pearson Correlation	1	0.463*
	Sig. (2-tailed)		0.010
	N	30	30
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.463*	1
	Sig. (2-tailed)	0.010	
	N	30	30

* Correlation is significant at the 0.05 level (2-tailed).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 64 shows that there was a moderate to strong positive correlation between the students' post-post-course WQHE score for the domain of career wellness and the students' year-end transcript of academic achievement ($r = 0.463$, $p = 0.010$). The correlation has a 99.0% confidence interval. Table 65 shows that there was also a strong positive correlation between the students' post-post-course WQHE score for the primary factor of career competence and the students' year-end transcript of academic achievement ($r = 0.573$, $p = 0.001$). There is a 99.9% confidence interval for this correlation, which demonstrates that it could not have been obtained by chance. This correlation is the strongest in this set of data.

Table 65

Correlation between Post-Post-Course Career Wellness: Career Competence and Year-End Academic Performance

		Post-Post-Course WQHE Career Wellness - Career-Competence	Year-End Transcript Aggregate Percentage Mark
Post-Post-Course WQHE Career Wellness - Career- Competence	Pearson Correlation	1	0.573**
	Sig. (2-tailed)		0.001
	N	30	30
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.573**	1
	Sig. (2-tailed)	0.001	
	N	30	30

** Correlation is significant at the 0.01 level (2-tailed).

There was no correlation between the students' post-post-course WQHE score for the primary factor of career choice ($r = 0.337$, $p = 0.069$), or the primary factor of professional development ($r = 0.248$, $p = 0.186$) and the students' year-end transcript of academic achievement. It is to be noted, however, that the data for the correlation between career choice and the academic achievement lies only just outside of the range of statistical significance, having a low confidence factor due to the 'p' value.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

There was no correlation between the students' post-post-course WQHE score for the domain of intellectual wellness and the students' year-end transcript of academic achievement ($r = 0.309$, $p = 0.096$). The 'r' value shows a superficially weak correlation; however, the 'p' lies just outside the range for statistical significance. There was also no correlation between the primary factors of knowledge expansion ($r = -0.109$, $p = 0.566$), or critical and creative thinking ($r = 0.298$, $p = 0.109$). Between the primary factor of intellectual challenge and the students' year-end transcript of academic achievement, which can be seen in Table 66 there was a positive correlation ($r = 0.392$, $p = 0.032$). There is a confidence interval of 96.8% for this statistical result, which demonstrates that it was not obtained by chance.

Table 66

Correlation between Post-Post-Course Intellectual Wellness Scores: Intellectual Challenge and Year-End Academic Performance

		Post-Post-Course WQHE Intellectual Wellness - Intellect-Challenge	Year-End Transcript Aggregate Percentage Mark
Post-Post-Course WQHE Intellectual Wellness - Intellect- Challenge	Pearson Correlation	1	0.392*
	Sig. (2-tailed)		0.032
	N	30	30
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.392*	1
	Sig. (2-tailed)	0.032	
	N	30	30

*. Correlation is significant at the 0.05 level (2-tailed).

The WQHE domain of environmental wellness contains no primary factors. There was no correlation between the students' post-post-course WQHE domain of environmental wellness and the students' year-end transcript of academic achievement ($r = 0.188$, $p = 0.319$).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

With respect to social wellness there was no correlation between the students' post-post-course WQHE score and the students' year-end transcript of academic achievement ($r = 0.125$, $p = 0.510$). Additionally, there was no correlation between the primary factors of meaningful relationships ($r = 0.148$, $p = 0.434$), social caring ($r = 0.275$, $p = 0.141$), social tolerance ($r = -0.014$, $p = 0.942$) or social responsibility ($r = -0.219$, $p = 0.246$) and the students' year-end transcript of academic achievement. There was a positive correlation, however, between the primary factor of social skills and the students' year-end transcript of academic achievement ($r = 0.455$, $p = 0.011$). This can be seen in Table 67. The results show that there is a confidence interval of 98.9% for this statistical result.

Table 67

Correlation between Post-Post-Course Social Wellness: Social Skills Scores and Year-End Academic Performance

		Post-Post-Course WQHE Social Wellness - Social-Skills	Year-End Transcript Aggregate Percentage Mark
Post-Post-Course WQHE Social Wellness - Social- Skills	Pearson Correlation	1	0.455*
	Sig. (2-tailed)		0.011
	N	30	30
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.455*	1
	Sig. (2-tailed)	0.011	
	N	30	30

* Correlation is significant at the 0.05 level (2-tailed).

With respect to emotional wellness, there were no correlations between the post-post-course WQHE score for the domain of emotional wellness and the students' year-end transcript of academic achievement ($r = 0.271$, $p = 0.148$); or for the primary factors of emotional management ($r = -0.029$, $p = 0.881$); affect-balance ($r = -0.039$, $p = 0.838$), self-appraisal ($r = 0.201$, $p = 0.287$) or stress management ($r = -0.036$, $p = 0.849$). There was a

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

moderate to strong positive correlation between the primary factor of self-acceptance within the domain of emotional wellness and the students' year-end transcript of academic achievement ($r = 0.459$, $p = 0.011$), as seen in Table 68. There is a confidence interval of 98.9% for this statistical result.

Table 68

Correlation between Post-Post-Course Emotional Wellness: Self-Acceptance and Year-End Academic Performance

		Post-Post-Course WQHE Emotional Wellness - Acceptance	Year-End Transcript Aggregate Percentage Mark
Post-Post-Course WQHE Emotional Wellness - Acceptance	Pearson Correlation	1	0.459*
	Sig. (2-tailed)		0.011
	N	30	30
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.459*	1
	Sig. (2-tailed)	0.011	
	N	30	30

* Correlation is significant at the 0.05 level (2-tailed)

There was no correlation between the students' post-post-course WQHE score for the domain of spiritual wellness and the students' year-end transcript of academic achievement ($r = 0.126$, $p = 0.507$). There was also no correlation between the primary factors of spiritual connectedness ($r = 0.044$, $p = 0.818$), spiritual meaning ($r = 0.213$, $p = 0.259$), or spiritual values ($r = 0.071$, $p = 0.708$) and the students' year-end transcript of academic achievement.

Within the correlational analyses there appeared to be a distinct difference between the wellness profiles of students who did better academically and those who merely passed the first year of their course. This is shown in the set of data that follows.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.9.5 Wellness and year-end marks for higher achieving students. As previously mentioned, correlations for the students scoring in the upper range of academic aggregate marks were somewhat grouped around the mid-line with fewer outlier statistical results, showing a narrower range of deviation. These students showed a distinctly more positive wellness profile from those who passed the course, but with no particular merit. The comparative correlational statistical data is given in the following sub-sections, where the significant correlations between student wellness and academic achievement, post-course and post-post-course are given.

5.9.5.1 Post-course comparison. For the higher achieving sub-set of students in this cohort the significant correlations between student wellness and their academic achievement, post-course, are given. Table 69 shows a strong positive correlation between the students' WQHE total wellness scores and the students' year-end transcript of academic achievement ($r = 0.610$, $p = 0.004$). The result shows a confidence interval of 99.6%, which is highly significant, and cannot be attributed to chance.

Table 69

Correlation between Post-Course Total Wellness and Year-End Academic Performance for Students with Higher Academic Achievement

		Post-Course WQHE Percentage Score for Total Wellness	Year-End Transcript Aggregate Percentage Mark
Post-Course WQHE Percentage Score for Total Wellness	Pearson Correlation	1	0.610**
	Sig. (2-tailed)		0.004
	N	20	20
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.610**	1
	Sig. (2-tailed)	0.004	
	N	20	20

** Correlation is significant at the 0.01 level (2-tailed).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 70 shows a strong positive correlation between the students' WQHE life satisfaction scores and the students' year-end transcript of academic achievement ($r = 0.556$, $p = 0.011$). The result shows a confidence interval of 98.9%, which is highly significant, and cannot be attributed to chance.

Table 70

Correlation between Post-Course Life Satisfaction and Year-End Academic Performance for Students with Higher Academic Achievement

		Post-Course WQHE Life Satisfaction	Year-End Transcript Aggregate Percentage Mark
Post-Course WQHE Life Satisfaction	Pearson Correlation	1	0.556*
	Sig. (2-tailed)		0.011
	N	20	20
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.556*	1
	Sig. (2-tailed)	0.011	
	N	20	20

* Correlation is significant at the 0.05 level (2-tailed).

Table 71 shows a strong positive correlation between the students' WQHE career wellness scores and the students' year-end transcript of academic achievement ($r = 0.639$, $p = 0.002$). The result shows a confidence interval of 99.8%, which is highly significant, and cannot be attributed to chance. There was no statistically significant correlation between the primary factors of career choice ($r = 0.436$, $p = 0.054$), or career competence ($r = 0.418$, $p = 0.067$), within the domain of career wellness and the students' year-end transcript of academic achievement. It is worth noting, however, that both scores fell only marginally short of the 'p' value for confidence, the 'r' value showing a moderate to strong positive correlation.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 71

Correlation between Post-Course Career Wellness and Year-End Academic Performance for Students with Higher Academic Achievement

		Post-Course WQHE Career Wellness - Full Percentage	Year-End Transcript Aggregate Percentage Mark
Post-Course WQHE Career Wellness - Full Percentage	Pearson Correlation	1	0.639**
	Sig. (2-tailed)		0.002
	N	20	20
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.639**	1
	Sig. (2-tailed)	0.002	
	N	20	20

** Correlation is significant at the 0.01 level (2-tailed).

Table 72 shows a strong positive correlation between the primary factor of professional development within the domain of career wellness and the students' year-end transcript of academic achievement ($r = 0.580$, $p = 0.007$).

Table 72

Correlation between Post-Course Career Wellness: Professional Development and Year-End Academic Performance for Students with Higher Academic Achievement

		Post-Course WQHE Career Wellness - Professional-Develop	Year-End Transcript Aggregate Percentage Mark
Post-Course WQHE Career Wellness - Professional-Develop	Pearson Correlation	1	0.580**
	Sig. (2-tailed)		0.007
	N	20	20
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.580**	1
	Sig. (2-tailed)	0.007	
	N	20	20

** Correlation is significant at the 0.01 level (2-tailed).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

The result is highly significant, with a confidence interval of 99.3% which cannot be attributed to chance. There was no statistically significant correlation between the WQHE domain of emotional wellness and the students' year-end transcript of academic achievement ($r = 0.409$, $p = 0.073$), the high 'r' value showed a potentially moderate to strong correlation; however, the 'p' value lies marginally outside the statically significant range. Table 73 shows that there was a moderate to strong correlation between the primary factor of stress management, within the domain of emotional wellness, and the students' year-end transcript of academic achievement ($r = 0.480$, $p = 0.032$). The result shows a confidence interval of 96.8%, which cannot be attributed to chance.

Table 73

Correlation between Post-Course Emotional Wellness: Stress Management and Year-End Academic Performance for Students with Higher Academic Achievement

		Post-Course WQHE Emotional Wellness - Stress-Management	Year-End Transcript Aggregate Percentage Mark
Post-Course WQHE Emotional Wellness - Stress-Management	Pearson Correlation	1	0.480*
	Sig. (2-tailed)		0.032
	N	20	20
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.480*	1
	Sig. (2-tailed)	0.032	
	N	20	20

* Correlation is significant at the 0.05 level (2-tailed).

Table 74 shows a strong positive correlation between the students' WQHE spiritual wellness scores and the students' year-end transcript of academic achievement ($r = 0.690$, $p = 0.001$). The result is highly significant with a 99.9% confidence interval that could not have been obtained by chance.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 74

Correlation between Post-Course Spiritual Wellness and Year-End Academic Performance for Students with Higher Academic Achievement

		Post-Course WQHE Spiritual Wellness - Full Percentage	Year-End Transcript Aggregate Percentage Mark
Post-Course WQHE Spiritual Wellness - Full Percentage	Pearson Correlation	1	0.690**
	Sig. (2-tailed)		0.001
	N	20	20
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.690**	1
	Sig. (2-tailed)	0.001	
	N	20	20

** Correlation is significant at the 0.01 level (2-tailed).

The primary factors of spiritual connectedness ($r = 0.467$, $p = 0.038$), spiritual meaning ($r = 0.498$, $p = 0.025$) and spiritual values ($r = 0.582$, $p = 0.007$), given in Tables 75, 76 and 77 respectively, all correlate with the students' year-end academic achievement.

Table 75

Correlation between Post-Course Spiritual Wellness: Spiritual Connectedness and Year-End Transcripts for Students with Higher Academic Achievement

		Post-Course WQHE Spiritual Wellness - Connectedness	Year-End Transcript Aggregate Percentage Mark
Post-Course WQHE Spiritual Wellness - Connectedness	Pearson Correlation	1	0.467*
	Sig. (2-tailed)		0.038
	N	20	20
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.467*	1
	Sig. (2-tailed)	0.038	
	N	20	20

* Correlation is significant at the 0.05 level (2-tailed).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 76

Correlation between Post-Course Spiritual Wellness: Spiritual Meaning and Year-End Academic Performance for Students with Higher Academic Achievement

		Post-Course WQHE Spiritual Wellness - Meaning	Year-End Transcript Aggregate Percentage Mark
Post-Course WQHE Spiritual Wellness - Meaning	Pearson Correlation	1	0.498*
	Sig. (2-tailed)		0.025
	N	20	20
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.498*	1
	Sig. (2-tailed)	0.025	
	N	20	20

* Correlation is significant at the 0.05 level (2-tailed).

Table 77

Correlation between Post-Course Spiritual Wellness: Spiritual Values Scores with Year-End Transcripts for Students with Higher Academic Achievement

		Post-Course WQHE Spiritual Wellness - Values	Year-End Transcript Aggregate Percentage Mark
Post-Course WQHE Spiritual Wellness - Values	Pearson Correlation	1	0.582**
	Sig. (2-tailed)		0.007
	N	20	20
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.582**	1
	Sig. (2-tailed)	0.007	
	N	20	20

** Correlation is significant at the 0.01 level (2-tailed).

Table 77 shows that the statistical result for the correlation between the primary factor of spiritual values and the students' year-end transcript of academic achievement is highly significant, showing both a strong correlation and a high confidence interval of 99.3%, which could not have been obtained by chance.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

5.9.5.2 Post-post-course comparison. There was no significant difference between this group of higher achieving students and the full cohort of students in the statistical results of the comparative analysis between the post-post-course wellness and the year-end academic achievement. There were some exceptions, however, where a significant positive correlation was found that was not present in the full cohort of students. Table 78 shows that there is a moderate to strong positive correlation between the WQHE domain of emotional wellness and the students' year-end transcript of academic achievement ($r = 0.453$, $p = 0.045$). There is a 95.5% confidence interval for this result.

Table 78

Correlation between Post-Post-Course Emotional Wellness and Year-End Academic Performance for Students with Higher Academic Achievement

		Post-Post-Course WQHE Emotional Wellness - Full Percentage	Year-End Transcript Aggregate Percentage Mark
Post-Post-Course WQHE Emotional Wellness - Full Percentage	Pearson Correlation Sig. (2-tailed) N	1 20	0.453* 20
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation Sig. (2-tailed) N	0.453* 0.045 20	1 20

* Correlation is significant at the 0.05 level (2-tailed).

Table 79 shows that, in addition to the correlation of the WQHE domain of emotional wellness, the primary factor of self-acceptance within this domain showed an even stronger positive correlation in this group of students ($r = 0.598$, $p = 0.005$). This result has a 99.5% confidence interval for this group of higher achieving students.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 79

Correlation between Post-Post-Course Emotional Wellness: Self-Acceptance Scores and Year-End Academic Performance for Students with Higher Academic Achievement

		Post-Post-Course WQHE Emotional Wellness - Acceptance	Year-End Transcript Aggregate Percentage Mark
Post-Post-Course WQHE Emotional Wellness - Acceptance	Pearson Correlation	1	0.598**
	Sig. (2-tailed)		0.005
	N	20	20
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.598**	1
	Sig. (2-tailed)	0.005	
	N	20	20

** Correlation is significant at the 0.01 level (2-tailed).

There was no correlation between the post-post-course WQHE domain of spiritual wellness scores and the students' year-end transcript of academic achievement ($r = 0.412$, $p = 0.071$) as the 'p' score is marginally outside of the range for statistical significance.

Table 80

Correlation between Post-Post-Course Spiritual Wellness: Spiritual Meaning Scores with Year-End Academic Performance for Students with Higher Academic Achievement

		Post-Post-Course WQHE Spiritual Wellness - Meaning	Year-End Transcript Aggregate Percentage Mark
Post-Post-Course WQHE Spiritual Wellness - Meaning	Pearson Correlation	1	0.478*
	Sig. (2-tailed)		0.033
	N	20	20
Year-End Transcript Aggregate Percentage Mark	Pearson Correlation	0.478*	1
	Sig. (2-tailed)	0.033	
	N	20	20

* Correlation is significant at the 0.05 level (2-tailed).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 80 shows, however, a positive and moderate to strong correlation between the primary factor of spiritual meaning within the domain of spiritual wellness and the students' year-end transcript of academic achievement ($r = 0.478$, $p = 0.033$). This result shows a 96.7% confidence interval. In the final analysis it appears as if the higher achieving students are also the most psychosocially healthy students. These scores depict a profile of student that knows what they want with respect to their career and who is more sure of their career choice and future progression into this aspect of professional life.

In the next two sub-sections the researcher will look at the qualitative impact of the lifestyle management course and how this compares with the academic achievement of the participants, as well as the differential between the higher achieving and lower achieving students. Firstly we take the comparison of the qualitative impact with the academic achievement.

5.10 Comparison of the Qualitative Impact with Academic Achievement

Mixed methods research is becoming increasingly popular in health and in social sciences and both qualitative and quantitative information aid in completing the total statistical picture of the research outcomes (Barnes, 2012). Data within qualitative analyses is subjective, not always directly measurable and it is not always easy, appropriate or significant to try to compare qualitative with quantitative output (Polgar & Thomas, 2013). The only way of making any kind of statistical comparison is to compare like with like by finding a way of turning the qualitative data into quantitative data, as was in a study which attempted to measure research collaboration with academic productivity (Abramo, D'Angelo, & Di Costa, 2009). The measure of research was turned into qualitative data by looking at the number of collaborative papers produced and assigning a score (Abramo et al., 2009). The main aim of qualitative research is to make meaning of the underlying reasons for the quantitative data (Polgar & Thomas, 2013). To an extent, the researcher has attempted the

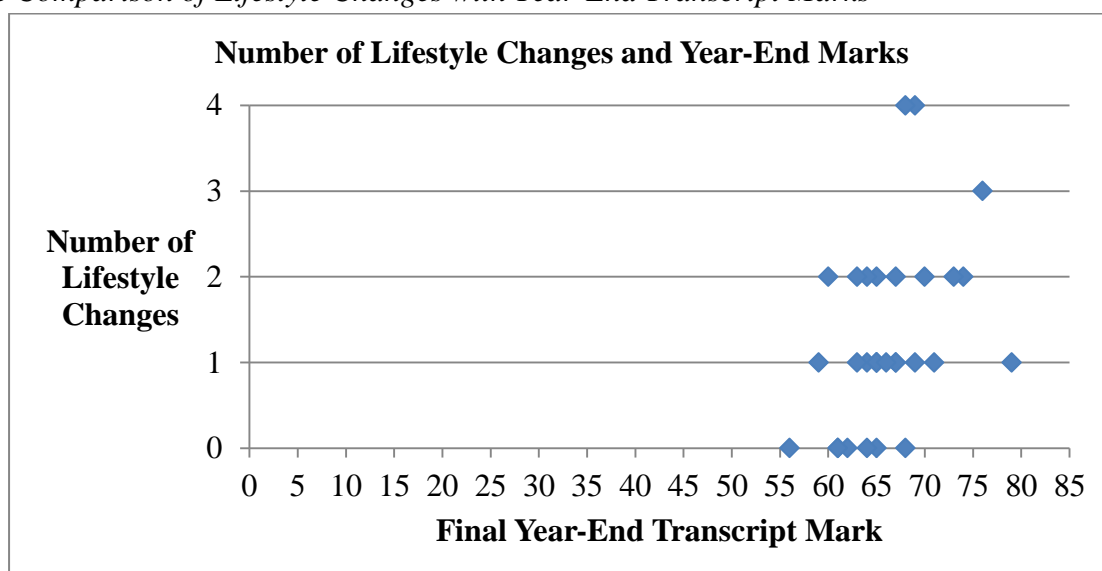
IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

latter when attempting to draw a comparison between the qualitative and quantitative aspects of this study. In this wise the researcher has examined two aspects of the intervention outcome; those of a number of post-course lifestyle changes and the year-end transcript marks. Additionally, whether or not the students found the changes easy, or at least manageable to make and whether or not the participants thought the course required changes, were also considered. These two pieces of information may give an indication as to whether or not participants were satisfied with the course of intervention.

In Figure 29 we see how the number of lifestyle changes made by the students compares to the year-end transcript marks. It appears that those students who had higher year-end marks made between one and three lifestyle changes. There is a tendency towards the lower end of marks for a student to have made no change, or only one change in lifestyle related behaviour. There is a slight dip in year-end marks at the level of four changes, possible an indication of the participants having taken on a bit too much.

Figure 29

The Comparison of Lifestyle Changes with Year-End Transcript Marks



IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

It is acknowledged that, despite the fact that all the changes made were positive in relation to health, change itself can be challenging and possibly detractive when combined with other areas of challenge (Bukman et al., 2014). This will be discussed in the next chapter. With respect to the ease or difficulty of lifestyle change, and whether or not the course made the changes easier, most of those participants that made two, three or four changes to their lifestyle felt that the course made the changes easier, or at least manageable. Four people who made one change and one who made two changes felt that this was not the case. It was also found that those students who made lifestyle changes and who found that the course made it easier to do so were the same students who were satisfied with the course as it stands and did not feel it needed to be changed. Those students who felt that the course did not necessarily make the changes easier had, with only two exceptions, declined to answer the question on possible changes to the lifestyle management course.

5.11 Differential in Wellness between High and Low Achieving Students

Much of the data in the descriptive statistics and the correlational statistics gives information on specific aspects of wellness as it correlates to the students' value for information and to the students' academic achievement. It would be extraneous to repeat this in this final section. There were no noticeable individuals that stood out from the cohort as a whole. To be considered, perhaps, are the differences in respect of wellness between the top high achieving students and those who only just managed a pass mark. In the final two tables, Table 81 and Table 82 the differences between the two sets of students with respect to marks, wellness, specific aspects of wellness and lifestyle changes, alongside their views on the ease of change and satisfaction with the course, are viewed. Information was taken from both the descriptive statistics and the qualitative analysis and blended to compile these tables. There is a significant difference between the two groups of students with respect to aggregate year-end marks and WQHE wellness marks.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 81

Post-Course Comparative Scores for the Top Five Students

Student/Participant Code	30	1	25	33	13
Post-Course Marks	79%	76%	74%	73%	71%
Number of Psychosocial Lifestyle Changes	1	1	1	0	0
WQHE Career Wellness Score	86%	94%	91%	86%	84%
Number of Physical Lifestyle Changes	0	2	1	2	1
WQHE Physical Wellness Score	69%	67%	70%	64%	70%
Total Number of Lifestyle Changes	1	3	2	2	1
Post-Course Total WQHE Wellness Score	80%	84%	83%	74%	83%
Ease of Change	Yes	Yes	Yes	Manageable	Yes
Satisfaction with Course	Yes	Yes	Yes	Yes	Yes

With respect to the top five students in this class the average post-course year-end transcript mark is 74.6%; the average post-course WQHE career wellness score is 88.2%; whilst the average post-course WQHE physical wellness score is 68% and the average post-course total WQHE wellness score is 80.8% for the five students. This is in contrast to the scores recorded below for the least successful students in the class.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Table 82

Post-Course Comparative Scores for the Bottom Five Students

Student/Participant Code	5	37	9	29	38
Post-Course Marks	61%	61%	60%	59%	56%
Number of Psychosocial Lifestyle Changes	0	0	2	1	0
WQHE Career Wellness Score	70%	75%	84%	83%	67%
Number of Physical Lifestyle Changes	0	0	0	0	0
WQHE Physical Wellness Score	71%	75%	69%	62%	23%
Total Number of Lifestyle Changes	0	0	2	1	0
Post-Course Total WQHE Wellness Score	70%	80%	79%	75%	68%
Ease of Change	Yes	Yes	Yes	No answer	Yes
Satisfaction with Course	Yes	Yes	Yes	No answer	No answer

With respect to the bottom five students in this class the average post-course year-end transcript mark is 59.4%; the average post-course WQHE career wellness score is 75.8%, whilst the average post-course WQHE physical wellness score is 60% and the average post-course total WQHE wellness score is 74.4% for the five students. Notably in this group, no physical lifestyle changes were made and three students made no specific lifestyle changes at

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

all. There were significant differences between the way in which the top student and the student who was most challenged reacted to the programme, these are highlighted below with the students' own comments.

The comments made by student CODE 030 with respect to pre-course priorities were: "Because of setbacks that (*sic* kept) me from reaching my goals in time, now that I'm on the right track it is very important for me to plan my future well". Post-course setting priorities in life was still important: "It is important to me because it gives me directions in where I should concentrate on"; and post-post-course: "Because I'm not getting any younger and I need to plan my own future because in a few years' time I will no longer be dependent on my parents I need to look out for myself and make good life choices so that I have the best that I want and need to survive in this world". When asked which areas were not priorities: "I guess it's because I'm not familiar with animals and their disease but I would love to know more about them." With respect to those areas that were different from expectations this student answered "HIV/AIDS", "I thought I will get the same information and know about the virus but the lecture was so different in such a way that I got new information, useful information and knowledge about the virus/disease."

With respect to lifestyle changes the comments were: "I have taken planning my own future seriously and making priorities mine and not of my family's or friends." ... "As the programme highlighted to me why I should make changes, because sometimes we got scared to make changes but now I know that change is good it is going to benefit you". "I changed my attitude and became friends with others and get along just fine because in the end we all need to work together so if there is no peace between me and others we don't get the results we want in the end." With respect to whether or not this course made it easier to make changes, the student felt that it had made it easier to both make changes and maintain them:

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

“It has made it easy because now I can be able to make to set my own goals and priorities and I can handle stress and I am able to manage my time”.

With respect to how the student was going to use this course in the future, there were the following comments: “I intend to use it in a positive way because the information is useful to me and to others.” ... “I intend to use it positively in my studies use the stress management areas positively and handle stress very well with the nutrition and try to eat a balanced meal and influence others to do the same.”

For student CODE 038 the pre-course priority was answered with the following comment: “As a child of God; I always put faith in Him because He is my creator and He knew me before I was in my mother’s womb. Faith is for me to see or observe the invisible because I was called for the impossibilities. If you see the invisible you can be able to do the impossible in the eyes of mere men”. Post-course the student answered that: “It’s important because setting your priorities makes you know how to set your goals and make sure that you make your goals come true”. With respect to those areas that were different from expectations this student commented “Exercise”, “They were different because I did not realise that they are so important to do in life”.

With respect to lifestyle changes “I have changed in thinking positively because it makes you to do things better”. The student felt that the course did not make it easier to make or maintain changes and made the following comment as to why: “I was not exposed that much in the course so now it was very difficult to adapt to the changes because I was used in my old way of doing things”.

With respect to how this course was going to be used in the future, the student commented: “I intend to make others do this course because it tell you some things that you thought were not important”. “I want to introduce to the others how and why the course is

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

very important to us especially to the youth. We need to know our lifestyle, how to manage and why we have to manage our lifestyle as human beings”.

The two students were not dissimilar in many respects; however, there appears to be more self-reliance, self-responsibility and willingness to apply the principles of the lifestyle management programme by the first student than the second. Whereas the first student has goals and a desire to get ahead they were equally pragmatic in their realisation that this has to come from them. This student changed their mind-set, attitude and the way in which they managed time and stress, and ultimately their diet, which they had kept up 15 weeks post-course. The second student had a strong faith and thought positively in an attempt to do things better. This student attempted to make changes but admittedly found the course difficult to engage with and found the changes difficult as their previous habits were somewhat entrenched.

With respect to how the knowledge from the course was going to be used in the future, the first student will use it to continue to improve their lives and wellbeing and possibly lead by example with their compatriots. The second student is in no doubt that the lifestyle management programme is a good one but would rather encourage others to do the course for themselves.

This section brings to a close the actual descriptive statistical analysis and qualitative examination of the outcomes of this lifestyle management programme. The researcher will attempt to summarise this extensive amount of information in the following section, taking the reader through the four sets of statistical analysis, in the order given. We will then close with a brief conclusion of what was achieved in this chapter.

5.12 Summary of the findings

Since the overall aim of the study was to ascertain the total impact of an educational lifestyle management programme on socioeconomically disadvantaged students; a large task,

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

this was divided into several secondary objectives. Each of these required a specific type of data analysis, which the researcher applied to the information gained from two types of questionnaires and two sets of student transcripts. The data analysis and results were dealt with in the order of the objectives and encompassed the following four sections for which results were obtained and reported. These findings are briefly summarised.

Firstly, the objective measurement of changes in levels of wellness of the participants was analysed. This set of quantitative descriptive statistics described the research population with respect to their knowledge of health, where the knowledge comes from, what their priorities were for information, and what changes in wellness took place at various stages of the intervention. The findings showed that, with respect to the amount and sources of information that the participants had prior to the course, twenty three of the thirty four students had some information whilst seven had a lot and four had very little. The main source of information had been their high school, followed by books, magazines, clinic sisters and parents. Post-course, nineteen of the students felt that they had a lot of information followed by twelve who had as much as they felt they needed; the main sources of information were the lifestyle management course supplemented significantly by books, clinic sisters and the internet. Post-post-course thirty of the thirty-four participants felt they had a lot of information, the main source having been other university courses as well as clinic sisters, magazines, books and the internet.

With respect to the value of health information, pre-course, the students' values for information across twenty two different health-related issues placed intrapersonal skills, future planning and nutrition at the top of the list followed closely by time management, water intake and clean air. Post-course this changed little, with future planning intrapersonal skills, and water intake at the top, followed by time management, setting priorities and nutrition. Post-post-course, the value of information on future planning, water intake and

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

nutrition were at the top, followed by intrapersonal skills, HIV, and exercise with intrapersonal skills, time management and setting priorities scoring equally thereafter. Over the course of the intervention, values for information on HIV, exercise, zoonotic disorders and sun exposure increased significantly. Information on alcohol, smoking and recreational drug use stood at the bottom of the list of priorities throughout the whole intervention.

It appears from these results that two thirds of the students entered the university with some information; however, by the end of the course, the amount of information received was significant, students were more confident that they had a lot of information or, at the very least they had what they needed with respect to their health. The main priorities for students appeared to be those of knowing themselves well, setting priorities for, and planning their future.

The participants' overall wellness and life satisfaction scores remained stable and in the category of 'good' with respect to their overall health, throughout the time of the intervention, as did the scores for career wellness, social wellness and spiritual wellness, all of which improved slightly over the intervention for the majority of students. With respect to social wellness, the primary factor of social responsibility was the source of the biggest improvement. Although physical wellness significantly improved over time, from a pre-course average of 63.5% to a post-course average of 71.97%, it nevertheless fell into the category of having 'room for improvement', pre- and post-course, and only just coming into the category of 'good' post-post-course. It needs to be noted that, within the domain of physical wellness, the primary factor of exercise improved the most by more than 20%, with nutritional quality also being significantly improved by most of the students over the course of the study. Intellectual wellness and environmental wellness followed a similar trend to physical wellness, beginning in the range of 'room for improvement' and improving enough

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

to reach the range of 'good' for the average student, both with moderate improvements over time.

Secondly, the overall impact of the programme on the changes in lifestyle management was ascertained. In this section the researcher looked for relationships between the variables of the students' value of information and their levels of wellness for which quantitative correlational statistical analysis was used. The findings showed that, for the majority of variables, there was no correlation to be found between the value of information and the student's wellness scores. There were a small number of exceptions, however, for which a significant positive correlation was found. The paucity of positive correlations between wellness values and wellness scores is discussed in the following chapter. It is acknowledged that although values for wellness appear to be high among the students there are practical challenges with the implementation of changes to wellness behaviour. It appears that the psychosocial changes were easier to make for these students and changes relating to nutrition and exercise were more difficult. Some of the reasons for this were drawn out of the qualitative data.

Pre-course, positive correlations were found between the value of information on use of medication and the WQHE score for the primary factor of protective behaviour, within the domain of physical wellness, and the value of information on interpersonal skills and the WQHE score for the domain of social wellness, as well as the primary factor of meaningful relationships. Post-post-course positive correlations were found between the value of water intake and the WQHE score for the domain of physical wellness and the primary factor of nutritional quality. There were instances where there was almost a correlation between values and wellness, however, not a statistically reliable one. This could indicate that some students made positive changes whilst others were more challenged, it may imply that for a number of students change was 'in progress' implying that intention to change may be present and

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

given time and greater opportunity for change there may have been a greater correlation between wellness values and wellness scores.

Thirdly, the evaluation of the programme of intervention from the perspective of the students was drawn out. In this respect, the researcher looked at why certain changes took place and the possible reasons for the relationships between the changes, by using qualitative constructive narrative analysis of semi-structured open questions from the RGQ. Due to the paucity of qualitative information, provided by the students the researcher attempted to draw out of the information as much comprehensible data as possible. Converting this to visual information supported by the students comments, made for a more comprehensible manner of reporting. As indicated earlier in this chapter planning their future and intrapersonal skills (knowing their own strengths and weaknesses) were major priorities for the participants, across the time of the intervention. The main reasons given for these choices were that the participants wished to realise their opportunities, gain personal independence and make their own decisions. Information on nutrition also rated very highly, the main reason being disease prevention and overall health maintenance. Use of alcohol, smoking and recreational drug use were not important as students had already made their lifestyle choices in these respects and felt that substance use across the board was physically and socially destructive.

With regard to changes in lifestyle, post-course, the management of stress, the ability to prioritise and improvements in nutrition exercise and interpersonal skills were predominant. Post-post-course, the predominant lifestyle changes revolved around nutrition, changes in attitude, stress management and exercise, which accounts for the descriptive statistical results where these wellness factors improved on average for the participants.

The learning sessions which made the biggest impact on the students were not surprisingly those on stress management and nutrition, as well as exercise, which shows in the lifestyle improvements and increase in wellness scores. Learning sessions on setting

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

priorities and HIV were also highly rated and increased significantly with respect to the value of information. The learning sessions on HIV held the biggest surprises for the students with respect to content and impact. There was a change in the impact of learning session between the post-course and post-post course data analysis, which could have been due to the students personal reflection on the course content. Alternatively, it could also reflect subtle changes in student priorities upon reflection. The influence of the time lapse during which students would have had the opportunity to put their knowledge into practice but would also have had additional external influences during the academic recess may have been a factor. Across the board students did not advocate changes to the course and the majority of the participants will share their knowledge with family, friends and others in their community in the future.

Finally, the comparison of wellness with the academic performance of the participants was made. In this section the researcher used a second set of correlational statistical outcomes to ascertain the connection between the students' health and student academic transcript marks. There was no correlation between student wellness and the mid-year transcripts of academic marks.

Post-course, excluding the four outliers, for the rest of the full cohort of students a positive correlation was found with year-end marks and overall wellness, as well as the primary factor of protective behaviour within the physical wellness domain, overall career wellness, career choice and career competence. Post-post-course there was again a positive correlation between the year-end marks and career wellness, career competence intellectual challenge, social skills and emotional self-acceptance. For the higher performing students there were significant positive correlations between academic performance and the students' post-course total wellness, life satisfaction, career wellness (including professional development), emotional wellness with respect to stress management and spiritual wellness

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

(including connectedness, meaning and values). Students who made two or three lifestyle changes performed better than those making fewer or more.

5.13 Conclusion

The overall aim of the study was to ascertain the total impact of the lifestyle management programme; in order to do this the specific secondary objectives were taken in order with respect to the data analysis. The researcher began with the quantitative analysis, which dealt with the objective impact of the intervention, as far as the student wellness perception is concerned. Two sources of information, the researcher generated questionnaire and the WQHE, were analysed separately and compared to one another, with respect to both the amount and sources of health and wellness related information that the students possessed. In addition, the students' wellness values and wellness scores were extrapolated.

The researcher followed with an objective analysis of any changes in levels of wellness across the period of the study. The participants' health and wellness information values were also compared to the WQHE overall wellness scores and the broader wellness category scores. The next set of results from the data analysis dealt with the second objective, which looked quantitatively at specific aspects of wellness and the resulting changes across the period of the study, this amounting to the total quantitative impact of the programme. The quantitative impact provided a descriptive picture of the overall wellness scores, the life satisfaction scores and the specific sub-categories of wellness for this group of students.

The qualitative analysis, thereafter, looked at the subjective impact of the intervention and the reasons behind the results of the quantitative analysis. These results were compared with the qualitative information gleaned from the researcher generated questionnaire, which shed light on the reasons for changes in wellness. Thirdly, the qualitative analysis of the impact of the educational programme from the participant's perspective was taken into consideration. The difference between what was expected and what the students felt they

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

received, with regard to the learning sessions within the programme, was reviewed. The question of possible changes to the programme was also dealt with.

Lastly, overall and specific areas of wellness were correlated between, and compared to, the mid-year and year-end academic achievement. The extrapolation of results from the third source of information, the student's academic transcripts, was incorporated into the comparison of the wellness broader category and sub-category analysis. The effect of the qualitative impact of the intervention on the student's academic achievement was drawn out. Thereafter, the researcher briefly reviewed specific aspects of this analysis in terms of the upper and lower segment of students and their respective academic achievements. Finally a brief summary of the statistical results was given.

CHAPTER SIX**Discussion of Results**

In this chapter the researcher will discuss the findings of this study into the effects of the lifestyle management education programme on a group of young disadvantaged first-year higher education students. The researcher begins by looking at the demographics of the student participants in this study, the background they come from and their needs with respect to health and wellness promotion and education. The discussion will then move on to consider the level of health literacy that students possessed pre- and post-course and where their health information came from. Thereafter we discuss the participants' values with respect to health information across a number of wellness variables, pre-, post- and post-post-course and the changes in their values with regard to aspects of wellness information over time. Additionally we will take into consideration aspects of wellness information which were not important and why this may have been the case.

We then move on to the impact of this holistic lifestyle management programme and how this affected the participants' actual wellness scores across the time of the study. Such changes will have been facilitated by changes in aspects of lifestyle management, which are discussed, along with the impact of the specific learning units within the lifestyle management programme that may have underpinned these changes. We will discuss the learning sessions that had the most impact and where the programme made departures from the expectations of the participants. This leads us into the students' evaluation of the programme with respect to effectiveness, ease of application and the possibility of implementing constructive changes.

With respect to the statistical outcomes, we look at the overall impact of the lifestyle management programme, the participants' changes in wellness scores and how these related

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

to academic success. We will briefly discuss the profile of the students who did well academically, against those who may have done better. Finally, the researcher will advance possibilities with respect to the implications of the findings.

6.1 Student Demographics: Poverty Colour and Compromise

Despite being a middle income country with many aspects of first world development, there are nonetheless pockets of poverty in South Africa and a wide disparity between the haves and have-nots that manifest in adverse outcomes in respect of health (Ataguba et al., 2011). This is not different from other middle income and southern hemisphere countries, as well as minority groups of developed countries, in respect of both demographics of the population that experience the disadvantage and the nature of the disadvantage itself (Friel et al., 2011; Guimaraes et al., 2014). Education has the potential to mediate this problem and a better education has been linked to better health outcomes (Baker et al., 2011; A. K. Cohen et al., 2013; Rosenbaum, 2012). In this respect, the need to improve higher educational outcomes amongst those from disadvantaged backgrounds has become paramount in South Africa (Scott et al., 2007).

The participants in this study were first year, first time entry students registered at WSU, predominantly from the poorest rural areas of the poorest province of South Africa and the urban townships of East London (Buffalo City Metropole). They were exclusively black, unmarried and IsiXhosa speaking, with the majority of the class being female. These students possessed many of the attributes with respect to health of those from severely disadvantaged communities in South Africa; lack of access to health care resources and limited access to health information (Ataguba et al., 2011). Even though students from the urban townships surrounding the city may have better access to services and health-care, the downside is the adverse impact that urbanisation has on both nutrition and lifestyle (C. Day et al., 2014; Kahn

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

et al., 2007; Labadarios, Mchiza, et al., 2011; Labadarios, Steyn, et al., 2011; Micklesfield et al., 2013; Peltzer et al., 2010; Williams et al., 2008).

These compromising factors, however, are not exclusive to this area, or to South Africa. Young people from similar backgrounds, in particular, people of colour and those from homes where there is financial hardship, whose parents have not had a tertiary education, do not have an equal chance of entering university, due to nutrition, health, or socioeconomic-related conditions (Baraldi & Conde, 2014; Guimaraes et al., 2014; M. I. Jackson, 2009; Kestilä et al., 2009; Koivusilta et al., 2013; Labadarios, Mchiza, et al., 2011). In this respect, the participants of this study shared much in common with those from similar backgrounds in other countries, who had less than the best start in life. Moreover, when students from deprived backgrounds, such as the study participants, do attain enough secondary education to permit entry into the higher education environment, they are not on an equal footing (M. I. Jackson, 2009; Scott et al., 2007; N. M. Stephens et al., 2014). Conversely, students who enter higher education and succeed, tend to come from a background where parents have been better educated, have skilled employment and more positive health behaviour, ultimately leading to better health and better living conditions (M. I. Jackson, 2009; Kestilä et al., 2009; Koivusilta et al., 2013; N. M. Stephens et al., 2014). Since it was more productive to look at what works as opposed to what doesn't, an examination of the best way in which to deal with the compromising conditions had to be investigated.

The outcome of a government commissioned report identified several mechanisms for dealing with the socioeconomic disadvantage, with regard to South African university access and success (Scott et al., 2007). These included adding an extra year and additional supporting modules into the existing higher education undergraduate structure (DHET, 2012, 2013; Scott et al., 2007). This decision was not dissimilar to other institutions of higher

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

education in other parts of the world, where four year undergraduate programmes and/or additional wellness-related educational assistance have also been instituted (Ansari & Stock, 2010; Brookins-Fisher et al., 2010; Noble & Henderson, 2011; Stallman, 2011; N. M. Stephens et al., 2014).

In recognition of the fact that students required more than academic preparedness and that health and education went hand in hand, WSU infused a lifestyle management course into the first-year curriculum from 2007 onwards (Weimann, 2011). This programme underwent an evidence-based redevelopment in 2013 (Walter Sisulu University, 2013a). The aim of the Introduction to Lifestyle Management programme is to include and improve both health literacy and wellness management in first-year university students. In the following sub-section we will discuss the outcomes with respect to the participants' understanding of health, the value they attached to health-related information and the changes in health information values over the course of the study.

6.2 Students' Amount, Sources and Value of Wellness Information

Prior to the intervention, of the thirty four participants, most (twenty three) were of the opinion that they had some health information, the main source having been high school. Life-skills courses in secondary schools in South Africa tend to focus on interpersonal relations, critical thinking and emotional coping skills as opposed to overall holistic health and wellbeing (Lai et al., 2013). It is therefore not surprising that this was not the main source of health information during the participants' school years. Most of their health information had, in fact, come from the life-science curriculum, which alongside biology, gives a brief introduction to physiology. Although secondary school health education and health literacy programmes are not uncommon and are instituted in many countries, there is a significant lack of uniformity and varying methods of evaluation (McCormack et al., 2013; Osborne et al., 2013; Stagliano & Wallace, 2013).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

The information that students felt they possessed initially turned out to be somewhat limited and, in some instances (particularly with respect to HIV), not altogether accurate and lacking depth and evidence basis. It may be that even those participants who felt they had adequate information had possibly overestimated the value of what they had received and underestimated their needs. This is common in poorer populations who may have fewer expectations with respect to health care and health information (Delpierre et al., 2012). Four students indicated an awareness of insufficient prior information; however, these students may have been more realistic about the amount of information they had.

Post-course and post-post-course, the majority of students felt that they had a lot of information, whilst a smaller number felt they had as much as they needed. The main source of information post-course and post-post-course was the holistic lifestyle management course that they had engaged in. This information was supplemented by books, magazines, the health clinic professional nursing staff and the internet, especially post-post-course. The course that they had engaged in was obviously useful to them as demonstrated by the increase in the amount of information they possessed. This is in keeping with the outcome of a similar wellness management course conducted with a group of students in the UK (Ansari & Stock, 2010).

The values assigned to information about the various aspects of wellness remained for the most part very stable, with only moderate, or small gains or losses in value scores across the time of the study. The maximum full score for any health information value was 102. There were significant rises in the scores assigned to the value of a few aspects of health information between the pre- and post-post-course; notably sun exposure (+18), zoonosis (+14), HIV (+10), bacteria (+9) and exercise (+8). The value that students placed on most aspects of health information, pre-, post and post-post-course, was relatively high (over 85), with very few items at the lower end of the scale of twenty-two variables. Students at

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

universities in the UK showed a similar high regard for their physical and mental wellness (Ansari et al., 2011), as well as for the value of general health information (Ansari & Stock, 2010). Further, the value of health literacy programmes and health information has been generally welcomed in disadvantaged communities, which have shown a distinct enthusiasm for health-related information that is directed at a level that the recipients can understand (Rowlands & Nutbeam, 2013). The participants in this study were no exception in this regard.

Participants in this study, to a large extent, focussed on their future, with regard to specific aspects of health information; future planning, intrapersonal skills (knowing oneself), time management and setting priorities rated high, pre-, post- and post-post-course. In respect of the physical and environmental aspects of wellness, information on water intake, nutrition, HIV and exercise was also highly valued, the latter two rising significantly across the time period of the study. A unique feature of the lifestyle management course provided to the students was the module on environmental wellness, which included zoonosis, its connection with the origins of HIV, the importance of adequate and safe water intake, sun exposure and clean air as well as bacteria and pathogen control. The importance attached to information on sun exposure, zoonosis, HIV, and bacteria, grew significantly over the timespan of the study. With the exception of HIV, these aspects of wellness information values, health literacy and student knowledge appear not to have been previously measured; there is therefore no comparison to be made to existing literature and this study appears to be unique in this respect. Information with regard to the human interaction with the environment around us came as a surprise to students, as was seen in the number of students who rated HIV and Zoonosis as those learning units, which were a departure from their expectations.

In studies conducted on participants of other wellness and lifestyle management courses, it appears that the value attached to information on specific aspects of wellness was not broken down into its component parts to this extent. It is therefore difficult to make direct

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

and overall comparisons between this and any other group of students. There are, however, studies that focussed on specific aspects of wellness, where a comparison might be found.

A study in Hong Kong found that a holistic wellness management programme that focussed on developing intrapersonal skills in university students, not only proved successful in mitigating health risk behaviour, but also was rated highly among students (Daniel T. L. Shek et al., 2012). In the Gwandure study, information on HIV appeared to be highly valued. Building self-sufficiency and greater internal locus of control significantly reduced health risks and increased protective behaviour with respect to HIV (Gwandure, 2010). This is similar to students in this study who not only rated information on HIV quite highly, but also appeared to prefer an internal locus of control. This can be seen from the value placed on information about intrapersonal skills and future planning, as well as the qualitative evaluation of students' own comments with respect to taking control of their lives. Intrapersonal skills and internal resources are important features in building personal capacity for wellness change (Mulder et al., 2011). The students' desire for intrapersonal and personal resource skills building is similar to those of Dutch students from lower socio-economic and disadvantaged backgrounds (Mulder et al., 2011).

Studies have found that self-esteem is valued highly among students (Bushman et al., 2012). The variables of wellness information in this study did not include self-esteem, but did include several psychosocial aspects of wellness that relate to it, such as positive thinking (optimism), happiness and self-expression. All of these variables post-course and post-post-course rated > 90 out of a possible score of 102, with respect to the value the participants placed on these aspects of health information. Some of the more physical aspects of wellness were also important to the participants of this study.

Nutrition came under the spotlight with respect to the value of information which was consistently high on the list of value of information and, as will be seen in the next section, in

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

some respects the participants' nutritional wellness improved. This is similar to students in Korea who, when given enough information with which to make an informed decision, actively used it when making decisions about nutritional content of foods they purchased (Hyun et al., 2015). Nurses in South Africa also rated nutrition very highly among wellness values, particularly in respect of preventing obesity and hypertension, but had practical problems implementing a good nutritional programme for themselves (Phiri et al., 2014). There are two possible reasons for the high regard for nutrition information in the participants in this study. One is that the students have opted for a course of study which contains nutrition as a major, and the interest is therefore inherent in their choice. The other reason could be due to the manner in which the lifestyle management programme was conducted. Wellness education participants from lower socioeconomic backgrounds in Holland preferred to receive information on nutrition and lifestyle in groups, rather than as individuals, as was done in the intervention course (Bukman et al., 2014).

With respect to information about water intake, nothing was found in the literature that supports the level of importance that this had for many of the students. This may be due to the nature of studies conducted that simply did not evaluate the level of importance, or the impact of improvement, in water intake. It could also be a unique factor of where these students are situated, with concerns over water safety in the Buffalo City area having been made public (Chigor et al., 2013).

Exercise rated rather highly initially and the importance of information on exercise increased further post-post-course. The participants of this study valued exercise information and, prior to the intervention course, may not have previously associated physical inactivity with obesity or ill-health in general. This is not uncommon in rapidly urbanising communities in transition and similar findings were found in Brazilian adolescents, who also failed to make the connection between obesity and inactivity, prior to an educational intervention

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

(Pedroso Dias et al., 2014). Once again the fact that the information was given to students as a group, as opposed to individual targeting of students at risk, might account for the high acceptability of the information as was found in a Dutch study (Bukman et al., 2014).

The value of information on stress management increased slightly over the time of the intervention, rating 96, and the issue of faith fluctuated slightly around 90. Neither of these two aspects of wellness is discussed specifically in other studies with respect to health literacy or health values. In the project PATHS study, however, where the course contained classes on intrapersonal skills, interpersonal skills and development of spirituality, college student participants showed an increase in their regard for 'cherishing life' (Daniel T L Shek & Sun, 2012). Workplace, or study-related stress, is often cited as a reason for ill-health, or not having the ability or motivation to change other aspects of health (Phiri et al., 2014; Stallman, 2011).

Information on use of medication did not rate highly initially, dropped post-course, recovering a little post-post-course. This aspect of wellness appeared to be not so important for the participants, borne out by the concern that the medical profession has with regard to lack of prescription adherence (Bailey, Oramasionwu, et al., 2013). Health literacy and health information has a role to play in mitigating unintended medication non-adherence and abuse (Bailey, Oramasionwu, et al., 2013). It has been suggested that promoting information on medication, along with imparting skills to understand the treatment and sharing the locus of control between the practitioner and patients, may be more productive (Fraser, 2010; Neuman et al., 2013).

With regard to use of recreational drugs, alcohol and smoking, the value of information remained at the bottom of the scale throughout the study. This may be not so much a disregard for the information as the fact that decisions with regard to drugs, alcohol and smoking had already been made by this group of students, who appeared not to be

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

interested in participating in these habits of lifestyle. The pre-course comments of the participants depicted in figures 10 and 11 show that recreational drug use, alcohol and smoking were deemed to be damaging to health. The use of these substances was also considered to be destructive to future success and to be socially unacceptable even before the start of the intervention programme.

This is contrary to the study which found that large numbers of students in the US drink to facilitate social conviviality and to alleviate depression (Beck et al., 2008). German students tend to binge drink due to academic failure and lack of psychological coping skills (Donath et al., 2012), whilst alcohol intake in the US has been found to worsen during late adolescence, where it may escalate to an alcohol use disorder (Brown et al., 2008). A study conducted in Soweto, South Africa found similar results and that alcohol use among socioeconomically disadvantaged adolescents is a growing concern; however, there was a far higher alcohol consumption amongst males than females (Ramsoomar et al., 2013). The study participants in the current study were, however, predominantly female, which may account for some of the discrepancy. The key to mitigating problem drinking may lie in two specific factors, one being the protective effect of spirituality and the other, the level of psychological resilience (Donath et al., 2012). Both of these factors of wellness rated high among the study participants as will be seen in the next sub-section.

Recreational drug use has become a recent but growing problem in South Africa, often connected with concomitant alcohol consumption (Lai et al., 2013; Peltzer et al., 2010). Despite the growing trend towards substance abuse, particularly in urban populations, some students in this particular study appeared to hold the use of drugs in very low regard, and were very aware of the destruction, both physically and socially, that drugs cause. Comments made by some of the students, depicted in Figure 11, show that recreational drug use was considered to be damaging, cause loss of friends and family and was a waste of time and

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

money. It is possible that this attitude could have come from interpersonal and critical thinking skills in the life skills courses during their secondary education, which have been found to be inversely related to drug use (Lai et al., 2013).

Smoking rates amongst the population as a whole have declined overall in South Africa and it has been found that those who do not drink are also less likely to smoke (Ayo-Yusuf & Szymanski, 2010). In urban black women, however, there has been a rise in both smoking and acceptance of smoking (Williams et al., 2008). Smoking, which came at the bottom of the scale of value for information across the study period, was found to be socially unacceptable to this cohort of students, who appeared to be aware of the high health risks connected with smoking (see Figures 11 and 13). Once again, as for alcohol and drugs, the decision not to smoke had already been made prior to the course intervention, by a number of students. This is contrary to studies in Japan, where smoking and drinking at an early stage of adolescence is becoming a concern; risk factors in Japanese students appear to be the inability to be assertive in respect of peer pressure (Ando et al., 2007).

In general, health, lifestyle habits and information about the components of health and wellness, were held in high regard by the participants of this study. There are a few exceptions which have been discussed, such as use of medication. With regard to zoonotic disorders and information on bacteria, although the scores for the value for information were low, they increased notably pre-course to post-post-course. The factors that came consistently at the bottom of the scale of value of information were those lifestyle habits that are deemed to be destructive and for which the participants of this study appear to have no interest (as depicted in Figures 10-13). Translating these values for information into actual increases in wellness will be the subject of discussion in the next subsection. A direct positive correlation between the value of information and the wellness scores was not found for the majority of the variables.

6.3 Students' Wellness Pre-, Post- and Post-Post-Course

Translating wellness values and value for information into actual lifestyle changes is the subject of this next sub-section of this discussion on the findings. This is the heart of this study where the researcher will discuss the findings of the overall impact of the intervention programme, beginning first with the changes in the level of the students' wellness between the pre-, post- and post-post-course data analysis. The few positive correlations that were found between the value of wellness information and the wellness scores will be briefly discussed in the relevant sections. Thereafter we look at the learning sessions that impacted most and which were possibly behind the changes that students made with respect to their wellness lifestyle, before turning to the students' evaluation of the programme and how this affected their actual academic marks. Firstly, the changes in student wellness will be viewed, a feat which for many is less than easy, but for those from disadvantaged backgrounds, may have been even more challenging.

6.3.1 Changes in specific aspects of wellness. It may not be a fair comparison as the interventions were not the same; however, wellness programmes in academic institutions have generally been successful in improving students' overall wellness (Ansari & Stock, 2010; Brookins-Fisher et al., 2010; Hyun et al., 2015; M. I. Jackson, 2009; LaFontaine et al., 2006; Welle & Graf, 2011). Across the time of the intervention, from pre-course to post-post-course, the total wellness score remained stable and in the category of 'good', with a moderate 5.06% improvement overall (72.56% to 77.62%). In this instance, the findings with regard to subjective improvement in student wellness were not dissimilar to those of other universities in the UK where, post-intervention, students rated their health in the category of 'good' on a Likert scale ranging from 'poor' to 'excellent' (Ansari & Stock, 2010). The life satisfaction score also remained in the category of 'good', albeit with negligible improvement. In the Ansari and Stock study in the UK, the life satisfaction of students, post-

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

intervention, was not significant (Ansari & Stock, 2010); other studies on the effects of lifestyle and wellness programmes had not measured life satisfaction specifically.

Physical wellness scores improved over time, showing an overall 8.4% improvement pre- to post-post-course (63.5% to 71.97%), moving from the category of having 'room for improvement', to that of 'good' post-post-course. It needs to be noted that, within the domain of physical wellness, the primary factor of exercise improved the most by 20.79%.

Nutritional balance improved by 3.09% and nutritional quality by 11.76% over the course of the study. The motivation to engage in exercise was strong as seen from both the increase in value for information and in the wellness scores. Similar studies on undergraduate students in the US also found that students are generally willing to exercise (Dunton & Schneider, 2006; LaFontaine et al., 2006). A Korean study found that personal empowerment and exercising in a group was key to increasing and maintaining levels of exercise in college students (Sook-Jung & Bok-Hee, 2013). The main barrier to walking as a form of exercise was that of situation, in particular adverse urban environments and safety factors (Ball et al., 2006; Dunton & Schneider, 2006). Where students failed to make the transition from value for exercise information, to improvement in physical exercise, they may have faced a similar barrier. The students in this study were situated with respect to both lectures and residence in the city centre, which is generally perceived to be unsafe for walking alone.

With regard to the improvement in nutrition, the outcome showed a moderate increase in nutritional balance and a larger increase in nutritional quality. Post-post-course there was a direct positive correlation found between the students' value of information on water intake and the post-post-course score for nutritional quality, which included a question on water intake. There were no other studies found with respect to water intake and wellness. With regard to nutritional intake overall, the findings are contrary to studies conducted amongst students in the US who scored lowest on the wellness scale with regard to nutrition

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

(LaFontaine et al., 2006). Conversely, students in Korea, who were motivated to use nutrition labels when purchasing food, had better nutritional intake than those who did not use nutrition labels (Hyun et al., 2015).

Two further aspects of physical wellness were those of risk avoidance, which increased by 8.29% and protective behaviour by 5.03%. Risk avoidance remained in the category of 'room for improvement', whilst that of protective behaviour was 'excellent' from the start and continued to improve. There was a direct positive correlation found between the pre-course values of information for use of medication (although not very high) and the pre-course score for protective behaviour for the participants. Use of medication was not found in other studies on wellness education.

With regard to safe sex, avoiding HIV infection and the issues of use of alcohol and smoking, the participants in this study were very clear on their positive and proactive stance. This is contrary to the study conducted in the UK where only around 20% of students abstained from alcohol and 26% had between three and five drinks at a time, three to five times during the month of the data collection (Ansari & Stock, 2010). With respect to avoiding HIV infection, the improvement in desire for information and protective behaviour may rest in the participants' desire for autonomy, future planning and control of their lives which, in many respects, is similar to students in the Gwandure study, where success lay in the locus of control being given over to the students (Gwandure, 2010).

In the faith-based health education intervention study on youths in Botswana, there was a greater reliance on faith-based concepts as opposed to scientific facts, which although included, were not the main area of focus. The participants in this study, however, still maintained a focus on their future as the overriding motivational factor for risk avoidance and health promotion (Mpofu et al., 2014).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Career wellness in this group of participants remained stable and in the range of 'good', with little change overall; however, those students who had initially scored at the lower end of the scale had improved somewhat post-post-course. Career wellness, which included the primary factors of career choice, career competence and professional development, was not measured in any other intervention study found by the researcher. The findings of this study appear to be unique in respect of both the use of the measurement of career wellness and the actual career wellness outcomes. Since the participants held future planning in high regard with respect to information and reasons for lifestyle changes, this may have influenced the rather high but stable score throughout the study.

Intellectual wellness and environmental wellness followed a similar trend to physical wellness, beginning in the range of 'room for improvement' and improving enough to reach the range of 'good' for the average student; both aspects of wellness showing moderate improvements over time. Intellectual wellness, which included intellectual challenge, knowledge expansion and critical thinking, improved by a modest 3.79%; whilst environmental wellness improved by 8.41%. There were no studies found for which any comparison between these course participants and a similar group of students undergoing lifestyle management or wellness courses could be made.

With respect to social wellness, which includes the primary factors of meaningful relationships, social skills, caring, tolerance and social responsibility, there was a very modest overall improvement in wellness scores pre-course to post-post-course of 4.5%. Generally these scores were in the category of 'good' to 'excellent' throughout the study and were, with one exception (that of social responsibility), relatively consistent. This showed a fair degree of social stability in this group of students. Pre-course there was a direct positive correlation found between the value of information on interpersonal skills and the score for meaningful relationships, which remained 'good' overall. The primary factor of social responsibility was

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

the source of the biggest improvement, with an increase from pre- to post-post-course of 10.55%; notwithstanding this improvement, this aspect of wellness still remained in the 'room for improvement' category. According to Brookins-Fisher et al., the primary purpose of a broad spectrum health education programme is not only to promote voluntary behaviour change but also to foster social responsibility (Brookins-Fisher et al., 2010). Social wellness was not measured objectively in the intervention studies that were reviewed. In the LaFontaine study on first-year college students (who did not undergo any intervention), love, in respect of the ability to give and receive physical and emotional intimacy, which might correspond to the meaningful relationships scores in this study, scored highest with respect to the aspects of wellness measured (LaFontaine et al., 2006).

Emotional wellness remained high, in the category of 'good' with respect to the wellness domains and consistent, showing a measure of emotional stability on the part of the study participants. There was an almost negligible increase pre-course to post-post-course of 3.09%. Emotional wellness incorporated the primary factors of self-acceptance, emotional management, affect-balance, self-appraisal and stress management, the latter accounting for most of the increase in the emotional wellness score. The overall change in spiritual wellness was negligible, increasing by 1.71% pre- to post-post-course. The scores throughout the study remained in the category of 'good' and were reasonably consistent throughout the period of the study. Spiritual wellness incorporated the primary factors of connectedness, which accounted for much of the increase, as well as meaning and values. There appears to be no comparable wellness intervention studies to be found, with respect to the measurement of these two wellness factors. Stress management and overall resilience have been measured in respect to certain other aspects of wellness and academic success (Hartley, 2011); however, the subjective measurement of emotional and spiritual wellness pre- and post-intervention appears to be lacking.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

6.3.1.1 Challenges with respect to wellness change. It is acknowledged that Change is not easy, in many respect students valued wellness but there were practical challenges with implementing changes with respect to nutrition and exercise in particular. Such challenges could explain the insufficient correlation between wellness values and actual wellness scores. Many students have multiple challenges and limited support with regard to their first year away from home and family and in this respect support for wellness change may or may not be adequately available (E. S. Jackson et al., 2007). This is a factor to be taken into account when implementing such wellness education courses for young people (E. S. Jackson et al., 2007). It may be that in the design of such courses, motivational and practical support for the participants needs to be considered (E. S. Jackson et al., 2007; M. I. Jackson, 2009; Jensen, 2004). The reasons for changes, the intention to change and the practical challenges with respect to change are to some extent drawn out of the qualitative data analysis, considered in the following section.

6.3.2 Qualitative Impact of the Educational Programme. Specific changes in lifestyle management were underpinned by the value for information (discussed in the previous sub-section), the students' wellness priorities and the impact made on the participants by specific learning sessions. Future planning, intrapersonal skills and the ability to set priorities, as well as nutrition, were major wellness priorities for the students, not only with respect to value for information, but also as aspects of wellness, in themselves. The main reasons given were those of realising their opportunities, gaining independence and self-sufficiency and, in the case of nutrition, maintaining health and preventing disease. Post-post-course positive thinking and optimism were also important with respect to the realisation of the participants' opportunities and achievement of goals.

The learning sessions that made the most impact on students' wellness post-course were stress management (thirteen participants) and HIV (six participants), with the learning

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

session on exercise and time management each being the most important for four students.

Post-post-course, on reflection, nutrition and stress management were each considered to have the most impact by nine students, followed by exercise and setting priorities (each four students). There were seven participants who did not answer the question on the learning session impact. The impact of the learning sessions appears to have had an important influence on the lifestyle changes that participants made.

Changes made in lifestyle management with respect to the participants in this study were multiple for many, with a total of 44 specific changes being made by 32 participants. Post-course stress management and the ability to prioritise, alongside nutrition, were the predominant lifestyle changes; post-post-course, nutrition, attitude and positive thinking, as well as exercise and stress management, were the main changes made. Four students made changes in each of the areas of HIV prevention, time management and water intake; two students had made changes in each of the areas of interpersonal skills and personal behaviour, quality of sleep and future planning. Neither specific lifestyle changes, nor their individual impact on academic success were measured, at this level, by many of the wellness intervention studies available in the literature. A few instances where lifestyle changes amongst higher education students have been found are discussed.

Stress management amongst the students of this study was an area where a significant number of students made positive lifestyle changes with respect to dealing with stress appropriately. This is contrary to the stress management strategies of other higher education students in the US and the UK, who often use avoidance strategies, predominantly that of alcohol intake, to deal with stress (Ansari et al., 2011; Deasy et al., 2014). The ability to prioritise is important with respect to students' self-efficacy, which has been linked to students making and maintaining positive lifestyle changes (E. S. Jackson et al., 2007). With respect to nutrition, students made positive changes, mainly due to greater awareness and a

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

desire for disease prevention. Positive changes in food choices were made by Korean students who also cited better knowledge and more control over their nutritional intake as reasons (Hyun et al., 2015).

Although not an intervention study, an examination of students who made the improvement of interpersonal skills and behaviour into a goal, found that in doing so, relationships improved for both those who made an effort and the recipients with whom they shared a college residence room (Canevello & Crocker, 2010). The effect on academia, however, was not measured. Positive affect has been linked to adequate sleep and the motivation to exercise, aspects of health which improved in this study for many of the participants (Flueckiger et al., 2014). These, in turn, positively affected the outcomes of student academic tests (Flueckiger et al., 2014). HIV prevention and management improved for some students, since the ability to prioritise and to change attitude were also among improvements made to these aspects of lifestyle changes. These findings are similar to those made by students in Johannesburg, with respect to prevention and management of HIV (Gwandure, 2010).

6.3.3 Students' evaluation of the course. Of the thirty four participants in total who completed the programme, twenty seven answered the question with respect to where the programme may have made a departure from their prior expectations. Two had no prior expectations and for eleven, there was no departure from their expectations and the course ran in the manner they had anticipated. For the remainder of the participants, however, the departures from what they had expected fell into two categories, that of content and that of delivery.

With respect to content, the learning sessions on zoonotic disorders, which included education on the origins of HIV, held the biggest surprise for students. Many had not been aware of the origins of HIV and, with the exception of rabies, most were not aware of

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

zoonotic disorders in general. We have learned a lot in the past thirty years about HIV, its origins, spread, prevention and management; the last remaining frontier is the management of education with respect to HIV (Gazzard, 2014). As pointed out by Gwandure, most of the programmes in use in South Africa for HIV education have either been imported from elsewhere, or developed along the lines of corporate workplace requirements (Gwandure, 2010). This may account for the students' surprise with respect to content and perhaps the method of delivery. As seen from the Gwandure study, education with respect to HIV is still essential and it is acknowledged that it should still be part of the overall higher education curriculum; however, it needs to be delivered in a manner appropriate to the recipients, their needs and their culture (Gwandure, 2010; HEAIDS, 2012).

The content of the learning units on stress management also surprised many of the students, who had not anticipated that there were practical exercises that could be undertaken with respect to the mitigation of stress. For one student, a connection was made between stress management and exercise, which changed their exercise behaviour. Several studies acknowledge the damage done by stress that is left untreated amongst students in higher education where the effects have been measured (Deasy et al., 2014; Hartley, 2011; Stallman, 2011). The Australian resilience building programme, however, was the most comprehensive with respect to preventing and managing stress in higher education, in which 81.8% of the students either had, or planned to, implement the stress management strategies they had learned (Stallman, 2011). There were no details of the content of this programme with which one could make a comparison. Environmental and physical wellness content also made departures from student expectations; once again the researcher found no specific studies with which one can make a comparison.

With respect to the way in which the programme was delivered, the participants were surprised in respect of the experiential and interactive nature of the delivery and the social

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

integration with other students, as well as working in small groups. This programme was not delivered didactically as 'lectures' but resembled a workshop in nature, with one third of the time dedicated to experiential, small group working and discussions. The programme took a pragmatic, democratic and student-centred approach to achieving learning outcomes, which are considered to be more effective in health education (Brouse et al., 2005; Brown Wright, 2011). In this respect other successful studies have taken similar, pragmatic, problem-solving student-centred approaches to their design and delivery (Ansari & Stock, 2010; Gwandure, 2010; Ma et al., 2015; Daniel T. L. Shek et al., 2012; Stallman, 2011; N. M. Stephens et al., 2014). Personal self-expression and creativity came into the practical learning activities, which surprised many of the students. Although completely different from many students' expectations, inclusivity and interactivity are the hallmarks of a learner-centred approach, which should be the norm in higher education (Reupert, Hemmings, & Connors, 2010). It is acknowledged that, all too often, lip service is given to this approach and it is not always applied in the classroom (Reupert et al., 2010).

The impact of the course with respect to the ease of making lifestyle changes revealed that, for the majority of the participants (29 of the 34), the course had made it easier to make lifestyle changes, whether these had been specific or non-specific changes. For two participants, the course had not made it easier but had made the changes manageable; no participant felt that the course had in any way made change more difficult. The participants indicated a sense of satisfaction with regard to the content and delivery of the programme as a whole. There were no changes advocated to the programme as it stood and the students who gave reasons for their answer as to why, mainly felt that the programme had met their needs. Other studies indicate that those who participate in wellness education programmes are generally appreciative of the opportunity to do so and the majority of participants feel that

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

they have benefitted from their participation (Ansari & Stock, 2010; Daniel T L Shek & Sun, 2012; Daniel T. L. Shek et al., 2012; Stallman, 2011; N. M. Stephens et al., 2014).

With regard to the use of the knowledge they had gained, the participants of this study went beyond their personal needs and the majority had the intention to share what they had learned with friends, family and members of their community. Not all studies that looked at the impact of a wellness education programme asked this question and where information on the participants' intentions were available, it appears that the main intention was that of current or future personal use (Ansari & Stock, 2010; Stallman, 2011).

6.3.4 Comparison of student's wellness scores with academic achievement. The Results of the study with respect to the correlation between the students' wellness and their academic success, showed no correlation between the pre-course or post-course wellness and the mid-year transcripts of academic marks. With respect to the post-course wellness and the year-end transcript of academic marks, four outlier scores were excluded from the analysis. The study shows that for the remaining 30 sets of statistics a positive correlation was found between the year-end marks and the participants' overall wellness. This is similar to the study with respect to UK students, which also found that there was a positive correlation between overall subjective health and educational achievement and that higher achieving students had fewer health complaints (Ansari & Stock, 2010). The study conducted on nursing students in the Eastern Cape found a similar trend towards better wellness scores in students with higher academic achievement (Van Lingen et al., 2011).

The physical wellness scores were, overall, the lowest scores attained in this study, despite the fact that the improvement over the time of the study was significant. This is in keeping with other students in the Eastern Cape for whom the physical wellness scores were comparable (Van Lingen et al., 2011). Additionally physical wellness, including physical exercise, despite significant improvement, did not correlate with student academic success.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

This is borne out by a study in which physical exercise in a group of Swiss college students was not linked to learning goal achievement, despite findings to the contrary in secondary education in other countries (Flueckiger et al., 2014). There was a positive correlation between the participants' post-course marks and the primary factor of protective behaviour within the domain of physical wellness, as well as that of overall career wellness, especially the primary factors of career choice and career competence. The UK study did not detail specific aspects of physical or psychosocial health to the extent of this study; however, it showed that health awareness also correlated positively with higher academic achievement (Ansari & Stock, 2010). The UK students who had better health overall and fewer health complaints, were also more likely to be satisfied with their academic progress (Ansari & Stock, 2010).

Post-post-course, there was again a positive correlation between the year-end marks and career wellness, and a strong positive correlation with career competence, in addition to a positive correlation between intellectual wellness with respect to intellectual challenge and academic marks. The Ansari and Stock study found that students who were more confident of their academic success and who felt that, in comparison to their peers, they were doing well academically, also scored high with respect to subjective wellness (Ansari & Stock, 2010). Post-post-course, in this group of students, social skills and emotional self-acceptance also correlated positively to the year-end academic marks. There was no directly comparable study to be found by the researcher; however, the study conducted on Hong-Kong college students found that those who engaged in a holistic wellness programme felt that they had not only developed social competence but also academic competence as a result of the wellness course (Daniel T L Shek & Sun, 2012).

A further analysis of the post-course data found that, for the higher performing students (the top 20), there were significant positive correlations between academic

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

performance and the students' post-course total wellness. The positive correlation between the post-course wellness scores and the academic achievement of the higher performing students is in keeping with those found in the Eastern Cape study conducted on nursing students, where the trend towards better subjective wellness was stronger with respect to those who performed better academically (Van Lingen et al., 2011). There were also positive correlations between academic success and other wellness factors - life satisfaction, career wellness (including professional development), emotional wellness with respect to stress management, and spiritual wellness (including connectedness, meaning and values). There was only one study that could be located with respect to resilience building in students. The study in question, found that managing stress rated the second highest of six wellness modules conducted, with respect to usefulness in staying on track academically and completing the year in college (Stallman, 2011). In the same study, connectedness was rated the least useful in relation to academic persistence (Stallman, 2011). This was contrary to the findings of this study where, in the higher achieving students, there was a strong positive correlation between connectedness and year-end academic achievement.

Students in this study who made two or three lifestyle changes, performed better than those making fewer or more changes. Fewer changes or attempting to make more changes correlated with lower academic year-end marks. The researcher, however, found no comparable studies with respect to the number of lifestyle changes made by wellness course participants and their academic success. In the Stallman study, students were only asked to name one change that they had implemented or intended to implement (Stallman, 2011). Most students (31%) had built, or intended to build, a better work-life balance; followed by 25% who had managed, or intended to manage, stress better – a figure comparable with this study (Stallman, 2011).

6.5 Implication of the Findings

The primary aim of this study was to ascertain the overall impact of a holistic salutogenic lifestyle management programme on a group of socioeconomically disadvantaged first-year higher education students. The participants of this programme shared much in common with respect to their demographic and socioeconomic situation and their requirements for health literacy and wellness education with similarly disadvantaged students in other countries. Although many students came into the programme with some prior information, this was limited and sometimes inaccurate; however, the desire for and value of further information, especially with respect to intrapersonal skills, future planning and appropriate nutrition, is high. Such information is welcomed by the participants. It appears as if, regardless of the political past and current educational environment, those from disadvantaged backgrounds have a greater need for wellness education and input and limited opportunities for participation in a holistic, salutogenic evidence-based wellness programme. This situation needs to be addressed not only in South Africa but also on a global level. There were several secondary objectives for which the findings have been presented and discussed; the implications of these findings follow.

In some areas, predominantly those of career, social and spiritual wellness the subjective wellness of the participants of this study was stable. Physical wellness scored the lowest among the wellness domains; however, this area of health made the greatest gains, especially with respect to water intake, nutritional quality and exercise. Nutrition and water intake were high on the students' list of values of information. Greater cognisance needs to be taken of these areas of need and perhaps there should be more input, encouragement and practical support for these areas of wellness in future programmes. Access to clean and safe water sources as well as improved nutritional quality of food served at higher education

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

institutions, along with the provision of exercise facilities, may well be welcomed by students. These would also serve to support the wellness educational input.

Changes in lifestyle management were made by the majority of students, and most attempted more than one change. It appears as if the ideal number of manageable changes is between two and three, with a holistic balance of both physical and psychosocial changes being beneficial with respect to student success. The greatest areas of lifestyle changes were made with respect to stress management, setting priorities, intrapersonal skills, nutrition and exercise. Changes were not always easy, especially with respect to nutrition and exercise, although the participants were willing to attempt change; however, they require more support in these areas of wellness. Reasons behind the changes were predominantly those of creating a better future and realising opportunities. These can be capitalised on and the role of physical wellness, with respect to one's future success, should be emphasised in future programmes of this nature. Students should be made aware especially of the role of nutrition on the development and function of the brain and its impact on learning.

With respect to information on alcohol, recreational drugs and smoking, the reasons why these areas were not important had much to do with the fact that decisions had already been made with regard to substance use. Evidence-based information perhaps needs to be imparted at a much younger age in high school and the ability to deal critically with such information by the students should not be underestimated. It may be more productive to support such decisions by ensuring that campuses remain drug, smoking and alcohol free.

The students' evaluation of the programme showed that the learning sessions which made the biggest impact were, not surprisingly, those on stress management and nutrition, as well as exercise; this is supported by the lifestyle improvements and increase in wellness scores. The interest in these areas, as well as the value for information, can be better capitalised upon. Learning sessions on setting priorities and HIV were also highly rated. The

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

environmental wellness, zoonotic disorders and HIV information components of the programme also held the biggest surprises for the participants. Students have a desire for accurate information and are capable of dealing with complex evidence-based information with respect to the environment, zoonotic disorders and HIV prevention and management.

Most of the participants felt that the course had made it easier for them to make changes; some felt that the course did not make it easy but made it manageable; however, no one felt that the course in any way made things more difficult for them. Such programmes clearly have a value and can support students in their quest for better holistic health. The participants did not advocate changes to the course, and many felt that the content was exactly what was required. This information has to be taken in the light of the fact that the participants did not have anything specific with which to compare this course. It would be more prudent to state that there was nothing the students found to be obviously lacking in the programme with regard to their needs, but that does not go to say that no improvements could be made.

It appears that the majority of the participants will share their knowledge with family, friends and others in their community in the future. They intend to 'pay it forward' without being asked to do so. There is potential value to the wider community in this prospect and, once again, support could be given to students who would like to formalise the opportunity to share information within their communities.

With regard to wellness and academic success, it has to be stated that no student who participated in this programme failed the academic year. Only one student deregistered from the programme mid-year due to financial hardship and there was no attrition. Post-course, a positive correlation was found between the students' year-end academic marks and overall wellness. There was also a post-course positive correlation between year-end academic marks and the primary factor of protective behaviour, within the physical wellness domain, overall

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

career wellness, career choice and career competence, demonstrating the overall success of the programme. Post-post-course there was again a positive correlation between the year-end academic marks and career wellness, career competence, intellectual challenge, social skills and emotional self-acceptance. Students had not only improved their wellness but also sustained this improvement post-post-course. Some students had increased their wellness scores further, between the year-end and the 15 week post-post-course data gathering. For the higher performing students the positive correlation between the post-course total wellness and year-end marks was highly significant. There was also a positive correlation between life satisfaction, career wellness (including professional development), emotional wellness with respect to stress management, and spiritual wellness (including connectedness, meaning and values) and the year-end marks for these students.

The implication of these findings shows clearly that wellness affects academic success, especially at the upper level of academic marks. Those students whose wellness is enhanced and who have successfully managed two to three lifestyle changes stand a greater chance of academic success than those who fail to make the transition from information values and health literacy to action, with respect to lifestyle changes. That having been said, there appeared to be no student for whom the programme under investigation had not proved beneficial to some extent.

6.6 Conclusion

In this chapter the researcher discussed the findings of this study into the effects of the lifestyle management education programme on a group of young disadvantaged first-year higher education students. The chapter began by discussing the demographics of the student participants in this study, with respect to their ethnic, socioeconomic and educational background and their needs with respect to health and wellness promotion and education. The researcher considered the level of health literacy that students possessed pre- and post-course

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

and where their health information had come from. Thereafter the participants' value for the various aspects of health information across a number of wellness variables, pre-, post- and post-post-course, as well as the changes in their values with regard to aspects of wellness information over time was discussed. Additionally aspects of wellness information which were not important, such as alcohol, recreational drug use and smoking were discussed alongside the possible reasons that students gave as to why this was the case.

Thereafter, the impact of this holistic lifestyle management programme was examined and how this affected the participants' actual wellness scores across the time of the study. Such changes in wellness that were facilitated by changes in aspects of lifestyle management were discussed along with the impact of the specific learning units within the lifestyle management programme that may have underpinned these changes. The learning sessions that had the most impact, and where the programme made departures from the expectations of the participants, were also considered. This led the discussion into the students' evaluation of the programme with respect to effectiveness, ease of application and the possibility of implementing constructive changes, for which none were suggested, as it appeared that all the participants were satisfied with the programme and felt that, for the main part, it met their requirements.

With respect to the statistical outcomes, the overall impact of the lifestyle management programme, the participants' changes in wellness scores and how these related to academic success was discussed. The profile of the students who did better academically was briefly highlighted. Finally, the researcher advanced possibilities with respect to the longer term implications of the findings.

CHAPTER SEVEN**Reflection, Limitations, Conclusion and Recommendations**

This chapter will briefly review the context of the study, before discussing what this study reveals about the effect that the intervention programme had on this particular cohort of first-year socioeconomically disadvantaged students. The researcher's reflection on the results of the study is followed by a brief discussion of its validity and reliability. The limitations of the study are discussed before the conclusion is given. Finally, recommendations are made for further research.

7.1 The Context of the Study

South Africa, like other middle and lower income countries, suffers the double burden of contending with both infectious diseases as well as chronic lifestyle related diseases. Gains made with respect to successful mitigation of infectious and communicable disease have been undermined by the growth in chronic non-communicable disease and injury (T. Campbell & Campbell, 2007). Notwithstanding the problem of HIV/AIDS in poorer urban communities, other chronic lifestyle-related health risks in the developing world are increasing (Allender et al., 2008; T. Campbell & Campbell, 2007; Friel et al., 2011; WHO, 2012). This problem is increasing in the developing world and countries experiencing increased urbanisation have a proportional increase in chronic and lifestyle related diseases (Friel et al., 2011), as do people who move from rural areas to the expanding cities in developing countries (Allender et al., 2011; Gong et al., 2012; Neuman et al., 2013; Yiengprugsawan et al., 2011).

Opportunities to remedy the situation in an effective manner through health education, have not always resulted in health improvement (Schechter & Lynch, 2011). The ability of the individual to engage with health information is mediated by social, cultural, interpersonal

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

and educational conditions, affecting their capacity to digest, interpret and act on the information available (Johnson, 2011). Health and socioeconomic development cannot be separated from each other and poor people cannot always access the health care and wellness information that they need, at a level they can utilise (Fetro, 2010; Schechter & Lynch, 2011). Effective health education needs to take into account social, cultural, interpersonal and educational conditions, which affect the participants' capacity to digest, interpret and act on the information available.

The right to an environment which is safe and not harmful to health, as well as the right to adequate and reliable evidence-based information, are embedded in the constitution of South Africa and the basic human rights of all who live in it (The Constitutional Assembly, 1996).

Section 24 of Chapter Two of the South African Constitution states that (The Constitutional Assembly, 1996): Everyone has the right— “(a) to an environment that is not harmful to their health or wellbeing.” Section 32 of Chapter Two of The South African Constitution, states that (The Constitutional Assembly, 1996):

(1) Everyone has the right of access to— any information held by the state; and (b) any information that is held by another person and that is required for the exercise or protection of any rights.

(2) National legislation must be enacted to give effect to this right and may provide for reasonable measures to alleviate the administrative and financial burden on the state.

The Eastern Cape Province of South Africa is one of the poorest areas of the country, with the Wild Coast area of the Eastern Cape being below the average socioeconomic development of the province as a whole (Mitchell & Andersson, 2011). The province is served by Walter Sisulu University (WSU), an institution that caters predominantly for

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

students from the poorer areas. The institution houses a National Diploma in Consumer Science: Food and Nutrition, which seeks to educate young people in the province to support the food service and food security requirements of this underserved population (Walter Sisulu University, 2012a). Students registered for the first year of the programme were the intervention group for this study.

Development, implementation and monitoring of health education programmes not only contribute to the reduction of health disparities, but also add to the knowledge basis surrounding health disparity research (Mata & Davis, 2012). The programmes instituted in WSU are advocated and financially supported by the Department of Higher Education and Training, and are intended to serve as a redress for the socioeconomically and educationally disadvantaged students (DHET, 2012). Students registered in the first year of this programme during the 2013 academic year took a compulsory salutogenic holistic lifestyle management health education programme, which focussed on building overall wellness (Walter Sisulu University, 2012a).

The aim of this study was to conduct a pragmatic critical enquiry, using a mixed methods approach, into the impact of a lifestyle management educational programme (entitled 'Introduction to Lifestyle Management'), on a group of socioeconomically disadvantaged students in their first year of study at an institution of Higher Education. The primary objective was to measure the impact and effectiveness of the interactive and holistic 'Introduction to Lifestyle Management' education course. Specific secondary objectives included the following:

- The objective measurement of any change in levels of wellness of the participants.
- The overall impact of the programme on changes in lifestyle management and the reasons for the impact.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Evaluation, from the perspective of the students, of the educational programme and its areas of success and challenge.
- Comparison (by statistical correlation) of the levels of individual wellness with the level of academic achievement of the participants.

The intervention programme and underpinning theoretical perspective of this study was that of salutogenesis, which proposes that it is more productive to investigate the factors that make people well as opposed to the causes of illness (Antonovsky, 1990). The researcher conducted a pragmatic critical enquiry using a mixed methodology that took the emancipatory stance of the marginalised, in this instance, the socioeconomically disadvantaged students. Data collection utilised two questionnaires, the WQHE and RGQ administered pre-, post-, and post-post-course and a set of academic transcripts from mid-year and year-end examinations. These were analysed using SPSSv20 and NVivo 8 software programmes. Quantitative descriptive and correlation statistics were obtained, as well as qualitative analysis of open-ended questions on the RGQ.

The overarching purpose of the study was to determine the effectiveness of the programme currently in use for this group of students, and to ascertain whether and how this programme can be improved. Quantitative descriptive and correlational statistics were obtained, as well as qualitative analysis of the open-ended questions on the RGQ. The results of the measurement of effectiveness, from the perspective of the participants' experiences, should assist in addressing both improvements in the content and in the method of delivery of future wellness intervention programmes. What the data analysis and findings of the study reveal about wellness and academic achievement in this particular student population is given in the reflective discourse that follows.

7.2 What this Study Reveals

Young people, particularly people of colour from socioeconomically disadvantaged backgrounds, whose parents do not have a tertiary education and who may, predominantly, come from single parent homes, have a lesser chance of gaining entry into university than those from more affluent and educated backgrounds. Even when a university placement is given, such students have a far higher rate of failure. The situation is not unique to South Africa; however, it pertains to a far higher ratio of the population than in other areas of the world. There is emerging research to support the theory that wellness – or the lack thereof – influences, for better or worse, the academic performance of university students. This study critically evaluated a supportive salutogenic and holistic interactive wellness education programme and its impact on a group of black, isiXhosa speaking first-year university students between the ages of 17 and 24.

The programme participants have an undeniable right to information that can protect and enhance their health. In most instances, some portion of information and the basis of health literacy had been acquired prior to the intervention; however, this was in many instances compromised, incomplete, or erroneous. Statistical analysis revealed that, despite their compromised background, participants in this study placed a high value on information with respect to most aspects of wellness, prior to the intervention. Given the opportunity to engage in a wellness education programme the value of information on a number of aspects of wellness increased post- and post-post-course. Information on exercise and aspects of environmental wellness (bacteria and micro-pathogens, HIV, zoonotic disorders and sun exposure) for which there had been little knowledge, misleading knowledge or none at all, significantly increased in value for the participants. It appears that decisions with respect to substance use had already been made and information with respect to use of recreational

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

drugs, alcohol and smoking held no interest for the participants. Participants had strong views with respect to the negative impact of substance use.

Translating information into action and actual increases in wellness scores appeared to be challenging for a number of participants, but was not without success. Post-course there was a positive correlation between the participants' values of information on interpersonal skills with the wellness scores for meaningful relationships. Post-post-course there was a positive correlation between the participants' values of information on nutrition and water intake with the physical wellness scores for nutritional quality.

The majority of participants managed to make between one and four wellness related changes in lifestyle. The wellness scores remained in the category of 'good' for overall wellness and life satisfaction, indicating that participants had a high subjective assessment of both their wellness and their lives overall. Physical wellness prior to the intervention scored low; however, this increased sufficiently to move from 'poor' to the category of 'room for improvement' and wellness scores for exercise improved the most. There were also increases in aspects of career, social and spiritual wellness, with social responsibility improving greatly.

Value for wellness information, subjective wellness scores and changes in lifestyle, were focussed on the future. Participants valued information on planning their future the most. Lifestyle changes were made mainly with respect to nutrition, attitude to life and the management of stress. The underpinning reasons were those of attaining their goals and preventing disease. It appears that the course made it easier for most of the students to make changes. The overall impact of the programme was significant, with the learning units on environmental wellness having had the most impact; however, these were a major departure from the students' prior expectations. The level of interaction and experiential learning, overall, had an unexpected positive impact. Post-course and post-post-course, the intentions

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

of the participants were predominantly to use the information gained to aid their family, friends and others in their community. None of the participants in this study felt that the programme required any changes.

The post-course wellness scores correlated positively with the post-course academic achievement with respect to overall wellness, physical wellness with respect to protective behaviour and especially career wellness, with respect to career choice and competence. Students, on the whole, became more career focussed and socially responsible. Post-post-course wellness scores for social skills and emotional self-acceptance correlated positively with year-end academic achievement. The correlations were stronger for the higher achieving students who made between one and three lifestyle changes. Post-course positive correlations between total wellness, life satisfaction, career wellness, career professional development, emotional wellness, stress management, spiritual wellness, connectedness, meaning and values and academic year-end transcript marks were found for the top 20 students.

7.3 The Researcher's Reflection on the Results of the Study

In many ways, the results are what they are meant to be, the objective outcome of a measured intervention. Wellness intervention programmes that have been the focus of an investigation have revealed a positive trend towards the connection between increased wellness and an increase in academic success. This intervention appears to follow this trend. The participants were not, however, your 'average' student. They came from a severely disadvantaged background in which success is often desired but rarely achieved. The participants may have had to work harder, to gain access to university and perhaps represent a more focussed and determined sub-sector of their society. In this population group, there is no 'fall-back' for failure as parents are unlikely to be wealthy enough to support an older offspring who fails the degree or who changes academic programmes. Such circumstances

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

may well have contributed to the participants having a greater focus on their future and a greater determination to succeed.

The reality is nevertheless, that a reasonable effort can only be made when there is a stable and positive state of health and well-being. The opportunity to increase both knowledge of wellness and support for positive health change in a holistic, salutogenic environment, perhaps provided the participants with the means to make the most of their academic programme. This is an opportunity not often afforded those from the more disadvantaged sectors of society. As the value of wellness and the usefulness of information accessed by the students' post-post course increased, there are a number of possibilities for this phenomenon. Firstly, that the participants were aware that this opportunity was unique to them and therefore they made the most of it in that improvement in wellness was taken as seriously as their academic achievement. Secondly, that the participants learned to use the internet and library services, during the academic year and simply capitalised on the resources available. Finally, that having applied their knowledge gained during the intervention programme the benefit becomes more apparent to them, thus motivating the acquisition of further information. This latter possibility would perhaps underpin the fact that those students who made lifestyle changes also appeared to achieve more academically.

7.4 The Validity and Reliability of the Study

Validity precedes reliability and emanates from the validity of the instruments of measurement (Oppenheim, 1999). Validity of the study is also concerned with the accuracy of the procedure and that all participants underwent the same procedure without exception (Polgar & Thomas, 2013). In this study, a valid, reliable and approved wellness questionnaire (WQHE) was utilised. In addition, a pre-piloted researcher generated questionnaire was approved for use by the ethics committees of both the university where the intervention took place and that of the university under which this study has been conducted. The student

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

transcripts were provided by the Faculty Office, which operates the government HEMIS database system. The two questionnaires answered by the participants who signed consent for their use were utilised as data sources for this study, as were the participants' academic transcripts. No other data sources were utilised as source data and information from participants who had not completed all three sets of data gathering, were excluded from this study.

Reliability is dependent on the validity and the correct management of the data (Oppenheim, 1999). Additionally a study is only reliable if it can be replicated by administering the same procedure to the same participants, either by a test-retest, inter-observer procedure or by demonstrating internal consistency (Polgar & Thomas, 2013). Two internationally recognised data analysis programmes, SPSS and NVivo, which are approved for academic use, were utilised for the analysis of the data gathered.

In this latter instance, the internal consistency of the study is the extent to which the results on the different questionnaires correlate with each other and provide congruent answers by the same participants with respect to the same areas of wellness. Triangulation involves multiple independent methods for collecting and checking data (Polgar & Thomas, 2013). The mixed methods design of this study used both quantitative and qualitative data, the analysis of which used validated software packages to achieve triangulation, thus ensuring internal consistency, content and construct validity of the data analysis. In this study congruency and internal consistency was demonstrated by the fact that, as values for certain types of health information rose, so did the corresponding wellness priorities and, in some instances, the subjective wellness increased in the same areas. The two sets of questionnaires and the qualitative analysis of the participants' responses were congruent because they demonstrated similar outcomes.

7.5 The Limitations of the Study

There are four main limitations to this study, emanating from the size and location of the study, as well as the questionnaire development, the singular nature of the intervention and the limitations imposed by the method of data analysis. This study was conducted on a small number of participants in their first year of higher education, all of whom took part in a wellness education programme from the beginning to the end of the academic year. This was a single cohort of students who were relatively homogenous with respect to ethnicity, language and degree of socioeconomic deprivation, as well as previous education. The study was conducted in a discrete geographical area that is, in itself, distinctively socioeconomically deprived. It is therefore difficult to generalise these outcomes across either the region or the country.

The researcher acknowledges the fact that a different outcome may have ensued if these same participants had been living and studying in a wealthier area and perhaps subject to a different socioeconomic influence and a more materialistic environment. The same may be said if the participants had been at the same university, in the same area, but had emanated from wealthier homes or had attended non-government independent secondary schools prior to their registration at university. Students who come from a more socioeconomically advantaged background, or who reside in a different region of the country, may have answered the questionnaires in a different manner, or may have had different values with respect to information and perhaps different priorities with regard to their health and their future. A larger group of students who were more ethnically and linguistically inclusive of the country's demographic diversity may also have provided a more expansive set of data, resulting in a different set of outcomes.

The researcher generated questionnaires were developed prior to, and independent of, the WQHE wellness questionnaire, which is an acknowledged and approved questionnaire for

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Higher Education. The researcher generated questionnaires followed the wellness priorities as per the course of intervention. Although this had advantages with respect to the range of information sought and received, matching the two sets of information for correlational statistical comparison proved challenging. In hindsight, the researcher generated questionnaires might have been better formulated had they been considered after the WQHE had been made available. Additionally there could have been a better split and greater distinction made in the questionnaires between the amount of information that the participants had on wellness and the sources of information. The study participants had also been less than forthcoming in respect of the opportunity to make comments in the open-ended questions. This was a factor that had been unforeseen. Perhaps a less open-ended and more extended and structured questionnaire formulation might have obtained more information.

With respect to the students' comments as to whether or not the course of study required additions or amendments, the lack of feedback from the students was perhaps due to the uniqueness of this particular intervention programme and the lack of any programme with which to form a comparison. Until this particular study, the participants had little or no educational programme with which to form a comparison. Life skills classes in high school had a different focus and had not been uniform with respect to content across the cohort of students. The participants in this study were therefore somewhat hampered with respect to the ability to give an objective answer to the question concerning their view on the content of the course they had engaged in, or its educational delivery. On reflection, this question might have been worded differently, or perhaps a more constructive commentary on student satisfaction with the programme could have been sought, by asking more structured direct questions with respect to the subject nature of the programme and its delivery.

The singular nature of the research intervention posed additional challenges in that there was no opportunity to use a control group or split the cohort of students who

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

participated in this study. Ideally, a non-intervention control cohort would have afforded the opportunity for a comparison. As explained in the introduction and ethical procedures, this course is a compulsory part of the programme and to exclude students from it would not have been ethically acceptable. It would have been difficult to match the cohort with another group of students, as none would have been from the same institution. This would change the catchment area, and demographic make-up of the control cohort, which could have introduced other non-controllable variables into the intervention.

In order to provide a further set of subjective data, the use of the Measure Yourself Medical Outcomes Profile (MYMOP2) was considered at the planning stage of this study by the researcher. This is a subjective wellness-measuring tool, which converts the subjective outcomes into graphical format that traces trends in changes in wellness in individual study participants. It has the considerable advantage of providing visual data for each individual participant, but the disadvantage of being time consuming and challenging for the research respondent. For first-year students from compromised backgrounds understanding how to fill in the three-page MYMOP2 form may have posed a challenge that could have adversely affected their decision to participate in the study.

The data analysis packages are both well utilised in the health and human sciences; nonetheless, they were not a perfect fit for this study. Neither was the design of the study without its flaws, as mentioned in the discussion on pre-test post-test experimental research. In hindsight whilst the use of the SPSS package produced for the main part a reasonable set of descriptive and correlational statistical data, there were limitations with respect to its flexibility and capacity for inference. One such limitation is that the manipulation of data output is more dependent on the initial database design and initial data input and less malleable with respect to data output once the input of data has been completed. There are also limitations with respect to graphical output and breakdown analysis. Additionally

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

correlational statistics, although useful, indicate a trend rather than a direct cause-effect. They show that as one measure increases, a corresponding 'other' measure increases, but the only way to ascertain a cause and effect relationship would be to do a regression analysis. This would have had to be factored in from the onset. Such a design is common in quantitative studies, but not in mixed methods studies, where the qualitative analysis would possibly provide information as to why there was a correlation of variables.

The comparison of wellness with mid-year academic transcripts was included as this was an approved part of the original intention to measure academic success and wellness, as per the research proposal to the two ethics committees concerned. In hindsight, the researcher admits that the usefulness of this exercise might be questioned, as it yielded little in the way of utilisable information and could perhaps have been omitted.

7.6 Conclusion

The aim of this study was to conduct a pragmatic critical enquiry into the impact of a lifestyle management educational programme on a group of socioeconomically disadvantaged students in their first year of study at an institution of Higher Education. Data were collected using two questionnaires and the students' mid-year and year-end academic transcripts. One of the questionnaires utilised was the Wellness Questionnaire for Higher Education (WQHE), which has been designed specifically for Higher Education students, within the South African context and is validated by the Health Professions Council of South Africa (HPCSA). As such, this questionnaire is designed purposefully to facilitate the researcher, not only in taking a holistic multidimensional view of wellness, but also in the measurement of different dimensions of wellness across the physical and psychosocial spectrum. In this wise the WQHE proved to be the most appropriate tool with which to measure wellness for this study. The data gathered in this enquiry were analysed using SPSSv20 and NVivo 8 software programmes. The analysis provided quantitative descriptive

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

and correlation statistics, as well as qualitative information from open questions on the RGQ, which revealed some of the reasons for changes in the participants' wellness and lifestyle.

Results revealed an overall improvement in the level of both physical and psychosocial wellness of the participants, possibly as a result of positive changes in lifestyle management, which were facilitated by their participation in this programme. In turn, these changes reflected positively in the participants' academic performance. The improvement in wellness and concomitant enhanced academic performance was most marked in those students whose results placed them in the upper two thirds of the class.

Considering the low levels of success and high levels of failure, generally seen in this socioeconomically compromised population group and in students from similar disadvantaged backgrounds, the programme has done much to alleviate the rate of first year academic attrition. Increased wellness and academic success, although the most measureable results, were not the only positive spinoffs from this programme. The psychologically positive, salutogenic and holistic approach, appeared to pay off in increasing the less tangible level of academic persistence and resilience. This was displayed by the students in the proactive manner in which they dealt with the year's disruptions to their classes, the institution of on-line and self-directed learning and the pressure of an altered and protracted academic timetable. Psychologically such pressures may have resulted in a measure of despondency or loss of interest; however, in this group of participants, this was not the case. The students continued to display a very high regard for their programme of study, planning their future and their physical, career, social and spiritual wellness, with career wellness and social responsibility increasing considerably.

Qualitative data analysis revealed that the students were generally satisfied with the programme and were pleasantly surprised with the inclusive, interactive and participatory manner in which it was facilitated. They proposed no changes to it. It could be construed

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

from this that what was given in the way of evidence-based information, may have contributed only part of the benefit with respect to the students' decisions to make lifestyle changes. The salutogenic, holistic and psychologically positive manner of delivery was, if not equal, at least of major importance in supporting the students' decisions to make such changes and in facilitating such changes throughout and even beyond the length of the programme. This is perhaps the very heart of the programme's success. Knowing what to do and wishing to do it does not always translate into the psychological strength and motivation to initiate change, let alone maintain such change. The participants felt that the programme made it easier to make positive lifestyle changes. It appears that both the information and the salutogenic and holistic approach to imparting it were jointly responsible for supporting the participants in lifestyle changes, which related positively to both their wellness and academic success.

The future intentions of the students are to utilise the information gained from this programme of intervention to help their families, friends and the wider community in which they live, to improve their wellbeing and future prospects. Such intentions display not only a high regard for the programme but an equal value of, and respect for, the information received, in the willingness to share it with others in order to improve the lives of those in the wider community. Since the community from which these students emanate is generally socioeconomically disadvantaged, taking the programme, even if informally, beyond the borders of the classroom, offers the potential benefit of improving life, in general, within the poorer regions of the Eastern Cape province.

7.7 Recommendations for Future Practice and Further Research

With respect to future practice, it appears from the study that there has been considerable positive benefit to the study participants from their engagement with this programme of intervention. The researcher recommends that first-year higher education

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

students in South Africa receive a positive salutogenic and holistic wellness education programme built into the curriculum of their first year of study. Due to the nature of wellness education programmes, it needs to be considered that the reason for the re-development of this programme of intervention and the measurement of its impact lies in two factors one of which is the transient nature of health science research. This has implications for curriculum development and redesign. The researcher recommends that future wellness promotion educational programmes must be under constant review and should be annually updated, in line with recent evidence basis, health psychology practice and modern educational delivery, as a matter of course. The second factor is that not all types of programme suit all types of student. In this respect, two areas may come under consideration. Firstly, the investigation into the nature and delivery of wellness education and student support courses as an inclusive higher education entity. Secondly, the research population could be expanded to reflect more inclusively the demography of higher education students within the country and perhaps that of the Southern African region as a whole.

With respect to the nature and delivery of wellness courses in the higher education sector, there is scope for further studies with respect to content and medium of delivery for wellness education and support. One aspect of further research may be that of determining the most appropriate course content. A future study could perhaps compare the outcomes of this type of salutogenic educational intervention with one of the more conventional life-skills or higher education support programmes currently used in some institutions in the country. It may transpire; however, that the content of wellness courses is better customised to the type of institution and the nature of the student population. The method of delivery is an additional area for further research. In this particular study, a facilitated wellness education course worked well and other studies have revealed that human contact appears to build greater

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

concordance. The landscape of educational delivery is changing and future courses may well be better delivered in a more blended learning environment or electronic online medium.

With respect to the research population, this study was limited in respect of the demographics of the participants. Further studies need to be undertaken with a wider demographic group that is more inclusive and representative of the country's higher education student population. This would give a better overall view of the wellness status and requirements of adolescents in the first year of higher education in the country as a whole. Further research should focus on more than one institution and include those of differing socioeconomic strata. A more objective view of such programmes would be afforded with two types of comparative educational studies. Firstly, a comparison may be made between the educational requirements and the academic success of South African students who have undergone a wellness education programme with those who have not. Secondly, measuring the wellness and academic outcomes of differing groups of students, who have undergone various wellness educational interventions, should be considered. Such a study may result in a better understanding of the health-related requirements of higher education students and how best these might be met, to ensure both wellness and academic success. In the final analysis as health and education are intrinsically linked, the question may arise as to whether it is the degree of wellness that drives academic success or the degree of academic success that drives wellness. This would require further investigation that goes beyond the scope of a small single study.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

REFERENCES

- AAHE. (2010). Philosophy of health education: A position statement of the American Association of Health Education (AAHE). In J. M. Black, S. R. Furney, H. M. Graf, & A. E. Nolte (Eds.), *Philosophical Foundations of Health Education* (pp. 345-348). San Francisco, California: Jossey-Bass.
- Abraham, C., & Sheeran, P. (2007). The health belief model. In M. Conner & P. Norman (Eds.), *Predicting Health Behaviour* (pp. 30). Maidenhead Open University Press: McGraw-Hill Education.
- Abramo, G., D'Angelo, C. A., & Di Costa, F. (2009). Research collaboration and productivity: Is there correlation? *Higher Education*, 57, 155-171.
doi:10.1007/s10734-008-9139-z
- Ackland, M., Choi, B. C. K., & Puska, P. (2003). Rethinking the terms non-communicable disease and chronic disease. *British Medical Journal*, 57(11), 838-839. Retrieved from <http://www.jech.com>
- Al-Hamdan, Z., & Anthony, D. (2010). Deciding on a mixed-methods design in a doctoral study. *Nurse Researcher*, 18(1), 45-56.
- Alexander, K. E., Ventura, E. E., Spruijt-Metz, D., Weigensberg, M. J., Goran, M. I., & Davis, J., N. (2009). Association of breakfast skipping with visceral fat and insulin indices in overweight latino youth. *Obesity*, 17(8), 1528-1533.
doi:10.1038/oby.2009.127
- Allender, S., Foster, C., Hutchinson, L., & Arambepola, C. (2008). Quantification of urbanization in relation to chronic diseases in developing countries: A systematic review. *Journal of Urban Health*, 85(6). doi:10.1007/s11524-008-9325-4
- Allender, S., Lacey, B., Webster, P., Rayner, M., Deep, M., Scarborough, P., . . . Mohan, V. (2010). Level of urbanization and noncommunicable disease risk factors in Tamil

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Nadu, India. *Bulletin of the World health Organisation*, 88, 297-304.

doi:10.2471/BLT.09.065847

Allender, S., Wickramasinghe, K., Goldacre, M., Matthews, D., & Prasad, K. (2011).

Quantifying urbanization as a risk factor for noncommunicable disease. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 88(5), 1-13.

doi:10.1007/s11524-011-9586-1

Alves', P. C., Neves, V. F., Delà Coleta, M. F., & Oliveira, Á. d. F. (2012). Evaluation of

well-being at work among nursing professionals using SPSS. *Review Latino-*

American Enfermagem, 20(4), 701-709. <http://www.eerp.usp.br/rlae> Retrieved from

<http://www.eerp.usp.br/rlae>

Anand, P., Kunnumakara, A. B., Sundaram, C., Harikumar, K. B., Tharakan, S. T., Lai, O. S.,

. . . Aggarwal, B. B. (2008). Cancer is a preventable disease that requires major

lifestyle changes. *Pharmaceutical Research*, 25(9). doi:10.1007/s11095-008-9661-9

Anderson, A. S., & Goode, J.-V. R. (2006). Engaging students in wellness and disease

prevention services. *American Journal of Pharmaceutical Education*, 70(2).

Ando, M., Asakura, T., Ando, M., & Simons-Morton, B. G. (2007). Psychosocial factors

associated with smoking and drinking among Japanese early adolescent boys and girls: Cross-sectional study. *Biomed Central: BioPsychoSocial Medicine*, 1(13).

<http://www.bpsmedicine.com/content/1/1/13> doi:10.1186/1751-0759-1-13

Ansari, W. E., & Stock, C. (2010). Is the health and wellbeing of university students

associated with their academic performance? Cross sectional findings from the United

Kingdom. *International Journal of Environmental Research and Public Health*, 7,

509-527. <http://www.mdpi.com/1660-4601/7/2/509/pdf> doi:10.3390/ijerph7020509

Ansari, W. E., Stock, C., Snelgrove, S., Hu, X., Parke, S., Davies, S., . . . Mabhala, A. (2011).

Feeling healthy? A survey of physical and psychological wellbeing of students from

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

seven universities in the UK. *Int J Environ Res Public Health*, 8(5), 1308-1323.

<http://www.ncbi.nlm.nih.gov/pubmed/21655121> doi:10.3390/ijerph8051308

Antonovsky, A. (1990). *Salutogenesis, studying health vs. studying disease*. Paper presented at the Congress for Clinical Psychology and Psychotherapy, Berlin, Germany.

Arena, R. (2014). Lifestyle modification interventions and cardiovascular health: Global perspectives on worksite health and wellness and cardiac rehabilitation. *Prog Cardiovasc Dis*, 56(5), 473-475. <http://www.ncbi.nlm.nih.gov/pubmed/24607010> doi:10.1016/j.pcad.2013.09.015

Arranz, S., Chiva-Blanch, G., Valderas-Martínez, P., Medina-Remón, A., Lamuela-Raventós, R. M., & Estruch, R. (2012). Wine, Beer, Alcohol and Polyphenols on Cardiovascular Disease and Cancer. *Nutrients*, 4, 759-781. <http://www.mdpi.com/journal/nutrients> doi:10.3390/nu4070759

Ataguba, J. E., Akazili, J., & McIntyre, D. (2011). Socioeconomic-related health inequality in South Africa: Evidence from general household surveys. *International Journal for Equity in Health*, 10(48). <http://www.equityhealthj.com/content/10/1/48> Retrieved from <http://www.equityhealthj.com/content/10/1/48>

Attard, S. M., Herring, A. H., Mayer-Davis, E. J., Popkin, B. M., Meigs, J. B., & Gordon-Larsen, P. (2012). Multilevel examination of diabetes in modernising China: What elements of urbanisation are most associated with diabetes? *Diabetologia*, 55, 3182-3192. doi:10.1007/s00125-012-2697-8

Ayo-Yusuf, O. A., & Szymanski, B. (2010). Factors associated with smoking cessation in South Africa. *South African Medical Journal*, 100(3), 175-179.

Babu, A. S., Madan, K., Veluswamy, S. K., Mehra, R., & Maiya, A. G. (2014). Worksite health and wellness programs in India. *Prog Cardiovasc Dis*, 56(5), 501-507. <http://www.ncbi.nlm.nih.gov/pubmed/24607014> doi:10.1016/j.pcad.2013.11.004

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Badescu, D. (2011). Current aspects in approaching organizational stress. *Acta Medica Transilvanica*, 2(2), 333-335.
- Bahrami, H., Sadatsafavi, M., Pourshams, A., Kamangar, F., Nouraei, M., Semnani, S., . . . Malekzadeh, R. (2006). Obesity and hypertension in an Iranian cohort study; Iranian women experience higher rates of obesity and hypertension than American women. *Biomed Central Public Health*, 6(158). <http://www.biomedcentral.com/1471-2458/6/158> doi:10.1186/1471-2458-6-158
- Bailey, S. C., McCormack, L. A., Rush, S. R., & Paasche-Orlow, M. K. (2013). The progress and promise of health literacy research. *Journal of Health Communication*, 18 Suppl 1, 5-8. <http://www.ncbi.nlm.nih.gov/pubmed/24093339>
doi:10.1080/10810730.2013.830042
- Bailey, S. C., Oramasionwu, C. U., & Wolf, M. S. (2013). Rethinking adherence: A health literacy-informed model of medication self-management. *Journal of Health Communication*, 18 Suppl 1, 20-30.
<http://www.tandfonline.com/doi/pdf/10.1080/10810730.2013.825672>
doi:10.1080/10810730.2013.825672
- Baker, D. P., Leon, J., Greenaway, E. G. S., Collins, J., & Movit, M. (2011). The education effect on population health: A reassessment. *Population Development Review*, 37(2), 307-332. doi:10.1111/j.1728-4457.2011.00412.x
- Ball, K., Timperio, A. F., & Crawford, D. A. (2006). Understanding environmental influences on nutrition and physical activity behaviours: Where should we look and what should we count? *International Journal of Behavioural Nutrition and Physical Activity*, 3(33). doi:10.1186/1479-5868-3-33

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Bamber, V., & Anderson, S. (2012). Evaluating learning and teaching: Institutional needs and individual practices. *International Journal for Academic Development*, 17(1), 5-18.
<http://www.tandfonline.com> doi:10.1080/1360144X.2011.586459
- Bandura, A. (2004). Swimming against the mainstream: The early years from chilly tributary to transformative mainstream. *Behav Res Ther*, 42(6), 613-630.
<http://www.ncbi.nlm.nih.gov/pubmed/15081880> doi:10.1016/j.brat.2004.02.001
- Baraldi, L. G., & Conde, W. L. (2014). Parent's social status and children's nutrition influence on the university entrance of young adults in the last two decades in Brazil. *Review Brasillian Epidemiology*, 17 Suppl 2, 116-125.
<http://www.ncbi.nlm.nih.gov/pubmed/25409642> Retrieved from
<http://www.ncbi.nlm.nih.gov/pubmed/25409642>
- Barnes, B. R. (2012). Using mixed methods in South African psychological research. *South African Journal of Psychology*, 42(4), 463-475.
- Barnett-Page, E., & Thomas, J. (2009). Methods for the synthesis of qualitative research: A critical review. *Biomed Central: Medical Research Methodology*, 9(59).
doi:10.1186/1471-2288-9-59
- Bays, H. E., Chapman, R. H., & Grandy, S. (2007). The relationship of body mass index to diabetes mellitus, hypertension and dyslipidaemia: Comparison of data from two national surveys. *International Journal of Clinical Practice*, 61(5), 737-747. doi:doi:10.1111/j.1742-1241.2007.01336.x
- Beck, K. H., Arria, A. M., Caldeira, K. M., Vincent, K. B., O'Grady, K. E., & Wish, E. D. (2008). Social context of drinking and alcohol problems among college students. *American Journal of Health Behaviour*, 32(4), 420-430.
- Becker, C. M., Glascoff, M. A., & Felts, W. M. (2010). Salutogenesis 30 years later: Where do we go from here? *International Electronic Journal of Health Education*, 13, 25-32.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Benight, C. C., & Bandura, A. (2004). Social cognitive theory of posttraumatic recovery: the role of perceived self-efficacy. *Behav Res Ther*, *42*(10), 1129-1148.
doi:10.1016/j.brat.2003.08.008
- Benz, C., Bull, T., Mittelmark, M., & Vaandrager, L. (2014). Culture in salutogenesis: The scholarship of Aaron Antonovsky. *Glob Health Promot*.
doi:10.1177/1757975914528550
- Bergin, M. (2011). NVivo 8 and consistency in data analysis: Reflecting on the use of a qualitative data analysis program. *Nurse Researcher*, *18*(3), 6-12.
- Berridge, V. (2008). History matters? History's role in health policy making. *Medical History*, *52*, 311-326.
- Berry, L. L., & Mirabito, A. M. (2011). Partnering for prevention with workplace health promotion programs. *Mayo Clinic Proceedings*, *86*(4), 335-337.
<http://www.mayoclinicproceedings.com> doi:10.4065/mcp.2010.0803
- Bhattacharjee, A. (2012). *Social science research: Principles, methods, and practices* (2nd ed.). Tampa, Florida: University of South Florida, Scholar Commons.
- Biering, P., Becker, H., Calvin, A., & Grobe, S. J. (2006). Casting light on the concept of patient satisfaction by studying the construct validity and the sensitivity of a questionnaire. *International Journal of Health Care Quality Assurance*, *19*(3), 246-258. <http://dx.doi.org/10.1108/09526860610661464> Retrieved from <http://dx.doi.org/10.1108/09526860610661464>
- Bog, J. J. (2014). The relationship between attention deficit hyperactivity disorder and health-related physical fitness in university students. *Journal of Exercise Rehabilitation*, *10*(6), 367-371. <http://dx.doi.org/10.12965/jer.140175> doi:10.12965/jer.140175
- Bolier, L., Haverman, M., Westerhof, G. J., Riper, H., Smit, F., & Bohlmeijer, E. (2013). Positive psychology interventions: A meta-analysis of randomized controlled studies.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Biomed Central Public Health, 13(119). <http://www.biomedcentral.com/1471-2458/13/119> Retrieved from <http://www.biomedcentral.com/1471-2458/13/119>

Boutayeb, A. (2009). The impact of HIV/AIDS on human development in African countries.

Biomed Central: Public Health, 9(Supp 1). <http://www.biomedcentral.com/1471-2458/9/S1/S3> doi:10.1186/1471-2458-9-S1-S3

Brand, R., & Schweizer, G. (2015). Going to the gym or to the movies? Situated decisions as a functional link connecting automatic and reflective evaluations of exercise with exercising behavior. *Journal of Sport and Exercise Psychology*, 37(1), 63-73.

<http://dx.doi.org/10.1123/jsep.2014-0018> doi:10.1123/jsep.2014-0018

Brew, A. (2010). Transforming academic practice through scholarship. *International Journal for Academic Development*, 15(2), 105-116. <http://www.informaworld.com>

doi:10.1080/13601441003737618

Brew, A., & Jewell, E. (2012). Enhancing quality learning through experiences of research-based learning: Implications for academic development. *International Journal for Academic Development*, 17(1), 47-58. doi:10.1080/1360144X.2011.586461

doi:10.1080/1360144X.2011.586461

Brookins-Fisher, J., O'Boyle, I., & Ivanitskaya, L. (2010). Institutionalization of a multidisciplinary healthy lifestyles course. *The Journal of General Education*, 59(1), 63-82.

Brouse, C. H., Basch, C. E., & Kubara, M. (2005). Contrasts between didactic and Deweyan approaches to health education. *Health Education*, 105(6), 467-476.

doi:10.1108/09654280510630803

Brown, S. A., McGue, M., Maggs, J., Schulenberg, J., Hingson, R., Swartzwelder, S., . . .

Murphy, S. (2008). A developmental perspective on alcohol and youths 16 to 20 years of age. *Paediatrics*, 121(4). doi:10.1542/peds.2007-2243D

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Brown Wright, G. (2011). Student-centered learning in higher education. *International Journal of Teaching and Learning in Higher Education*, 23(3), 92-97.
<http://www.isetl.org/ijtlhe/> Retrieved from <http://www.isetl.org/ijtlhe/>
- Brüssow, H. (2013). What is health? *Microbial Biotechnology*, 6(4), 341-348.
doi:10.1111/1751-7915.12063
- Bukman, A. J., Teuscher, D., Feskens, E. J., van Baak, M. A., Meershoek, A., & Renes, R. J. (2014). Perceptions on healthy eating, physical activity and lifestyle advice: opportunities for adapting lifestyle interventions to individuals with low socioeconomic status. *Biomed Central: Public Health*, 14(1), 1036.
<http://www.biomedcentral.com/content/pdf/1471-2458-14-1036.pdf>
doi:10.1186/1471-2458-14-1036
- Buse, K., & Hawkes, S. (2014). Health post-2015: Evidence and power. *The Lancet*, 383(9918), 678-679. <http://www.ncbi.nlm.nih.gov/pubmed/24055453>
doi:10.1016/S0140-6736(13)61945-5
- Bushman, B. J., Moeller, S. J., & Crocker, J. (2012). Sweets, sex, or self-esteem? Comparing the value of self-esteem boosts with other pleasant rewards. *Journal of Personality*, 2012, 1-13.
- Butler, K. L., & Dawkins, P. W. (2007). Developing learning communities in health and human performance. *American Journal of Health Education*, 38(4), 230-236.
- Cahalin, L. P., Myers, J., Kaminsky, L., Briggs, P., Forman, D. E., Patel, M. J., . . . Arena, R. (2014). Current trends in reducing cardiovascular risk factors in the United States: Focus on worksite health and wellness. *Prog Cardiovasc Dis*, 56(5), 476-483.
<http://www.ncbi.nlm.nih.gov/pubmed/24607011> doi:10.1016/j.pcad.2013.10.002
- Campbell, R. M., Pleic, M., & Connolly, H. (2012). The importance of a common global health definition: How Canada's definition influences its strategic direction in global

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

health. *Journal of Global Health*, 1(1). <http://www.jogh.org>

doi:10.7189/jogh.02.010301

- Campbell, T., & Campbell, A. (2007). Emerging disease burdens and the poor in cities of the developing world. *Journal of Urban Health*, 84(1), 54-64. doi:10.1007/s11524-007-9181-7
- Canevello, A., & Crocker, J. (2010). Creating good relationships: Responsiveness, relationship quality, and interpersonal goals. *Journal of Personal Social Psychology*, 99(1), 78-106. doi:10.1037/a0018186.
- Canevello, A., & Crocker, J. (2011). Changing relationship growth belief: Intrapersonal and interpersonal consequences of compassionate goals. *Personality and Relationships*, 18(3), 370-391. doi:10.1111/j.1475-6811.2010.01296.x.
- Carpenter, M. J., Alberg, A. J., Graya, K. M., & Saladina, M. E. (2010). Motivating the unmotivated for health behavior change: A randomized trial of cessation induction for smokers. *Clinical Trials*, 7(2), 157-166. doi:10.1177/1740774510361533.
- Carr, S. M., Lhussier, M., Forster, N., Geddes, L., Deane, K., Pennington, M., . . . Hildreth, A. (2011). *An evidence synthesis of qualitative and quantitative research on component intervention techniques, effectiveness, cost-effectiveness, equity and acceptability of different versions of health-related lifestyle advisor role in improving health*. Retrieved from www.hta.ac.uk
- Chan, K., Petrisor, B., & Bhandari, M. (2014). Emotional intelligence in orthopedic surgery residents. *Canadian Journal of Surgery*, 57(2), 89-93.
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3968198/pdf/0570089.pdf> Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3968198/pdf/0570089.pdf>
- Chance, Z., Norton, M. I., Gino, F., & Ariely, D. (2011). Temporal view of the costs and benefits of self-deception. *Proceedings of the National Academy of Sciences*, 108(S3),

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

15655-15659. <http://www.pnas.org/cgi/doi/10.1073/pnas.1010658108> Retrieved from
<http://www.pnas.org/cgi/doi/10.1073/pnas.1010658108>

- Chaplin, K., & Smith, A. P. (2011). Breakfast and snacks: Associations with cognitive failures, minor injuries, accidents and stress. *Nutrients*, *3*, 515-528.
<http://www.mdpi.com/journal/nutrients> doi:10.3390/nu3050515
- Chen, C.-Y., & Storr, C. L. (2006). Alcohol use and health-related quality of life among youth in Taiwan. *Journal of Adolescent Health*, *39*(5), 9-16.
- Chigor, V. N., Sibanda, T., & Okoh, A. I. (2013). Studies on the bacteriological qualities of the Buffalo River and three source water dams along its course in the Eastern Cape Province of South Africa. *Environmental Science and Pollution Research*, *20*, 4125-4136. doi:10.1007/s11356-012-1348-4
- Chinapaw, M. J. M., Proper, K. I., Brug, J., van-Mechelen, W., & Singh, A. S. (2011). Relationship between young peoples' sedentary behaviour and biomedical health indicators: A systematic review of prospective studies. *Obesity Reviews*(12), 621-632.
 doi:doi: 10.1111/j.1467-789X.2011.00865.x
- Clegg, F. (1998). *Simple Statistics*. Cambridge: Cambridge University Press.
- CLTD. (2011). Management report on the throughput model. East London: Walter Sisulu University Centre for Learning and Teaching Development
- CLTD. (2012a). Centre for learning and teaching development 2012 annual operating plan. Mthatha: Walter Sisulu Universtiy.
- CLTD. (2012b). Foundation Provision Grant Request to the Department of Higher Education and Training for 2013 (pp. 424). Centre of Learning and Teaching Development: Department of Higher Education and Training.
- CLTD. (2014). Report on student throughput 20013 Walter Sisulu University. Buffalo City: Walter Sisulu University Centre for Learning and Teaching Development.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Codier, E., & Odell, E. (2014). Measured emotional intelligence ability and grade point average in nursing students. *Nurse Educator Today*, 34(4), 608-612.
<http://www.ncbi.nlm.nih.gov/pubmed/23835081> doi:10.1016/j.nedt.2013.06.007
- Cohen, A. K., Rai, M., Rehkopf, D. H., & Abrams, B. (2013). Educational attainment and obesity: A systematic review. *Obesity Reviews*, 14(12), 989-1005.
- Cohen, D. J., & Crabtree, B. F. (2008). Evaluative criteria for qualitative research in health care: Controversies and recommendations. *Annals of Family Medicine*(6), 331-339.
doi:10.1370/afm.818.
- Cook, A. L., & Hayden, L. A. (2012). Obesity prevention among Latino youth: School counselor's role. *ACSA Professional School Counseling*, 16(1), 7-17.
- Cook, T. D., & Campbell, D. T. (1979). *Quasi-Experimentation: Design and analysis issues for field settings*. Boston, Mass: Houghton Mifflin Company.
- Cornelius-White, J. (2007). Learner-centered teacher-student relationships are effective: A meta-analysis. *Review of Educational Research*, 77(1), 113-143. <http://rer.aera.net>
doi:10.3102/003465430298563
- Cotton, D. R. E., Stokes, A., & Cotton, P. A. (2010). Using observational methods to research the student experience. *Journal of Geography in Higher Education*, 34(3), 463-473.
doi:10.1080/03098265.2010.501541
- Council on Higher Education. (2011). *Audit report on Walter Sisulu University*. Retrieved from Pretoria: <http://www.che.ac.za>
- Council on Higher Education. (2013). *Report of the task team on undergraduate curriculum structure* (ISBN 978-1-919856-90-2). Retrieved from Pretoria, South Africa:
- Couzin, J. (2009). Social science. Friendship as a health factor. *Science*, 323(5913), 454-457.
<http://www.ncbi.nlm.nih.gov/pubmed/19164722> doi:10.1126/science.323.5913.454

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Cramer, D., & Howitt, D. (2004). The Sage dictionary of statistics. Retrieved from <http://0-dx.doi.org.wam.seals.ac.za/10.4135/9780857020123>
- Cramm, J. M., Moller, V., & Nieboer, A. P. (2011). Individual- and neighbourhood-level indicators of subjective well-being in a small and poor Eastern Cape township: The effect of health, social capital, marital status, and income. *Social Indices Research, 105*, 581-593. doi:10.1007/s11205-011-9790-0
- Cramm, J. M., & Nieboer, A. P. (2011). The influence of social capital and socio-economic conditions on self-rated health among residents of an economically and health-deprived South African township. *International Journal for Equity in Health, 10*(51). <http://www.equityhealthj.com/content/10/1/51> Retrieved from <http://www.equityhealthj.com/content/10/1/51>
- Cresswell, J. W. (2010). Mapping the developing landscape of mixed methods research. In A. Tashakkori & C. Teddlie (Eds.), *Sage Handbook of Mixed Methods in Social and Behavioural Research* (2nd ed., pp. 50-62). London: Sage.
- Cresswell, J. W., & Plano-Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). London: Sage.
- Dahiya, T. S. (2013). Workplace stress management: A positive psychology based approach. *Golden Research Thoughts, 3*(1), 1-6.
- Day, C., Barron, P., Massyn, N., Padrath, A., & English, R. (Eds.). (2012). *The district health barometer*. Durban, South Africa: Health Systems Trust.
- Day, C., Groenewald, P., Laubscher, R., Chaudhry, S., Van Schaik, N., & Bradshaw, D. (2014). Monitoring of non-communicable diseases such as hypertension in South Africa: Challenges for the post-2015 global development agenda. *South African Medical Journal, 104*(10), 680-687.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

<http://www.samj.org.za/index.php/samj/article/download/7868/6192>

doi:10.7196/samj.7868

De la Harpe, D. L., Van Lingen, J. M., & De Jager, A. C. (2011). Wellness Questionnaire for Higher Education. Port Elizabeth, South Africa: Student Counselling Career and Development Centre, Nelson Mandela Metropolitan University.

De Vet, E., De Ridder, D. T. D., & De Wit, J. B. F. (2011). Environmental correlates of physical activity and dietary behaviours among young people: A systematic review of reviews. *Obesity Reviews*(12), 130-142. doi:10.1111/j.1467-789X.2010.00784.x

De Villiers, A., Steyn, N. P., Draper, C. E., Fourie, J. M., Barkhuizen, G., Lombard, C. J., . . . Lambert, E. V. (2012). “HealthKick”: Formative assessment of the health environment in low-resource primary schools in the Western Cape Province of South Africa. *Biomed Central Public Health*. <http://www.biomedcentral.com/1471-2458/12/794> Retrieved from <http://www.biomedcentral.com/1471-2458/12/794>

Deasy, C., Coughlan, B., Pironom, J., Jourdan, D., & Mannix-McNamara, P. (2014). Psychological Distress and Coping amongst Higher Education Students: A Mixed Method Enquiry. *PLoS One*, 9(12). <http://ulir.ul.ie/handle/10344/4132>. doi:10.1371/journal.pone.0115193

Degroote, S., Vogelaers, D., & Vandijck, D. M. (2014). What determines health-related quality of life among people living with HIV: An updated review of the literature. *Archives of Public Health*, 72(40). <http://www.archpublichealth.com/content/72/1/40> Retrieved from <http://www.archpublichealth.com/content/72/1/40>

Delisle, H., Agueh, V., & Fayomi, B. (2011). Partnership research on nutrition transition and chronic diseases in West Africa – trends, outcomes and impacts. *Biomed Central: International Health and Human Rights*, 11((S2)510).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

<http://www.biomedcentral.com/1472-698X/11/S2/S10> Retrieved from

<http://www.biomedcentral.com/1472-698X/11/S2/S10>

Dellar, R. C., Dlamini, S., & Abdool Karim, Q. (2015). Adolescent girls and young women: key populations for HIV epidemic control. *Journal of the International AIDS Society*, 15(S1). <http://www.jiasociety.org/index.php/jias/article/view/19408>
doi:10.7448/IAS.18.2.19408

Delpierre, C., Kelly-Irving, M., Munch-Petersen, M., Lauwers-Cances, V., Datta, G. D., Lepage, B., & Lang, T. (2012). SRH and HrQOL: Does social position impact differently on their link with health status? *Biomed Central: Public Health*, 12(19).
<http://www.biomedcentral.com/1471-2458/12/19> Retrieved from
<http://www.biomedcentral.com/1471-2458/12/19>

Dennis, S., Williams, A., Taggart, J., Newall, A., Denney-Wilson, E., Zwar, N., . . . Harris, M. F. (2012). Which providers can bridge the health literacy gap in lifestyle risk factor modification education: A systematic review and narrative synthesis. *Biomed Central: Family Practice*, 13(44). <http://www.biomedcentral.com/1471-2296/13/44>
Retrieved from <http://www.biomedcentral.com/1471-2296/13/44>

Department of Health. (2012). *Health Indicators 2004-2012*. Pretoria, South Africa:
Department of Health Retrieved from <http://www.hst.org.za/content/health-indicators>.

Department of Higher Education and Training. (2013). *White Paper for Post-School Education and Training: Building an Expanded, Effective and Integrated Post-School System*. Pretoria: Department of Higher Education and Training.

Despres, J. P., Almeras, N., & Gauvin, L. (2014). Worksite health and wellness programs: Canadian achievements & prospects. *Prog Cardiovasc Dis*, 56(5), 484-492.
<http://www.ncbi.nlm.nih.gov/pubmed/24607012> doi:10.1016/j.pcad.2013.11.002

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

DHET. (2012). *Foundation provision in ministerially approved programmes*. Pretoria: Department of Higher Education and Training.

DHET. (2013). *White paper for post-school education and training: Bulding an expanded, effective and integrated post-school system*. Pretoria: Department of Higher Education and Training.

Dilley, J. A., Rohde, K., Dent, C., Boysun, M. J., Stark, M. J., & Reid, T. (2007). Effective tobacco control in Washington state: A smart investment for healthy futures. *Preventing Chronic Disease*, 4(3).

http://www.cdc.gov/pcd/issues/2007/jul/06_0109.htm Retrieved from

http://www.cdc.gov/pcd/issues/2007/jul/06_0109.htm

Donath, C., Gräbel, E., Baier, D., Pfeiffer, C., Bleich, S., & Hillemacher, T. (2012).

Predictors of binge drinking in adolescents: Ultimate and distal factors - a representative study. *Biomed Central: Public Health*, 12(263).

<http://www.biomedcentral.com/1471-2458/12/263> Retrieved from

<http://www.biomedcentral.com/1471-2458/12/263>

Dora, C., Haines, A., Balbus, J., Fletcher, E., Adair-Rohani, H., Alabaster, G., . . . Neira, M. (2015). Indicators linking health and sustainability in the post-2015 development agenda. *The Lancet*, 385(9965), 380-391.

<http://www.ncbi.nlm.nih.gov/pubmed/24923529> doi:10.1016/S0140-6736(14)60605-

X

Dube, L., Webb, P., Arora, N. K., & Pingali, P. (2014). Agriculture, health, and wealth convergence: Bridging traditional food systems and modern agribusiness solutions. *Annals of the New York Academy of Science*, 1331, 1-14.

<http://www.ncbi.nlm.nih.gov/pubmed/25514864> doi:10.1111/nyas.12602

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Duncan, S. C., Duncan, T. E., & Strycker, L. A. (2006). Alcohol use from ages 9-16: A cohort-sequential latent growth model. *Drug and alcohol Dependence*, 4(81), 71-81.
- Dunton, G. F., & Schneider, M. (2006). Perceived barriers to walking for physical activity. *Preventing Chronic Disease*, 3(4).
http://www.cdc.gov/pcd/issues/2006/oct/05_0185.htm Retrieved from
http://www.cdc.gov/pcd/issues/2006/oct/05_0185.htm
- Durrani, S., Irvine, J., & Nolan, R. P. (2012). Psychosocial determinants of health behaviour change in an e-counseling intervention for hypertension. *International Journal of Hypertension*, 2012. <http://downloads.hindawi.com/journals/ijht/2012/191789.pdf>
 doi:10.1155/2012/191789
- Eapen, V., Lee, L., & Austin, C. (2012). Health and education: Service providers in partnership to improve mental health. *International Journal of Mental Health Systems*, 6(19). <http://www.ijmhs.com/content/6/1/19> Retrieved from
<http://www.ijmhs.com/content/6/1/19>
- ECSECC. (2009). *Assessment of the Eastern Cape Provincial Growth and Development Plan*. Retrieved from <http://www.ecsecc.org>
- Eisenmann, J. C., Gundersen, C., Lohman, B. J., Garasky, S., & Stewart, S. D. (2011). Is food insecurity related to overweight and obesity in children and adolescents? A summary of studies, 1995–2009. *Obesity Reviews*(12). doi:10.1111/j.1467-789X.2010.00820.x
- El-Sayed, A. M., Scarborough, P., & Galea, S. (2011). Ethnic inequalities in obesity among children and adults in the UK: A systematic review of the literature. *Obesity Reviews*(12), 516-534. doi:10.1111/j.1467-789X.2010.00829.x
- Ellery, J. (2007). Integrating salutogenesis into wellness in every stage of life. *Preventing Chronic Disease*, 4(3). http://www.cdc.gov/pcd/issues/2007/jul/07_0033.htm
 Retrieved from http://www.cdc.gov/pcd/issues/2007/jul/07_0033.htm

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Eriksson, M., & Lindstrom, B. (2006). Antonovsky's sense of coherence scale and the relation with health: A systematic review. *J Epidemiol Community Health*, 60(5), 376-381. <http://www.ncbi.nlm.nih.gov/pubmed/16614325> doi:10.1136/jech.2005.041616
- Esch, T., Fricchione, G. L., Joos, S., & Teut, M. (2013). Self-care, stress management, and primary care: From salutogenesis and health promotion to mind-body medicine. *Evid Based Complement Alternat Med*, 2013, 327415. <http://downloads.hindawi.com/journals/ecam/2013/327415.pdf> doi:10.1155/2013/327415
- Estrade, M., Dick, S., Crawford, F., Jepson, R., Ellaway, A., & McNeill, G. (2014). A qualitative study of independent fast food vendors near secondary schools in disadvantaged Scottish neighbourhoods. *Biomed Central: Public Health*, 14, 793. <http://www.biomedcentral.com/content/pdf/1471-2458-14-793.pdf> doi:10.1186/1471-2458-14-793
- Faseru, B., Daley, C. M., Gajewski, B., Pacheco, C. M., & Choi, W. S. (2010). A longitudinal study of tobacco use among American Indian and Alaska Native tribal college students. *Biomed Central: Public Health*, 10, 617. <http://www.biomedcentral.com/1471-2458/10/617> Retrieved from <http://www.biomedcentral.com/1471-2458/10/617>
- Fassinger, R., & Morrow, S. L. (2013). Toward best practices in quantitative, qualitative, and mixed-method research: A social justice perspective. *Journal for Social Action in Counseling and Psychology*, 5(2), 69-85.
- Fayet-Moore, F., Petocz, P., & Samman, S. (2014). Micronutrient status in female university students: Iron, Zinc, Copper, Selenium, Vitamin B12 and Folate. *Nutrients*, 6, 5103-5116. <http://www.mdpi.com/journal/nutrients> doi:10.3390/nu6115103

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Ferguson, E., & Bibby, P. A. (2012). Openness to experience and all-cause mortality: A meta-analysis and r(equivalent) from risk ratios and odds ratios. *Br J Health Psychol*, *17*(1), 85-102. <http://www.ncbi.nlm.nih.gov/pubmed/22107453> doi:10.1111/j.2044-8287.2011.02055.x
- Ferguson, R. P. (2013). Health literacy. *Journal of the Community Hospital Internal Medicine Perspectives*, *3*(2).
http://www.jchimp.net/index.php/jchimp/article/download/21217/pdf_1
doi:10.3402/jchimp.v3i2.21217
- Fernandez, R., Salamonson, Y., & Griffiths, R. (2012). Emotional intelligence as a predictor of academic performance in first-year accelerated graduate entry nursing students. *Journal of Clinical Nursing*, *21*(23-24), 3485-3492.
<http://www.ncbi.nlm.nih.gov/pubmed/23145518> doi:10.1111/j.1365-2702.2012.04199.x
- Ferrand, R. A., Bandason, T., Musvaire, P., Larke, N., Nathoo, K., Mujuru, H., . . . Corbett, E. L. (2010). Causes of acute hospitalization in adolescence: Burden and spectrum of HIV-related morbidity in a country with an early-onset and severe HIV epidemic: A prospective survey. *PLoS Medicine*, *7*(2). <http://dx.doi.org/10.1371/journal.pmed.1000178> doi:e1000178
- Fetro, J. (2010). Health-literate youth: Evolving challenges for health educators. *American Journal of Health Education*, *41*(5), 258-264.
- Fincham, J. E. (2013). The public health importance of improving health literacy. *American Journal of Pharmaceutical Education*, *77*(3), 41. doi:10.5688/ajpe77341
- Fleming, T., Dixon, R., Frampton, C., & Merry, S. (2012). A pragmatic randomized controlled trial of computerized CBT (SPARX) for symptoms of depression among adolescents excluded from mainstream education. *Behavioural and Cognitive Psychotherapy*, *40*(5), 529-541. doi:10.1017/S1352465811000695

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Flueckiger, L., Lieb, R., Meyer, A. H., & Mata, J. (2014). How health behaviors relate to academic performance via affect: an intensive longitudinal study. *Public Library of Science One*, 9(10), e111080. <http://www.ncbi.nlm.nih.gov/pubmed/25353638>
doi:10.1371/journal.pone.0111080
- Frâncu, V., & Vestemean, I. (2013). Assessment of the programme of promoting a healthy lifestyle in adults. Part i. *Actamedica Transilvanica*, 2(2), 181-184.
- Fraser, S. (2010). Concordance, compliance, preference or adherence. *Patient Preference and Adherence*(4), 95-96. doi:10.2147/PPA.S17167
- Freedman, A. M. (2011). *Adult education as a vehicle for health communication*. (Doctor of Philosophy Doctoral), Emory University, USA. (3465292)
- Freudenberg, N., Libman, K., & O'Keefe, E. (2010). A tale of two ObesCities: The role of municipal governance in reducing childhood obesity in New York City and London. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 87(5).
doi:10.1007/s11524-010-9493-x
- Friel, S., Akerman, M., Hancock, T., Kumaresan, J., Marmot, M., Melin, T., & Vlahov, D. (2011). Addressing the social and environmental determinants of urban health equity: Evidence for action and a research agenda. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 88(5). doi:10.1007/s11524-011-9606-1
- Furuya, Y., Kondo, N., Yamagata, Z., & Hashimoto, H. (2013). Health literacy, socioeconomic status and self-rated health in Japan. *Health Promotion International*.
<http://heapro.oxfordjournals.org/content/early/2013/10/16/heapro.dat071.full.pdf>
doi:10.1093/heapro/dat071
- Galbraith-Emami, S., & Lobstein, T. (2013). The impact of initiatives to limit the advertising of food and beverage products to children: A systematic review. *Obesity Reviews*.
doi:10.1111/obr.12060

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Garbarski, D. (2010). Perceived social position and health: Is there a reciprocal relationship? *Social Science and Medicine*, 70(5). doi:10.1016/j.socscimed.2009.11.007.
- Gazzard, B. (2014). 30 years of HIV: what have we learned? *Journal of the International AIDS Society*, 17(4 Suppl 3), 19478.
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4224818/pdf/JIAS-17-19478.pdf>
doi:10.7448/IAS.17.4.19478
- Gerber, F. (2013). *Revised 2013 Academic Calendar*. Buffalo City, Eastern Cape: Walter Sisulu University.
- Gil-Rodriguez, E., & Hanley, T. (2011). Research methods in counselling psychology: What would Wilhelm Wundt think? *Counselling Psychology Review*, 24(4), 3-7.
- Glass, C. M., Haas, S. A., & Reither, E. N. (2010). The skinny on success: Body mass, gender and occupational standing across the life course. *Social Forces*, 88(4), 1777–1806.
- Goldsmith, R. E., & Clark, R. A. (2012). Materialism, status consumption, and consumer independence. *The Journal of Social Psychology*, 152(1), 43-60.
- Golubnitschaja, O., & Costigliola, V. (2011). European strategies in predictive, preventive and personalised medicine: Highlights of the EPMA World Congress 2011. *European Preventive Medical Association Journal*, 2, 315-332. doi:10.1007/s13167-011-0134-6
- Gómez-Pinilla, F. (2008). Brain foods: the effects of nutrients on brain function. *National Review of Neuroscience*, 9(7), 568-578. doi:10.1038/nrn2421.
- Gong, P., Liang, S., Carlton, E. J., Jiang, Q., Wu, J., Wang, L., & Remais, J. V. (2012). Urbanisation and health in China. *The Lancet*, 379(9818), 843-852.
doi:10.1016/S0140-6736(11)61878-3
- Gradidge, D. L., & De Jager, A. C. (2011). Psychometric properties of the wellness questionnaire for higher education. *South African Journal of Psychology*, 41, 517-527.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Gratrix, L. (2014). Commentary on Fernandez R, Salamonson Y and Griffiths R (2012) Emotional intelligence as a predictor of academic performance in first-year accelerated graduate entry nursing students. *Journal of Clinical Nursing* 21, 3485-3492. *Journal of Clinical Nursing*, 23(17-18), 2687-2688.
<http://www.ncbi.nlm.nih.gov/pubmed/25047386> doi:10.1111/jocn.12330
- Greasley, P. (2008). *Quantitative data analysis using SPSS: An introduction for health and social science*. Maidenhead: Open University Press, McGraw Hill.
- Griesel, H., & Parker, B. (2009). *Graduate attributes: A baseline study on South African graduates from the perspective of employers*. Retrieved from Pretoria:
- Gucciardi, E., Cameron, J. I., Liao, C. D., Palmer, A., & Stewart, D. E. (2007). Programme features that can improve participation in health education interventions. *Biomed Central: Medical Research Methodology*. <http://www.biomedcentral.com/1471-2288/7/47> doi:10.1186/1471-2288-7-47
- Guimaraes, J. M., Werneck, G. L., Faerstein, E., Lopes, C. S., & Chor, D. (2014). Early socioeconomic position and self-rated health among civil servants in Brazil: A cross-sectional analysis from the Pro-Saude cohort study. *British Medical Journal Open*, 4(11), e005321.
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4244401/pdf/bmjopen-2014-005321.pdf> doi:10.1136/bmjopen-2014-005321
- Gwandure, C. (2010). *The development, implementation and evaluation of a locus of control-based training programme for HIV and AIDS risk reduction among university students*. (Doctor of Philosophy in Psychology), Nelson Mandela Metropolitan University, Port Elizabeth, South Africa.
- Harper-Collins. (Ed.) (2003) *Collins English Dictionary: Complete and Unabridged*. Harper-Collins Publishers.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Hartley, M. T. (2011). Examining the relationships between resilience, mental health, and academic persistence in undergraduate college students. *Journal of American College Health, 59*(7), 596-605.
- HEAIDS. (2012). *Policy and strategic framework on HIV and AIDS for higher education*. Retrieved from Pretoria, South Africa:
- Healey, M., Mason O'Connor, K., & Broadfoot, P. (2010). Reflections on engaging students in the process and product of strategy development for learning, teaching, and assessment: An institutional case study. *International Journal for Academic Development, 15*(1). <http://www.informaworld.com> doi:10.1080/13601440903529877
- Hen, M., & Goroshit, M. (2014). Academic procrastination, emotional intelligence, academic self-efficacy, and GPA: A comparison between students with and without learning disabilities. *Journal of Learning Disabilities, 47*(2), 116-124.
<http://www.ncbi.nlm.nih.gov/pubmed/22442254> doi:10.1177/0022219412439325
- Hiebert, B., Domene, J. F., & Buchanan, M. (2011). The power of multiple methods and evidence sources: Raising the profile of canadian counselling psychology research. *Canadian Psychology, 52*(4), 265-275. doi:10.1037/a0025364
- Hochbaum, G. M. (2010). Changing health behavior in youth. *American Journal of Health Education, 41*(3), 130-134.
- Hoddinott, P., Allan, K., Avenell, A., & Britten, J. (2010). Group interventions to improve health outcomes: A framework for their design and delivery. *Biomed Central: Public Health, 10*(800). <http://www.biomedcentral.com/1471-2458/10/800> Retrieved from <http://www.biomedcentral.com/1471-2458/10/800>
- Hooper, S. R., Woolley, D., & De Bellis, M. D. (2014). Intellectual, neurocognitive, and academic achievement in abstinent adolescents with cannabis use disorder. *Psychopharmacology (Berl), 231*(8), 1467-1477.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3969383/pdf/nihms558970.pdf>

doi:10.1007/s00213-014-3463-z

Howland, J., Rohsenow, D. J., Greece, J. A., Littlefield, C. A., Almeida, A., Heeren, T., . . .

Hermos, J. (2010). The effects of binge drinking on college students' next-day academic test-taking performance and mood state. *Addiction, 105*(4), 655-665.

doi:10.1111/j.1360-0443.2009.02880.x.

Hult, M., Tornhammar, P., Ueda, P., Chima, C., Edstedt-Bonamy, A.-K., Ozumba, B., &

Norman, M. (2010). Hypertension, diabetes and overweight: Looming legacies of the Biafran famine. *Public Library of Science Medicine, 5*(10).

doi:10.1371/journal.pone.0013582

Huneault, L., Mathieu, M.-È., & Tremblay, A. (2011). Globalization and modernization: An

obesogenic combination. *Obesity Reviews*(12), 64-72. doi:10.1111/j.1467-

789X.2010.00817.x

Hurrelmann, K. (2012). Adolescence, health, lifestyle. Development and philosophy of the

HBSC Project. *Gesundheitswesen, 74 Suppl*, S1-2. [https://www.thieme-](https://www.thieme-connect.de/products/ejournals/pdf/10.1055/s-0032-1316339.pdf)

[connect.de/products/ejournals/pdf/10.1055/s-0032-1316339.pdf](https://www.thieme-connect.de/products/ejournals/pdf/10.1055/s-0032-1316339.pdf) doi:10.1055/s-0032-1316339

Hyun, J. L., Min, J. K., & Kyung, W. K. (2015). Factors associated with nutrition label use

among female college students applying the theory of planned behavior. *Nutrition Research and Practice, 9*(1), 63-70. <http://e-nrp.org> doi:10.4162/nrp.2015.9.1.63

Ibrahim, A. K., Kelly, S. J., & Glazebrook, C. (2013). Socioeconomic status and the risk of

depression among U.K. higher education students. *Social Psychiatry & Psychiatric Epidemiology, 48*(9), 1491-1501. doi:10.1007/s00127-013-0663-5

Ignacio, R. M., Sajo, M. E., Nam, E. W., Kim, C. B., Ahn, D. W., Kim, P. S., & Lee, K. J.

(2015). Health status of the residents in occidental mindoro, Philippines: A way to

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

make a healthy community. *Osong Public Health Research Perspectives*, 6(1), 20-26.

[http://www.kcdc-phrp.org/article/S2210-9099\(14\)00159-3/pdf](http://www.kcdc-phrp.org/article/S2210-9099(14)00159-3/pdf)

doi:10.1016/j.phrp.2014.11.006

Igumbor, E. U., Sanders, D., Puoane, T. R., Tsolekile, L., Schwarz, C., Purdy, C., . . .

Hawkes, C. (2012). "Big food," the consumer food environment, health, and the policy response in South Africa. *Public Library of Science Medicine*, 9(7).

<http://www.plosmedicine.org> Retrieved from <http://www.plosmedicine.org>

Innis, S. M. (2007). Dietary (n-3) Fatty Acids and Brain Development. *Journal of*

Nutrition(137), 855-859. doi:0022-3166/07

Jack, L., Hayes, S. C., Scharalda, J. G., Stetson, B., Jones-Jack, N. H., Valliere, M., . . .

LeBlanc, C. (2010). Appraising quantitative research in health education: Guidelines for public health educators. *Health Promotion Practice*, 11(12), 161-165.

doi:10.1177/1524839909353023.

Jackson, E. S., Tucker, C. M., & Herman, K. C. (2007). Health value, perceived social

support, and health self-efficacy as factors in a health-promoting lifestyle. *Journal of American College Health*, 56(1), 69-75.

Jackson, M. I. (2009). Understanding links between adolescent health and educational

attainment. *Demography*, 46(4), 671-694.

Jensen, B. B. (2004). Environmental and health education viewed from an action-oriented

perspective: A case from Denmark. *Journal of Curriculum Studies*, 36(4), 405-425.

Jewkes, R. (2010). Where to for sexual health education for adolescents in Sub-Saharan

Africa? *Public Library of Science Medicine*, 7(6). <http://www.plosmedicine.org>

doi:10.1371/journal.pmed.1000288

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Johnson, M. O. (2011). The shifting landscape of health care: Toward a model of health care empowerment. *American Journal of Public Health, 101*, 265-270.

doi:10.2105/AJPH.2009.189829

Jonsson, U., Bohman, H., Hjern, A., von Knorring, L., Olsson, G., & von Knorring, A. L. (2010). Subsequent higher education after adolescent depression: a 15-year follow-up register study. *Journal of European Psychiatry, 25*(7), 396-401.

<http://www.ncbi.nlm.nih.gov/pubmed/20541372> doi:10.1016/j.eurpsy.2010.01.016

Juozulynas, A., Butikis, M., Venalis, A., Narkauskaitė, L., & Jurgelėnas, A. (2011). Integral approach to the quality of life using SPSS analysis. *Acta Medica Lituanica, 18*(2), 79-85.

Juvinya-Canal, D. (2013). Salutogenesis, new perspectives to promote health. *Enfermedad Clinica, 23*(3), 87-88.

<http://www.sciencedirect.com/science/article/pii/S1130862113000466>

doi:10.1016/j.enfcli.2013.03.004

Kahn, K., Tollman, S. M., Collinson, M. A., Clark, S. J., Shabangu, M., Gomez-Olive, F. X., . . . Garenne, M. L. (2007). Research into health, population and social transitions in rural South Africa: Data and methods of the Agincourt Health and Demographic Surveillance System1. *Scandinavian Journal of Public Health Supplement, 69*, 8-20.

doi:10.1080/14034950701505031.

Kalichman, S. C., Cherry, C., Kalichman, M. O., Amaral, C., White, D., Grebler, T., . . .

Schinazi, R. F. (2013). Randomized clinical trial of HIV treatment adherence counseling interventions for people living with HIV and limited health literacy. *Journal of Acquired Immune Deficiency Syndrome, 63*(1), 42-50.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4279917/pdf/nihms444303.pdf>

doi:10.1097/QAI.0b013e318286ce49

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Kaukinen, C. (2014). Dating violence among college students: The risk and protective factors. *Trauma Violence Abuse, 15*(4), 283-296.
<http://tva.sagepub.com/content/15/4/283.full.pdf> doi:10.1177/1524838014521321
- Kengne, A. P., Awah, P. K., Fezeu, L., & Mbanya, J. C. (2007). The burden of high blood pressure and related risk factors in urban Sub-Saharan Africa: Evidences from Douala in Cameroon. *African Health Sciences, 7*(1), 38-44.
- Kernan, W. D., Wheat, M. E., & Lerner, B. A. (2008). Linking learning and health: A pilot study of medical students' perceptions of the academic impact of various health issues. *Academic Psychiatry, (32)*, 61-64. <http://ap.psychiatryonline.org> Retrieved from <http://ap.psychiatryonline.org>
- Kestilä, L., Martelin, T., Rahkonen, O., Härkänen, T., & Koskinen, S. (2009). The contribution of childhood circumstances, current circumstances and health behaviour to educational health differences in early adulthood. *Biomed Central: Public Health, 9*, 164. <http://www.biomedcentral.com/1471-2458/9/164> doi:10.1186/1471-2458-9-164
- Keunen, K., van Elburg, R. M., van Bel, F., & Benders, M. J. (2015). Impact of nutrition on brain development and its neuroprotective implications following preterm birth. *Pediatr Res, 77*(1-2), 148-155.
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4291511/pdf/pr2014171a.pdf>
doi:10.1038/pr.2014.171
- Kimani-Murage, E. W. (2013). Exploring the paradox: double burden of malnutrition in rural South Africa. *Global Health Action, 6*. <http://dx.doi.org/10.3402/gha.v6i0.19249>
Retrieved from <http://dx.doi.org/10.3402/gha.v6i0.19249>
- Kimani-Murage, E. W., Kahn, K., Pettifor, J. M., Tollman, S. M., Klipstein-Grobusch, K., & Norris, S. A. (2012). Predictors of adolescent weight status and central obesity in rural

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

South Africa. *Public Health Nutrition*, 14(6), 1114–1122.

doi:10.1017/S1368980011000139.

- Kirigia, J. M., Sambo, H., B, Sambo, L. G., & Barry, S. P. (2009). Economic burden of diabetes mellitus in the WHO African region. *Biomed Central: International Health and Human Rights*, 9(6). doi:1186/1472-698X-9-6
- Kobau, R., Seligman, M. E., Peterson, C., Diener, E., Zack, M. M., Chapman, D., & Thompson, W. (2011). Mental health promotion in public health: Perspectives and strategies from positive psychology. *American Journal of Public Health*, 101(8), e1-9. <http://www.ncbi.nlm.nih.gov/pubmed/21680918> doi:10.2105/AJPH.2010.300083
- Kogan, S. M., Brody, G. H., & Chen, Y.-f. (2011). Natural Mentoring Processes Deter Externalizing Problems Among Rural African American Emerging Adults: A Prospective Analysis. *American Journal of Community Psychology*, 48(3-4), 272-283. doi:10.1007/s10464-011-9425-2.
- Koivusilta, L. K., West, P., Saaristo, V. M. A., Nummi, T., & Rimpelä, A. H. (2013). From childhood socio-economic position to adult educational level – do health behaviours in adolescence matter? A longitudinal study. *Biomed Central: Public Health*, 13(711). <http://www.biomedcentral.com/1471-2458/13/711> Retrieved from <http://www.biomedcentral.com/1471-2458/13/711>
- Labadarios, D., Mchiza, Z. J.-R., Steyn, N. P., Gericke, G., Maunder, E. M. W., Davids, Y. D., & Parkera, W.-a. (2011). Food security in South Africa: A review of national surveys. *Bulletin World Health Organisation*, 89, 891-899. doi:10.2471/BLT.11.089243
- Labadarios, D., Steyn, N. P., & Nel, J. (2011). How diverse is the diet of adult South Africans? *Biomed Central: Nutrition Journal*, 10(33).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

<http://www.nutritionj.com/content/10/1/33> Retrieved from

<http://www.nutritionj.com/content/10/1/33>

- Labree, L. J. W., Mheen, H. v. d., Rutten, F. F. H., & Foets, M. (2011). Differences in overweight and obesity among children from migrant and native origin: A systematic review of the European literature. *Obesity Reviews*(12), 535-547. doi:10.1111/j.1467-789X.2010.00839.x
- Lachowycz, K., & Jones, A. P. (2011). Greenspace and obesity: a systematic review of the evidence. *Obesity Reviews*(12), 183-189. doi:10.1111/j.1467-789X.2010.00827.x
- LaFountaine, J., Neisen, M., & Parsons, R. (2006). Wellness factors in first year college students. *American Journal of Health Studies*, 21(4), 214-218.
- Lai, M. H., Graham, J. W., Smith, E. A., Caldwell, L. L., Bradley, S. A., Vergnani, T., . . . Wegner, L. (2013). Linking life skills and norms with adolescent substance use and delinquency in South Africa. *Journal of Research in Adolescence*, 23(1), 128-137. doi:10.1111/j.1532-7795.2012.00801.x
- Lawn, S. (2011). Compliance, concordance, and patient-centered care. *Patient Preference and Adherence*(5), 89-90. doi:10.2147/PPA.S17822
- Lelinneth, M., Novilla, B., Barnes, M. D., De La Cruz, N. G., Williams, P. N., & Rogers, J. (2006). An ecological approach to promoting health in the family and community. *Family and Community Health*, 29(1), 28-42.
- Liechty, J. M. (2011). Health literacy: Critical opportunities for social work leadership in health care and research. *Health and Social Work*, 36(2), 99-108.
- Lindstrom, B., & Eriksson, M. (2005). Salutogenesis. *Journal of Epidemiology and Community Health*, 54, 440-442. doi:10.1136/jech.2005.034777
- Lodi-Smith, J., Jackson, J., Bogg, T., Walton, K., Dustin, W., Harms, P., & Roberts, B. (2010). Mechanisms of health: Education and health-related behaviours partially

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

mediate the relationship between conscientiousness and self-reported physical health.

Psychological Health. doi:10.1080/08870440902736964.

Logan, R. A. (2007). Clinical, classroom, or personal education: Attitudes about health

literacy. *Journal of the Medical Library Association*, 95(2), 127-137.

<http://pubmedcentralcanada.ca/picrender.cgi?accid=PMC1852616&blobtype=pdf>

doi:10.3163/1536-5050.95.2.127

Loureiro, L. M., Jorm, A. F., Mendes, A. C., Santos, J. C., Ferreira, R. O., & Pedreiro, A. T.

(2013). Mental health literacy about depression: A survey of portuguese youth.

Biomed Central Psychiatry, 13, 129.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3651375/pdf/1471-244X-13-129.pdf>

doi:10.1186/1471-244X-13-129

Lovaglio, P. G., & Monzani, E. (2012). Health of the nation outcome scales evaluation in a

community setting population. *Quality of Life Research*, 21(9), 1643-1653.

<http://link.springer.com/article/10.1007%2Fs11136-011-0071-9> doi:10.1007/s11136-

011-0071-9

Lubans, D. R., Morgan, P. J., Dewar, D., Collins, C. E., Plotnikoff, R. C., Okely, A. D., . . .

Callister, R. (2010). The Nutrition and Enjoyable Activity for Teen Girls (NEAT girls) randomized controlled trial for adolescent girls from disadvantaged secondary

schools: Rationale, study protocol, and baseline results. *Biomed Central: Public*

Health, 10(652). <http://www.biomedcentral.com/1471-2458/10/652> doi:1471-

2458/10/652

Lundman, B., Alex, L., Jonsen, E., Norberg, A., Nygren, B., Santamaki Fischer, R., &

Strandberg, G. (2010). Inner strength--a theoretical analysis of salutogenic concepts.

Int J Nurs Stud, 47(2), 251-260. <http://www.ncbi.nlm.nih.gov/pubmed/19577237>

doi:10.1016/j.ijnurstu.2009.05.020

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Lundman, B., Viglund, K., Alex, L., Jonsen, E., Norberg, A., Fischer, R. S., . . . Nygren, B. (2011). Development and psychometric properties of the Inner Strength Scale. *Int J Nurs Stud*, 48(10), 1266-1274. <http://www.ncbi.nlm.nih.gov/pubmed/21474137>
doi:10.1016/j.ijnurstu.2011.03.006
- Ma, J. K., Le Mare, L., & Gurd, B. J. (2015). Four minutes of in-class high-intensity interval activity improves selective attention in 9- to 11-year olds. *Applied Physiology Nutrition and Metabolism*, 40(3), 238-244.
<http://www.ncbi.nlm.nih.gov/pubmed/25675352> doi:10.1139/apnm-2014-0309
- MacLachlan, M., Amin, M., Mannan, H., El Tayeb, S., Bedri, N., Swartz, L., . . . McVeigh, J. (2012). Inclusion and human rights in health policies: Comparative and benchmarking analysis of 51 policies from Malawi, Sudan, South Africa and Namibia. *Public Library of Science One*, 7(5), e35864. <http://www.plosone.org>
doi:10.1371/journal.pone.0035864
- Madarasova Geckova, A., Tavel, P., van Dijk, J. P., Thomas, A., & Reijneveld, S. A. (2010). Factors associated with educational aspirations among adolescents: cues to counteract socioeconomic differences? *Biomed Central: Public Health*, 10(154).
<http://www.biomedcentral.com/1471-2458/10/154> Retrieved from
<http://www.biomedcentral.com/1471-2458/10/154>
- Madsen, M., Nybo Andersen, A.-M., Christensen, K., Andersen, P. K., & Osler, M. (2010). Does educational status impact adult mortality in denmark? A twin approach. *American Journal of Epidemiology*, 172(2), 225-234. doi:10.1093/aje/kwq072
- Maher, J. P., & Conroy, D. E. (2015). Habit strength moderates the effects of daily action planning prompts on physical activity but not sedentary behavior. *J Sport Exerc Psychol*, 37(1), 97-107. <http://www.ncbi.nlm.nih.gov/pubmed/25730895>
doi:10.1123/jsep.2014-0258

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Mallett, K. A., Lee, C. M., Neighbors, C., Larimer, M. E., & Turrisi, R. (2006). Do we learn from our mistakes? An examination of the impact of negative alcohol-related consequences on college students drinking patterns and perceptions. *Journal of Studies in Alcoholism*, 67(2), 269-276.
- Mariotti, F., Kalonji, E., Huneau, J. F., & Margaritis, I. (2010). Potential pitfalls of health claims from a public health nutrition perspective. *Nutrition Reviews*, 68(10), 624-638. doi:10.1111/j.1753-4887.2010.00322.x
- Martinez-Rodriguez, J. C., Garcia-Chong, N. R., Trujillo-Olivera, L. E., & Noriero-Escalante, L. (2015). Food insecurity and social vulnerability in Chiapas : The face of poverty. *Nutr Hosp*, 31(1), 475-481. <http://www.ncbi.nlm.nih.gov/pubmed/25561144> doi:10.3305/nh.2015.31.1.7944
- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 370-396.
- Mata, H. J., & Davis, S. (2012). Translational health research: Perspectives from health education specialists. *Clinical and Translational Medicine*, 1(27). <http://www.clintransmed.com/content/1/1/27> Retrieved from <http://www.clintransmed.com/content/1/1/27>
- Mattila, V. M., Parkkari, J., Koivusilta, L., Nummi, T., Kannus, P., & Rimpelä, A. (2008). Adolescents' health and health behaviour as predictors of injury death. A prospective cohort follow-up of 652,530 person-years. *Biomed Central Public Health*, 8, 90. <http://www.biomedcentral.com/1471-2458/8/90> doi:10.1186/1471-2458-8-90
- Maxwell, J. A., & Mittapali, K. (2010). Realism as a stance for mixed methods research. In A. Tashakkori & C. Teddlie (Eds.), *Sage Handbook of Mixed Methods in Social and Behavioural Research* (2nd ed., pp. 146-147). London: Sage.
- McCormack, L., Haun, J., Sorensen, K., & Valerio, M. (2013). Recommendations for advancing health literacy measurement. *J Health Commun*, 18 Suppl 1, 9-14.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

<http://www.tandfonline.com/doi/pdf/10.1080/10810730.2013.829892>

doi:10.1080/10810730.2013.829892

- McKinley, S. K., Petrusa, E. R., Fiedeldey-Van Dijk, C., Mullen, J. T., Smink, D. S., Scott-Vernaglia, S. E., . . . Phitayakorn, R. (2015). A multi-institutional study of the emotional intelligence of resident physicians. *American Journal of Surgery*, 209(1), 26-33. [http://www.americanjournalofsurgery.com/article/S0002-9610\(14\)00530-3/pdf](http://www.americanjournalofsurgery.com/article/S0002-9610(14)00530-3/pdf)
doi:10.1016/j.amjsurg.2014.09.015
- Medina, K. L., Schweinsburg, A. D., Cohen-Zion, M., Nagel, B. J., & Tapert, S. F. (2007). Effects of alcohol and combined marijuana and alcohol use during adolescence on hippocampal volume and asymmetry. *Journal of Neurotoxicology and Teratology*, 29(1), 141-152.
- Melby, J. N., Conger, R. D., Fang, S.-A., Wickrama, K. A. S., & Conger, K. J. (2008). Adolescent family experiences and educational attainment during early adulthood. *Developmental Psychology*, 44(6), 1519–1536. doi:10.1037/a0013352.
- Menk Otto, L., Howerter, A., Bell, I. R., & Jackson, N. (2010). Exploring measures of whole person wellness: Integrative well-being and psychological flourishing. *Explore*, 6(6), 364-370. doi:10.1016/j.explore.2010.08.001.
- Mhurchu, C. N., Turley, M., Gorton, D., Jiang, Y., Michie, J., Maddison, R., & Hattie, J. (2010). Effects of a free school breakfast programme on school attendance, achievement, psychosocial function, and nutrition: A stepped wedge cluster randomised trial. *Biomed Central: Public Health*.
<http://www.biomedcentral.com/1471-2458/10/738> doi:1471-2458/10/738
- Michie, S., & Johnston, M. (2012). Theories and techniques of behaviour change: Developing a cumulative science of behaviour change. *Health Psychology Review*, 6(1), 1-6.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

<http://dx.doi.org/10.1080/17437199.2012.654964>

doi:10.1080/17437199.2012.654964

- Micklesfield, L. K., Lambert, E. V., Hume, D. J., Chantler, S., Pienaar, P. R., Dickie, K., . . . Goedecke, J. H. (2013). Socio-cultural, environmental and behavioural determinants of obesity in black South African women. *Cardiovascular Journal of Africa*, 24(9/10), 369-375. doi:10.5830/CVJA-2013-069
- Micklesfield, L. K., Pedro, T. M., Kahn, K., Kinsman, J., Pettifor, J. M., Tollman, S. M., & Norris, S. A. (2014). Physical activity and sedentary behavior among adolescents in rural South Africa: levels, patterns and correlates. *Biomed Central: Public Health*, 14(40). <http://www.biomedcentral.com/1471-2458/14/40> doi:1471-2458/14/40
- Minor Bulmer, S., Irfan, I., Barton, B., Vancour, M., & Breny, J. (2010). Comparison of health status and health behaviors between female graduate and undergraduate college students. *The Health Educator*, 42(2), 67-76.
- Mirzaei, T. (2012). Nursing students' time management, reducing stress and gaining satisfaction: A grounded theory study. *Nursing and Health Sciences*, 14, 46-51. doi:10.1111/j.1442-2018.2011.00661.x
- Mitchell, S., & Andersson, N. (2011). Equity in development and access to health services in the Wild Coast of South Africa: The community view through four linked cross-sectional studies between 1997 and 2007. *Biomed Central: Health Services Research*, 11(55), Supp 2. <http://www.biomedcentral.com/1472-6963/11/S2/S5> doi:1472-6963/11/S2/S5
- Mittler, J. N., Martsolf, G. R., Telenko, S. J., & Scanlon, D. P. (2013). Making sense of "consumer engagement" initiatives to improve health and health care: A conceptual framework to guide policy and practice. *The Millbank Quarterly*, 21(1), 37-77.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Modesti, P. A., Bamoshmoosh, M., Rapi, S., Massetti, L., Al-Hidabi, D., & Al Goshae, H. (2013). Epidemiology of hypertension in Yemen: Effects of urbanization and geographical area. *Hypertension Research*, *36*, 711-713. <http://www.nature.com/hr> doi:10.1038/hr.2013.14
- Moisés Próspero, A. C. R. a. S. V.-G. (2012). Effects of motivation on educational attainment : Ethnic and developmental differences among first-generation students. *Journal of Hispanic Higher Education*, *11*(100). <http://jhh.sagepub.com/content/11/1/100> doi:10.1177/1538192711435556
- Monasta, L., Batty, G. D., Macaluso, A., Ronfani, L., Lutje, V., Bavcar, A., . . . Cattaneo, A. (2011). Interventions for the prevention of overweight and obesity in preschool children: A systematic review of randomized controlled trials. *Obesity Reviews*(12), 107-118. doi:10.1111/j.1467-789X.2010.00774.x
- Monyeki, M. A., Neetens, R., Moss, S. J., & Twisk, J. (2012). The relationship between body composition and physical fitness in 14 year old adolescents residing within the Tlokwe local municipality, South Africa: The PAHL study. *Biomed Central: Public Health*, *12*(374). <http://www.biomedcentral.com/1471-2458/12/374> doi:1471-2458/12/374
- Morgan, R. E. (2013). Does consumption of high-fructose corn syrup beverages cause obesity in children? *Paediatric Obesity*, *8*, 249-264. doi::10.1111/j.I2047T-6310.201Y3.00173.x
- Morris-Paxton, A. A. (2010). *An introduction to lifestyle management: A student workbook*. East London; South Africa: Morris-Paxton.
- Morse, J. (2010). Procedures and practice of mixed methods design: Maintaining control, rigor and complexity. In A. Tashakkori & C. Teddlie (Eds.), *Sage Handbook of Mixed Methods in Social and Behavioural Research* (2nd ed., pp. 341-345). London: Sage.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Mpofu, E., Nkomazana, F., Muchado, J. A., Togarasei, L., & Bingenheimer, J. B. (2014). Faith and HIV prevention: The conceptual framing of HIV prevention among Pentecostal Batswana teenagers. *Biomed Central: Public Health, 14*(225).
<http://www.biomedcentral.com/1471-2458/14/225> doi:1471-2458/14/225
- Mulder, B. C., de Bruin, M., Schreurs, H., van Ameijden, E. J., & van Woerkum, C. M. (2011). Stressors and resources mediate the association of socioeconomic position with health behaviours. *Biomed Central: Public Health, 11*(798).
<http://www.biomedcentral.com/1471-2458/11/798> doi:1471-2458/11/798
- Musaiger, A. O., Hassan, A. S., & Obeid, O. (2011). The paradox of nutrition-related diseases in the arab countries: The need for action. *International Journal of Environmental Research and Public Health, 8*, 3637-3671.
<http://www.mdpi.com/journal/ijerph> doi:10.3390/ijerph8093637
- Muthuri, S. K., Wachira, L.-J. M., Onywera, V. O., & Tremblay, M. S. (2014). Correlates of objectively measured overweight/obesity and physical activity in Kenyan school children: Results from ISCOLE-Kenya. *Biomed Central: Public Health, 14*(436).
<http://www.biomedcentral.com/1471-2458/14/436> doi:1471-2458/14/436
- Nansel, T. R., Huang, T. T. K., Rovner, A. J., & Sanders-Butler, Y. (2010). Association of school performance indicators with implementation of the healthy kids, smart kids program: Case study. *Biomed Central: Public Health Nutrition, 13*(1), 166-122.
<http://www.ncbi.nlm.nih.gov/pubmed/9005898> doi:10.1017/S1368980009005898
- Navarro, A. M., Voetsch, K. P., Liburd, L. C., Giles, H. W., & Collins, C. E. (2007). Charting the future of community health promotion: Recommendations from the national expert panel on community health promotion. *Preventing Chronic Disease, 4*(3).
http://www.cdc.gov/pcd/issues/2007/jul/07_0013.htm Retrieved from
http://www.cdc.gov/pcd/issues/2007/jul/07_0013.htm

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Nduna, M., Jewkes, R. K., Dunkle, K. L., Jama Shai, N. P., & Colman, I. (2010).

Associations between depressive symptoms, sexual behaviour and relationship characteristics: A prospective cohort study of young women and men in the Eastern Cape, South Africa. *Journal of the International AIDS Society*, 13(44).

<http://www.jiasociety.org/content/13/1/44> Retrieved from

<http://www.jiasociety.org/content/13/1/44>

Neuman, M., Kawachi, I., Gortmaker, S. L., & Subramanian, S. V. (2013). Urban-rural differences in BMI in low- and middle-income countries: The role of socioeconomic status. *American Journal of Clinical Nutrition*, 97, 428-436.

doi:10.3945/ajcn.112.045997

Newson, R. S., Lion, R., Crawford, R. J., Curtis, V., Elmadfa, I., Feunekes, G. I., . . . Uauy, R. (2013). Behaviour change for better health: Nutrition, hygiene and sustainability.

Biomed Central: Public Health, 13(S1). [http://www.biomedcentral.com/1741-](http://www.biomedcentral.com/1741-2458/13/S1)

[2458/13/S1](http://www.biomedcentral.com/1741-2458/13/S1) Retrieved from <http://www.biomedcentral.com/1741-2458/13/S1>

Noble, K., & Henderson, R. (2011). The promotion of “character” and its relationship to retention in higher education. *Australian Journal of Teacher Education*, 36(3), Article 4. <http://ro.ecu.edu.au/ajte/vol36/iss3/4> Retrieved from

<http://ro.ecu.edu.au/ajte/vol36/iss3/4>

Nothwehr, F., Clark, D. O., & Perkins, A. (2013). Hope and the use of behavioural strategies related to diet and physical activity. *Journal of Human Nutrition & Dietetics*, 26 Suppl 1, 159-163. doi:10.1111/jhn.12057

O'Cathain, A., Murphy, E., & Nicholl, J. (2007). Why, and how, mixed methods research is undertaken in health services research in England: A mixed methods study. *Biomed Central: Health Services Research*, 7(85). [http://www.biomedcentral.com/1472-](http://www.biomedcentral.com/1472-6963/7/85)

[6963/7/85](http://www.biomedcentral.com/1472-6963/7/85) doi:10.1186/1472-6963-7-85

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- O'Neill, M. (2013). *The NVivo toolkit: How to apply NVivo in your PhD for research and publishing success* (pp. 52). Retrieved from <http://explore.qsrinternational.com/nvivo-toolkit> Retrieved from <http://explore.qsrinternational.com/nvivo-toolkit>
- Oakes, J. M., Forsyth, A., & Schmitz, K. H. (2007). The effects of neighbourhood density and street connectivity on walking behaviour: The twin cities walking study. *Biomed Central: Epidemiologic Perspectives and Innovations*, 4(16). <http://www.epi-perspectives.com/content/4/1/16> doi:10.1186/1742-5573-4-16
- Oppenheim, A. N. (1999). *Questionnaire design, interviewing and attitude measurement*. London: Cassell.
- Osborne, R. H., Batterham, R. W., Elsworth, G. R., Hawkins, M., & Buchbinder, R. (2013). The grounded psychometric development and initial validation of the Health Literacy Questionnaire (HLQ). *Biomed Central: Public Health*, 13, 658. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3718659/pdf/1471-2458-13-658.pdf> doi:10.1186/1471-2458-13-658
- Palomo, L., Felix-Redondo, F. J., Lozano-Mera, L., Perez-Castan, J. F., Fernandez-Berges, D., & Buitrago, F. (2014). Cardiovascular risk factors, lifestyle, and social determinants: A cross-sectional population study. *British Journal of General Practice*, 64(627), e627-633. <http://www.ncbi.nlm.nih.gov/pubmed/25267048> doi:10.3399/bjgp14X681793
- Palys, T., & Atchison, C. (2012). Qualitative research in the digital era: Obstacles and opportunities. *International Journal of Qualitative Methods*, 11(4), 352-367.
- Pearson, D. G., & Craig, T. (2014). The great outdoors? Exploring the mental health benefits of natural environments. *Front Psychol*, 5, 1178.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

<http://journal.frontiersin.org/Journal/10.3389/fpsyg.2014.01178/pdf>

doi:10.3389/fpsyg.2014.01178

- Pedersen, T. P., Meilstrup, C., Holstein, B. E., & Rasmussen, M. (2012). Fruit and vegetable intake is associated with frequency of breakfast, lunch and evening meal: Cross-sectional study of 11-, 13-, and 15-year-olds. *International Journal of Behavioral Nutrition and Physical Activity*, 9(9). <http://www.ijbnpa.org/content/9/1/9> Retrieved from <http://www.ijbnpa.org/content/9/1/9>
- Pednekar, M. S., Gupta, P. C., Shukla, H. C., & Hebert, J. R. (2006). Association between tobacco use and body mass index in urban Indian population: Implications for public health in India. *Biomed Central: Public Health*, 6(70). <http://www.biomedcentral.com/1471-2458/6/70> doi:10.1186/1471-2458-6-70
- Pedroso Dias, P. J., Prado Domingos, I., Gonçalves Ferreira, M., Muraro, A. P., Sichieri, R., & Veras Gonçalves-Silva, R. M. (2014). Prevalence and factors associated with sedentary behavior in adolescents. *Review Saúde Pública*, 48(2), 266-274. doi:10.1590/S0034-8910.2014048004635
- Peltzer, K., Ramlagan, S., Johnson, B. D., & Phaswana-Mafuya, N. (2010). Illicit drug use and treatment in South Africa: A review. *Substance Use and Misuse*, 45(13), 2221–2243. doi:10.3109/10826084.2010.481594.
- Perdiguero, E., Bernabeu, J., Huertas, R., & Rodríguez-Ocaña, E. (2001). History of health, a valuable tool in public health. *Journal of Epidemiology and Community Health*, 55, 667-673.
- Pereira, M. A., Erickson, E., McKee, P., Schrankler, K., K, R. S., Lytle, L. A., & Pellegrini, A. D. (2011). Breakfast Frequency and Quality May Affect Glycemia and Appetite in Adults and Children. *The Journal of Nutrition*, 141, 163S-168S.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Pérez-Escamilla, R., Hromi-Fiedler, A., Vega-López, S., Bermúdez-Millán, A., & Segura-Pérez, S. (2008). Impact of peer nutrition education on dietary behaviors and health outcomes among Latinos: A systematic literature review. *Journal of Nutrition Education Behaviour*, 40(4), 208-225. doi:10.1016/j.jneb.2008.03.011.
- Perkins, D. F., Mincemoyer, C. C., & Lillehoj, C. J. (2006). Extension Educators' Perceptions of Community Readiness, Knowledge of Prevention Science, and Experience with Collaboration. *Journal of Family and Consumer Science*, 98(4), 20-26.
- Phiri, L. P., Draper, C. E., Lambert, E. V., & Kolbe-Alexander, T. L. (2014). Nurses' lifestyle behaviours, health priorities and barriers to living a healthy lifestyle: A qualitative descriptive study. *Biomed Central: Nursing*, 13(38).
<http://www.biomedcentral.com/1472-6955/13/38> doi:1472-6955/13/38
- Piper, B. J., Gray, H. M., Corbett, S. M., Birkett, M. A., & Raber, J. (2014). Executive function and mental health in adopted children with a history of recreational drug exposures. *Public Library of Science One*, 9(10), e110459.
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4206404/pdf/pone.0110459.pdf>
doi:10.1371/journal.pone.0110459
- Pisarik, C. T., & Larson, K. R. (2011). Facilitating college students' authenticity and psychological well-being through the use of mándalas: An empirical study. *Journal of Humanistic Counselling*, 50, 84-98.
- Polgar, S., & Thomas, S. A. (2013). *Introduction to Research in the Health Sciences* (6th ed.). London: Churchill Livingstone, Elsevier.
- Popkin, B. M., Adair, L. S., & Ng, S. W. (2011). Global nutrition transition and the pandemic of obesity in developing countries. *Nutrition Reviews*, 70(1), 3-21.
doi:10.1111/j.1753-4887.2011.00456.x

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Pufall, E. L., Nyamukap, C., Eaton, J. W., Campbell, C., Skovdal, M., Munyati, S., . . .

Gregson, S. (2014). The impact of HIV on children's education in eastern Zimbabwe.

AIDS Care, 26(9), 1136-1143. <http://dx.doi.org/10.1080/09540121.2014.892564>

doi:10.1080/09540121.2014.892564

Quick, V. M., & Byrd-Bredbenner, C. (2013). Disturbed eating behaviours and associated psychographic characteristics of college students. *Journal of Human Nutrition and*

Dietetics, 26 (Supplement 1), 53-63. doi:10.1111/jhn.12060

Ramsoomar, L., Morojele, N. K., & Norris, S. A. (2013). Alcohol use in early and late

adolescence among the Birth to Twenty cohort in Soweto, South Africa. *Global*

Health Action, 6(19274). <http://dx.doi.org/10.3402/gha.v6i0.19274> Retrieved from

<http://dx.doi.org/10.3402/gha.v6i0.19274>

Reavley, N. J., Morgan, A. J., & Jorm, A. F. (2014). Development of scales to assess mental

health literacy relating to recognition of and interventions for depression, anxiety

disorders and schizophrenia/psychosis. *Australian and New Zealand Journal of*

Psychiatry, 48(1), 61-69. <http://anp.sagepub.com/content/48/1/61.full.pdf>

doi:10.1177/0004867413491157

Reierson Draugalis, J., & Plaza, C. M. (2009). Best practices for survey research reports

revisited: Implications of target population, probability sampling, and response rate.

American Journal of Pharmaceutical Education, 78(3), 1421-1423.

Reupert, A., Hemmings, B., & Connors, J. (2010). Do we practice what we preach? The

teaching practices of inclusive educators in tertiary settings. *International Journal of*

Teaching and Learning in Higher Education, 22(2), 120-130. Retrieved from

<http://www.isetl.org/ijtlhe/>

Riegle-Crumb, C., & Callahan, R. M. (2009). Exploring the Academic Benefits of Friendship

Ties for Latino Boys and Girls. *Social Science*, 90(3), 611-633.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Rivas-Drake, D., Syed, M., Umana-Taylor, A., Markstrom, C., French, S., Schwartz, S. J., . . .

. Racial Identity in the 21st Century Study, G. (2014). Feeling good, happy, and proud: a meta-analysis of positive ethnic-racial affect and adjustment. *Child Development, 85*(1), 77-102. doi:10.1111/cdev.12175

Robson, C. (2002). *Real World Research* (2 ed.). Oxford: Blackwell Publishing.

Romanelli, F., Cain, J., & Smith, K. M. (2006). Emotional Intelligence as a Predictor of Academic and / or Professional Success. *American Journal of Pharmaceutical Education, 70*(3/69), 1-10.

Rosenbaum, J. (2012). Degrees of health disparities: Health status disparities between young adults with high school diplomas, sub-baccalaureate degrees, and baccalaureate degrees. *Health Service Outcomes and Research Methodology, 12*(2-3), 156-168. doi:10.1007/s10742-012-0094-x

Ross, C. E., & Mirowsky, J. (2011). The interaction of personal and parental education on health. *Social Science and Medicine, 72*(4), 591-599. doi:10.1016/j.socscimed.2010.11.028

Rothon, C., Head, J., Clark, C., Klineberg, E., Cattell, V., & Stansfeld, S. (2009). The impact of psychological distress on the educational achievement of adolescents at the end of compulsory education. *Social Psychiatry and Psychiatric Epidemiology, 44*(5), 421-427. doi:10.1007/s00127-008-0452-8

Rowlands, G., & Nutbeam, D. (2013). Health literacy and the 'inverse information law'. *British Journal of General Practice, 63*(608), 120-121. doi:10.3399/bjgp13X664081

Rowson, M., Willott, C., Hughes, R., Maini, A., Martin, S., Miranda, J. J., . . . Yudkin, J. S. (2012). Conceptualising global health: Theoretical issues and their relevance for teaching. *Globalisation and Health, 8*(36).

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

<http://www.globalizationandhealth.com/content/8/1/36> Retrieved from

<http://www.globalizationandhealth.com/content/8/1/36>

- Rubenstein, E. (2012). From social hygiene to consumer health: Libraries, health information, and the american public from the late nineteenth century to the 1980s. *Library and Information History*, 28(3), 202-219. doi:10.1179/1758348912Z.00000000016
- Rusyniak, D. E. (2011). Neurologic manifestations of chronic methamphetamine abuse. *Neurology Clinic*, 29(3), 641-655. doi:10.1016/j.ncl.2011.05.004
- Rutz, W. (2006). *Rethinking mental health: a European WHO perspective*. Retrieved from Geneva:
- Sahebalzamani, M., & Mohammady, M. (2014). A study of patient safety management in the framework of clinical governance according to the nurses working in the ICU of the hospitals in the East of Tehran. *Iranian Journal of Nursing and Midwifery Research*, 19(3), 295-301.
- Sammons, P. (2010). The contribution of mixed methods to recent research on educational effectiveness. In A. Tashakkori & C. Teddlie (Eds.), *Sage Handbook of Mixed Methods in Social and Behavioural Research* (2nd ed., pp. 699). London: Sage.
- Sancassiani, F., Pintus, E., Holte, A., Paulus, P., Moro, M. F., Cossu, G., . . . Lindert, J. (2015). Enhancing the Emotional and Social Skills of the Youth to Promote their Wellbeing and Positive Development: A Systematic Review of Universal School-based Randomized Controlled Trials. *Clinical Practice & Epidemiology in Mental Health*, 11(S1), 21-40.
- Saunders, R. P., Pate, R. R., Dowda, M., Ward, D. S., Epping, J. N., & Dishman, R. K. (2012). Assessing sustainability of lifestyle education for activity program (LEAP). *Health Education Research*, 27(2), 319-330. doi:10.1093/her/cyr111
- Schachter, R. (2011). The New Phys Ed. *Instructor*(Summer), 39-41.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Schechter, S., & Lynch, J. (2011). Health learning and adult education: In search of a theory of practice. *Adult Education Quarterly*, 61(3), 207-224. <http://aeq.sagepub.com>
doi:10.1177/0741713610380438
- Scott, I., Yeld, N., & Hendry, J. (2007). *A case for improving teaching and learning in South African higher education*. Retrieved from
- Seligman, M. E. P., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress. *American Psychologist*, 60(5), 410-421. doi:10.1037/0003-066X.60.5.410
- Senn, C. Y., Eliasziw, M., Barata, P. C., Thurston, W. E., Newby-Clark, I. R., Radtke, H. L., . . . Team, S. S. (2014). Sexual violence in the lives of first-year university women in Canada: no improvements in the 21st century. *Biomed Central: Womens Health*, 14, 135.
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4228092/pdf/12905_2014_Article_135.pdf doi:10.1186/s12905-014-0135-4
- Sentell, T., Zhang, W., Davis, J., Baker, K. K., & Braun, K. L. (2014). The influence of community and individual health literacy on self-reported health status. *Journal of General Internal Medicine*, 29(2), 298-304. doi:10.1007/s11606-013-2638-3
- Shaikh, B. T. (2014). Sustaining the stride of health agenda beyond 2015 in post MDGs scenario: A projected roadmap for the developing countries. *Journal Ayub Medical College Abbottabad*, 26(4), 640-643. Retrieved from
<http://www.ncbi.nlm.nih.gov/pubmed/25672207>
- Shek, D. T. L., & Sun, R. C. F. (2012). Evaluation of the Project P.A.T.H.S. Based on Students' Weekly Diaries: Findings from Eight Datasets. *The Scientific World Journal*, 2012, 14. doi:10.1100/2012/354254
- Shek, D. T. L., Sun, R. C. F., Chui, Y. H., Lit, S. W., Yuen, W. W., Chung, Y. Y. H., & Ngai, S. W. (2012). Development and evaluation of a positive youth development course for

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

university students in Hong Kong. *The ScientificWorld Journal*, 2012.

doi:10.1100/2012/263731

Sibai, A. M., Lara, N., Mokdad, A. H., Adra, N., Tabet, M., & Hwalla, N. (2010). Nutrition Transition and Cardiovascular Disease Risk Factors in Middle East and North Africa Countries: Reviewing the Evidence. *Annals of Nutrition and Metabolism*, 57, 193-203. doi:10.1159/000321527

Skelton, J. A., & Beech, B. M. (2011). Attrition in paediatric weight management: a review of the literature and new directions. *Obesity Reviews*(12), 273-281.

doi:10.1111/j.1467-789X.2010.00803.x

Skre, I., Friberg, O., Breivik, C., Johnsen, L. I., Arnesen, Y., & Arfwedson Wang, C. E. (2013). A school intervention for mental health literacy in adolescents: effects of a non-randomized cluster controlled trial. *Biomed Central: Public Health*, 13(873).

<http://www.biomedcentral.com/1471-2458/13/873> Retrieved from

<http://www.biomedcentral.com/1471-2458/13/873>

Snyders, S., Vawda, A., Taljaard, N., Brophy, M., & Plaatjies, R. (Eds.). (2005). *How to make higher education easier*. Port Elizabeth, South Africa: Nelson Mandela Metropolitan University.

Sodjinou, R., Agueh, V., Fayomi, B., & Delisle, H. (2008). Obesity and cardio-metabolic risk factors in urban adults of Benin: Relationship with socio-economic status, urbanisation, and lifestyle patterns. *Biomed Central: Public Health*, 8(84), 1-13.

<http://www.biomedcentral.com/1471-2458/8/84> doi:10.1186/1471-2458-8-84

Sohoni, A., Anguiano, R. V., & Woolridge, D. G. (2010). Thinking outside the box: Preparing family and consumer sciences majors for a multicultural and global society. *The Delta Kappa Gamma Bulletin*, Fall 2010, 17-21.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Sook-Jung, K., & Bok-Hee, C. (2013). The effects of empowered motivation on exercise adherence and physical fitness in college women. *Journal of Exercise Rehabilitation*, 9(2), 278-285. <http://dx.doi.org/10.12965/jer.130011> doi:10.12965/jer.130011
- Sorsdahl, K., Slopen, N., Siefert, K., Seedat, S., Stein, D. J., & Williams, D. R. (2011). Household food insufficiency and mental health in South Africa. *Journal of Epidemiology and Community Health*, 65(5), 426-431. doi:10.1136/jech.2009.091462
- Spengler, S., Mess, F., Schmocker, E., & Woll, A. (2014). Longitudinal associations of health-related behavior patterns in adolescence with change of weight status and self-rated health over a period of 6 years: Results of the MoMo longitudinal study. *Biomed Central: Pediatrics*, 14(1), 242. <http://www.ncbi.nlm.nih.gov/pubmed/25270112> doi:10.1186/1471-2431-14-242
- Stagliano, V., & Wallace, L. S. (2013). Brief health literacy screening items predict newest vital sign scores. *Journal of the American Board of Family Medicine*, 26(5), 558-565. doi:10.3122/jabfm.2013.05.130096
- Stallman, H. M. (2011). Embedding resilience within the tertiary curriculum: A feasibility study. *Higher Education Research & Development*, 30(2), 121-133. doi:10.1080/07294360.2010.509763
- Statistics South Africa. (2009). *General household survey*. Pretoria, South Africa: Statistics South Africa Retrieved from <http://www.statssa.gov.za>.
- StatSoft. (2012). *Statistics textbook* Statsoft (Ed.) Retrieved from <http://www.statsoft.com/textbook/>. Retrieved from <http://www.statsoft.com/textbook/>.
- Stephens, L., McNaughton, S., Crawford, D., MacFarlane, A., & Ball, K. (2011). Correlates of dietary resilience among socioeconomically disadvantaged adolescents. *European journal of Clinical Nutrition*, 65, 1219-1232. doi:10.1038/ejcn.2011.107

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Stephens, N. M., Hamedani, M. G., & Destin, M. (2014). Closing the social-class achievement gap: A difference-education intervention improves first-generation students' academic performance and all students' college transition. *Psychol Sci*, 25(4), 943-953. doi:10.1177/0956797613518349
- Steyn, N. P., Bradshaw, D., Norman, R., Joubert, J., Schneider, M., & Steyn, K. (2006). *Dietary changes and the health transition in South Africa: Implications for health policy*. Retrieved from Cape Town:
<http://www.sahealthinfo.org/lifestyle/dietaccess.htm>
- Stroecker, J. (2005). Creating a Culture of Wellness. *Total Health*, 27(3), 58-59.
- Super, S., Hermens, N., Verkooijen, K., & Koelen, M. (2014). Enhancing life prospects of socially vulnerable youth through sport participation: a mixed methods study. *Biomed Central: Public Health*, 14, 703. <http://www.ncbi.nlm.nih.gov/pubmed/25011430>
doi:10.1186/1471-2458-14-703
- Sussman, S., Lisha, N., & Griffiths, M. (2011). Prevalence of the Addictions: A Problem of the Majority or the Minority? *Evaluation of Health Profession*, 34(1), 3-56.
doi:10.1177/0163278710380124.
- Taki, Y., Hashizume, H., Sassa, Y., Takeuchi, H., Asano, M., Asano, K., & Kawashima, R. (2010). Breakfast Staple Types Affect Brain Gray Matter Volume and Cognitive Function in Healthy Children. *Public Library of Science One*, 5(12).
<http://www.plosone.org> doi:10.1371/journal.pone.0015213
- Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research*. London: Sage.
- Teddlie, C., & Tashakkori, A. (2010). Overview of contemporary issues in mixed methods research. In A. Tashakkori & C. Teddlie (Eds.), *Sage Handbook of Mixed Methods in Social and Behavioural Research* (2nd ed., pp. 9-10). London: Sage.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Terry-McElrath, Y. M., O'Malley, P. M., & Johnston, L. D. (2010). Exercise and Substance Use Among American Youth, 1991–2009. *American Journal of Preventative Medicine*, 40(5), 530-540. doi:10.1016/j.amepre.2010.12.021
- The Constitutional Assembly. (1996). *The Constitution of the Republic of South Africa*. Pretoria: The Government of the Republic of South Africa.
- Thurlow, J., Gow, J., & George, G. (2009). HIV/AIDS, growth and poverty in KwaZulu-Natal and South Africa: An integrated survey, demographic and economy-wide analysis. *Journal of the International AIDS Society*, 12(18). doi:10.1186/1758-2652-12-18
- Tortora, G. J., & Derrickson, B. H. (2009a). The Brain and Cranial Nerves *Principles of Anatomy and Physiology* (12 ed., Vol. 1, pp. 495-542). Hoboken: John Wiley.
- Tortora, G. J., & Derrickson, B. H. (2009b). The Cardiovascular System *Principles of Anatomy and Physiology* (12 ed., Vol. 1, pp. 28-60). Hoboken: John Wiley.
- Tu, A. W., Ratner, P. A., & Johnson, J. I. (2008). Gender Differences in the Correlates of Adolescents' Cannabis Use. *Substance Use and Misuse*, 43, 1438-1463. doi:10.1080/10826080802238140
- Tybur, J. M., Bryan, A. D., & Caldwell Hooper, A. E. (2012). An evolutionary perspective on health psychology: New approaches and applications. *Evolutionary Psychology*, 10(5), 855-867. <http://www.epjournal.net> – 2012. 10(5): 855-867 Retrieved from <http://www.epjournal.net> – 2012. 10(5): 855-867
- Van-Lenthe, F. J., de Bourdeaudhuij, I., Klepp, K.-I., Lien, N., Moore, L., Faggiano, F., . . . Mackenbach, J. P. (2009). Preventing socioeconomic inequalities in health behaviour in adolescents in Europe: Background, design and methods of project TEENAGE. *Biomed Central: Public Health*, 9(125). <http://www.biomedcentral.com/1471-2458/9/125> doi:10.1186/1471-2458-9-125

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

- Van der Heide, I., Wang, J., Droomers, M., Spreeuwenberg, P., Rademakers, J., & Uiters, E. (2013). The relationship between health, education, and health literacy: results from the Dutch Adult Literacy and Life Skills Survey. *Journal of Health Communication, 18 Suppl 1*, 172-184. doi:10.1080/10810730.2013.825668
- Van Heerden, E. (Ed.) (2005). *Life skills my journey, my destiny*. Pretoria, South Africa: Van Schaik.
- Van Lingen, J. M. (2012). Wellness: A model for holistic student development. In L. Beekman, C. Cilliers, & A. De Jager (Eds.), *Student counselling and development: Contemporary issues in the Southern African context*. Pretoria: South African Association for Counselling and Development in Higher Education.
- Van Lingen, J. M., & De Jager, A. C. (2011). Wellness and its dimensions - a South African student perspective. *Journal of Counselling and Development in Higher Education Southern Africa, 1*(1), 1-19.
- Van Lingen, J. M., Douman, D. L., & Wannenburg, I. (2011). A cross sectional exploration of the relationship between undergraduate nursing student wellness and academic outcomes at a South African higher education institution. *South African Journal of Psychology, 41*(3), 396-408.
- Van Olmen, J., Marie, K. G., Christian, D., Clovis, K. J., Emery, B., Maurits, V. P., . . . Guy, K. (2014). Content, participants and outcomes of three diabetes care programmes in three low and middle income countries. *Prim Care Diabetes*. doi:10.1016/j.pcd.2014.09.001
- Van Staden, L. R. (2012). [Release of WSU Turnaround Framework].
- Van Staden, L. R. (2013). [Strike notice over impasse on 2013 salary increases].
- Vaz, S., Parsons, R., Falkmer, T., Passmore, A. E., & Falkmer, M. (2014). The impact of personal background and school contextual factors on academic competence and

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

mental health functioning across the primary-secondary school transition. *Public Library of Science One*, 9(3), e89874.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3946588/pdf/pone.0089874.pdf>

doi:10.1371/journal.pone.0089874

Vearey, J. (2011). Challenging urban health: Towards an improved local government response to migration, informal settlements, and HIV in Johannesburg, South Africa. *Global Health Action*, 1-9.

Vorster, H. H., Kruger, A., Venter, C. S., Margetts, B. M., & Macintyre, U. E. (2007). Cardiovascular disease risk factors and socio-economic position of Africans in transition: The THUSA study. *Cardiovascular Journal of Africa*, 18(5), 282-289. Retrieved from <http://www.cvjsa.co.za>

Walker, C., Hernan, A., Reddy, P., & Dunbar, J. A. (2012). Sustaining modified behaviours learnt in a diabetes prevention program in regional Australia: The role of social context. *Biomed Central: Health Services Research*, 12(460). <http://www.biomedcentral.com/1472-6963/12/460> Retrieved from <http://www.biomedcentral.com/1472-6963/12/460>

Walkiewicz, M., Tartas, M., Majkowicz, M., & Budzinski, W. (2012). Academic achievement, depression and anxiety during medical education predict the styles of success in a medical career: a 10-year longitudinal study. *Medical Teaching*, 34(9), e611-e619. <http://www.ncbi.nlm.nih.gov/pubmed/22905663> doi:10.3109/0142159X.2012.687478

Walter Sisulu University. (2007). Language Policy (Vol. REG06). Mthatha, South Africa: Walter Sisulu University.

Walter Sisulu University. (2012a). Faculty of Science Engineering and Technology: Prospectus 2012. Buffalo City, Eastern Cape: Walter Sisulu University.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Walter Sisulu University. (2012b). School of Technology: Prospectus 2013. Buffalo City, Eastern Cape: Walter Sisulu University.

Walter Sisulu University. (2013a). Faculty of science engineering and technology: School of technology prospectus. Buffalo City, South Africa: Walter Sisulu University.

Walter Sisulu University. (2013b). General Prospectus. Mthatha, South Africa: Walter Sisulu University.

Wangdahl, J. M., & Martensson, L. I. (2014). The communicative and critical health literacy scale--Swedish version. *Scandinavian Journal of Public Health*, 42(1), 25-31.

doi:10.1177/1403494813500592

Weigensberg, M. J., Lane, C. J., Ávila, Q., Konersman, K., Emily, V., Adam, T., . . . Spruijt-

Metz, D. (2014). Imagine HEALTH: Results from a randomized pilot lifestyle intervention for obese Latino adolescents using Interactive Guided ImagerySM.

Biomed Central: Complementary & Alternative Medicine, 14(28).

<http://www.biomedcentral.com/1472-6882/14/28> Retrieved from

<http://www.biomedcentral.com/1472-6882/14/28>

Weimann, A. (2011). *WSU Nuffic project employer study survey*. Retrieved from East London:

Weinstein, R. S., Graham, A. R., Erps, K. A., & Lopez, A. M. (2013). Health literacy: the Affordable Care Act ups the ante. *American Journal of Medicine*, 126(12), 1029-1030. doi:10.1016/j.amjmed.2013.06.030

Weinstock, J., Capizzi, J., Weber, S. M., Pescatello, L. S., & Petry, N. M. (2014). Exercise as an intervention for sedentary hazardous drinking college students: A pilot study. *Mental Health and Physical Activity*, 7(1), 55-62. doi:10.1016/j.mhpa.2014.02.002.

Welle, P. D., & Graf, H. M. (2011). Effective lifestyle habits and coping strategies for stress tolerance among college students. *American Journal of Health Education*, 42(2), 96-

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

105. <http://dx.doi.org/10.1080/19325037.2011.10599177>

doi:10.1080/19325037.2011.10599177

Wennerberg, M. M. T., Lundgren, S. M., & Danielson, E. (2012). Using the salutogenic approach to unravel informal caregivers' resources to health: Theory and methodology. *Ageing and Mental Health, 16*(3).

<http://dx.doi.org/10.1080/13607863.2011.628974>

doi:10.1080/13607863.2011.628974

White, A. M., Hingson, R. W., Pan, I.-J., & Yi, H.-Y. (2011). Hospitalizations for Alcohol and Drug Overdoses in Young Adults Ages 18–24 in the United States, 1999–2008: Results From the Nationwide Inpatient Sample. *Journal of Studies in Alcohol and Drugs, 72*, 774-786.

WHO. (2012). *World Health Statistics 2012*. Retrieved from Geneva:

Willet, W. C., Koplan, J. P., Nugent, R., Dusenbury, C., Puska, P., & Gaziano, T. A. (2008). Prevention of Chronic Disease by Means of Diet and Lifestyle Changes *Disease Control Priorities In Developing Countries* (2nd ed., pp. 833-848). Geneva: World Health Organisation.

Williams, C. T., Grier, S. A., & Seidel, M. A. (2008). "Coming to Town": The Impact of Urbanicity, Cigarette Advertising, and Network Norms on the Smoking Attitudes of Black Women in Cape Town, South Africa. *Journal of Urban Health, 85*(4).

doi:10.1007/s11524-008-9286-7

Wilson, R., Derrett, S., Hansen, P., & Langley, J. (2012). Retrospective evaluation versus population norms for the measurement of baseline health status. *Health Qual Life Outcomes, 10*, 68. doi:10.1186/1477-7525-10-68

Wilson, R., Geary, R. B., Grant, E., Pearson, J., & Skidmore, P. M. (2014). Home food availability is associated with multiple socio-economic indicators in 50 year olds from

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Canterbury, New Zealand. *Asia Pacific Journal Clinical Nutrition*, 23(4), 714-722.

doi:10.6133/apjcn.2014.23.4.04

Winters, K. C., & Lee, C.-Y. S. (2008). Likelihood of developing an alcohol and cannabis use disorder during youth: Association with recent use and age. *Drug and alcohol Dependence*, 92(1-3), 239-247.

World Health Organisation. (2002). *Reducing Risks Promoting Healthy Life*. Retrieved from World Health Organisation, Geneva, Switzerland:

World Health Organisation. (2003a). *Diet, Nutrition and the Prevention of Chronic Diseases: Report of a Joint WHO/FAO Expert Consultation*. Retrieved from World Health Organisation, Geneva, Switzerland:

World Health Organisation. (2003b). *The World Health Report: Shaping the future*. Retrieved from World Health Organisation, Geneva, Switzerland:

World Health Organisation. (2004). *Global Strategy on Diet, Physical Activity and Health*. Retrieved from World Health Organisation, Geneva, Switzerland:

World Health Organisation. (2009). *The World Health Report: Towards universal access: Scaling up priority HIV/AIDS interventions in the health sector*. Retrieved from World Health Organisation, Geneva, Switzerland:

World Health Organisation. (2010a). *The World Health Report: Health systems financing the path to universal coverage*. Retrieved from World Health Organisation, Geneva, Switzerland:

World Health Organisation. (2010b). *World Health Statistics 2010*. Retrieved from World Health Organisation, Geneva, Switzerland:

World Health Organisation. (2011). *WHO Report on the Global Tobacco Epidemic, 2011: Warning about the dangers of tobacco*. Retrieved from World Health Organisation, Geneva, Switzerland:

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

World Health Organisation. (2013a). *Mental Health Action Plan 2013-2020*. Retrieved from World Health Organisation, Geneva, Switzerland:

World Health Organisation. (2013b). *World Health Report: Research for universal health coverage*. Retrieved from World Health Organisation, Geneva, Switzerland:

World Health Organisation. (2014). *World Health Statistics 2014*. Retrieved from World Health Organisation, Geneva, Switzerland:

Yang, R.-J., Wang, E. K., Hsieh, Y.-S., & Chen, M.-Y. (2006). Irregular breakfast eating and health status among adolescents in Taiwan. *Biomed Central: Public Health*, 6(295). <http://www.biomedcentral.com/1471-2458/6/295> doi:10.1186/1471-2458-6-295

Yiengprugsawan, V., Caldwell, B. K., Lim, L. L.-Y., Seubsman, S.-a., & Sleigh, A. C. (2011). Lifecourse urbanization, social demography, and health outcomes among a national cohort of 71,516 adults in Thailand. *International Journal of Population Research*. doi:10.1155/2011/464275

Yu, X., & Abler, D. (2010). Interactions between cigarette and alcohol consumption in rural China. *European Journal of Health Economics*, 11, 151-160. doi:10.1007/s10198-009-0157-2

Zhou, Y. X., Ou, C. Q., Zhao, Z. T., Wan, C. S., Guo, C., Li, L., & Chen, P. Y. (2015). The impact of self-concept and college involvement on the first-year success of medical students in China. *Advanced Health Science Educational Theory and Practice*, 20(1), 163-179. doi:10.1007/s10459-014-9515-7

APPENDIX 1**Overview of the Introduction to Lifestyle Management Programme**

Practical lifestyle management encompasses two kinds of knowledge and ability. The first is a knowledge and understanding of the components of health that we require as human beings to work, learn, socialise and develop to be at our best. We need to develop an understanding of what they are and why they are beneficial. The second is the ability to use these components together: to acquire lifestyle management skills in the context of our individual lives and to obtain the maximum benefits.

This programme looks at lifestyle management from a holistic point of view: it not only gives the facts about the components of lifestyle that bring about or prevent disease, but also explores ways to use the physical, social, mental and affective / spiritual components of living to our own benefit. The programme encompasses twenty six facilitated learning sessions which look at the spectrum of physical, mental, emotional and spiritual disciplines that can detract from, or enhance, the process of building long term health and well-being.

Aims of the Programme

1. To develop the ability to recognise the essential components of health, and to appreciate how the management of these components detract from, or enhance, long term health and well-being.
2. To explore the choices available to the individual in each component of lifestyle within the context of one's family and community life.
3. To develop the ability to prevent problems arising from incorrect management of lifestyle habits, and the confidence to create and apply corrective solutions in the context of one's own environment.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

4. To appraise the tools that can be used to plan a diet, engage in movement, utilise medication and professional assistance, interact appropriately with others and develop a healthy self-image.

Learning Outcomes

When participants have completed this programme they should be able to:

1. Demonstrate knowledge of what the essential components of health are and the consequences of mismanagement of these components.
2. Appraise both the short and long term benefits of good management of the components of lifestyle.
3. Demonstrate an understanding of a variety of practical beneficial mechanisms that may be applicable within the various components of an individual lifestyle programme.
4. Make appropriate individual choices within each component of lifestyle within the context of one's own environment.
5. Use a variety of tools to plan a diet, engage in movement, utilise medication and professional assistance, interact appropriately with others and develop a healthy self-image to meet one's individual requirements within the context of one's own environment.
6. Demonstrate the ability and the confidence to apply corrective solutions to problems of lifestyle using a variety of tools and management approaches.

Assessment of Learning

The curriculum for this course requires two assessments per term (eight for the academic year). Learners are guided in the completion of the assessments by notes given at the end of the appropriate learning unit, which may be discussed further with the

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

facilitator/lecturer. There are also some formative fun assessments in the form of quizzes, and group learning activities which may be completed in the learning sessions.

The Learning Sessions

Learning Session One: My Life, My Style!

This session covers the importance of lifestyle management and introduces you to the individual constituents of a healthy lifestyle; nutrition; avoiding substance abuse and the appropriate use of medication; exercise; the importance of hydration and the correct use of environmental resources; HIV/ADS prevention and management; controlling bacteria and parasites; as well as social relationships; self-esteem; the management of stress; and the place of spirituality in health. We look at the role of these measures in the prevention of long term ill health and how ignorance and abuse contributes to disease.

Learning Session Two: Nutrition Vision

This session looks at the essential nutrients that we require for good health. These fall into two groups: the macronutrients, being carbohydrates, fats and proteins, and the micronutrients, being vitamins and minerals. We look at the best forms of macronutrients, those that are good for us and those that are not, and the food sources of both macronutrients and micronutrients. In addition we discuss why we need certain nutrients and the adverse consequences, both short and long term, of an inadequate and / or unbalanced diet.

Learning Session Three: A Guided Walk through the Food Maze

We discover in this session how to work our way through the ‘maze’ of information about food and the tools we can use to guide us towards a healthy eating programmes. We explore two tools that we might use for designing a personal nutrition programme: the South African Dietary Guidelines and the ‘Round to Whit’. Timing of foods, meals and snacks is looked at, as well as why breakfast is so important and how to get over the problem of early morning lack of appetite.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Learning Session Four: Going up in Smoke!

In this session we look at the visible and hidden costs of cigarettes. We review what exactly nicotine is and what the effects of smoking are, physically, psychologically and socially, from individual health risks to the economic and environmental health risks.

Learning Session Five: The Battle of the Bottle

Here we look at the controversy surrounding 'responsible drinking', how much is enough and how much is too much? We ask ourselves in the final discussion whether or not alcohol is actually good for anything at all that we cannot obtain from other sources, and what are the real and hidden costs of drinking?

Learning Session Six: Pills and Potions

In this session we look at the correct way to use medication and seek professional health care advice, what you can do for yourself and when it is appropriate to ask for assistance. We discuss the appropriate use and possible abuse of antibiotics, painkillers and over the counter remedies as well as complementary medicines and how to understand and adhere to instructions.

Learning Session Seven: Happy Chappie or Hopeless Doped Mess?

In this session we review the growing problem of recreational substance use and abuse. Addiction can be a problem even when what you are taking has been prescribed or is legally and openly available. How do you know when what should have been the solution is now part of the problem? Moreover, illegal 'street corner candy' will make you ill, could land you in jail and might even kill you.

Learning Session Eight: Move and Groove

We explore here the connection, not only between exercise, movement and health, but also between movement and self-expression. There are many ways in which one can engage with movement from traditional dancing to modern equipped gymnasiums, from team sport

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

to home gardening. Some of the suggestions require membership of a club or gym and others are available free of charge and without obligation. We discuss the benefits of movement and discover ways in which each of us can find something we enjoy doing and motivate ourselves to continue.

Learning Session Nine: The Elements of Life

Here we look at the environment and elements we need to survive, what they are and why they are essential and, most importantly, what they have to do with a programme on lifestyle management! Water, air and sunlight are essential to all growth, whether that of plants, animals or human beings. We discover why and how these are important to human life. We look at the issue of adequate hydration, the quality of our air and the appropriate amount of sunlight necessary to health and how to gain the maximum benefit with the minimum damage.

Learning Session Ten: The Unwelcome Guests

We share our environment internally and externally with both beneficial and harmful bacteria. We discuss what the most common bacteria and parasites are and where they come from. In addition, this session discusses how to eliminate, or at least reduce, the harmful elements whilst retaining the beneficial ones in the context of our relationship with the environment around us. Finally we look at the question of the use of antibiotics and antibacterial cleansers, when they are beneficial and the conditions under which they may contribute to the problem.

Learning Session Eleven: Too Close for Comfort

Zoonotic diseases, 'I never saw it coming'! In this session we look at the issue of zoonotic disease, Malaria; SARS; Ebola virus; Dengue fever; H1N1, and HIV. We discuss what they are and where they come from.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Learning Session Twelve: People of the South

In this session we look at how HIV infection happens and to whom it happens. What makes HIV infection risk rates different in South Africa compared to the rest of the world? Who is infected and who is affected by this invasion of our country and our people?

Learning Session Thirteen: We all Stand Together

In this session we look at HIV prevention, building a wall between the virus and us, creating a space for an HIV free future for ourselves and those we care for and care about. Here we review a number of prevention strategies which, when applied together, can reduce and ultimately eliminate the problem.

Learning Session Fourteen: The Revolution Solution

Fighting back the common foe looks at what we are doing about HIV/AIDS. The current treatment strategies for HIV infection are reviewed: what is applied, when and how, as well as our collective part in the big fat fight. We also look at the future possibilities, what is being investigated and what the possibilities are for future treatment.

Learning Session Fifteen: In It to Win It!

This session looks at what our rights are for a long, healthy and productive life. The fact is that the enemy is an unseen virus, not a visible person. How do we build a healthy relationship with people with HIV, those at risk for HIV and those living with friends and family who have HIV/AIDS Here we look at collective strategies that we can all apply across the board to mitigate the current problem and ultimately defeat it completely.

Learning Session Sixteen: The World Within - Intrapersonal Sense of Self

Here we look inside at who we really are our potential for good and our value to the community and wider society. We view the issue of friendship and how we can be a friend to ourselves as opposed to being our own worst enemy. We discuss the issue of going it alone

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

and resisting peer pressure, before moving into the next session on the value of a supporting and caring friendship with others.

Learning Session Seventeen: Me and My Friends

True health includes social well-being. It is not easy and probably not possible to be happy and healthy without friends, even if it is only one good friend! We ask ourselves in this session what is a true friend and review how we can become a true friend to someone else.

Also we look at our interaction with others, the benefit of belonging to a group and being part of a successful democratic community. The latter involves the power of consultation, making fair and honest group decisions.

Learning Session Eighteen: First Things First

What do our priorities have to do with our health and well-being? Health itself should be somewhere on our list of priorities. We need to set priorities in order to organise our life, our time and set our goals. In this session we look at how to make decisions about what comes first to you. Once you have decided what your priorities are, making a decision about everything else becomes easier.

Learning Session Nineteen: Mastering the Mayhem

This session helps you manage your time, your space and your life. We look at how to organise ourselves, so that we fit everything in and don't compromise on what is truly important. Once we have set priorities, we can manage our time to create order in our daily lives. In addition we discuss the emergencies, disasters and setbacks that occur in daily living. We view ways in which to manage these, controlling the situation rather than being overwhelmed by it, and how to turn down tasks and responsibilities that are beyond our personal resources, without alienating those around us. Finally we look at coping skills, how we can develop strengths through adversity and create a contingency for future possible adversity.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Learning Session Twenty: From Stressed Out to Straight Forward

Strategies for managing stress are different for each of us; however, some never work (like alcohol and comfort eating) and some always work (like sleep and walking). Here we look at the best of de-stressing, what to do if you only have a minute and what to plan into your daily life. Finally we look at how to find the strategies that work best for you as an individual.

Learning Session Twenty One: Mind, Mentality and the Material

In this session we look at the power of the mind, how our thoughts create emotions which, in turn, create chemical reactions in our body that affect our health and well-being. We look at the power of both negative and positive emotions, how they can make us sick or well and how to turn bad feelings into good energy.

Learning Session Twenty Two: Fate or Trait?

We look at happiness and ask: is this fate (left to chance), or trait (something inside of ourselves)? There are significant differences in the health status of happy people and unhappy people and we explore ways in which we can in fact learn to be happy. We take the subject of positive creative thought and explore the possibilities of making ourselves feel better about our surroundings.

Learning Session Twenty Three: Faith and Feeling

In this session we view the presence (or absence) of the divine aspect of our lives and the power of faith. Does this play a role in our life and does it affect our health? We review some interesting scientific research on faith and health, the benefits of faith and how to access spiritual strengths which you might not have realised you possessed.

Learning Session Twenty Four: Self-Exploration and Self-Expression

Discovering your true self does not have to be full of anguish and expressing your personal style need not be difficult. This session looks at ways to get to know who you are

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

and how to express yourself creatively in a safe and positive way. We look at ways in which music, the arts and creative writing can help you to reach within and express how you feel to the rest of the world as well as improving your health.

Learning Session Twenty Five: The Road Ahead

This session is about setting goals and making plans for your life. It will guide you through the strategy of making short, medium and long term goals and, for each, a plan of action that you can safely follow. This will be your own guide to the future that you wish to create for yourself.

Learning Session Twenty Six: Getting it Together

In this final session of our course we look at your personal journey, your personal portfolio of skills and accomplishments and look at how far we have come, the new you and your new friends.

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

APPENDIX 2**Letter of Consent**

A Morris-Paxton BS MSc. MA PGCE

External Extended Programme Coordinator

Extended Studies Academy

CLTD

Office Tel No: (043) 722 3328

Email: amorris-paxton@wsu.ac.za

January 2013

Re: Impact of a Holistic Lifestyle Management Education Programme on Health and Education Outcomes of Socioeconomically Disadvantaged University Students.

Dear Student,

The above research study is being conducted in order to gain information and insight into your new re-curriculated life skills (Lifestyle Management) programme which forms a compulsory part of your first year of studies with this institution. This course has been re-written in order to meet two sets of requirements. Firstly, the requirements of the consumer science profession which you will eventually enter as a graduate, have been taken into consideration, as you will ultimately be giving advice about consumer goods and wellness within your future workplace. Secondly, the personal needs of young people in university, as far as preventing illness and maintaining wellness is concerned has to be taken into consideration, as maintaining wellness may contribute to your chance of success in your studies and beyond university.

In order to ascertain how the new curriculum and this particular course impacts on students, their wellbeing and academic success, the researcher requires your participation in this

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

research project; however, your participation is voluntary. Should you choose not to participate in the research project, your decision will not affect your participation in this course or have any impact on your course marks. You will be given several questionnaires to complete about your health, the impact of this programme and your personal opinion on this course. Questionnaires will be given before the course begins, at the end and approximately three months after the course, during scheduled class time. The researcher would like your consent to participate in this study by answering the questionnaires and your permission to use this information, as well as information about your results for this year's academic work (only this year will be taken into account).

All the information will be confidential. All of the questionnaires will be coded with a special set of numbers and at no time will any names of any students be revealed to anyone. At no point in time during the writing of the research results will any person's name appear and no one will be singled out or identified. Although there is no direct benefit to you as the respondent to the questionnaires, your opinion and your input are vital to the researcher being able to improve this course and all other such courses for students in the future.

Sincerely

Anja Morris-Paxton

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

CONSENT

I _____

Student No _____

Understand that the information taken from the questionnaires that form part of the Introduction to Lifestyle Management programme and my academic transcripts for 2013, are essential to the evaluation of this programme. I understand that all information will be held in strict confidence and that my anonymity will be guaranteed. Under these conditions I give my consent for the researcher to use the requested information for evaluation of the programme for research purposes only. I understand that participation in this research project is completely voluntary and I may withdraw from the research at any time without any fear of reprisal.

Signed _____

Date _____

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

APPENDIX 3

WQHE - Table of Domains



**Nelson Mandela
Metropolitan
University**

for tomorrow

STUDENT COUNSELLING, CAREER AND DEVELOPMENT CENTRE (SCCDC)

WELLNESS QUESTIONNAIRE FOR HIGHER EDUCATION: Table of Domains

SUBSCALES	PRIMARY FACTORS	ITEMS
PHYSICAL WELLNESS	Physical exercise	1, 2, 3
	Nutrition: regularity, balance & quantity	4, 5, 6, 7
	Nutrition: healthy content / quality	8, 9, 10, 11, 12
	Self-care & safety: risk avoidance	13, 14, 15, 16
	Self-care & safety: protective behaviours	17, 18, 19, 20, 21, 22, 23, 24, 25
CAREER WELLNESS	Career choice and decision-making	26, 27, 28, 29, 30, 31
	Career competence	32, 33, 34, 35, 36
	Ongoing professional development	37, 38, 39, 40, 41
INTELLECTUAL WELLNESS	Intellectual challenge	42, 43, 44, 45, 46, 47
	Knowledge expansion	48, 49, 50
	Critical and creative thinking	51, 52, 53, 54
ENVIRONMENTAL WELLNESS	Preservation of physical environment	55, 56, 57, 58, 59, 60, 61, 62, 63, 64
SOCIAL WELLNESS	Meaningful relationships	65, 66, 67, 68, 69
	Social skills	70, 71, 72, 73
	Giving & receiving caring	74, 75, 76
	Tolerance & respect for differences	77, 78, 79, 80
	Social responsibility	81, 82, 83, 84
EMOTIONAL WELLNESS	Awareness, understanding & acceptance of own emotions	85, 86, 87, 88, 89, 90, 91
	Emotional management	92, 93, 94
	Positive-negative affect-balance	95, 96, 97, 98

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

	Realistic self-appraisal	99, 100, 101, 102
	Stress management	103, 104, 105
SPIRITUAL WELLNESS	Connectedness & spiritual practice	106, 107, 108, 109, 110, 111
	Meaning & purpose	112, 113, 114, 115
	Values	116, 117, 118, 119
	SECONDARY FACTORS	ITEMS
	Life satisfaction	27-8, 46, 69, 95-7, 109, 115

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

APPENDIX 4

Questionnaire Code (P-CQ001-045)

First Year Students Lifestyle Management Programme**Pre-Course Questionnaire**

As the author and academic programme developer who designed, wrote and packaged your course, I am interested in knowing a little about you, as a person. I would also like to know about your health and well-being, your concerns and your experiences so far, with respect to what you have been taught and what you may already know about your health, well-being and the prevention of disease. This is one of three questionnaires that explore such issues surrounding your current and future health. These questionnaires will help me as the programme developer to create better lifestyle management programmes for use by the students of the future. Please rest assured that you will remain anonymous and that all your answers will be confidential.

DEMOGRAPHIC INFORMATION

Please complete the following questions by marking X in the appropriate box

1. Gender

Female

Male

2. Age

17-20

21-24

25-29

30-34

35 and above

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

3. Marital Status
- | | |
|------------|--------------------------|
| Unmarried | <input type="checkbox"/> |
| Cohabiting | <input type="checkbox"/> |
| Married | <input type="checkbox"/> |
| Divorced | <input type="checkbox"/> |
| Widowed | <input type="checkbox"/> |

4. With regard to health, prevention of disease, lifestyle management and life skills education, how much information have you been given up to now:

- | | |
|---|--------------------------|
| None or very little | <input type="checkbox"/> |
| Some information from Life Skills classes | <input type="checkbox"/> |
| Some information from Life Science classes | <input type="checkbox"/> |
| Some information from different school courses | <input type="checkbox"/> |
| A lot of information from other educational courses | <input type="checkbox"/> |
| A lot of information from other sources | <input type="checkbox"/> |

5. Where did you get the information that you now have, with regard to health, prevention of disease and lifestyle management (please put a cross in all of the boxes that apply to you):

- | | |
|---|--------------------------|
| I have had no information or little information | <input type="checkbox"/> |
| School | <input type="checkbox"/> |
| Home / parents / grandparents | <input type="checkbox"/> |
| Other educational institution | <input type="checkbox"/> |
| Health care professional / clinic sisters | <input type="checkbox"/> |
| Gym / sports trainer or sports club | <input type="checkbox"/> |
| Books | <input type="checkbox"/> |

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Magazines

Internet

Other sources

6. The Introduction to Lifestyle Management course that you are about to undertake will provide you with evidence based (that is information that has been scientifically researched and is verifiable) information in order to assist you to make informed decisions of your own. It contains several types of information about health. The learning sessions will cover physical, psychological, social and spiritual wellness.
- How important is accurate, verifiable and factual information in these areas of health and lifestyle management to you at present?

Area of Health	Very Important	Important	Not too Important	Not Important At all
Nutrition				
Smoking				
Use of alcohol				
Use of medication				
Recreational drug use				
Exercise				
Water intake				
Clean air, correct breathing				
Exposure to the sun				
Bacteria (germs) and fungi				
Diseases from animals				
HIV/AIDS prevention and treatment				
Knowing yourself well				
Getting along with others				
Setting priorities in your life				
Time management				
Stress management				
Positive thinking				
Happiness				
Faith and spirituality				
Personal self-expression				
Planning your own future				

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

7. Which of the above areas is for you personally the most important?

8. Why is this important to you?

9. Which of the above areas is the least important?

10. Why is it not important to you?

Thank you for your response!

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

APPENDIX 5

Questionnaire Code (PS-CQ001-045)

First Year Student's Lifestyle Management Programme

Post-Course Questionnaire

As the author and academic programme developer who designed, wrote and packaged your course, I am interested in knowing a little about you as a person. I would also like to know about your health and well-being, your concerns and your experiences so far, concerning what you have been taught and what you may already know about your health, your well-being and the prevention of disease. This is one of three questionnaires that will explore such issues surrounding your current and future health. These questionnaires will help me as the programme developer to create better lifestyle management programmes for use by the students of the future. Please rest assured that you will remain anonymous and that all your answers will be confidential.

DEMOGRAPHIC INFORMATION

Please complete the following questions by marking X in the appropriate box:

1. Gender	Female	<input type="checkbox"/>
	Male	<input type="checkbox"/>
Age	17-20	<input type="checkbox"/>
	21-24	<input type="checkbox"/>
	25-29	<input type="checkbox"/>
	30-34	<input type="checkbox"/>
	35 and above	<input type="checkbox"/>
Marital Status	Unmarried	<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Cohabiting

Married

Divorced

Widowed

2. With regard to health, prevention of disease, lifestyle management and life skills education, how much information do you feel that you have been given in the course that you have just completed?

None or very little that was of use to you

Some information but not as much as you feel you need

A reasonable amount of useful information given the time allocated to this course

A lot of useful information

As much information as you feel you needed

3. Where did you get the information that you now have, with regard to health, prevention of disease and lifestyle management (please put a cross in all of the boxes that apply to you):

The Introduction to Lifestyle management course has been my only source of information

The course information has been supplemented or supported by:

Other courses on my programme of study (e.g. physiology or nutrition)

Home / parents / grandparents

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Health care professionals / clinic sisters

The centre for HIV/AIDS

Gym / sports trainers or sports club

Books / use of the library and librarians

Magazines

Internet

Other sources

4. The Introduction to Lifestyle Management course that you have taken has provided evidence based (that is information that has been scientifically researched and is verifiable) information in order to help you to make informed decisions of your own. It contained several types of information about health. The learning sessions covered physical, psychological, social and spiritual wellness. How important has accurate, verifiable and factual information in these areas of health and lifestyle management become to you after completing this course?

Area of Health	Very Important	Important	Not too Important	Not Important at all
Nutrition				
Smoking				
Use of alcohol				
Use of medication				
Recreational drug use				
Exercise				
Water intake				
Clean air, correct breathing				
Exposure to the sun				
Bacteria (germs) and fungi				
Diseases from animals				
HIV/AIDS prevention and treatment				
Knowing yourself well				

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Getting along with others				
Setting priorities in your life				
Time management				
Stress management				
Positive thinking				
Happiness				
Faith and spirituality				
Personal self-expression				
Planning your own future				

5. Which of the above areas has for you, become the most important?

6. Why is this important to you?

7. Which part or parts of the lifestyle management course were completely different from what you expected them to be?

8. In which ways were the above areas different from your expectations?

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

9. Overall, which learning sessions made the biggest impact on how you live your life?

10. As a result of the above, what exactly, in your own personal lifestyle management, have you changed in your life?

11. Did this programme make it easier, to make changes?

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

12. If so, why or how was the change (or changes) made either easier?

13. Did this programme make it in any way more difficult, to make changes?

14. If so, why or how was the change (or changes) made more difficult?

15. Was there any part of the lifestyle management programme that made little or no impact on you?

16. Why do you think this was so?

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

17. How do you intend to use the course you have completed or the knowledge that you have gained from the course in the future, for yourself or others?

Thank you for your response!

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

APPENDIX 6

Questionnaire Code (P-C12Q001-045)

First Year Student's Lifestyle Management Programme

12-15 Week Post-Course Questionnaire

As the author and academic programme developer who designed, wrote and packaged your course, I am interested in knowing a little about you as a person. I would also like to know about your health and well-being, your concerns and your experiences so far, with respect to what you have been taught and what you now know about your health, well-being and the prevention of disease. This is the last of three questionnaires that explore such issues surrounding your current and future health. These questionnaires will help me as the programme developer to create better lifestyle management programmes for use by the students of the future. Please rest assured that you will remain anonymous and that all of your answers will be confidential.

DEMOGRAPHIC INFORMATION

Please complete the following questions by marking X in the appropriate box:

1. Gender

Female

Male

2. Age

17-20

21-24

25-29

30-34

35 and above

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

3. Marital Status
- | | |
|------------|--------------------------|
| Unmarried | <input type="checkbox"/> |
| Cohabiting | <input type="checkbox"/> |
| Married | <input type="checkbox"/> |
| Divorced | <input type="checkbox"/> |
| Widowed | <input type="checkbox"/> |

4. With regard to health, prevention of disease, lifestyle management and life skills education, how much information do you feel that you have retained since the course on lifestyle management ended?

- | | |
|--|--------------------------|
| None or very little that was of use to you | <input type="checkbox"/> |
| Some information but not as much as you would have liked | <input type="checkbox"/> |
| A reasonable amount of useful information | <input type="checkbox"/> |
| A lot of useful information | <input type="checkbox"/> |
| Only the information that is important to you | <input type="checkbox"/> |

5. In regard to health, prevention of disease and lifestyle management, from which sources have you continued to receive, or source further information?

(Please put a cross in all of the boxes that apply to you):

- | | |
|---|--------------------------|
| I have not sourced or received any further information on lifestyle management since the course | <input type="checkbox"/> |
| The course information has been supplemented or supported by: | |
| Other courses on my programme of study (e.g. physiology or nutrition) | <input type="checkbox"/> |
| Home / parents / grandparents | <input type="checkbox"/> |
| Health care professionals / clinic sisters | <input type="checkbox"/> |
| The centre for HIV/AIDS | <input type="checkbox"/> |

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Gym / sports trainers or sports club

Books / use of the library and librarians

Magazines

Internet

Other sources

6. The Introduction to Lifestyle Management course that you took last year has provided evidence based (that is information that has been scientifically researched and verifiable) information in order to assist you to make informed decisions of your own. It contained several types of information about health. The learning sessions covered physical, psychological, social and spiritual wellness. I would like to know how important factual information on these areas of health and lifestyle management has now become to you after completing this course.

Area of Health	Very Important	Important	Not too Important	Not Important at all
Nutrition				
Smoking				
Use of alcohol				
Use of medication				
Recreational drug use				
Exercise				
Water intake				
Clean air, correct breathing				
Exposure to the sun				
Bacteria (germs) and fungi				
Diseases from animals				
HIV/AIDS prevention and treatment				
Knowing yourself well				
Getting along with others				
Setting priorities in your life				
Time management				
Stress management				
Positive thinking				

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

Happiness				
Faith and spirituality				
Personal self-expression				
Planning your own future				

7. Which of the above areas is currently, for you personally, the most important?

8. Why is this important to you now?

9. Overall, which learning sessions made the biggest impact on how you live your life currently?

10. As a result of the above, what exactly, with respect to your own personal lifestyle management, have you changed in your life since completing the course?

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

11. Has this programme made it easier to make ongoing changes, or to maintain changes in your lifestyle that you made last year?

12. If so, why or how is this easier?

13. Has this programme made it more difficult to make ongoing changes, or to maintain changes in your lifestyle that you made last year?

14. If so, why or how is this more difficult?

IMPACT OF LIFESTYLE MANAGEMENT EDUCATION PROGRAMME

15. On reflection, is there any part of the programme that you took, that you feel needs to be changed?

16. Why do you think is the case?

17. How do you intend to use the course you have completed or the knowledge that you have gained from the course, in the future, for yourself or for others?

Thank you for your response!