QUALITY OF LIFE AND ACADEMIC PERFORMANCE OF UNIVERSITY OF THE FREE STATE FIRST-YEAR HEALTH SCIENCES STUDENTS

BY

ARNELLE MOSTERT
STUDENT NUMBER: 2015142520

DISSERTATION SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
MAGISTER IN HEALTH PROFESSIONS EDUCATION
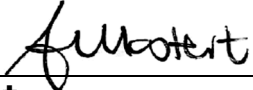
(MHProfEdu)

IN THE DIVISION HEALTH SCIENCES EDUCATION,
FACULTY OF HEALTH SCIENCES
AT THE UNIVERSITY OF THE FREE STATE

JANUARY 2019

SUPERVISOR: DR L.J. VAN DER MERWE
CO-SUPERVISOR: DR M.P. JAMA

DECLARATION

I hereby declare that the compilation of this dissertation is the result of my own independent work. I have acknowledged persons who assisted me in this endeavour. I have tried to use the research sources cited in the text in a responsible way and to give credit to the authors and compilers of the references for the information provided, as necessary. I further declare that this work is submitted for the first time at this institution and faculty for the purpose of obtaining a Magister Degree in Health Professions Education and that it has never been submitted at any other institution for the purpose of obtaining a qualification. I also declare that all information provided by study respondents will be treated with the necessary confidentiality.
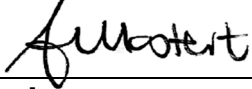
_____   25 January 2019
Dr A Mostert   **Date**

I hereby cede copyright of this dissertation in favour of the University of the Free State.

_____   25 January 2019
Dr A Mostert   **Date**

DEDICATION

I dedicate this dissertation to my husband, Hannes,

and children, Michael and Stian.

Your love and support mean the world to me.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

CHAPTER 4: RESULTS AND INTERPRETATION OF THE SURVEY

CHAPTER 5 DISCUSSION OF THE QUALITY OF LIFE AND ACADEMIC PERFORMANCE OF FIRST-YEAR HEALTH SCIENCES STUDENTS

CHAPTER 6: CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS OF THE STUDY

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS AND ACRONYMS

BBiok	**Bachelor of Biokinetics**
BOptom	**Bachelor of Optometry**
BSc (Physiotherapy)	**Bachelor of Science in Physiotherapy**
BSc (Dietetics)	**Bachelor of Science in Dietetics**
BSocSci (Nursing)	**Bachelor of Social Sciences in Nursing**
FSS	**Financial Stress Scale**
GPA	**Grade Point Average**
HSREC	**Health Sciences Research Ethics Committee**
IADL	**Instructional activities of daily living**
MBChB	**Bachelor of Medicine and Bachelor of Surgery**
QOL	**Quality of life**
SF-36	**Short Form 36 Health Survey Questionnaire**
UFS	**University of the Free State**
WHO	**World Health Organization**
WHOQOL-100	**World Health Organization Quality of Life 100**
WHOQOL-BREF	**World Health Organization Quality of Life Abbreviated version**

SELECTED DEFINITIONS AND TERMS

Academic performance: Results of existing assessments or students' final academic marks (Ferguson, James, O'Hehir & Sanders 2003:430; Lievens, Coetsier, De Fruyt & Maeseneer 2002:1050).

Academic success: Academic success is a complex concept and the definition varies greatly across different fields. York, Gibson and Rankin (2015:5) propose the following revised definition of academic success: "inclusive of academic achievement, attainment of learning objectives, acquisition of desired skills and competencies, satisfaction, persistence, and post-college performance".

Country classification: The World Economic Situation and Prospects (WESP) classifies the countries in the world into three broad categories, namely, developed economies, developing economies and economies in transition (UN 2018:online). In this study, this classification was used.

EvaSys education system: A sophisticated internet-based survey management system used to evaluate academic programmes quickly and efficiently (UFS 2014:online).

First-year students: First-year students refers to students registered for a programme at the University of the Free State for the first time (Swanepoel 2014:16).

Formal settlement: A formal settlement is structured and organised. Land parcels (plots or erven) make up a formal and permanent structure. A local council or district council controls development in these areas. Services, such as water, electricity and refuse removal are provided and roads are formally planned and maintained by the council. This category includes suburbs and townships (Statistics South Africa 2003:187).

Health Sciences Research Ethics Committee: Ethics committee of the Faculty of Health Sciences of the University of the Free State (UFS 2019:online).

Informal settlement: Informal settlements or "squatter camps" are found on land that has not been surveyed or proclaimed as residential, and the structures are usually informal.

These settlements are usually found on the outskirts of towns or along railway lines and roads (Statistics South Africa 2003:187).

Non-urban (rural) area: The area does not share a common boundary with a proclaimed municipal area. Examples of non-urban areas include semi-towns (towns without local authorities), villages/settlements without local authorities, tribal areas, informal dwellings ("squatter camps") in non-urban areas, and areas with farms and agricultural holdings (Statistics South Africa 2003:185).

Prominent facets: In this study, prominent facets refer to the quality of life facets that are affected to a higher degree.

Quality of life: An individual's perception of their position in life in the context of the culture and value systems according to which they live, and which relate to their goals, expectations, standards and concerns (Kuyken 1995:1405).

SPSS format: A computer program used for statistical analysis (IBM 2011:iii).

Urban area: An area that has its own municipal or local authority. Examples of urban areas are ordinary towns or city areas or formal structures, e.g., houses, flats, boarding houses, old-age homes, caravan parks, and school and university residences. This area includes mainly informal dwellings or "squatter camps" in urban areas (Statistics South Africa 2003:185).

Wellbeing: A positive outcome that is meaningful for people and for many sectors of society, because it tells us people perceive that their lives are going well (Centres for Disease Control and Prevention 2019:online). Well-being is an alternative spelling of this concept (Oxford English Dictionary 2019:online; Collins English Dictionary 2019:online), and the version used in this dissertation.

Wellness: A multi-dimensional state of being describing the existence of positive health in an individual, as exemplified by quality of life and a sense of well-being (Sidman, D' Abundo & Hritz 2009:e2).

SUMMARY

Key terms: Quality of life; academic performance; first-year students, health sciences students (medical, nursing, physiotherapy, occupational therapy, optometry, dietetics), residences (on campus, off campus), South Africa

An in-depth study was carried out to investigate the quality of life of first-year health sciences students and to determine the correlation between quality of life and academic performance. The results of this study could be used to address challenges related to quality of life and academic performance in the Faculty of Health Sciences at the University of the Free State (UFS) in South Africa.

A few studies have been performed internationally (outside South Africa) to evaluate quality of life in certain health sciences (mainly medical and nursing) students. A direct relationship between the quality of life and academic performance of preclinical medical students (first three study years) was found in a study performed in Saudi Arabia.

First-year students, in general, are a population that faces physical health, psychological and social challenges, which are caused by the transition from high school to university learning, and these students need to learn how to balance academic workload and their personal lives. No studies have been done at the Faculty of Health Sciences at the UFS to investigate the quality of life of first-year health sciences students using the WHOQOL-BREF questionnaire. A few studies have been conducted outside South Africa to evaluate differences in the quality of life of students who reside in either on-campus or off-campus accommodation, but not at the Faculty of Health Sciences at the UFS.

The problem that was addressed by this study is the lack of information regarding the quality of life of first-year students enrolled in the Faculty of Health Sciences at the UFS. Diverse quality of life factors may impact their academic performance.

The aim of the study was to measure quality of life by means of the WHOQOL-BREF questionnaire and to determine the correlation of quality of life scores with the academic performance of UFS first-year health sciences students.

This research study conducted a quantitative descriptive cross-sectional design. A survey was used to collect the data by means of a questionnaire. The research methods comprised a literature study, completion of the WHOQOL-BREF questionnaire, as well as gathering demographic and academic performance information about the respondents.

The quality of life of students in the various health sciences disciplines, who reside in either on-campus and off-campus residences, was measured and the correlation between their quality of life and academic performance was determined. The study revealed that the overall quality of life and health of students at the Faculty of Health Sciences, UFS, was good. The quality of life domain score order varied in the schools and academic programmes of the Faculty of Health Sciences, for on-campus and off-campus students and students who had lived in either urban or non-urban (rural) areas before attending university. The 10 most prominent facets of the four quality of life domains were the following: sleep and rest; energy and fatigue; work capacity; thinking, learning, memory and concentration; negative feelings; bodily image and appearance; sexual activity; freedom, physical safety and security; participation in and opportunities for recreation/leisure activities and physical environment.

The findings of the study could make a valuable contribution to the knowledge base about the quality of life of first-year health sciences students, and could assist the researcher and other health care professionals to address challenges related to students' quality of life and academic performance.

OPSOMMING

Kernwoorde: Lewenskwaliteit, akademiese prestasie, eerstejaarstudente, gesondheidswetenskappe-studente (medies, verpleegkunde, fisioterapie, arbeidsterapie, optometrie, dieetkunde), verblyf (kampus, af-kampus), Suid-Afrika

'n Grondige studie is uitgevoer om die lewenskwaliteit en akademiese prestasie van eerstejaar- gesondheidswetenskapstudente te ondersoek en om die verband tussen lewenskwaliteit en akademiese prestasie te bepaal. Die resultate van hierdie studie kan gebruik word om kwessies rakende lewenskwaliteit en akademiese prestasie in die Fakulteit Gesondheidswetenskappe by die Universiteit van die Vrystaat (UV) in Suid-Afrika aan te spreek.

'n Paar studies is al internasionaal (buite Suid-Afrika) uitgevoer om die lewenskwaliteit van sekere gesondheidswetenskap- (hoofsaaklik mediese en verpleegkunde-) studente te evalueer. 'n Direkte verband tussen die lewenskwaliteit en akademiese prestasie van prekliniese mediese studente (eerste drie studiejare) is gevind deur 'n studie wat in Saoedi-Arabië uitgevoer is.

Eerstejaarstudente, in die algemeen, moet uitdagings wat met fisieke en psigologiese gesondheid en sosiale aanpassings verband hou, hanteer in die oorgang van leer op hoërskool na universiteit, en moet leer om akademiese werkslading en hul persoonlike lewe te balanseer. Geen studies is voorheen by die Fakulteit Gesondheidswetenskappe by die UV gedoen om die lewenskwaliteit van eerstejaar- gesondheidswetenskapstudente te ondersoek deur toepassing van die WHOQOL-BREF vraelys nie. 'n Paar studies is buite Suid-Afrika uitgevoer om die verskille in die lewenskwaliteit van studente wat óf op kampus, óf in af-kampusakkommodasie bly, te evalueer, maar nie by die Fakulteit Gesondheids-wetenskappe van die UV nie.

Die probleem wat hierdie studie aangespreek het, is die tekort aan goed nagevorste inligting rakende die lewenskwaliteit van eerstejaarstudente wat by die Fakulteit Gesondheids-wetenskappe van die UV ingeskryf is. 'n Verskeidenheid lewenskwaliteitsfaktore kan 'n uitwerking op hul akademiese prestasie hê.

Die doel van die studie was om die lewenskwaliteit en akademiese prestasie van eerstejaar-gesondheidswetenskapstudente aan die UV te meet deur die WHOQOL-BREF vraelys toe te pas en om die verband tussen lewenskwaliteit en akademiese prestasie te bepaal.

Die navorsingstudie het 'n kwantitatiewe, beskrywende dwarsdeursnitontwerp gevolg. 'n Opname is gebruik om data deur middel van 'n vraelys in te samel. Die navorsingsmetodes het 'n literatuurstudie, voltooiing van die WHOQOL-BREF vraelys en versameling van demografiese en akademiese prestasie-inligting oor die deelnemers behels.

Die lewenskwaliteit van studente in die verskeie gesondheidswetenskapdissiplines, wat in óf kampus- óf af-kampusakkommodasie woon, is gemeet en die verband tussen hul lewenskwaliteit en akademiese prestasie is bepaal. Die studie het getoon dat die lewenskwaliteit en gesondheid van studente in die Fakulteit Gesondheidswetenskappe by die UV in die algemeen goed was. Die rangorde van die lewenskwaliteitdomeintellings het verskil vir die skole en akademiese programme van die Fakulteit Gesondheidwetenskappe, vir studente wat in óf kampus- óf af-kampusakkommodasie woon, en vir studente wat in óf stedelike óf landelike gebiede gewoon het voordat hulle universiteit toe gekom het. Die 10 prominentste fasette van die vier lewenskwaliteitdomeine was die volgende: slaap en rus; energie en moegheid; werksvermoë; dink, leer, geheue en konsentrasie; negatiewe gevoelens; liggaamsbeeld en voorkoms; seksuele aktiwiteit; vryheid, fisiese veiligheid en sekuriteit; deelname aan en geleentheid vir ontspanning en -aktiwiteite en die fisiese omgewing.

Die bevindinge van die studie kan 'n waardevolle bydrae tot die kennisbasis oor die lewenskwaliteit van eerstejaar- gesondheidswetenskappestudente lewer en kan die navorser en ander professionele gesondheidsorgverskaffers help om uitdagings rakende studente se lewenskwaliteit en akademiese prestasie aan te spreek.

QUALITY OF LIFE AND ACADEMIC PERFORMANCE OF UNIVERSITY OF THE FREE STATE FIRST-YEAR HEALTH SCIENCES STUDENTS

CHAPTER 1

ORIENTATION TO THE STUDY

> "Imagine an educational system that develops the individual strengths of our young people so they may realise their personal potential and fulfil a loftier goal – that of creating a thriving community of civically responsible and productive members; it may very well be attainable."
>
> (Shane Lopez)

1.1 INTRODUCTION

In this research project, an in-depth study was done by the researcher to investigate the quality of life of first-year undergraduate health sciences students and to determine the correlation between quality of life and academic performance. The results of this study could be used to address issues related to quality of life and academic performance of students in the Faculty of Health Sciences at the University of the Free State (UFS) in South Africa.

Quality of life is a complex concept, which is affected by peoples' perceptions of their physical and psychological health, social relationships and environment (Kuyken 1995:1407). A good quality of life helps sustain the medical careers of medical students (Billington & Krägeloh 2015:28; Tartas, Walkiewicz, Majkowicz & Budzinski 2011:e169). Academic performance of medical students is a significant predictor of professional competence in their medical careers (Tartas *et al*. 2011:e169).

A direct relationship was found between the quality of life of preclinical medical students (first three study years) and academic performance in a study done in Saudi Arabia (Shareef, AlAmodi, Al-Khateeb, Abudan, Alkhani, Zebian, Qannita & Tabrizi 2015:e1). Therefore, knowledge of the quality of life and academic performance, and the correlation between quality of life and academic performance of first-year health sciences students could provide valuable information to the Faculty of Health Sciences, UFS, South Africa.

The aim of this study was to investigate the quality of life and academic performance of first-year undergraduate health sciences students to determine the correlation between quality of life and academic performance. The investigation was done by conducting a literature study (databases that were consulted will be indicated in Chapter 3), collecting and analysing data obtained by administering the World Health Organization Quality of Life Abbreviated version (WHOQOL-BREF) questionnaire (WHO 1998:94), and demographic information (age, gender, ethnicity, course, residential status, urban or non-urban origin) and academic performance of first-year health sciences students.

The aim of Chapter 1 will be to orient the reader to the study. Firstly, a description of the background to the research problem will be provided. This will be followed by the problem statement, research questions, objectives, overall goal and aim of the research project. Thereafter, a short overview of the research design and investigation methods will be provided. This information will be followed by a demarcation of the study and a discussion of the value, significance and contribution of the study. Chapter 1 will conclude with a summative overview of the subsequent chapters.

1.2 BACKGROUND OF THE RESEARCH PROBLEM

Quality of life is defined by the World Health Organization (WHO) as, "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns". This concept incorporates an individual's physical health, psychological health, level of independence, social relationships, personal beliefs and environmental relationships (Kuyken 1995:1405).

Several condition-specific and generic instruments have been developed to measure quality of life in both ill and healthy populations. Quality of life may be determined objectively by analysing actual conditions, e.g., absence or presence of disease, and socio-economic status, and subjectively, by perceptions of the conditions (Billington & Krägeloh 2015:30; Gil-Lacruz & Gil-Lacruz 2015:82). Examples of generic quality of life instruments are the Perceived Quality of Life Scale (PQOL) and the World Health Organization Quality of Life questionnaires (Seattle Quality of Life Group 2016:online), and the Short Form 36 Health Survey Questionnaire (Posadzki, Musonda, Debska & Polczyk 2009:244). In its quest to develop a reliable, valid and cross-culturally acceptable instrument to measure quality of life, the WHO collaborated internationally to form The WHOQOL Group (Kuyken 1995:1403).

As a result of this international collaboration, the World Health Organization Quality of Life 100 (WHOQOL-100) instrument was developed. An abbreviated version of the WHOQOL-100, called the WHOQOL-BREF, was later introduced, because the WHOQOL-100 was too lengthy for practical use, and its questions needed refining (WHO 1996:7). The researcher decided to use the WHOQOL-BREF questionnaire, because it is a valid, reliable, cross-culturally acceptable and multilingual instrument for measuring quality of life (cf. 2.4).

The self-administered WHOQOL-BREF questionnaire contains a total of 26 questions. Two global questions relate to quality of life in general and overall health, and 24 questions relate to the four main quality of life domains, namely, physical health, psychological health, social relationships and environment. The physical health domain describes peoples' perceptions of their physical state. The psychological health domain entails individuals' perceptions of their cognitive and affective state. The social relationships domain encompasses perceptions about peoples' interpersonal relationships and social roles, while the environment domain describes perceptions about the physical and personal environment (Kuyken 1995:1405). The 24 questions of the WHOQOL-BREF questionnaire are also referred to as the facets of the quality of life domains. Table 1.1 provides an overview of the WHOQOL-BREF domains and the facets incorporated within each domain (WHO 1996:7).

Table 1.1: WHOQOL-BREF DOMAINS

DOMAIN	FACETS INCORPORATED WITHIN DOMAINS
1. Physical health	• Activities of daily living • Dependence on medicinal substances and medical aids • Energy and fatigue • Mobility • Pain and discomfort • Sleep and rest • Work capacity
2. Psychological health	• Bodily image and appearance • Negative feelings • Positive feelings • Self-esteem • Spirituality/religion/personal beliefs • Thinking, learning, memory and concentration
3. Social relationships	• Personal relationships • Social support • Sexual activity
4. Environment	• Financial resources • Freedom, physical safety and security • Health and social care: accessibility and quality • Home environment • Opportunities for acquiring new information and skills • Participation in and opportunities for recreation/leisure activities • Physical environment (pollution/noise/traffic/climate) • Transport

The total score of each domain indicates individuals' perceptions of their quality of life. The mean score of the items within each domain is used to calculate the domain score. Higher scores indicate a better quality of life (Usefy, Ghassemi, Sarrafzadegan, Mallik, Baghaei & Rabiei 2010:141).

Over the years, various studies have been performed to evaluate the quality of life of different student populations. Studies have used the WHOQOL-BREF questionnaire in various countries to assess the quality of life of medical (Henning, Krägeloh, Moir, Doherty & Hawken 2012:129; Krägeloh, Henning, Billington & Hawken 2015:85; Messina, Quercioli, Troiano, Russo, Barbini, Nisticò & Nante 2016:245; Shareef *et al.* 2015:e1; Zhang, Qu, Lun, Wang, Guo & Liu 2012:e1) and nursing students (Arronqui, Lacava, Magalhães & Goldman 2011:764; Cruz, Felicilda-Reynaldo, Lam, Contreras, Cecily, Papathanasiou, Fouly, Kamau, Valdez, Adams & Colet 2018:140; Eurich & Kluthcovsky 2008:e1). In South Africa, studies were done on medical students at the University of KwaZulu-Natal Medical School (Pillay, Ramlall & Burns 2016:e1) and at the Faculty of Health Sciences, UFS (Colby, Mareka, Pillay, Sallie, Van Staden, Du Plessis & Joubert 2018:e1) using the WHOQOL-BREF questionnaire. As far as could be established from literature searches, no studies using the WHOQOL-BREF questionnaire to evaluate the quality of life of nursing, physiotherapy, occupational therapy, optometry and dietetics students have been documented in South Africa.

The Faculty of Health Sciences at the UFS, South Africa, consists of the School of Medicine (medical and radiation sciences students), the School of Nursing (nursing students) and the School for Allied Health Professions (occupational therapy, physiotherapy, optometry, dietetics and biokinetics students). Students are selected on the basis of, among other factors, their high-school academic performance (UFS 2018a:online; UFS 2018b:online; UFS 2018c:online). Consequently, it is assumed that they have the academic competency to complete their chosen courses without difficulty, in spite of their courses being demanding, due to full academic schedules and stressful examinations (Backović, Maksimović, Davidović, Ilić-Živojinović & Stevanović 2013:780).

First-year university students, in particular, face physical, psychological health and social challenges related to the transition from high school to university learning (Hicks & Heastie 2008:146) and need to balance their academic workload and personal lives. First-year students' experiences of the higher education environment may differ, depending on student group, gender and age (Bojuwoye 2002:288). Research studies focussing on the

first-year experience have been done in South Africa (Pather & Dorasamy 2018:49), the UFS specifically (Wilson-Strydom 2010:9), and in various student groups and countries in the rest of the world (Brinkworth, McCann, Matthews & Nordström 2009:157; Gibney, Moore, Murphy & O'Sullivan 2011:364). A few studies about the first-year experience of health sciences students (medical, nursing and occupational therapy students), in particular, have been done worldwide (Boehm, Cordier, Thomas, Tanner & Salata 2017:22), in South Africa (Matshotyana, Van Rooyen & Du Randt 2015:S105) and at the Faculty of Health Sciences, UFS (Jama 2018:77).

The quality of life of first-year university students, in general, was found to be lower than the quality of life of their working peers (Vaez, Kristenson & Laflamme 2004:227). In contrast to first-year medical, physiotherapy, occupational therapy and optometry students, first-year nursing students at the UFS perform clinical work (a total of 440 hours) in addition to their academic workload (Welman 2018:personal communication), which may influence their academic performance and quality of life.

An important consideration in this study was whether students reside in on-campus or off-campus accommodation. Hicks and Heastie (2008:146) determined that off-campus college students reported fewer physical health difficulties than on-campus residents, but more off-campus students than on-campus students reported psychological health issues. Therefore, this study took this factor into consideration.

Another important aspect this study considered was gender. In Sweden, female first-year university students' self-perceived quality of life was higher than that of their male peers (Vaez & Laflamme 2003:160). In contrast, in Saudi Arabia, male medical students had higher quality of life than their female colleagues, irrespective of the academic year; male medical students' physical and psychological health domains scored higher than that of female students (Shareef *et al.* 2015:e1). This finding is supported by Eurich and Kluthcovsky (2008:e1), in their study of the quality of life of undergraduate nursing students in Brazil. However, at the University of KwaZulu-Natal, South Africa, the median quality of life scores of male and female medical students were equal (Pillay *et al.* 2016:e4). As far as the researcher could establish from literature searches, no similar studies have been done at the UFS to evaluate gender-based differences in the quality of life domains of first-year health sciences students using the WHOQOL-BREF questionnaire as instrument.

In this study, it was important to investigate differences in the quality of life of students from urban and non-urban (rural) areas. In a study performed in China, medical students from rural areas had lower scores in the psychological health and social relationships quality of life domains (Zhang *et al.* 2012:e4). Another important consideration in a South African context is whether students come from formal or informal settlements (within urban and non-urban areas). These observations need to be researched further in South Africa, as socio-economic disparities exist between students from disadvantaged and advantaged backgrounds (Van der Merwe, Van Zyl, St Clair Gibson, Viljoen, Iputo, Mammen, Chita, Perez, Hartman, Fonn, Green-Thompson, Ayo-Ysuf, Botha, Manning, Botha, Hift, Retief, Van Heerden & Volmink 2016:81).

Academic performance can be evaluated using the results of existing assessments or students' final academic marks (Ferguson, James, O'Hehir & Sanders 2003:430; Lievens, Coetsier, De Fruyt & Maeseneer 2002:1050; York, Gibson & Rankin 2015:7). The academic performance of medical students greatly influences their professional competence in their careers over the long term (cf. 1.1). Higher levels of stress are associated with poor academic performance (Sohail 2013:71). Shareef *et al.* (2015:e1) indicate that the academic performance of preclinical medical students (first three study years) correlate positively with their quality of life. However, the correlation between the academic performance and quality of life in the other health sciences disciplines has not been extensively researched.

The researcher lectures first-year nursing students and has observed that they struggle to balance their personal and academic lives. In addition to their academic studies, first-year nursing students perform clinical work as well, in contrast to other first-year health sciences students; this additional obligation may influence their quality of life and academic performance.

All of the above led the researcher to ask the following question: What is the quality of life of UFS first-year health sciences students (how does quality of life differ in the various health sciences disciplines) and how does it correlate with students' academic performance?

1.3   PROBLEM STATEMENT

The problem that was addressed by this study is the lack of information regarding the quality of life of first-year students enrolled in the Faculty of Health Sciences, UFS. Diverse quality of life factors may impact students' academic performance.

A few studies have been conducted internationally (outside South Africa) on the quality of life of certain health sciences student groups (in particular medical, nursing and physiotherapy students) using the WHOQOL-BREF questionnaire (cf. 1.2). In South Africa, a study exploring the correlation between spirituality, depression and quality of life in KwaZulu-Natal first to fifth-year medical students was done by Pillay *et al.* (2016:e1). At the Faculty of Health Sciences, UFS, a study to determine the association between levels of burnout and quality of life of fourth-year medical students was performed (Colby *et al.* 2018:e1). However, the researcher's literature searches failed to identify studies that had investigated the quality of life of first-year health sciences students in various disciplines (medicine, nursing and allied health professions) at the UFS, or in South Africa; neither could she find evidence of South African studies investigating differences in the quality of life domains of health sciences students living in on-campus and off-campus accommodation. This study addressed these gaps in knowledge.

1.4   RESEARCH QUESTIONS

1.4.1   Main research question

In order to address the problem stated, the following main research question was asked:

What is the quality of life of first-year UFS health sciences students (henceforth referred to as "students") and how does it correlate with their academic performance?

1.4.2   Subsidiary research questions

The following subsidiary research questions were addressed by the objectives of this study:

i. *What are the student scores in the quality of life domains of physical health, psychological health, social relationships and environment?*
ii. *How do the quality of life domains differ for students in the various health sciences disciplines?*
iii. *How do the quality of life domains differ for students who reside in either on-campus and off-campus accommodation?*
iv. *How do the quality of life domains differ for students who had resided in different types of living environments (i.e. urban/rural and formal/informal settlements) in the last year of high school?*

v. *What is the correlation between quality of life and academic performance of these students?*

The research was carried out and completed based on the above research questions.

1.5   OBJECTIVES OF THE STUDY

To achieve the aim, the following research objectives were pursued:

i. *Measure the physical health, psychological health, social relationships and environment domains of quality of life in these students. This objective addressed the first subsidiary research question, namely, What are the student scores for the quality of life domains of physical health, psychological health, social relationships and environment?*

ii. *Differentiate between the quality of life domains of students in the various health sciences disciplines. This objective addressed the second subsidiary research question, namely, How do the quality of life domains differ for students in the various health sciences disciplines?*

iii. *Differentiate between the quality of life domains of students who reside in on-campus and off-campus accommodation. This objective addressed the third subsidiary research question, namely, How do the quality of life domains differ for students who reside in either on-campus and off-campus accommodation?*

iv. *Differentiate between the quality of life of students who had resided in different types of living environments (i.e. rural/urban and formal/informal settlements) in the last year of high school. This objective addressed the fourth subsidiary research question, namely, How do the quality of life domains differ for students who had resided in different types of living environments (i.e. urban/rural and formal/informal settlements) in the last year of high school?*

v. *Determine the correlation between quality of life and academic performance of these students. This objective addressed the fifth subsidiary research question, namely, What is the correlation between quality of life and academic performance of these students?*

The above objectives were pursued by conducting a literature study and administering the WHOQOL-BREF questionnaire, which was expanded by gathering demographic information. The fifth objective included the calculation of the final academic average mark obtained for all the first-year modules, as reflected on the respondents' academic records (academic performance).

1.6   OVERALL GOAL OF THE STUDY

The overall goal of the study was to investigate the quality of life and academic performance of first-year health sciences students. The information gained from this study could be used to address issues related to quality of life and academic performance of students in the Faculty of Health Sciences at the UFS and similar settings in South Africa.

1.7   AIM OF THE STUDY

The aim of the study was to measure quality of life by using the WHOQOL-BREF questionnaire and to determine the correlation of quality of life scores with the academic performance of UFS first-year health sciences students.

1.8   RESEARCH DESIGN OF THE STUDY AND METHODS OF INVESTIGATION

1.8.1   Design of the study

This study followed a quantitative, descriptive, cross-sectional survey design in the form of a questionnaire.

1.8.2   Methods of investigation

The research methods that were used and which formed the basis of the study comprised a literature study (cf. 3.3.1), a survey in the form of a questionnaire (cf. 3.3.2.), and determining academic performance (cf. 3.3.3). These methods will be described in detail in Chapter 3, **Research design and methodology.**

In this study, the literature study provided the background regarding current knowledge about the quality of life and academic performance of first-year health sciences students in various disciplines. The literature study also provided the rationale for the inclusion of selected demographic information and the use of the WHOQOL-BREF questionnaire.

The literature study was followed by a survey in the form of a questionnaire administered to first-year health sciences students. The researcher used the WHOQOL-BREF questionnaire, because it is a valid, reliable, cross-culturally acceptable and multilingual instrument for measuring quality of life (cf. 1.2, 3.3.2). In addition to the information elicited

by the WHOQOL-BREF questionnaire, demographic data was gathered (cf. 3.3.2). Demographic information about age, gender, ethnicity, residential status (on campus or off campus) and urban or non-urban origin (informal or formal settlement) was obtained.

Academic records of the respondents were accessed to enable the researcher to calculate final academic average marks (cf. 3.3.3). This mark was used as a measure of academic performance.

A detailed description of the population, sampling methods, data collection and techniques, data analysis and reporting and ethical considerations will be provided in Chapter 3. A schematic overview of the study is given in Figure 1.1. on the next page.
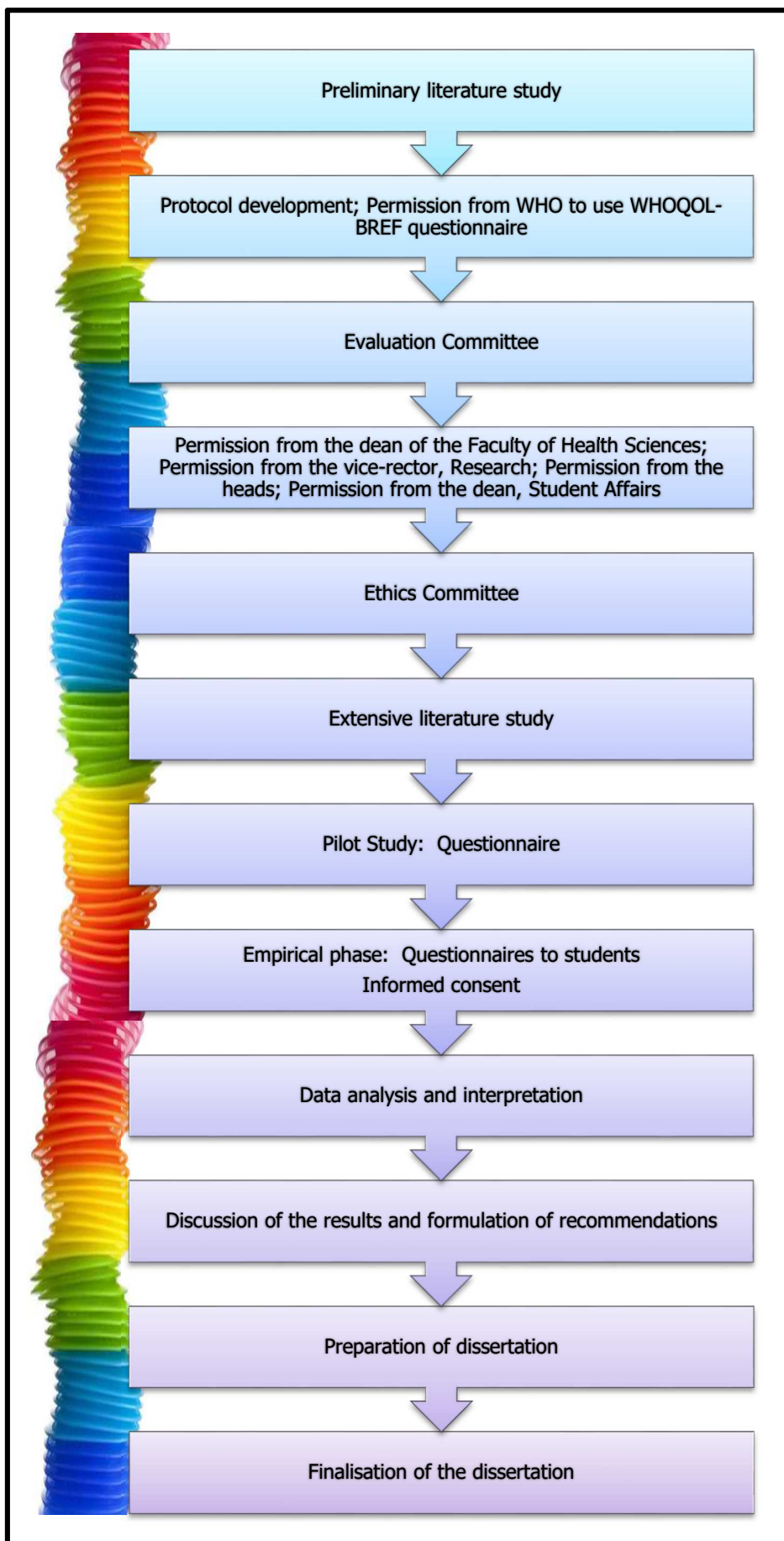
Figure 1.1: A schematic overview of the study (Compiled by the researcher, Mostert 2016)

1.9 DEMARCATION OF THE FIELD AND SCOPE OF THE STUDY

The study was conducted in the field of Health Professions Education, in the domain of Health Sciences Education. The respondents in the survey were first-year health sciences students.

1.10 THE VALUE, SIGNIFICANCE AND CONTRIBUTION OF THE STUDY

1.10.1 Value

The value of the research lies in the contribution it could make to existing knowledge about the quality of life and academic performance of first-year students enrolled at the Faculty of Health Sciences, UFS, who are especially vulnerable due to a heavy academic workload.

Students in the health sciences are taught to value quality of life in patients, but they also need to have good quality of life in their own lives. The information gained from this research may be used to address challenges related to the quality of life and academic performance of first-year health sciences students at the Faculty of Health Sciences, UFS, South Africa.

1.10.2 Significance

The proposed study could contribute to a better understanding of and knowledge about the quality of life of first-year health sciences students. The correlation between their quality of life and academic performance will contribute to a greater understanding of the impact of quality of life on academic performance, and may guide student support strategies. Studies to investigate the quality of life of medical students have been performed in Italy and New Zealand (both developed countries), China (a developing country), and Saudi Arabia (an economy in transition). Most studies of the quality of life of nurses have been done in Brazil (a developing country). Therefore, the information gained through this study may be of practical significance in South Africa and other developing countries.

1.10.3 Contribution

The information gained from this study could contribute to current knowledge about the quality of life of first-year health sciences students (medical, nursing, physiotherapy, occupational therapy, optometry, dietetics and radiation science) as a group, and enable comparison between the different disciplines. A comparison of the quality of life of on-

campus and off-campus students, and the quality of life of students from urban and non-urban (rural) areas, will also be possible. This comparison could inform the planning of interventions to support students from diverse backgrounds who are enrolled for various programmes.

There is an increased focus on assisting first-year university students with their transition from high school to university learning in countries all over the world. Universities have developed transition programmes and first-year experience programmes, e.g., in the United States of America, the National Resource Centre for the First Year Experience and Students in Transition at the University of South Carolina (Skipper 2017:7). Locally, the South African National Resource Centre for the First Year Experience and Students in Transition (SANRC), was established at the University of Johannesburg (SANRC 2018:online).

Various studies describe the first-year experience of several student groups, outside (Ambrose, Bridges, DiPietro, Lovett & Norman 2010:4; Brinkworth *et al.* 2009:157; Gibney *et al.* 2011:364) and inside South Africa (Wilson-Strydom 2010:9). The South African Survey of Student Engagement (SASSE) was developed to supply higher education institutions with data to improve the learning environment and academic success of students (UFS 2018e:online). Research into the factors that influence the academic performance of first-year nursing students (Jafta 2013:160) and the academic success of first-year occupational therapy students (Swanepoel 2014:20) has been conducted at the UFS. However, there is a lack of information regarding the first-year experience of students in the various programmes of the Faculty of Health Sciences, UFS. This study may provide valuable information in this regard.

Quality of life data obtained from this study may be used by the WHO for further analysis of the psychometric properties of the WHOQOL-BREF questionnaire (cf. Appendix E, User agreement). The results of this study may be presented and published internationally by the WHO, in accordance with its user agreement with the researcher.

1.11   IMPLEMENTATION OF THE FINDINGS

The report containing the findings of the research will be brought to the attention of the School of Medicine, School of Nursing and School for Allied Health Professions of the Faculty of Health Sciences at the UFS.

The research findings will be submitted to academic journals for publication, as the researcher hopes to contribute to the knowledge base relating to the quality of life and academic performance of first-year health sciences students. The research findings will also be presented at conferences.

1.12   ARRANGEMENT OF THE REPORT

To impart a deeper understanding of the topic, the methods used to find an answer to the research question, and the final outcome of the study, the remaining chapters of this dissertation will be reported, with a short description of each chapter:

In this introductory chapter, **_Orientation to the study_**, the background of the research problem was stated, while the research questions were specified. A brief discussion of the objectives, overall goal and aim was followed by a description of the research design and methods employed. The significance of the study for addressing the quality of life of first-year health sciences students was indicated.

In Chapter 2, **_Quality of life and academic performance of first-year students_**, the conceptualisation and contextualisation of quality of life and academic performance will be discussed. This chapter serves as a theoretical framework for the study and will address components of the main and subsidiary research questions through literature study.

In Chapter 3, **_Research design and methodology_**, the research design and methods that were applied will be discussed. Both data collection methods and data analysis will be described in detail.

In Chapter 4, **_Results and interpretation of the survey_**, the data gathered by means of the questionnaire, will be presented systematically. This chapter will include a descriptive analysis and tables.

Chapter 5, **_Discussion of the quality of life and academic performance of first-year health sciences students_**, will provide an appraisal of research findings of the study and compare the findings with the literature study.

In the final chapter, **_Conclusion, recommendations and limitations of the study_**, an overview of the study, conclusions, recommendations and limitations of the study, as well as the contribution of the research, will be provided.

1.13 CONCLUSION

Chapter 1 provided an introduction and background to the research undertaken regarding the quality of life and academic performance of UFS first-year health sciences students. The next chapter, Chapter 2, entitled **Quality of life and academic performance of first-year students**, will provide a review of the literature, in order to conceptualise and contextualise aspects pertinent to this study.

CHAPTER 2

QUALITY OF LIFE AND ACADEMIC PERFORMANCE OF FIRST-YEAR STUDENTS

2.1   INTRODUCTION

Wellness and quality of life are concepts that have been researched globally in both healthy and ill populations. In recent years, the quality of life and wellness of different student populations have been examined more extensively (Henning, Krägeloh, Dryer, Moir, Billington & Hill 2018:1). Wellness programmes have been developed at most universities to address the physical and psychological health of students.

The concepts of wellness, well-being, happiness and quality of life is perceived as synonymous by certain disciplines (Camfield & Skevington 2008:770). According to Sidman, D'Abundo and Hritz (2009:e2), wellness is defined as "a multi-dimensional state of being describing the existence of positive health in an individual as exemplified by quality of life and a sense of well-being". This study focussed on measuring quality of life (as a component of wellness) by using the WHOQOL-BREF questionnaire.

Wellness can impact academic success. Worldwide, research has shown that intellect and capability are not the only predictors of academic success (cf. 2.3). Empirical research has indicated a link between well-being (or the interchangeable concept of quality of life) and academic success (El Ansari & Stock 2010:527). The academic performance (measured by grade point average (GPA)) of preclinical medical students (first three study years) correlated positively with quality of life in a study done in Saudi Arabia (Shareef 2015:e:7).

Chapter 2 will provide an overview of the aspects relevant to this research project as reported by the literature. The concepts of quality of life and academic performance of first-year health sciences students will be explored. The correlation between quality of life (domains and facets) and academic performance will be explored by scrutinising literature on these topics.

Figure 2.1 captures the main theoretical and conceptual aspects of this chapter schematically. The arrows denote the interdependence of principal components.
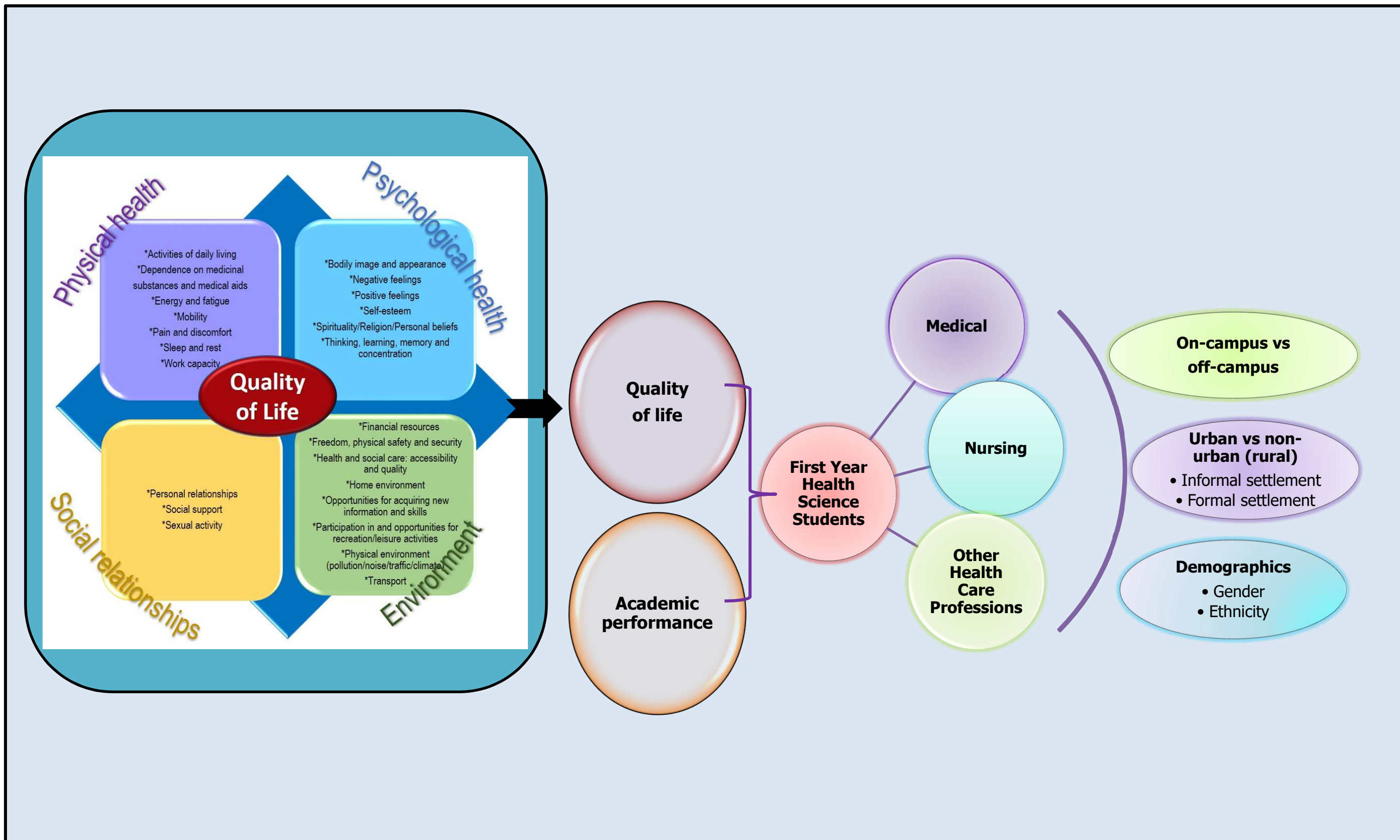
Figure 2.1: A diagrammatic overview of the different aspects that will be discussed (Compiled by the researcher, Mostert 2017)

2.2 FIRST-YEAR STUDENTS

First-year university students are students registered at a university for the first time after secondary schooling. Worldwide there has been an increased focus on assisting first-year university students to face unique physical, psychological health and social challenges related to the transition from high school to university learning (cf. 1.2), and to balance their academic workload and personal lives.

First-year students often have predetermined ideas and expectations of higher education. Their high school experiences may influence their perceptions and expectations of university life, which may affect learning either positively or negatively (Ambrose *et al.* 2010:4). Therefore, it has become imperative for higher education institutions worldwide to understand first-year students' experiences and expectations, in order to moderate students' expectations (Kuh, Cruce, Shoup & Kinzie 2008:540-541). Universities have developed transition programmes and first-year experience programmes (e.g., the National Resource Centre for the First Year Experience and Students in Transition at the University of South Carolina); a South African example is the SANRC at the University of Johannesburg.

Surveys have been developed to measure student engagement and satisfaction at higher education institutions, such as The Freshman Survey (TFS), to measure student satisfaction and academic skills (York *et al.* 2015:7) and the National Survey of Student Engagement (NSSE) in the United States (UFS 2018d:online). In 2006, the division of Student Development and Success (presently incorporated in the Centre for Teaching and Learning) at the UFS, requested permission from the NSSE Institute to modify the NSSE for use in South Africa (UFS 2018d:online). Hence, the SASSE was developed, with the main aim of providing higher education establishments with data to contribute to academic success (SASSE 2016:1). The Beginning University Survey of Student Engagement is used to collect information about first year students' expectations regarding higher education institutions in South Africa and can be used in combination with the SASSE (UFS 2018f:online).

The SASSE survey of 2016 revealed that "students might not have realistic expectations about their first year at a tertiary institution", as they markedly underestimated the degree of difficulty they would experience to master certain activities (SASSE 2016:16). Respondents in the survey reported a low expected difficulty for activities associated with transition matters, such as learning academic material (42%), time management (50%), paying tuition (49%) and making friends (40%) – these are some of the most prominent

factors that students wrestle with in the transition from high school to university learning (SASSE 2016:16). On the other hand, the survey reports that 40% of students expected that they would have moderate difficulty in interacting with staff, while 51% of students anticipated it to be very difficult to acquire help with academic work (SASSE 2016:16). These findings point to the need for programmes and support activities that assist students to develop realistic views of what will be required of them at university.

First-year students registered at the time of this research study were so-called Generation Y students, and most had been born in 1998. Generation Y students are also called Millennials, the Internet Generation, Generation Me or the Sunshine Generation (Twenge 2009:398), and had been born between 1981 and 2000 (Clausing, Kurtz, Prendeville & Walt 2003:373-374). Characteristics of Millennials include their digital and visible literacy, connectedness, multitasking capability and exploratory learning style. Millennials expect an immediate response and are achievement and goal oriented. They enjoy social interaction through various social media platforms (Facebook, Twitter, WhatsApp, among others) and acceptance into a group is of the essence to them (Nimon 2007:27). These characteristics have been observed in Millennials from developed (Codrington 2008:online) and developing countries (Van der Merwe 2011:5) and influence their learning styles. Therefore, it is important to determine which domains and facets of their quality of life are most prominent (affected to a higher degree) and to determine the correlation between their quality of life and academic performance.

Research studies in countries worldwide have used the WHOQOL-BREF questionnaire to investigate the quality of life of students (cf. 1.2). University students in New Zealand had lower quality of life scores than the general population (Henning, Krägeloh, Hawken, Zhao & Doherty 2012:338). Vaez *et al.* (2004:227) report that the quality of life scores of first-year university students in Sweden, in particular, were lower than the quality of life scores of their working peers (cf.1.2).

The quality of life of various student groups (e.g., medical and nursing students) seems to differ according to year of study. The study year was found to be a statistically significant indicator of the quality of life in Chinese medical students (Zhang *et al.* 2012:e3). Similar results were reported at the University of KwaZulu-Natal, South Africa, where the perceived quality of life of second and fifth-year medical students was better than that of other year groups (Pillay *et al.* 2016:e3). The current research study focussed on determining quality of life of first-year health sciences (medical, nursing, occupational therapy, physiotherapy,

optometry and dietetics) students.

In the next section, literature pertaining to the quality of life of these health sciences students will be discussed.

2.3   HEALTH SCIENCES STUDENTS

The Faculty of Health Sciences at the UFS, South Africa, consists of the School of Medicine (medical and radiation sciences students), the School of Nursing (nursing students) and the School for Allied Health Professions (occupational therapy, physiotherapy, optometry, dietetics and biokinetics students). These students are selected mainly on the basis of their high-school academic performance (UFS 2018a:online; UFS 2018b:online; UFS 2018c:online); consequently, it is assumed that they would have the academic competency to complete their selected courses without difficulty. Their courses are demanding, due to very full academic schedules and stressful examinations (Backović *et al*. 2013:780). In contrast to first-year medical, physiotherapy, occupational therapy and optometry students, first-year nursing students at the UFS perform clinical work (372 hours in hospitals and 68 hours in communities) in addition to their academic workload (Welman 2018:personal communication). This additional obligation may influence their academic performance and quality of life.

Over the years, various studies have been performed to evaluate the quality of life of different student populations. Studies have been performed among selected health sciences students (medical, nursing and physiotherapy). In South Africa, for example, a study investigating the quality of life of first to fifth-year medical students was done at the KwaZulu-Natal Medical School (Pillay *et al.* 2016:e1), and at the Faculty of Health Sciences, UFS, in fourth-year medical students (Colby *et al*. 2018:e1). However, the researcher's literature searches could not find studies done on nursing and allied health professions students.

2.3.1   Medical students

Studies evaluating the quality of life of medical students have been conducted in, among other countries, China, New Zealand, Italy and Saudi Arabia. A cross-sectional study using the WHOQOL-BREF questionnaire in China investigated the quality of life of 1 686 medical students from year one to five. In year three of medical studies, the psychological health and social relationships domains scores of quality of life was the lowest (Zhang *et al*.

2012:e1). A study conducted in New Zealand compared medical students' perceptions of their quality of life with that of non-medical students and a general population group. The findings of this study indicate that medical and non-medical students shared the same quality of life perceptions, except for the environment domain. However, medical students scored lower than the general population group on quality of life in the physical, psychological health and environment domains (Henning *et al*. 2012:338). A cross-sectional study done from 2005 to 2015 on 1 104 Italian first-year medical students found their quality of life scores to be lower than that of the general population (Messina *et al*. 2016:245), thereby confirming the results of Henning *et al.* in New Zealand.

A large, multi-institutional study done in the United States found that medical students, in particular, perceive more stress and a higher rate of suicidal ideation than non-medical student population groups. This study found a strong link between suicidal ideation and quality of life, depressive symptoms and burnout (Dyrbye, Thomas, Massie, Power, Eacker, Harper, Durning, Moutier, Szydlo, Novotny, Sloan & Shanafelt 2008:339).

Students' perspectives of their quality of life may provide valuable advice to students, educators and higher education institutions. For example, a third-year medical student at the University of Auckland, New Zealand, provides valuable insights into the quality of life of undergraduate medical students through reflection on her experiences, positive contributing aspects and challenges (Zhou 2015:5).

2.3.2   Nursing students

A multinational study on the quality of life of nursing students in nine countries found that country of residence was a significant predictor of overall perceived quality of life and health, as well as quality of life domain scores. Highest and lowest domain scores varied between countries and could not be ascribed to varying levels of development (Chile, Egypt, Greece, Hong Kong, India, Kenya, Oman, Saudi Arabia and the United States). For example, the overall quality of life scores were the highest in the United States and Greece, and lowest in Hong Kong (Cruz *et al*. 2018:140).

Research conducted in Brazil regarding the quality of life of undergraduate nursing students reports conflicting results. A study conducted in São Paulo recorded the lowest score in the physical health domain of quality of life, and the highest score in the social relationships domain. First-year nursing students scored lower in all the quality of life domains than

second-year students (Arronqui *et al*. 2011:764). In contrast to the study by Arronqui *et al*., Eurich and Kluthcovsky (2008:e1) found the physical health quality of life domain score to be highest, and the environment quality of life domain score to be the lowest among nursing students (year one to four). Research conducted in six nursing schools (n=825) in South Region, Brazil, also found the environment domain score to be the lowest, and the social relationships domain score the highest (Saupe, as cited by Eurich & Kluthcovsky 2008:e5).

A study performed at the School of Nursing at the University of Cordoba, Spain, indicated that the three main sources of stress in undergraduate nursing students were academic stressors (examinations and workload), personal concerns (finances and limitations regarding free time), and clinical practice matters (Jimenéz, Navia-Osorio & Diaz 2009:453).

2.3.3 Other health care professions

Allied health students at the UFS study physiotherapy, occupational therapy, optometry and dietetics. Not much research has been done regarding the quality of life of physiotherapy students. A study done in Poland in three higher education centres from five faculties (Physiotherapy, Physical Education, Tourism and Recreation, English Philology and Polish Philology) using the Short Form 36 (SF-36) questionnaire, found that the type of faculty has a significant effect on quality of life (Posadzki *et al.* 2009:254). Physiotherapy students in Ireland experienced greater stress from academic sources than due to personal and financial causes (Walsh, Feeney, Hussey & Donnellan 2010:210). As far as could be established from literature searches, no studies using the WHOQOL-BREF questionnaire to evaluate the quality of life of occupational therapy, optometry and dietetics students have been documented for the UFS, or in South Africa.

Next, literature evaluating gender differences will be explored.

2.3.4 Gender

Gender may be important to consider in evaluating quality of life. In Sweden, female first-year university students' self-perceived quality of life was higher than that of their male peers (Vaez & Laflamme 2003:160). Gender was found to be a good predictor of quality of life of medical students in New Zealand (Billington & Krägeloh 2015:30). In Italy, female first-year medical students' quality of life scores were lower than that of male students (Messina *et al.* 2016:249). Similar results were found in Saudi Arabia; female students had

lower quality of life scores than their male colleagues, irrespective of the academic year. Male students' physical and psychological health domains scored higher than that of female students (Shareef *et al.* 2015:e1). This finding is supported by Eurich and Kluthcovsky (2008:e1), in their study of the quality of life of undergraduate nursing students in Brazil. As far as the researcher could establish from literature searches, only the study of Pillay *et al.* (2016:e4) evaluated gender-based differences in the quality of life domains of students using the WHOQOL-BREF questionnaire as instrument in South Africa.

Differences in students utilising on and off-campus accommodation will be examined next.

2.3.5   On and off-campus accommodation

During their first year at university, students leave their familiar high school environments, friends, and family to study at a tertiary environment, with different demands and requisites, including the need to form new friendships. Such a change in environment may cause stress and pose adjustment challenges for newcomers to higher education, which may affect their quality of life and academic performance. Novice students are faced with much larger challenges than they had anticipated. Adult independence, as expected of adults, is a new reality for students who have moved away from home and have entered higher education (Pancer, Hunsberger, Pratt & Alistat 2000:38).

Therefore, an important consideration in this study was whether students reside in on-campus or off-campus accommodation. Hicks and Heastie (2008:146) determined that there were notable differences in the psychological health and physical health status and stressors of first-year students residing on campus and off campus. Off-campus students reported fewer physical difficulties than on-campus students; however, more off-campus students than on-campus students reported psychological health issues (cf. 1.2).

Students staying in on-campus accommodation (residences) face physical, environment and social challenges, which can have either a positive or negative impact on their quality of life and academic performance. First-year students in residences share rooms with other first-year students; in these rooms they socialise, prepare snacks and meals, perform self-care activities and study. The challenges faced by first-year students will be discussed in more detail under physical environment (cf. 2.4.5.7) and social support (cf. 2.4.4.2) facets of the quality of life domains.

Residence activities may influence first-year students' quality of life and academic performance. Swanepoel (2014:85, 86), in a study of first-year occupational therapy students at the UFS, found that some students perceived these activities as being positive, while other students experienced it as negative. Some of the residence activities are obligatory for first-years, e.g., residence meetings, and some are voluntary, e.g., musical productions. These residence activities may influence many of the quality of life facets, e.g., energy and fatigue (cf. 2.4.2.3), sleep and rest (cf. 2.4.2.6), social support (cf. 2.4.4.2) and physical environment (cf. 2.4.5.7), and will be explored further when the quality of life facets are discussed.

Swanepoel (2014:85-86) reports that first-year occupational therapy students in residences indicated that residence activities may influence their academic success negatively, as the activities are often time-consuming and require a great deal of energy. Some of the activities take place in the evenings and may put extra strain on their emotional and physical wellness and endurance. Hence, students need to plan carefully to balance their academic and social responsibilities.

Residence activities may also influence students' quality of life and academic success positively (Swanepoel 2014:86). Reid (2008:43) indicates that taking part in purposeful extramural residence activities may influence students' wellness and internal resilience positively through active engagement and, consequently, students' motivation to engage in their studies will also be enhanced (Zhou 2015:7). Therefore, students may handle obstacles better, which will, in turn, contribute to their internal resilience (Greene, Galambos & Lee 2003:82).

Physical environment factors (e.g., a roommate and noisy environment) that may influence students living in residences and students sharing accommodation off campus will be explored further in the discussion of the physical environment facet of the quality of life domains (cf. 2.4.5.7). In addition to physical environment challenges, finances and the management thereof are further stressors experienced by students (Dusseleir, Dunn, Wang, Shelley & Whalen 2005:21).

2.3.6   Urban or non-urban (rural) area

There is no internationally accepted definition for urban and non-urban (rural) areas, as different countries have different interpretations of what the concepts urban and rural entail

(De Vries & Reid 2003:790; Muula 2007:e1). Statistics South Africa (2003:185) defines non-urban (rural) areas in South Africa as areas that do not share a common boundary with a proclaimed municipal area. Examples of non-urban (rural) areas include semi-towns (towns without local authorities), villages/settlements without local authorities, tribal areas, informal dwellings ("squatter camps") in non-urban areas, and areas with farms and agricultural holdings. Urban areas are defined as areas that have their own municipal or local authority. Examples of urban areas include ordinary towns or city areas or formal structures, e.g., houses, flats, boarding houses, nursing homes, caravan parks, and school and university residences. These areas include mainly informal dwellings or "squatter camps" in urban areas (Statistics South Africa 2003:185).

In this study, differences in the quality of life of students from urban and non-urban (rural) areas were considered to be important. In a study performed in China, medical students from rural areas had lower scores in the psychological health and social relationships domains (cf. 1.2). In South Africa, an aspect to consider may be whether students originate from formal or informal settlements (within urban and non-urban areas), because of socio-economic disparities between students' disadvantaged and advantaged backgrounds (cf. 1.2).

2.3.7   Ethnicity and cultural differences

Quality of life perceptions are subjective in nature and are not a measurement of socio-economic status and material possessions. According to the WHO definition of quality of life, an individual's position in life could be influenced by their culture. However, although there may be "certain differences among cultures in how the various aspects of quality of life are tangibly expressed, these do not imply a direct correlation with subjective evaluations" (Billington & Krägeloh 2015:31).

As far as the researcher could establish from literature searches, not much literature is available about the quality of life of different ethnic groups. Some research has been done on cultural differences in the quality of life of medical students in New Zealand (Henning, Hawken, Krägeloh, Zhao & Doherty 2011:442) and the United States (Dyrbye, Thomas, Eacker, Harper, Massie, Power, Huschka, Novotny, Sloan & Shanafelt 2007:2103).

Henning *et al*. (2011:437) found that Asian medical students who were studying in New Zealand had lower environment quality of life domain scores than their peers from New

Zealand. Minority ethnic medical students in the United States had lower psychological health domain quality of life scores (more depressive symptoms and higher burnout) than non-minority medical students, which indicates that ethnicity negatively influenced the medical school experience (Dyrbye *et al.* 2007:2103). Factors, such as racial prejudice and discrimination and diverse cultural beliefs, were considered as possible reasons for this disparity.

In the next section, literature pertaining to quality of life will be examined.

2.4   QUALITY OF LIFE

The concept of quality of life is a broad, complex term used worldwide in several fields (economics, philosophy, social sciences, research and politics). The term was first used after the Second World War to emphasise the value of having a good general quality life, instead of financial wellness only (Shareef *et al.* 2015:e1). As the term became used more widely, an array of different definitions emerged. In its quest to provide a commonly accepted definition of quality of life, the WHO formed the WHOQOL Group, which consists of an international panel of experts from both developed and developing countries, and which clarified and defined the concept after extensive deliberation (Saxena & Orley 1997:363).

Quality of life was subsequently defined by the WHO as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns" (Kuyken 1995:1405). This concept incorporates an individual's physical health, psychological health, level of independence, social relationships, personal beliefs and environmental relationships (cf. 1.2). The WHOQOL definition highlights the view that quality of life is essentially subjective and provides a self-reporting yardstick to respondents to judge how good or bad their quality of life is (Saxena & Orley 1997:363). Socio-economic status or material belongings are not indicative of quality of life (Billington & Krägeloh 2015:31). For example, access to transport is considered worldwide to be a key element of quality of life. By using the general concept of transport in the WHOQOL instruments, respondents can decide for themselves what is implied, e.g., a person using public transport may be as satisfied with their transport as the driver of a Ferrari is (Billington & Krägeloh 2015:31).

The multidimensional nature of the definition is supported in the WHOQOL structure by the

organisation of the WHOQOL into six main domains. These domains are the physical health, psychological health, level of independence, social relationships, environment and spirituality/religion/personal beliefs domains (Kuyken 1995:1405). Each domain is divided into sub-domains (facets) that summarise the main quality of life domain. The quality of life assessment includes both positive (positive feelings) and negative aspects (negative feelings, fatigue, pain), because an evaluation of a person's life must address both positive and negative dimensions (Kuyken 1995:1406).

The WHOQOL-100 instrument was developed after extensive research and collaboration in several culturally diverse field centres worldwide (Kuyken 1995:1406). An abbreviated version of the WHOQOL-100, called the WHOQOL-BREF, was later introduced, because the WHOQOL-100 was too lengthy for practical use and questions needed refining (WHO 1996:7). The WHOQOL-BREF questionnaire is a "person-centred, multilingual instrument for subjective assessment" of quality of life (Skevington, Lofty & O'Connell 2004:308). The researcher decided to use the WHOQOL-BREF questionnaire, because it is a valid, reliable, cross-culturally acceptable and multilingual instrument to measure quality of life (cf. 3.3.2).

The self-administered WHOQOL-BREF questionnaire contains a total of 26 items scored according to a five-point Likert scale. Two global items about quality of life in general and overall health are included, as well as 24 items that describe the four main quality of life domains, namely, physical health, psychological health, social relationships and environment. The physical health domain describes individuals' perceptions of their physical state. The psychological health domain entails people's perceptions of their cognitive and affective states. The social relationships domain encompasses perceptions regarding individuals' interpersonal relationships and social roles, while the environment domain describes perceptions of the physical and personal environments (Kuyken 1995:1405). An overview of the WHOQOL-BREF domains and the facets incorporated within each domain were provided in Chapter 1 (Table 1.1).

The scores of the questions (facets) of each domain are used to calculate the domain scores. The total score for each domain (0 to 100) indicates an individual's perception of their quality of life. Higher scores indicate a better quality of life (cf. 1.2).

Each facet of the WHOQOL-BREF can be "characterized as a description of a behavior, a state of being, a capacity or potential, or a subjective perception or experience" (WHO 1998:51). The WHO defines each of the facets of the WHOQOL-BREF domains in the

WHOQOL user manual. Each facet will be explored individually.

2.4.1   Overall quality of life and health

These items explore how a person evaluates their overall quality of life and health (WHO 1998:51).

2.4.2   Physical health domain

The physical health domain explores the facets of activities of daily living; dependence on medicinal substances and medical aids; energy and fatigue; mobility; pain and discomfort; sleep and rest; and work capacity. Table 2.1 lists the facets incorporated in the physical health domain (WHO 1996:7).

Table 2.1: Physical health domain of the WHOQOL-BREF

DOMAIN	FACETS INCORPORATED IN THE DOMAIN
Physical health	- Activities of daily living - Dependence on medicinal substances and medical aids - Energy and fatigue - Mobility - Pain and discomfort - Sleep and rest - Work capacity

In the next section, an overview of the facets will be given (in alphabetical order). First, the facet of activities of daily living will be discussed.

2.4.2.1   *Activities of daily living*

This facet investigates a person's ability to carry out activities of day-to-day living. Quality of life is affected by people's dependence on others to help them carry out their daily activities. This facet excludes other elements of daily living covered in other areas, e.g., sleep disturbances, fatigue, mobility and psychological disorders, such as depression and anxiety (WHO 1998:55).

Instructional activities of daily living (IADL) is defined as, "Activities to support daily life within the home and community which often require more complex interactions than self-care used in ADL [activities of daily living]" (AOTA 2008:631). Swanepoel (2014:64)

identifies the following IADL factors that influence the academic success of first-year occupational therapy students: meal preparation, financial management and mobility. Self-care activities (meal preparation, cleaning and laundry) take up valuable time of students who live in residences and student houses; time which could have been used for studying. Students living off campus, with their parents, probably do not have to prepare their own meals (Swanepoel 2014:65). Swanepoel found that, during stressful times (when assessment and assignments are due) students do not prepare well-balanced meals, which may affect their cognitive abilities and endurance (Swanepoel 2014:65).

2.4.2.2   *Dependence on medicinal substances and medical aids*

Dependence on medicinal substances (medication or alternative medicines, e.g., acupuncture and herbal remedies) are explored by this facet. Medication can affect a person's quality of life either negatively (e.g., side effects of medication, such as chemotherapy) or positively (e.g., pain medication enhances cancer patients' lives). The details of the type of medication are not included in this facet (WHO 1998:55).

Because the facets of dependence on medication and treatments, as well as mobility (cf. 2.4.2.4) and pain and discomfort (cf. 2.4.2.5) may have a greater effect on quality of life of ill populations, this facet should be interpreted with care for young adults (Krägeloh, Henning, Hawken, Zhao, Shepherd & Billington 2011:e4; Li, Kay & Nokkaew 2009:499). As these facets investigate physical health, it can be expected that a large number of healthy respondents would obtain high scores on these facets, and this tendency should be taken into consideration when interpreting the results. For this reason, interpretation of the individual facets are preferable, and could yield valuable information to assist people with low facet scores (Krägeloh *et al*. 2011:e4).

2.4.2.3   *Energy and fatigue*

The energy, endurance and enthusiasm to perform activities of daily living, including recreation, are explored by this facet. This facet covers the spectrum from disabling tiredness, to feeling really alive. Physical illness (e.g., anaemia), psychological health disease, such as depression, or over-exertion are some of the causes of tiredness and lack of energy. The effect of fatigue on social relationships or the increased reliance of chronically exhausted individuals on other people, or the cause of any type of fatigue are beyond the scope of the questionnaire. These concepts are implied in the questions

comprising this facet and facets related to interpersonal relationships and daily activities (WHO 1998:52).

Fatigue (a feeling of lack of energy) is a frequent symptom reported by up to half the general population, and can be defined as "difficulty in the initiation or maintenance of voluntary activities" (Tanaka, Mizuno, Fukuda, Shigihara & Watanabe 2008:985). Prevalence rates of 45.8% in men and 48.9% in women were found in a study of graduate students (Lee, Chien & Chen 2007:565). High prevalence rates of fatigue were found in graduates with poor lifestyle habits, e.g., irregular meals and exercise habits, and insomnia (Lee *et al*. 2007:569).

2.4.2.4   *Mobility*

A person's ability to move from one place to another around the home and workplace, as well as to and from transportation services, are explored by this facet. The emphasis is on people's ability to mobilise themselves wherever they want to go without others' help. Quality of life may be affected negatively when people's mobility is greatly dependent on others. The questionnaire addresses mobility obstacles, irrespective of whether the development of change was abrupt or more progressive, although it is recognised that the rate of change is likely to influence quality of life notably (WHO 1998:54).

Mobility is not necessarily affected by a person's handicap, e.g., someone who uses a walking frame or wheelchair may have sufficient mobility in a suitably adapted home or workplace. Transportation services (e.g., car, bus, train) are not included in this facet, as it is covered separately by the transport facet of the environment domain (cf. 2.4.5.8).

2.4.2.5   *Pain and discomfort*

This facet examines uncomfortable physical sensations (e.g., long- and short-term pain, stiffness and aches) experienced by an individual, and the scope of suffering and restraint caused by these sensations (WHO 1998:51). This facet encompasses a person's pain control, as well as the proficiency of pain relief, as both aspects affect quality of life. This facet acknowledges the presence of pain if a person reports it, even in the absence of a medical reason, and recognises that individuals respond to and tolerate pain differently (WHO 1998:51). This facet should be interpreted with care in young adults (cf. 2.4.2.2).

2.4.2.6 *Sleep and rest*

This facet explores how rest and sleep, as well as sleep problems (e.g., difficulty falling asleep, or waking up too early and inability to fall sleep again) affect quality of life. However, this facet does not enquire into specific details of the sleep problem (e.g., waking up early) or whether the person takes sleeping pills (cf. 2.4.2.2); instead it concentrates on whether sleep is disrupted (WHO 1998:52).

Rest and sleep are defined as "activities related to obtaining restorative rest and sleep that supports healthy active engagement in other areas of occupation" (AOTA 2008:632). As students transition and adjust to the higher education environment, many students are obliged to adapt their sleep habits and sleep duration in accordance with academic, social and environmental demands (Pilcher, Ginter & Sadowsky 1997:583). Physical and psychological health and academic performance of university students are affected by sleep quality and duration (Wong, Lau, Wan, Cheung, Hui & Mok 2013:271). Hence, university students can be particularly prone to sleep disturbances, with over three fifths classified as poor-quality sleepers according to the Pittsburgh Sleep Quality Index (Lund, Reider, Whiting & Prichard 2010:124).

Medical students are especially prone to sleep disturbances, because of the high academic and emotional demands of their studies, which may reduce sleep hours (Waqas, Khan, Sharif, Khalid & Ali 2015:online). A review of sleep disturbances of medical students from a global perspective found that there is a higher prevalence of sleep problems in medical students than in non-medical (law and economics) students and the general population (Azad, Fraser, Rumana, Abdullah, Shabana, Hanly & Turin 2015:73). Poor sleep quality affected academic performance directly (Azad *et al.* 2015:72).

Swanepoel (2014:87) identified the two rest and sleep factors that influence the academic success of first-year occupational therapy students at the UFS, namely, little time for restoration, and sleep deprivation. Occupational therapy students reported that, due to heavy academic workloads, they spend weekends, public holidays and even holidays studying and, therefore, have little time for restoration and leisure activities (Swanepoel 2014:88). Leisure time is important to Generation Y students (Twenge 2009:402). Therefore, students need to learn how to balance academic activities, restoration and leisure time, as failing to do so might influence their productivity and motivation negatively (Swanepoel 2014:88).

Sleep deprivation can have a greater effect on emotional well-being than on cognitive abilities of students (Durmer & Dinges 2005:120). Motivation and energy are affected by students' emotional well-being, which can, in turn, influence academic success (Swanepoel 2014:89).

2.4.2.7 *Work capacity*

A person's energy and the way they utilise energy are described by this facet. Work is "any major activity in which the person is engaged" (WHO 1998:55). Examples of major work activities are both paid and unpaid work, full-time study (by students) and even voluntary community work (WHO 1998:55). For students, work mainly implies their academic responsibilities, although some students may also work part-time. In the case of nursing students, work includes both academic and clinical responsibilities (cf. 1.2).

The facets of the psychological health domain will be elaborated on next.

2.4.3 Psychological health domain

The psychological health domain examines the facets of bodily image and appearance, negative and positive feelings, self-esteem, spirituality/religion/personal beliefs, thinking, learning, memory and concentration. Table 2.2 lists the facets incorporated in the psychological health domain (WHO 1996:7).

Table 2.2: Psychological health domain of the WHOQOL-BREF

DOMAIN	FACETS INCORPORATED IN THE DOMAIN
Psychological health	• Bodily image and appearance • Negative feelings • Positive feelings • Self-esteem • Spirituality/religion/personal beliefs • Thinking, learning, memory and concentration

An overview of the facets incorporated in the psychological health domain will be provided alphabetically.

2.4.3.1 *Bodily image and appearance*

In this facet, a person's impression of their body (either positive or negative) is explored. People's satisfaction with their body image and the effect this has on their self-image is probed. The magnitude to which perceived or real impairments can be rectified, e.g., by

make-up and clothing, are also incorporated in this facet. Body image is affected by other people's responses to a person's looks and, therefore, questions are formulated to persuade respondents to answer truthfully and not according to expectations. Questions are formulated to elicit responses from people with healthy body images as well as physically disabled respondents (WHO 1998:53).

A small study (n=30) in India that involved first-year medical students found no relationship between body mass index and physical self-concept, or between physical self-concept and academic performance (Agarwal, Bhalla, Kaur & Babbar 2013:515); however, further research in larger samples is needed to evaluate these results.

2.4.3.2 *Negative feelings*

Negative feelings (e.g., sadness, anxiety and nervousness), their extent, and influence on daily functioning are examined by this facet. Questions are phrased to include people with depression, mania or panic attacks. However, concepts such as poor concentration (cf. 2.4.3.6) and the link between negative affect and social relationships (cf. 2.4.4) are investigated by other facets. The questions do not include a comprehensive evaluation of the intensity of negative feelings (WHO 1998:54).

In the United States, the National College Health Assessment found that students, in general, experienced the following feelings over a 12-month period: hopelessness (44%), loneliness (54%), sadness (58%), and overwhelming anxiousness (46%); 84% felt overwhelmed by what they had to do (ACHA 2010:13-14).

The perceived stress of medical students may vary according to the settings or systems present in different medical schools (Hwang, Park, Kim, Yim, Ko, Bae & Kyung 2017:180). Academic success and motivation are adversely affected by feelings of fear and anxiety, and students' academic focus may be affected by the amount of time and energy spent on these emotions (Swanepoel 2014:99).

2.4.3.3 *Positive feelings*

This facet investigates positive feelings (e.g., balance, contentment, happiness and joy, hopeful expectations), as well as individuals' views and perceptions of their future. Many respondents may regard positive feelings as synonymous with quality of life (WHO

1998:52). Negative feelings are explored in 2.4.3.2. Zhou (2015:8) considers a positive outlook on life to be the most important element for facing the challenges of undergraduate medical studies. As quality of life is mainly subjective and dependent on perceptions and assumptions, a positive outlook may improve students' university experience and motivation to learn.

2.4.3.4   *Self-esteem*

This facet explores the way individuals feel about themselves, which can range from extremely negative to positive. This facet focusses on aspects of self-worth, e.g., self-efficacy, self-satisfaction and self-control (WHO 1998:53).

Questions probe an array of personal feelings and relationships (with other people and family), respondents' education, their assessment of their capacity to adapt to or accomplish certain activities, as well as awareness of their strengths and weaknesses. Some people's self-acceptance relies greatly on their performance (at work and home) and others' perception and treatment of them. In certain societies, self-esteem incorporates the esteem perceived within families (WHO 1998:53).

Questions are framed to encourage respondents to interpret questions as significant and applicable to their stance towards life. However, bodily image (cf. 2.4.3.1) and social relationships (cf. 2.4.4) are included in other facets too. Some respondents could find it challenging to talk about self-esteem, therefore, questions are formulated with this difficulty in mind (WHO 1998:53).

2.4.3.5   *Spirituality/religion/personal beliefs*

A person's beliefs/religion/spirituality and the effect of these factors on quality of life are explored by this facet. Varying religious beliefs (e.g., Buddhism, Christianity, Hinduism, Islam), as well as beliefs that are not part of specific, formal spiritual orientations, are addressed (WHO 1998:61). Personal beliefs may help people to manage challenges in their lives, can provide structure to encounters and may be "a source of comfort, well-being, security, meaning, sense of belonging, purpose and strength" (WHO 1998:61).

Studies report similar results regarding the correlation between spirituality, religious attitude, personal beliefs and quality of life. A recent study performed with 273 Iranian

health sciences students (mainly Muslims) found a significant relationship between quality of life (and its facets) and religious beliefs (Parniyan, Kazemiane, Jahromi & Poorgholami 2016:43); religious attitudes positively influenced psychological health and quality of life. A study performed in KwaZulu-Natal, South Africa, with 230 medical students (years one to five) found higher spirituality and lower depression correlated with a better quality of life (Pillay *et al*. 2016:e5).

Nursing student respondents in an ethno-culturally diverse study performed in Singapore reported spirituality to be crucial for the wellness of an individual (Tiew, Creedy & Chan 2013:578). Another important finding of this study was that spiritual awareness was not restricted by age (Tiew *et al*. 2013:577).

Within spirituality/religion/personal beliefs, cultural context may also be an important factor to consider. Cultural context is defined as, "[c]ustoms, beliefs, activity participation, behavior standards and expectations accepted by the society of which the client is a member" (AOTA 2008:645). First-year occupational therapy students in South Africa identified language barriers and cultural differences as contextual cultural factors that influence academic success (Swanepoel 2014:93).

2.4.3.6   *Thinking, learning, memory and concentration*

This facet examines the speed, coherence and perspective of respondents' cognition (thinking, learning, memory, concentration and capability to make decisions). Alertness, awareness and wakefulness are not considered, even though these aspects are fundamental in thinking, memory and concentration. Some respondents may be hesitant to acknowledge or discern cognitive difficulties and, in these situations, objective assessment may be valuable (WHO 1998:52-53).

In order for students to achieve academic success, higher-order thinking, learning, memory and concentration are imperative. However, academic and social expectations might influence these cognitive functions negatively (Swanepoel 2014:104). Sleep deprivation (cf. 2.4.2.6) may also impede cognition (Durmer & Dinges 2005:120).

The next domain of the WHOQOL-BREF questionnaire is the social relationships domain.

2.4.4   Social relationships domain

The social relationships domain explores the facets of personal relationships, social support and sexual activity. Table 2.3 lists the facets incorporated in the social relationships domain (WHO 1996:7).

Table 2.3: Social relationships domain of the WHOQOL-BREF

DOMAIN	FACETS INCORPORATED WITHIN DOMAINS
Social relationships	• Personal relationships • Social support • Sexual activity

2.4.4.1   *Personal relationships*

This facet addresses the degree to which people feel the camaraderie, love and support they desire from close relationships, as well as the dedication required to care for people (WHO 1998:56). This facet comprises the extent to which a person is able to, and the opportunity a person has to give and receive love and to be closely acquainted with others, both emotionally (contentment or anguish) and physically (hugging and touching). However, it is acknowledged that this facet may overlap with the sexual activity facet (cf. 2.4.4.3).

The questions encompass the measure of gratification (positive or negative) a person receives from or experiences while tending to others. All kinds of personal relationships, e.g., friendships, marriages and partnerships (both heterosexual and homosexual), are included in this facet (WHO 1998:56).

2.4.4.2   *Social support*

This facet explores an individual's perceived support. Questions are framed to examine both the positive (e.g., sharing of responsibilities and finding solutions to personal and family issues) and negative effects (verbal and/or physical abuse) of social interactions. The facet focusses on how much the participant senses and receives encouragement, acceptance and social support (from family and friends), especially in crises (WHO 1998:56).

At higher education institutions, social support is received from family, friends, peers and mentors. A longitudinal study involving Korean medical students accentuates the significant

impact of social support on quality of life (Hwang *et al.* 2017:182). Research has found that medical students are reluctant to seek out help, due to the negative stigma associated with mental problems (Roberts, Warner, Carter, Frank, Ganzini & Lyketsos 2000:272; Schwenk, Davis & Wimsatt 2010:1181; Dyrbye, Eacker, Durning, Brazeau, Moutier, Massie, Satele, Sloan & Shanafelt 2015:961).

Two concepts are important when exploring social support, namely, social participation and social environment (Swanepoel 2014:97). Social participation is defined as "[o]rganized patterns of behavior that are characterized and expected of an individual or a given position in a social system" (AOTA 2008:633). Social environment "[i]s constructed by presence, relationships and expectations of persons, organizations, populations" (AOTA 2008:645). Both these concepts influence social support and are so interrelated that it could be difficult to separate them.

Social participation transpires between friends, family, peers and the higher education community, either at home, on campus, in residences or in off-campus accommodation, e.g., student houses (Swanepoel 2014:82). Establishing a new social support system is an essential, yet often daunting task for first-year students who are dealing with the transition from high school to university. First-year students have to leave well-known home and school environments (as well as friends and family) behind and often need to make new friends in the residence. Kantanis (2000:104) indicates that friendships play an important role in the transition from school to university. Social interaction and support are very important to Generation Y students (Nimon 2007:28; Sandars & Morrison 2007:86).

First-year occupational therapy students at the UFS identified the following social participation factors that influenced their academic success: Establishing social support, social expectations, and residence activities (Swanepoel 2014:82). These students identified peer and family support as an important social environment factor that influenced their academic success (Swanepoel 2014:83). The social and physical environments of students should be examined when exploring social support, as these environments are connected.

According to Swanepoel (2014:83), establishing friendships may play either a positive or negative role in students' academic success. Newly formed friendships at university can have a positive influence on students' academic success (Kantanis 2000:3; Nel, Troskie-de Bruin & Bitzer 2009:983), especially if the friendships are with peers who experience the

same social and academic challenges and demands. However, new friends may influence students negatively if the friends do not study the same courses and do not, therefore, understand the expectations of other courses – this applies to health sciences students in particular (Swanepoel 2014:83).

Support from family has been identified as either a positive or negative aspect that influences academic success of students. On the one hand, family could exert pressure on students to participate in social and family gatherings, which may cause time constraints for health sciences students who have a full academic programme. On the other hand, lack of family support can impact students' academic performance negatively (Swanepoel 2014:97). Healthy family support can assist in managing the transition and adaptation of the first-year students to the higher education milieu (Elkins, Braxton & James 2000:262; Lowe & Cook 2003:66).

First-year students expect a great degree of social support from academic organisations. In the SASSE survey, respondents rated the following university support as very important: academic support (91%), learning support services, e.g., tutoring services and peer mentoring (85%), and creating opportunities for interaction with students from divergent social, racial/ethnic and religious backgrounds (76%). Furthermore, 54% of respondents in the SASSE survey indicated that they required assistance with the organisation of non-academic activities (work and family) and 50% rated the need to attend non-academic campus events and activities as very important. Forty-seven percent of students considered it extremely important for academic organisations to supply ample occasions for them to interact socially (SASSE 2016:17).

2.4.4.3 *Sexual activity*

This facet is concerned with a person's urge and desire for sex, and the extent to which the person can express and enjoy his/her sexual desire appropriately (WHO 1998:56). For many individuals, sexual activity and intimacy are interweaved, therefore, questions about this facet are limited to sexual drive, expression and fulfilment. Physical intimacy aspects are addressed elsewhere (WHO 1998:57). In some societies, fertility and child-bearing are highly cherished, therefore, in these cultures, this facet includes this aspect of sex. The benefits of sex are not addressed by this question, though the applicability of sexual activity on an individual's quality of life is included. Other aspects included in this facet are the need and opportunities for and gratification obtained from sexual activity (WHO 1998:57).

This facet recognises that sexual practices are a difficult aspect to enquire into, and that responses by respondents from certain cultures may be more cautious. This facet also expects that different ages and genders might respond differently to these questions. There is also acknowledgment that some respondents may have little or no desire for sex, and this lack of desire does not necessarily have negative effects on their quality of life (WHO 1998:57).

Research about the personal sexual habits of medical students is limited. In a survey performed with medical students at a single institution, male students reported the following sexual problems: erectile dysfunction (30%), discontent with their sexual life (28%), premature ejaculation (28%) and a decreased sexual drive (6%). Female medical students reported dyspareunia (39%), orgasm problems (37%) and decreased sexual desire (28%) (Shindel, Ferguson, Nelson & Brandes 2008:796).

The fourth domain of the WHOQOL-BREF questionnaire is the environment domain.

2.4.5   Environment domain

The environment domain examines financial resources, freedom, physical safety and security, health and social care (accessibility and quality), home environment, opportunities for acquiring new information and skills, participation in and opportunities for recreation and leisure activities, physical environment (pollution, noise, traffic and climate), and transport. Table 2.4 provides an overview of the environment domain facets (WHO 1996:7).

Table 2.4: Environment domain of the WHOQOL-BREF

DOMAIN	FACETS INCORPORATED IN DOMAIN
Environment	- Financial resources - Freedom, physical safety and security - Health and social care: accessibility and quality - Home environment - Opportunities for acquiring new information and skills - Participation in and opportunities for recreation/leisure activities - Physical environment (pollution/noise/traffic/climate) - Transport

2.4.5.1   *Financial resources*

In this facet, respondents' views of their financial resources and the degree to which these resources meet the requirements for an affluent and healthy lifestyle are explored,

regardless of the person's health or whether the person is employed. Questions are phrased to accommodate peoples' different perceptions of whether their resources are sufficient to meet their needs (WHO 1998:58). Emphasis is on the affordability of resources and its effect on quality of life. Contentment or discontent with the belongings that their earnings allow them to obtain, dependence or independence provided by their financial assets, and the feeling of sufficiency are also covered by this facet (WHO 1998:58).

In October 2015, nationwide student protests called #FeesMustFall started, with the aim of preventing tuition fee increases and obtaining an increase in funding for university study by the national government. This campaign continued in 2016 and ultimately led to free higher education for poor and middle class students being announced (News24 2017:online). In response to these protests, the Financial Stress Scale (FSS) was developed and used to gather data from 11 753 undergraduate students at nine tertiary institutions in South Africa (SASSE 2016:2). The main purpose of the FSS was to increase institutions' understanding of the relationship between students' anxieties about the cost of university study (extending beyond tuition fees), and of the way these stressors impact on students' engagement and success (SASSE 2016:5). The FSS findings paint an alarming picture of long-established socio-economic inequities that could have a profound effect on the pedagogic experiences and wellness of higher education students (SASSE 2016:2).

The direct impact of financial stress on students' relevant behaviours and life demands were also explored by the FSS. More than half the students indicated that their concerns about money had a negative influence on their academic performance, while almost a third of students contemplated abandoning their studies completely. Sixty-two percent of students pointed out that they had decided to avoid participation in campus social activities due to cost, and 70% of students did not buy academic materials because of financial constraints (SASSE 2016:11). The 2016 FSS data was collected in several faculties, but students of the Faculty of Health Sciences did not participate; therefore, this study may find differences and similarities in the different subgroups of health sciences students.

The FSS results emphasise that first-year students living away from home need to learn how to manage their finances, in addition to learning how to manage academic responsibilities (Pancer *et al.* 2000:39). First-year UFS occupational therapy students identified financial concerns as a definite stressor that affects their academic success (Swanepoel 2014:66). In particular, students who do not live at home (instead, living in residences or student houses) are affected most, as they might not have financial aid readily

available when they need it (Swanepoel 2014:66).

Cruz *et al.* (2018:140) found that nursing students with a family income of more than 2 000 USD per month had higher perceived overall quality of life, physical health and environment domain scores than students with a lower family income.

2.4.5.2   *Freedom, physical safety and security*

This facet explores individuals' perceptions of their freedom, safety and security from bodily harm (from any origin, e.g., people or political). Emphasis is on an individual's own experience of safety (or lack of safety) and security or insecurity, and its effect on quality of life. Therefore, questions permit a wide range of possible answers, which include people living without any restriction regarding freedom, safety and security, to individuals living in an unsafe or oppressive environment (WHO 1998:57).

Questions are framed to emphasise the resources a person may regard as important to protect their safety and security, but questions do not examine the perceptions of psychiatric or delusional individuals (e.g., people who believe that extra-terrestrials threaten their safety) in depth. This facet is probably particularly important for specific groups of people, e.g., victims of disaster and abuse (WHO 1998:57).

In the South African higher education environment, which had experienced student riots over the previous three years, physical safety and security was an important factor in relation to students' quality of life and academic performance. Safety and shelter are fundamental needs of students (Freitas & Leonard 2011:9).

2.4.5.3   *Health and social care: accessibility and quality*

A person's perception of the accessibility of health and social services in the near vicinity (as determined by the time required for assistance to arrive) is explored by this facet. Questions enquire about the viewpoint of a person regarding availability and quality of health and social care. Questions about volunteer community service (e.g., to charities) are included, as well as about the ease of accessing community health and social care (either for themselves, friends or relatives). However, questions addressing aspects that have limited personal significance or relevance to the respondent are not included in the survey (WHO 1998:59).

Research about access to health and social care is limited in medical and other health sciences courses, but could have important implications for future healthcare practitioners. A study performed with students of nine medical schools in the United States (n=1 027) found that 90% of the students believed that they required health care, and 48% struggled to receive health care during their studies at medical school (Roberts *et al*. 2000:275).

2.4.5.4   *Home environment*

This facet explores individuals' primary dwelling place, that is, where they sleep and keep most of their belongings, and the effect it has on a person's life. A safe and comfortable home is an indication of the home's quality. Examples of other qualities addressed by this facet are privacy, spaciousness, the availability of electricity, water and sanitation, and building infrastructure (WHO 1998:58).

The neighbourhood surrounding the living space has an impact on the quality of life of a person. The word "home" is defined as the place where a person usually lives with his or her family. In the case of students living either on or off campus, home refers to the place where the students currently live, as questions in the WHOQOL-BREF are phrased to include people who do not live with their families (WHO 1998:58).

This facet overlaps with the physical environment facet (cf. 2.4.5.7). On-campus accommodation (residences) and off-campus accommodation (student houses, flats, private residences and townhouses) constitute students' home environments for the duration of their studies. This home environment is the space where students want to socialise with their friends and relax, but also need to study. Unfortunately, not all students are equally considerate and respectful towards each other's needs, which may be an additional stressor for some students (Swanepoel 2014:100).

2.4.5.5   *Opportunities for acquiring new information and skills*

An individual's opportunities for and aspirations to master new skills and gain an understanding of up-to-date information is investigated by this facet. New knowledge and skills can be acquired through adult education courses or classes (in this case, for first-year health sciences students) or participation in leisure activities, e.g., reading (either alone or as part of a group). Questions are phrased to emphasise the importance of being connected to the outside world, to a lesser (e.g., local gossip) or greater degree (e.g., international

news). Emphasis is on the opportunities that exist for a person to acquire knowledge and information (locally, on a national, or international level) and the applicability of the knowledge to affect someone's quality of life (WHO 1998:59).

One characteristic that differentiates Generation Y students from other generations, is that they are "technologically savvy" (Arhin & Cormier, 2007:562; Codrington, 2008:online; Notarianni, Curry-Lourenco, Barham & Palmer 2009:262) or "technologically advanced" (Walker, Martin, White, Elliott, Norwood, Mangum & Haynie 2006:372). They are comfortable using many different technologies simultaneously and seamlessly, such as computers and cell phones. They also enjoy social interaction through various social media platforms (Facebook, Twitter and WhatsApp) and acceptance into a group is of the essence to them (Nimon 2007:27).

Australian pre-clinical and clinical medical students showed varying degrees of utilisation, access and capability with regard to technology. Internet access was used mostly for leisure and the utilisation of computers and cellular phones was common practice (Kennedy, Gray & Tse 2008:10). Similar results are described by Brown and Czerniewicz (2010:357), who conducted a study at four higher education institutions in South Africa. Their study found that socio-demographic status may have a profound impact on access to technology, especially computers, in South Africa.

A study performed with 452 Nepalese medical, dental, nursing and allied health sciences students to determine the use of Facebook and its effect on their lives reports the following results: 98.2% of these students were Facebook users, 32% used Facebook mainly to stay connected with friends and family, while only 5% of students used Facebook for academic purposes. Approximately two thirds of Facebook users in this study acknowledged that Facebook had a negative influence on their academic performance. Some of the most common adverse health effects they experienced were burning eyes (21%), sleep problems (19%) and headaches (Jha, Shah, Basnet, Paudel, Sah, Sah & Adhikari 2016:e1).

2.4.5.6   *Participation in and opportunities for recreation/leisure activities*

This facet addresses individuals' opportunities for and ability to participate in recreation or leisure activities. These activities include all forms of hobbies and leisure, ranging from spending time with loved ones, friends and family, to participation in or watching sports and television, to "the sweetness of doing nothing" (WHO 1998:60).

Leisure is defined as, "[a] non-obligatory activity that is intrinsically motivated and engaged in during discretionary time, that is, time not committed to obligatory occupations such as work, self-care or sleep" (AOTA 2008:632). Participation in leisurely actions was identified as a positive contributor to academic success by first-year occupational therapy students at the UFS. It seems that students make time for leisure activities despite heavy academic workloads and limited time for rest and restoration (Swanepoel 2014:90).

Zhou (2015:7) regards extracurricular activities as an integral part of quality of life. She considers engagement in campus events (e.g., clubs and organisations) important for balancing academic responsibilities. Studying and leisure activities may influence each other (Zhou 2015:8).

2.4.5.7   *Physical environment*

A person's perspective on their physical environment (noise, pollution, climate and general aesthetic environment) and its effect on quality of life (positively or negatively) are explored by this facet. Certain features of the environment (water availability and air pollution) may influence quality of life. This facet does not explore transport (cf. 2.4.5.8) and home environment (cf. 2.4.5.4), as these facets are examined elsewhere (WHO 1998:60).

Physical environment is defined as, "[n]atural and built nonhuman environment and the objects in them" (AOTA 2008:645). First-year occupational therapy students at the UFS identified the following physical environment factors that influence academic success: residence/accommodation, roommate and noisy environment (Swanepoel 2014:98). These results confirm a report by Dusselier, Dunn, Wang, Shelley and Whalen (2005:22, 23) relating to university students in general in the United States.

Students live on campus or in off-campus accommodation during their studies at university. Except for students who live at home or in single rooms, most junior students share rooms with at least one other student. This shared physical environment may have either a positive or negative impact on a student's life and academic success. If the roommates are not enrolled for the same course or share the same academic workload, the difference can create additional stress, which may affect students' internal resilience (Greene *et al*. 2003:82). However, if students study the same course and have respect for each other's time and schedules, roommates may have a positive impact on each other's lives and

academic success (Swanepoel 2014:100). Once again, this facet interrelates and overlaps with other quality of life facets, such as home environment (cf. 2.4.5.4).

2.4.5.8   *Transport*

This facet explores people's opinions on the availability and accessibility of transport services (whether bicycle, car or bus). Emphasis is on the ability of the transport that is available to enable the person to perform expected daily life tasks, and this includes the freedom to perform chosen activities (WHO 1998:60). However, this facet does not entail the method used to get around, or the person's mobility at home, as these aspects are covered elsewhere (cf. 2.4.2.4).

Literature on the impact of transport on quality of life and academic success is scarce. Students at the UFS make use of private and public transport to report for classes. The question in the WHOQOL-BREF questionnaire about transport is formulated in such a way that socio-economic status or material possessions do not influence the answer (cf. 2.4). Hence, students who depend on public transport may be as satisfied with the transport available to them, as students who drive luxury vehicles are.

The FSS reported that students who were concerned about paying for daily expenses spend more time on travel and working off campus than those who do not worry about day-to-day living costs (SASSE 2016:8). The facet of transport needs to be researched further in health sciences students, as students of the Faculty of Health Sciences were not included in the FSS survey of 2015.

Health sciences students need transport to reach clinical areas for classes and work. The first-year nursing and occupational therapy academic programmes include visits to clinics and hospitals, and if students lack transport, it may affect the academic achievement and success of those students. Faculty Rule Books inform students about the nature of their training and the necessity of having transport (UFS 2018c:online). First-year occupational therapy students identified access to transport as having a positive influence on their academic success (Swanepoel 2014:67). However, students may experience the organisation of transport as time-consuming and, therefore, as an additional stressor. Even though students can share transport with friends, being dependent on a lift may put someone at a disadvantage (Swanepoel 2014:67).

In the following section, the terms academic success and academic performance will be conceptualised. The link between academic performance and quality of life (domains and facets) will be explored further.

2.5 ACADEMIC PERFORMANCE

Over the years, various scholars have endeavoured to provide a universally accepted definition for the term academic success. Due to the amorphous and complex nature of the term, various definitions exist in different disciplines. York *et al.* (2015:4) set out to define academic success and investigated its measurement in pedagogy by using a theoretically grounded analytical review of literature. The authors propose the following revised definition of academic success: "inclusive of academic achievement, attainment of learning objectives, acquisition of desired skills and competencies, satisfaction, persistence, and post-college performance" (York *et al.* 2015:5). Academic success can be assessed by academic performance in the shape of measures of academic achievement, such as grades or GPA (York *et al.* 2015:7). The concepts achievement, performance and academic performance are often used interchangeably in literature.

The academic performance of medical students has a considerable influence on their professional competence in their careers over the long term (cf. 1.1). Shareef *et al.* (2015:e1) indicate that the academic performance of first to third-year medical students correlate positively with their quality of life (cf. 1.1, 2.1). However, the correlation between academic performance and quality of life in the other health sciences disciplines (nursing, occupational therapy, physiotherapy, optometry and dietetics), has not been researched, as far as the researcher could ascertain from literature searches.

Shareef *et al.* (2015:e4-e5) report a statistically significant relationship between GPA and the physical health, psychological health, social relationships and environment domains for medical students in Saudi Arabia. In the physical health domain, an increase in GPA correlated with an increase in the activities of daily living, energy, mobility and work capacity facet scores (Shareef *et al.* 2015:e4). A high GPA was related to low scores in the negative feelings facet and high scores in the following facets: bodily image and appearance, positive feelings, self-esteem, spirituality and personal beliefs and thinking, learning, memory and concentration. The personal relationships and social support facet scores were positively correlated with academic performance (Shareef *et al.* 2015:e5). A higher GPA was also linked with a higher score in the following environment domain facets: financial resources,

freedom, physical safety and security, health and social care, home environment, opportunities for acquiring new information and skills and physical environment (Shareef *et al.* 2015:e5).

A study of 670 medical students (years three to five) at the University of Auckland, using a person-centred approach, found an integral link between burnout and quality of life profiles, academic motivation and progress test scores (academic achievement). Students were categorised into three profiles: Higher Burnout Lower Quality of Life, Moderate Burnout Moderate Quality of Life and Lower Burnout Higher Quality of Life. Students in the Higher Burnout Lower Quality of Life profile had lower self-efficacy, intrinsic motivation and progress test scores, but higher test anxiety. The study emphasises that students' burnout and quality of life issues should be addressed together, as both have an impact on academic performance (Lyndon, Henning, Alyami, Krishna, Zeng, Yu & Hill 2017:108).

Nursing students in KwaZulu-Natal, South Africa, identified the following factors as influences on their academic performance: social support from parents and lecturers, good personal relationships with lecturers and peers, lecture hall technology and internet connection, and appropriate facilities for learning (Dube & Mlotshwa 2018:e1). First-year nursing students at the UFS identified the following factors as influences on their academic performance: computer access, learning environment, e.g., lecture halls and facilities, curriculum design, library and computer access, study skills, learning material and student support (Jafta 2013:160). A sense of belonging, socialising, food and accommodation also influenced academic performance (Jafta 2013:160).

First-year occupational therapy students at the UFS identified six interrelated factors that impacted on their academic success: physical (e.g., sleep and rest, accommodation, physical environment), psychological health (e.g., emotional well-being, motivation, spirituality and religion), cognitive (e.g., concentration), social (e.g., social environment, peer and family support), cultural (e.g., language barriers and cultural differences) and academic factors (e.g., time management, study methods) (Swanepoel 2014:20). Students categorised these factors as either positive or negative influences, depending on their experiences or interpretation thereof (Swanepoel 2014:62).

The researcher expected that the study would provide information on the quality of life and academic performance of all first-year health sciences (medical, nursing, occupational health, physiotherapy, optometry and dietetics and nutrition) students and anticipated that

the information would yield valuable information that could be used to address prominent quality of life issues faced in each discipline.

A relationship exists between academic performance and the quality of life domains (and several of the facets). Research has shown a link between academic performance and several of the physical health domain facets, e.g., sleep (cf. 2.4.2.6), energy and fatigue (cf. 2.4.2.3) and students' activities of daily living (cf. 2.4.2.1). Academic performance and psychological health factors, such as thinking, learning, memory and concentration (cf. 2.4.3.6), negative feelings, e.g., depression, anxiety and nervousness (cf. 2.4.3.2) are associated. Social relationships, e.g., personal relationships (cf. 2.4.4.1) and social support (cf. 2.4.4.2) are also connected with academic performance. Several environment facets are linked with academic performance: financial resources (cf. 2.4.5.1), home environment (cf. 2.4.5.4), opportunities for acquiring new information and skills (cf. 2.4.5.5), participation in and opportunity for recreation or leisure (cf. 2.4.5.6), physical environment (cf. 2.4.5.7) and transport (cf. 2.4.5.8).

The fifth objective of this study was to determine the correlation between quality of life and academic performance (as measured by academic marks).

2.6   CONCLUSION

In Chapter 2, literature about the key theoretical, conceptual and contextual aspects of the study was provided. Literature about the concepts of quality of life and academic performance in health sciences students was explored. These concepts were taken into consideration in the selection of the research method and research instrument.

In Chapter 3, **_Research design and methodology_**, the research design and methodology used to address the research questions will be elaborated on in detail.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

As indicated in Chapter 1, the aim of this study was to investigate the quality of life and academic performance of first-year health sciences students. The main research question was, "What is the quality of life of first-year health sciences students and how does it correlate with their academic performance?" In Chapter 2, the researcher contextualised the concepts of quality of life and academic performance.

In Chapter 3, an overview of the research design and methodology will be provided. A description of the research methods, data collection, target population and sample size, pilot study and data analysis will follow. Finally, a description of the validity and reliability of the study will be followed by the ethical considerations.

The following section will describe the research design and methodology that formed the basis of this study.

3.2 RESEARCH DESIGN AND METHODOLOGY

This study followed a quantitative, descriptive, cross-sectional survey design in the form of a questionnaire. Survey research designs are quantitative research procedures in which researchers conduct a survey of a sample or an entire population of people to describe the attitudes, opinions, behaviours and characteristics of the population. Quantitative, numbered data (using questionnaires) is collected and statistically analysed to describe trends and to test research questions or hypotheses. Survey studies describe trends, rather than offering rigorous explanations. The researchers can correlate variables, but the focus is more on learning about a population than on relating variables or predicting outcomes (Creswell 2011:376).

According to Saks and Allsop (2013a:6), descriptive research provides current information on issues or problems, and facilitates a comprehensive description of a situation. A descriptive survey design was applied to this study, as it assisted the researcher to describe variations in the characteristics of the sample population (Calnan 2013:192).

A cross-sectional design is defined as "a study that requires the collection of data from a number of subjects/objects over a specified time with the aim of establishing an association between variables" (Saks & Alsop 2013b:473). In this study, the data was collected from first-year students enrolled for health sciences courses at a specific time (August 2017).

3.3   DESCRIPTION OF THE RESEARCH METHODS USED FOR THIS STUDY

The terms methodology and methods should be distinguished from each other. Saks and Allsop (2013b:475) define methodology as a "set of guidelines and principles used to gather information and evidence in order to address a particular problem", whilst methods are the specific data collection and analysis techniques employed by a researcher.

A discussion of the methods utilised to address the research objectives of this study, as well as the rationale for their selection, will be provided in the following section. This discussion will be followed by a description of the data gathering, data analysis and data interpretation.

The methods that were utilised and which formed the basis of this study comprised a literature study, a survey in the form of a questionnaire (WHOQOL-BREF questionnaire, which was expanded to include demographic information) and measurement of academic performance. Academic records of the respondents were accessed to enable the researcher to calculate the final academic average mark. Appendix D will be alluded to in the text with reference to the research methods.

3.3.1   Literature study

A literature study was done to orient the researcher to the subject and to identify articles applicable to the study (Springer 2010:42-43, 56). In this study, the literature study had the specific aim of describing current knowledge about the quality of life and academic performance of first-year undergraduate health sciences students residing in either on-campus or off-campus accommodation.

Furthermore, the literature study provided the necessary background and context for the stated problem. The literature also provided the basis of and rationale for the use of the WHOQOL-BREF questionnaire and inclusion of certain demographic information in the study. Furthermore, the literature study provided information on the quality of life domains (physical health, psychological health, social relationships and environment) and facets,

which constitute the quality of life domains investigated in first-year students enrolled for health sciences courses.

Studies investigating the quality of life of health sciences (e.g., medical and nursing) students using the WHOQOL-BREF questionnaire have been performed in various countries (cf. 1.2, cf. 2.3), but only with medical students in South Africa (the University of KwaZulu-Natal and UFS), as far as the researcher could establish from literature searches (cf. 1.2). Literature searches were conducted and the following databases were consulted: Nexus, Scopus, Google Scholar and the EBSCOHost platform (including Medline, PsycINFO, Academic Search Complete, CINAHL, ERIC, Africa-Wide Information, Health Source: Nursing/Academic edition, SocINDEX, SportDiscus, Teacher Reference Center).

3.3.2 World Health Organization Quality of Life Abbreviated Version, expanded to include demographic information

The self-administered WHOQOL-BREF questionnaire is a valid, reliable, cross-culturally acceptable and multilingual instrument used for the measurement of quality of life in both healthy and ill populations (Skevington, Sartorius, Amir & The WHOQOL Group 2004:7). This questionnaire was field-tested in 23 developed and developing countries (N=11 830) and has, to date, been translated into 65 language versions (Volkan 2016a:personal communication). The WHOQOL-BREF questionnaire has been used worldwide in epidemiological research, clinical practice and health policy research (WHO 1998:45).

The WHOQOL-BREF questionnaire consists of 26 questions: two global questions (quality of life in general and overall health) and 24 questions that describe the four main quality of life domains, namely, physical health, psychological health, social relationships and environment (Skevington, Lofty *et al.* 2004:301). These 24 questions of the WHOQOL-BREF questionnaire are also referred to as the facets of the quality of life domains (cf. 3.3.2).

A 5-point Likert scale indicates the respondents' choices. The response options for the two global questions about quality of life in general and overall health are scored in a positive direction (higher scores indicate a higher quality of life and overall health). Likewise, 21 of the 24 questions are scaled in a positive direction. For example, to response to Question 7 "How well are you able to concentrate?" the five options are 1 = Not at all, 2 = A little, 3 = A moderate amount, 4 = Very much, 5 = Extremely. Three questions are scored in a negative direction and were recoded in the reverse direction during data analysis. These

three questions enquired about the extent of physical pain (Question 3), the need for medical treatment (Question 4) and the presence of negative feelings (Question 26). For example, the response options for Question 26 (How often do you have negative feelings such as blue mood, despair, anxiety, depression?) were 1 = Never, 2 = Seldom, 3 = Quite often, 4 = Very often, 5 = Always (Li *et al.* 2009:491).

The first two questions were not used for the calculation of the domain scores. Question 1 required respondents to rate their general quality of life on a scale from 1 (very poor) to 5 (very good). Question 2 measured overall satisfaction with health on a scale that ranged from 1 (very dissatisfied) to 5 (very satisfied). The other 24 questions described the four domains, physical health, psychological health, social relationships and environment. The response scales vary in intensity (nothing to extremely), capacity (nothing to completely), frequency (never to always) and evaluation (very dissatisfied to very satisfied and very poor to very good) (WHO 1998:61-62).

A conceptual diagramme of the WHOQOL-BREF as determined by the four-domain confirmatory factor analysis model (cf. Figure 3.1) indicates the four domains and their respective questions (WHO 1998:37, Skevington, Lofty *et al.* 2004:307).
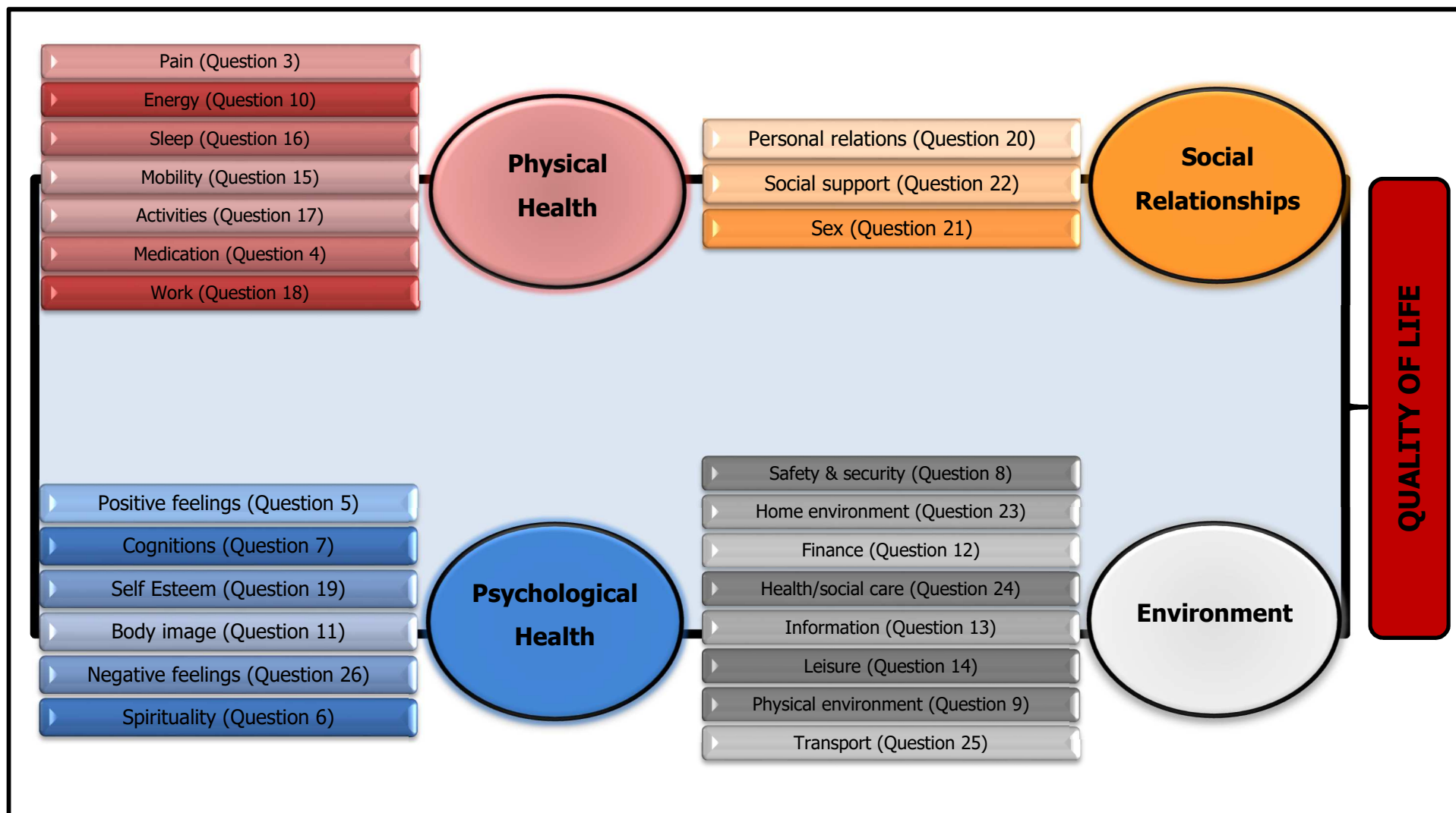
Figure 3.1: Conceptual diagramme of the WHOQOL-BREF as determined by the four-domain confirmatory factor analysis model (Adapted by the researcher, Mostert 2016)

The physical health domain enquires about pain and discomfort (Question 3), dependence on medicinal substances and medical aids (Question 4), energy and fatigue (Question 10), mobility (Question 15), sleep and rest (Question 16), activities of daily living (Question 17) and work capacity (Question 18). Question 3 indicates the extent to which physical pain prevents a person from doing what they propose to do, whilst Question 4 indicates the need for medical treatment. Both these questions are scored between 1 (not at all) to 5 (an extreme amount). Question 10 enquires about energy for daily living and is rated from 1 (not at all) to 5 (completely). Mobility (Question 15) is rated from 1 (very poor) to 5 (very good). Questions 16, 17 and 18 (sleep, activities of daily living and work capacity) are rated between 1 (very dissatisfied) and 5 (very satisfied).

The psychological health domain contains questions about positive and negative feelings (Questions 5 and 26 respectively), cognitions, e.g., thinking, learning, memory and concentration (Question 7), self-esteem (Question 19), bodily image and appearance (Question 11) and spirituality/religion/personal beliefs (Question 6). Question 5 enquires about the extent to which the respondent enjoys life, whilst Question 6 asks about the meaningfulness of life. Responses rating both of these questions are indicated on a scale between 1 (not at all) and 5 (an extreme amount). Question 26 asks about the presence of negative feelings, such as depression, anxiety and despair, and are scored between 1 (never) and 5 (always). Thinking, learning, memory and concentration are rated in Question 7, from 1 (not at all) to 5 (extremely). Question 11 enquires about bodily image and appearance, and responses are indicated between 1 (not at all) and 5 (completely). Self-esteem (Question 19) is rated from 1 (very dissatisfied) to 5 (very satisfied).

The social relationships domain relates to personal relationships (Question 20), sexual activity (Question 21) and social support (Question 22). All three responses are scaled from 1 (very dissatisfied) to 5 (very satisfied).

In conclusion, the environment domain encompasses questions about physical safety and security (Question 8), physical environment, e.g., climate, pollution, traffic and noise (Question 9), financial resources (Question 12), opportunities for acquiring new information and skills (Question 13), participation in and opportunities for leisure/recreational activities (Question 14), home environment (Question 23), access to health/social care (Question 24) and transport (Question 25). Physical safety (Question 8) and physical environment (Question 9) is rated between 1 (not at all) and 5 (extremely). Questions 12, 13 and 14 (finances, information and leisure respectively) are scaled between 1 (not at all) and 5

(completely). Responses are rated between 1 (very dissatisfied) and 5 (very satisfied) for home environment, access to health services and transport (Questions 23, 24 and 25 respectively).

Permission to use the English and Afrikaans versions of the WHOQOL-BREF questionnaire was obtained on 19 February 2016 from the WHO (Volkan 2016b:personal communication). The WHOQOL-BREF questionnaire is attached as Appendix D.

The researcher signed a user agreement with the WHO to use the WHOQOL-BREF questionnaire in this study (cf. Appendix F). Upon conclusion of the study, the data pertaining to age, gender, race (self-declared ethnicity) and WHOQOL-BREF will be forwarded to the WHO and may be used by the WHO for further analysis of the psychometric properties of the WHOOL-BREF questionnaire (Volkan 2016c:personal communication). Publications describing the results obtained by the researcher will be published in the researcher's name and will include an acknowledgement of the role played by the WHO. Copies of future articles will be sent to the WHO before submission for publication. As part of the WHOQOL-BREF development strategy, the WHO may present and publish the results of this study, with due credit given to the researcher.

In addition to the WHOQOL-BREF questionnaire, demographic data was also gathered (Appendix D). Demographic information about age, gender, ethnicity, residential status (on-campus or off-campus) and urban or non-urban (rural) residential area (informal or formal settlement) was obtained.

3.3.3   Academic performance

Academic performance was determined by calculation of the final academic average mark obtained for all the first-year modules as reflected on the participant's academic records. This mark was compared to each participant's perception of his/her quality of life. At the UFS, medical students' academic programme comprises three phases. Phase 1 of the first-year medical students' programme runs over six months and concludes in June. The academic programmes of nursing, physiotherapy, occupational therapy, dietetics, optometry and radiation sciences students start in January and conclude in November. See 3.3.4.4 for details of this process.

3.3.4   Sample selection

The following section describes the target population, the sample population and the sample size for the survey, which took the form of a questionnaire.

3.3.4.1   *Target population*

A target population is a group of individuals in which the researcher is interested and of which the members share certain common characteristics (Creswell 2011:629). In this study, the target population entailed first-year undergraduate students enrolled for health-sciences-related courses at the Faculty of Health Sciences, UFS, in 2017. All the first-year undergraduate health sciences students, residing in either on campus, or in off-campus accommodation were approached and asked to participate in the study. Table 3.1 indicates the undergraduate degree courses offered by the Faculty of Health Sciences, UFS.

Table 3.1: Undergraduate degree courses offered by the Faculty of Health Sciences, UFS

SCHOOL	DEGREE	PROGRAMME
School of Medicine	MBChB	Undergraduate programme for Professional Medicine
	BMedSc (Radiation Sciences)	Undergraduate programme for Radiation Sciences
School of Nursing	BSocSci (Nursing)	Undergraduate programme for Nursing
School for Allied Health Professions	BSc (Physiotherapy)	Undergraduate programme for Physiotherapy
	BOccTher	Undergraduate programme for Occupational Therapy
	BOptom	Undergraduate programme for Optometry
	BSc (Dietetics)	Undergraduate programme for Dietitians
	BBiok	Undergraduate programme for Biokinetics

Compiled by the researcher (Mostert 2018) for the purposes of this Magister project (UFS 2018a:online; UFS 2018b:online; UFS 2018c:online).

The target population involved 425 students from the three Schools in the Faculty of Health Sciences: School of Medicine, School of Nursing and School for Allied Health Professions. Figures were obtained from student administration at the Faculty of Health Sciences, UFS, in November 2017. In 2017, the School of Medicine consisted of 195 MBChB students (undergraduate programme for Professional Medicine) and 5 BMedSc (Radiation Sciences) students (undergraduate programme for Radiation Sciences). The School of Medicine of the Faculty of Health Sciences at the UFS was subdivided into the School of Clinical Medicine,

School of Biomedical Sciences and School of Pathology in 2018. The School of Nursing consists of nursing students only: 108 BSocSci (Nursing) students. The School for Allied Health Professions consisted of 30 BSc (Physiotherapy) students (undergraduate programme for Physiotherapists), 33 BOptom students (undergraduate programme for optometrists), 43 BOccTher students (undergraduate programme for occupational therapists) and 11 BSc (Dietetics) students (undergraduate programme for dieticians). The biokinetics (BBiok) students were excluded from this study, as first-year students (for the course in the new format) only registered in 2017. As approval for the research project was obtained from the Health Sciences Research Ethics Committee (HSREC) and relevant authorities in 2016, these students were not included.

3.3.4.2   *Description of the sample and sample size*

Although the researcher envisioned collecting data in the second semester of 2016, data collection had to be postponed until the second semester of 2017, due to student disruptions (cf. 2.4.5.1). Therefore, data collection was based on the 2017 student numbers. The sample population consisted of 244 male and female, English and Afrikaans speaking first-year health sciences students, whose self-reported ethnicity included white, black, coloured, Asian and Indian. Only first-year health sciences students who were 18 years and older were included in the study. All repeaters (i.e. students repeating the first year of their respective programmes) and senior students (i.e. students who had started another programme previously or had obtained another degree) were excluded from the study. The reason for the exclusion of the above students was that the researcher wanted to analyse the quality of life data of students enrolled for the first year for the first time (true first-year students). Therefore, only students who had completed Grade 12 in 2016 were eligible to participate in the study.

3.3.4.3   *The pilot study*

A pilot study was done to ensure that the questions were clear and not biased, and the questionnaire was well structured. The pilot study tested whether respondents interpreted the questions correctly and whether appropriate response categories were provided. It identified any logistical challenges and determined the amount of time needed to complete the questionnaire. The pilot study was also used to assess the proposed data analysis techniques.

For the pilot study, the questionnaire was completed by two senior students from each School within the Faculty of Health Sciences (two medical students, two nursing students and two allied health professions students). The time needed to complete the questionnaires was noted. Students completed the questionnaires comfortably within 10 minutes, and they encountered no difficulties in the completion of the questionnaires. Six questionnaires were included in the pilot study. The pilot study data was not included in the study.

As the WHOQOL-BREF is a standardised questionnaire, no changes could be made to the structure of the questionnaire. No changes were made to the demographic information section of the questionnaire.

3.3.4.4   *Data gathering*

The researcher approached academic staff members who teach each student group to obtain permission to distribute the questionnaires after an academic contact session. The lecturers and researcher agreed on a suitable time to complete the questionnaires.

Students were approached by the researcher and asked to complete a self-administered questionnaire that had been developed electronically on the EvaSys system. EvaSys is a web-based program that has been developed for the creation and distribution of surveys. The surveys can be distributed in three ways, namely, the hybrid method (both electronic and hard copy questionnaires), via email and by hard copy (UFS 2014:online).

In this study, the questionnaire was developed electronically and the EvaSys system was used to create the single-password method. The respondents visited a web address using the URL or QR code supplied, in order to complete the questionnaire. They entered a password created by the researcher. The researcher made the link and password available to the respondents. The data was captured automatically on an Excel spreadsheet and was immediately available to the researcher.

The questionnaire consisted of the WHOQOL-BREF questionnaire, as well as questions eliciting demographic information. The questionnaire was distributed to the students after a scheduled contact session in a computer laboratory. Firstly, the researcher introduced herself and described her role and purpose. A short PowerPoint® slide lecture about the study was presented. Thereafter, an information document was handed out. In turn,

students who were willing to voluntarily participate in the study and who met the inclusion and exclusion criteria signed the consent forms. Finally, the respondents completed the questionnaires. The questionnaire was available in both Afrikaans and English, as the UFS followed a parallel-medium language policy until 2017 (UFS 2016:online).

The questionnaires were distributed and completed from 10 to 25 August 2017. The questionnaires were distributed in August, before major semester tests, which could affect the students' quality of life. During assessment periods, students may experience excessive stress that temporarily impacts quality of life.

The academic records of the respondents were accessed from student administration at the Faculty of Health Sciences using the respondents' student numbers. The final average academic mark obtained for all the first-year modules was calculated by the researcher. First-year medical students' Phase 1 mark was used (cf. 3.3); this is the mark obtained during the June examination. The academic year of nursing, physiotherapy, occupational therapy, dietetics, optometry and radiation sciences students ends in November; therefore, the mark obtained during the final November examination was used (cf. 3.3). These marks and student numbers were exported into an Excel spreadsheet. After that, the student numbers were merged with the quality of life data of each participant in the Access database of the Faculty of Health Sciences. Each participant's mark was compared to his/her own perception of his/her quality of life; therefore, misinterpretation of data was unlikely.

3.3.4.5   *Data analysis*

All data was kept strictly confidential and was analysed by a statistician of the Department of Biostatistics at the UFS, using SAS/STAT Version 9.3 for Windows.

Descriptive analysis of data was done. Frequencies and percentages were calculated for the categorical data. Means and standard deviations were calculated for the numerical data. Differences between subgroups in terms of academic performance and quality of life were assessed using 95% confidence intervals for differences in means or medians (depending on the normality of the data distribution) and a factorial Anova for gender, together with the three residential indicators (on/off campus; rural/urban; formal/informal housing).

The Pearson correlation between quality of life and academic performance was calculated.

3.3.4.6 *Scoring of the WHOQOL-BREF questionnaire*

The WHOQOL-BREF was scored according to the WHOQOL user manual (WHO 1998:48). The WHOQOL-BREF questionnaire generates a quality of life profile using four main domain scores. Each of the four domain scores describes a person's quality of life in that specific domain. Two questions (1 and 2) are not included in the four domains and are evaluated separately. Question 1 denotes a person's overall perception of his/her quality of life, while Question 2 enquires about a person's overall perception of his/her health.

Domain scores were adapted in a positive direction, meaning that a better quality of life was indicated by a higher domain score and *vice versa*. The domain score was calculated by the mean score of the questions within each domain. In order to compare the WHOQOL-BREF scores with the WHOQOL-100 scores, the mean scores were multiplied by four, and subsequently transformed to a 0-100 scale by applying the formula below.

$$TRANSFORMED\ SCORE = (SCORE-4) \times (100/16)$$

Detailed instructions for calculating the domain scores and for checking and cleaning data are given in Appendix 10, page 100 of the WHOQOL user manual. A method for the manual calculation of individual scores is provided below:

Physical domain =	$((6-Q3) + (6-Q4) + Q10 + Q15 + Q16 + Q17 + Q18) \times 4$
Psychological health domain =	$(Q5 + Q6 + Q7 + Q11 + Q19 + (6-Q26)) \times 4$
Social relationships domain =	$(Q20 + Q21 + Q22) \times 4$
Environment domain =	$(Q8 + Q9 + Q12 + Q13 + Q14 + Q23 + Q24 + Q25) \times 4$

Where more than 20% of data of the assessment was missing, the assessment was discarded. Where up to two questions were omitted, the mean of the other questions in the domain was substituted. However, if more than two questions of a domain were missing, the domain was not calculated. The exception to the above was Domain 3 (social relationships), where the domain was calculated only if at most one question had been omitted.

3.4 ENSURING THE VALIDITY AND RELIABILITY OF THE STUDY

In the next section, issues of validity, reliability and the minimising of potential misinterpretation of results will be discussed.

3.4.1 Validity

Validity is defined as the "accuracy of research findings used to test whether an indicator is measuring the concept it is intended to measure" (Saks & Allsop 2013b:477). A study by Skevington, Lofty *et al.* (2004:306) provides evidence of the cross-cultural validity of the WHOQOL-BREF questionnaire. The WHOQOL-BREF questionnaire was found to be a valid instrument to measure quality of life of medical students (Krägeloh *et al.* 2011:e1). Therefore, the WHOQOL-BREF questionnaire was considered to be a valid tool to measure the quality of life of medical, nursing and allied health professions (physiotherapy, occupational therapy, optometry and dietetics) students in this study.

3.4.2 Reliability

Reliability is defined as the "extent to which research instruments and concepts are stable and able to yield an unvarying measurement" (Saks & Alsop 2013b:476). The WHOQOL-BREF possess good to excellent psychometric properties of reliability, as determined by Skevington, Lofty *et al.* (2004:306). Krägeloh *et al.* (2011:e4) found the WHOQOL-BREF questionnaire's reliability to be excellent for use for medical students specifically. Therefore, the WHOQOL-BREF questionnaire was considered to be a reliable instrument for measuring quality of life. The average of the academic marks was carefully calculated and linked with the student numbers and WHOQOL-BREF questionnaire and demographic information. The researcher endeavoured to verify the reliability of the results by carefully documenting every step of the research process.

3.4.3 Minimising the potential to misinterpret results

Minimising the possibility of misinterpreting results is essential in quantitative studies. Therefore, the supervisor cross-checked the results. Correct analysis of quantitative data was ensured by eliciting the assistance of a statistician of the Department of Biostatistics, Faculty of Health Sciences, UFS. Limitations experienced in the study will be discussed further in Chapter 6.

3.5 ETHICAL CONSIDERATIONS

In order to fulfil ethical requirements, approval, informed consent and respondents' right to privacy were addressed, as discussed below.

3.5.1   Approval

Approval for the research project was obtained from the HSREC of the Faculty of Health Sciences on 08 September 2016. The allocated HSREC number (HSREC 133/2016) is indicated on all documents relating to the study.

Approval from the following persons were obtained: the dean of the Faculty of Health Sciences; the vice rector, Research at the UFS, the head of the School of Medicine, the head of the School of Nursing and the head of the School for Allied Health Professions. As students were used in the study, approval from the dean of Student Affairs, UFS, was also obtained.

3.5.2   Informed consent and permission

The respondents were informed that participation in the study was voluntary and that personal information would be treated as confidential. All students who were willing to participate in the study completed the consent form, which provided information regarding the criteria, aim, goal and objectives of the project. The respondents gave consent to the researcher to access their academic marks.

Respondents were permitted to withdraw from the study at any time during the study. The respondents were informed that they would not be penalised or lose benefits if they refused to participate or decided to terminate participation. They were informed that the results of this study may be published and/or presented at congresses and academic meetings.

The information document was based on the guidelines for informed consent as prescribed by the General Guidelines of the HSREC of the Faculty of Health Sciences, UFS (Appendix B). As an electronic survey was used, only the information documents (cf. Appendices B1-B2) and consent forms (cf. Appendices C1-C2) were printed and handed out to the respondents. Information was given to the sample population in either Afrikaans or English, according to students' preference, and the questionnaires were available in both Afrikaans and English. The name and contact details of the researcher, as well as the Secretariat of the HSREC of the Faculty of Health Sciences, were made available to the respondents on the information letter.

3.5.3   Right to privacy and confidentiality

The respondents were asked to provide their student numbers on the consent forms and online questionnaires. Respondents were only identifiable by their student numbers, and only the researcher had access to this data. The student numbers were necessary to give the researcher access to students' academic records. No student was personally identified at any time. Although absolute confidentiality could not be guaranteed, the researcher endeavoured to keep personal information confidential as far as possible.

No names or personal identifiers appeared on the Excel sheet that was sent for statistical analysis. No personal identifiers or names appeared in any reports (or publications). All information was managed in a strictly professional and confidential manner.

3.6   CONCLUSION

In this chapter, entitled **Research design and methodology**, an overview of the research design, methodology and methods used to address the research questions in the study were described and explained. In Chapter 4, **Results and interpretation of the survey,** the results of the questionnaire as data collecting method used in the research project will be reported and discussed.

CHAPTER 4

RESULTS AND INTERPRETATION OF THE SURVEY

4.1   INTRODUCTION

The purpose of this chapter is to present the results of the WHOQOL-BREF, which was expanded to include demographic and academic performance information. The survey was conducted among undergraduate first-year students in the Faculty of Health Sciences of the UFS.

In this chapter, the results of the main research question, namely, "What is the quality of life of UFS first-year health sciences students and how does it correlate with their academic performance?" are presented.

The results address the following subsidiary research questions:

i.   *What are the student scores in the quality of life domains of physical health, psychological health, social relationships and environment?*
ii. *How do the quality of life domains differ between students in the various health sciences disciplines?*
iii. *How do the quality of life domains differ for students who reside in either on-campus and off-campus accommodation?*
iv. *How do the quality of life domains differ for students who had resided in different types of living environments (i.e. urban/rural and formal/informal settlements) in the last year of high school?*
v.   *What is the correlation between quality of life and academic performance of these students?*

As described in Chapter 3, **Research design and methodology** (cf. 3.3.2), the WHOQOL-BREF questionnaire consists of 26 questions. The WHOQOL-BREF questionnaire was expanded to include demographic data (cf. Appendices D1-D2) to ensure that the research questions listed above were addressed. Academic performance was determined by calculating the final academic average mark obtained for all the first-year modules as reflected on the respondents' academic records (cf. 3.3.3). The questionnaire yielded quantitative data and included mainly closed questions, with a single open question.

The first section of the questionnaire provided demographic information (cf. 4.2.2). Data about ages, genders, self-reported ethnicity, academic programmes, residential status (on campus or off campus) and urban or non-urban (informal or formal settlement) area will be presented first. After that, the data from the WHOQOL-BREF questionnaire will be presented (cf. 4.3). Lastly, the results of the correlation between the quality of life domains and academic performance of first-year health sciences students at the UFS will follow (cf. 4.4).

The data will be presented in the form of tables, followed by a short description of the findings, to clarify the results. Due to small sample sizes, percentages were rounded off to the first decimal; therefore, the total percentage may not add up to 100%. At the end of this chapter, a brief overview of the findings will be given.

4.2   DEMOGRAPHIC INFORMATION OF THE RESPONDENTS

The following section presents results from the demographic information section of the survey (cf. Appendices D1–D2).

The target and sample populations were described in Chapter 3 (cf. 3.3.4). In total, 179 out of a possible 244 students voluntarily participated in the study by completing the self-administered questionnaire during a scheduled academic contact session (overall response rate was 73%). The response rate in the three schools was as follows: School of Medicine (69%); School of Nursing (67%) and School for Allied Health Professions (84%). As class attendance in the Faculty of Health Sciences is compulsory, students who chose not to participate in the study may have lowered the response rate.

The WHOQOL-BREF questionnaire was available in both Afrikaans and English, as the UFS followed a parallel-medium language policy (UFS 2016:online) at the time the research protocol was approved. Nevertheless, the majority of respondents (91.6%, n=164) preferred to complete the questionnaire in English, while 8.4% (n=15) of the respondents completed the questionnaire in Afrikaans.

According to the survey results, 177 respondents (99.9%) indicated that they had matriculated in 2016 (two respondents did not indicate the year they matriculated). However, calculating two of 179 respondents yields 1.1%. Therefore, the researcher concluded that their responses to the survey would not significantly affect the results of the study.

Most of the respondents (n=81, 45.3%) studied in the School of Medicine, followed by the School for Allied Health Professions (n=64, 35.8%) and the School of Nursing (n=34, 19.0%). MBChB students in the School of Medicine made up 79 respondents (97.5%), while only two respondents were BMedSc (Radiation Sciences) students (2.5%). The School of Nursing of the Faculty of Health Sciences at UFS consists of only nursing students. These students (n=34) represented 19.0% of the total respondents. School for Allied Health Professions students included 18 (28.1%) physiotherapy, 23 (35.9%) occupational therapy, 15 (23.4%) optometry and 8 (12.5%) dietetics students. The Department of Optometry and the Department of Nutrition and Dietetics admit fewer students to the respective academic programmes. Therefore, the number of respondents from these departments was smaller.

Male and female first-year health sciences students aged 18 years and older, of whom 100% had matriculated in 2016 (cf. 4.2.1), completed the questionnaire. Respondents' self-reported ethnicity, residential status (on campus or off campus) and area of residence before attending the university (urban and non-urban (rural), formal and informal settlement) were indicated on the questionnaires.

Table 4.1 provides an overview of the demographic information of the respondents per school.

Table 4.1: Demographic information of respondents per school

DEMOGRAPHIC INFORMATION		FACULTY OF HEALTH SCIENCES n=179			TOTAL
		SCHOOL OF MEDICINE n=81	SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64	
Gender	Male	n=36 (20.9%)			n=172
		n=29 (38.2%)	n=2 (5.9%)	n=5 (8.1%)	
	Female	n=136 (79.1%)			
		n=47 (61.8%)	n=32 (94.1%)	n=57 (91.9%)	
Age	Mean (SD)	18.7 (18-21)			n=179
		18.6 (18-21)	18.6 (18-19)	18.7 (18-19)	
Ethnicity	Asian	n=2 (1.1%)			n=178
		n=2 (2.5%)	n=0 (0.0%)	n=0 (0.0%)	
	Black	n=40 (22.5%)			
		n=27 (33.3%)	n=12 (35.3%)	n=1 (1.6%)	
	Coloured	n=13 (7.3%)			
		n=9 (11.1%)	n=2 (5.9%)	n=2 (3.2%)	
	Indian	n=9 (5.1%)			
		n=7 (8.6%)	n=0 (0.0%)	n=2 (3.2%)	
	White	n=113 (63.5%)			
		n=36 (44.4%)	n=20 (58.8%)	n=57 (90.5%)	
	Other	n=1 (0.6%)			
		n=0 (0.0%)	n=0 (0.0%)	n=1 (1.6%)	
Residential status	On campus	n=74 (42.3%)			n=175
		n=26 (32.1%)	n=19 (59.4%)	n=29 (46.8%)	
	Off campus	n=101 (57.7%)			
		n=55 (67.9%)	n=13 (40.6%)	n=33 (53.2%)	

DEMOGRAPHIC INFORMATION		FACULTY OF HEALTH SCIENCES n=179			TOTAL
		SCHOOL OF MEDICINE n=81	SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64	
Area of residence before enrolling at university	Urban	n=159 (89.3%)			n=178
		n=70 (87.5%)	n=31 (91.2%)	n=58 (90.6%)	
	Non-urban (rural)	n=19 (10.7%)			
		n=10 (12.5%)	n=3 (8.8%)	n=6 (9.4%)	

The gender distribution reflects a greater predominance of female students (n=136, 79.1%) in the Faculty of Health Sciences. The undergraduate medical programme selection committee selects students in the ratio of 40% male to 60% female students (UFS 2018a:online). The School of Nursing and School for Allied Health Professions receive more applications from and accept more women (hence, the larger number of female respondents). More than 60% of first-year respondents were white, and 90% of School for Allied Health Professions respondents were white.

Students reside either on campus (in residences) or in off-campus accommodation during their studies. The majority of respondents resided in off-campus accommodation, which included living with parents, in student houses, flats or townhouses and other accommodation (e.g., private residences). Most off-campus respondents (n=38, 37.6%) indicated that they lived with their parents or family, followed by respondents living in flats or townhouses (n=33, 32.7%) and respondents living in student houses (n=22, 21.8%). A further eight respondents (7.9%) indicated that they resided in other accommodation, such as private residences.

Students had resided in either urban or non-urban areas (formal or informal settlements) before enrolling at university. Almost 90% of respondents reported having resided in urban areas in the last year of high school. All 179 respondents indicated that they resided in formal settlements before attending university. Therefore, this study could not compare the quality of life domains of two groups of health sciences respondents, that is, those who had resided in formal and informal settlements in the last year of high school.

4.2.1   Summary of demographic information of respondents

The results indicate that 179 first-year health sciences students participated in the study: 45.3% were from the School of Medicine, 35.8% were from the School for Allied Health Professions and 19.0% were from the School of Nursing. Respondents had matriculated in 2016, and had entered the different programmes directly after school; their mean age was 18.7 (SD 18-21). The respondents consisted predominantly of women (79.1%) and 63.5% were white students. The majority of respondents resided in off-campus accommodation (57.7%). Almost 90% (89.3%) of respondents had lived in urban areas before attending university. All the respondents (n=179) reported that they had lived in a formal settlement during the last year of high school.

4.3 RESULTS OF THE WORLD HEALTH ORGANIZATION QUALITY OF LIFE ABBREVIATED VERSION QUESTIONNAIRE

The following section reports the results of the WHOQOL-BREF questionnaire of the survey (cf. Appendices D1–D2). The results address the first four subsidiary research questions (cf. 1.4.2 & 4.1).

A 5-point Likert scale was used by respondents to respond to the 26 questions of the WHOQOL-BREF questionnaire (cf. 3.3.2). The scales on the Likert scale were grouped together (1-2, 3 & 4-5) to simplify data reporting.

Firstly, the responses to the two global questions (Questions 1 & 2) of the WHOQOL-BREF questionnaire will be presented. After that, the student scores for the quality of life domains (physical health, psychological health, social relationships and environment) will be provided. The results of the quality of life domains in the different schools and academic programmes will be elaborated on in detail. Lastly, the most prominent facets in the different quality of life domains will be presented in the form of tables. Only a brief overview of the results of the remaining facets will be provided (cf. tables included in Appendix F).

In general, data from the three schools concerning participant numbers (School of Medicine (n=81), School of Nursing (n=34) and School for Allied Health Professions (n=64)) were comparable, as the participant numbers from the School for Allied Health Professions (physiotherapy (n=18), occupational therapy (n=23), optometry (n=15) and dietetics (n=8)) were small. No inferences could be made from the results of the BMedSc (Radiation Sciences) respondents, as only two respondents in this programme completed the survey.

4.3.1 Overall quality of life

In this section, responses to Question 1 of the WHOQOL-BREF questionnaire, namely, "How would you rate your quality of life?" will be presented. Table 4.2 reports on the respondents' perception of their overall quality of life.

Table 4.2: Overall quality of life of respondents

OVERALL QUALITY OF LIFE	FACULTY OF HEALTH SCIENCES n=178							
	SCHOOL OF MEDICINE n=80		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=78	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physio-therapy) n=18	BOccTher n=23	BOptom n=15	BSc (Dietetics) n=8	
Very poor to poor (1-2)	n=1 (1.3)		n=0 (0.0%)	n=0 (0.0%)				n=1 (0.6%)
	n=1 (1.3%)	n=0 (0.0%)		n=0 (0.0%)	n=0 (0.0%)	n=0 (0.0%)	n=0 (0.0%)	
Neither poor nor good (3)	n=10 (12.5%)		n=7 (20.6%)	n=2 (3.1%)				n=19 (10.7%)
	n=10 (12.8%)	n=0 (0.0%)		n=1 (5.6%)	n=0 (0.0%)	n=1 (6.7%)	n=0 (0.0%)	
Good to very good (4-5)	n=69 (86.3%)		n=27 (79.4%)	n=62 (96.9%)				n=158 (88.8%)
	n=67 (85.9%)	n=2 (100.0%)		n=17 (94.4%)	n=23 (100.0%)	n=14 (93.3%)	n=8 (100.0%)	

The majority of respondents (n=158, 88.8%) perceived their overall quality of life as good to very good (4-5 on the Likert scale), while 10.7% (n=19) of respondents' perception of their quality of life was neither poor nor good. Only one participant (0.6%) perceived their overall quality of life as being very poor to poor (1-2). All three schools of the Faculty of Health Sciences displayed a similar trend. Fewest BSocSci (School of Nursing) respondents (79.4%) reported overall quality of life as being good to very good, while most School for Allied Health Professions respondents (96.9%) reported their quality of life being good to very good.

4.3.2   Overall health

The second question of the WHOQOL-BREF questionnaire enquired about the overall health of the respondents, by asking, "How satisfied are you with your health?". Table 4.3 provides an overview of the perceived overall health of the respondents.

Table 4.3: Overall health of respondents

OVERALL HEALTH	FACULTY OF HEALTH SCIENCES n=176							
	SCHOOL OF MEDICINE n=80		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=62				
	MBChB n=78	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physiotherapy) n=17	BOccTher n=23	BOptom n=15	BSc (Dietetics) n=7	
Very dissatisfied to dissatisfied (1-2)	n=7 (8.8%)		n=4 (11.8%)	n=2 (3.2%)				n=13 (7.4%)
	n=7 (9.0%)	n=0 (0.0%)		n=2 (11.8%)	n=0 (0.0%)	n=0 (0.0%)	0 (0.0%)	
Neither satisfied nor dissatisfied (3)	n=9 (11.3%)		n=5 (14.7%)	n=3 (4.8%)				n=17 (9.7%)
	n=9 (11.5%)	n=0 (0.0%)		n=0 (0.0%)	n=1 (4.4%)	n=2 (13.3%)	n=0 (0.0%)	
Satisfied to very satisfied (4-5)	n=64 (80.0%)		n=25 (73.5%)	n=57 (91.9%)				n=146 (83.0%)
	n=62 (79.5%)	n=2 (100.0%)		n=15 (88.2%)	n=22 (95.7%)	n=13 (86.7%)	n=7 (100.0%)	

Most of the respondents (n=146, 83.0%) were satisfied to very satisfied (4-5) with their overall health, followed by almost 10 percent (9.7%) who were neither satisfied nor dissatisfied; the lowest percentage of respondents (7.4%) were very dissatisfied to dissatisfied with their health. The three schools displayed a similar trend. Most School for Allied Health Professions respondents (91.9%, n=57) were satisfied to very satisfied with their health, with a lower percentage of School of Medicine respondents (80%, n=64) and the lowest percentage of School of Nursing respondents (73.5%, n=25) being satisfied.

4.3.3   Quality of life domains

In the next section, the data of the four domains of the WHOQOL-BREF questionnaire (physical health, psychological health, social relationships and environment) will be presented. The total score for each domain denotes individuals' perceptions of their quality of life. The mean score of questions within each domain is used to calculate the domain score. A higher quality of life score denotes a better quality of life (cf. 1.1). Prominent results are indicated in bold font for ease of reading.

Each quality of life domain is subdivided into facets. Although the WHOQOL-BREF questionnaire provides a quick way to score the quality of life domains, it does not permit in-depth evaluation of the facets comprising these domains (WHO 1998:42). However, the individual facets may indicate specific areas in each domain that are affected to a lesser or greater extent, and may indicate areas which may be addressed by the Faculty of Health Sciences to improve the quality of life of health sciences students. Therefore, results of the most prominent facets (affected to a greater degree) will be presented. Table 4.4 provides the means, standard deviations and ranges of the quality of life domains as rated by respondents.

Table 4.4: Quality of life domains of respondents

	PHYSICAL HEALTH	**PSYCHOLOGICAL HEALTH**	**SOCIAL RELATIONSHIPS**	**ENVIRONMENT**
Mean (SD)	69.8 (15.9)	67.0 (15.9)	67.5 (19.9)	71.5 (15.0)
Range (min;max)	12.5;100	16.7;95.8	8.3;100	21.9;100

The quality of life domain scores of respondents in this study can be ranked from lowest to highest as follows: psychological health, social relationships, physical health and environment. Table 4.5 presents the mean values (standard deviation in parentheses) of

the quality of life domains of the respondents per school and academic programme.

Table 4.5: Quality of life domains of respondents per school and academic programme

Quality of life domains	FACULTY OF HEALTH SCIENCES n=179						
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64			
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physio-therapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8
Physical health	67.4 (18.1)		**67.4 (16.6)**	74.0 (11.1)			
	67.5 (18.3)	66.7 (0.0)		74.3 (9.1)	76.1 (7.5)	71.7 (13.2)	71.4 (18.7)
Psychological health	65.3 (18.2)		**65.6 (16.1)**	69.9 (12.1)			
	65.8 (18.1)	46.3 (12.4)		**65.3 (14.4)**	74.2 (7.0)	68.7 (13.7)	70.3 (12.7)
Social relationships	63.5 (22.7)		72.8 (18.8)	69.7 (15.5)			
	63.8 (22.9)	50.0 (0.0)		**61.3 (18.0)**	74.6 (12.9)	71.1 (14.4)	71.9 (13.1)
Environment	70.6 (16.5		69.4 (15.5)	73.7 (12.6)			
	70.5 (16.5)	73.4 (19.9)		70.8 (13.6)	74.9 (8.8)	75.2 (14.8)	73.9 (16.3)

In the School of Medicine, respondents consisted mainly of MBChB students (cf. 4.2.1) – because only two BMedSc (Radiation Sciences) students participated in the study, inferences could not be made from their data. For these students, the social relationships domain attained the lowest score, followed by the psychological health domain, the physical health domain and the environment domain.

In contrast, the psychological health domain of nursing respondents scored the lowest, followed by the physical health domain, the environment domain and the social relationships domain.

For School for Allied Health Professions respondents, the social relationships domain achieved the lowest score, followed closely by the psychological health domain. The environment domain score was the second highest, and the physical health domain obtained the highest score. In the School for Allied Health Professions, results for the quality of life domains were very similar for the four programmes, except for social relationships (mean 61.3, SD 18.0) and psychological health domain scores (mean 65.3, SD 14.4) of

physiotherapy respondents.

In summary, the results indicate that the psychological health domain score was the lowest for nursing, occupational therapy, optometry, dietetics respondents, and second lowest for medical and physiotherapy respondents.

The quality of life domains according to gender (male or female) were analysed further only for School of Medicine respondents, due to the other schools having mostly female students. Table 4.6 indicates the mean values (standard deviation in parentheses) and p-values of the quality of life domains of male and female respondents in the School of Medicine.

Table 4.6: Quality of life domains of male and female respondents in the School of Medicine

Quality of life domains	Physical health	Psychological health	Social relationships	Environ- ment	n=76
Male	73.3 (16.3)	74.8 (15.4)	69.1 (22.3)	73.7 (15.0)	n=29
Female	62.2 (18.1)	58.4 (17.7)	59.1 (23.1)	67.3 (17.2)	n=47
p-value	**0.0091**∗	**0.0001**∗	0.0675	0.1030	

In each quality of life domain, female respondents scored lower than their male counterparts. The order of the female respondents' quality of life domain scores (lowest to highest) were psychological health, social relationships, physical health and environment domain. In contrast, male respondents' quality of life domain scores were ranked (lowest to highest) as follows: social relationships, physical health, environment and psychological health. Statistical analysis found statistically significant differences in the physical health (p=0.0091) and psychological health (p<0.0001) domains of male and female respondents.

The quality of life domain scores of respondents who resided on campus or in off-campus accommodation were analysed to address the third subsidiary research question, namely, "How do the quality of life domains differ for students who reside in either on campus and off campus accommodation?" Table 4.7 presents the mean values (standard deviation in parentheses) of the quality of life domains for the respondents living on and off campus.

Table 4.7: Quality of life domains of respondents living on- and off-campus

QUALITY OF LIFE DOMAINS	FACULTY OF HEALTH SCIENCES n=175					
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=32		SCHOOL FOR ALLIED HEALTH PROFESSIONS n=62	
	On campus n=26	Off campus n=55	On campus n=19	Off campus n=13	On campus n=29	Off campus n=33
Physical health	64.3 (17.5)	68.9 (18.3)	65.6 (15.6)	68.7 (7.7)	74.1 (10.5)	74.5 (11.3)
Psychological health	63.1 (15.8)	66.4 (19.3)	69.7 (14.9)	58.3 (16.8)	70.6 (9.1)	69.4 (14.6)
Social relationships	59.1 (25.4)	65.5 (21.2)	**79.8 (14.2)**	**60.9 (20.2)**	69.7 (17.4)	69.9 (14.4)
Environment	67.6 (17.4)	71.9 (72.7)	70.1 (15.0)	68.3 (17.6)	71.4 (12.0)	75.7 (13.3)

For School of Medicine respondents, all four quality of life domain scores were higher for those living off campus than for on-campus respondents, although no statistically significant differences (p-value < 0.05) were observed.

The psychological health, social relationships and environment quality of life domain scores were higher for on-campus than for off-campus nursing respondents. The only statistically significant difference was between the scores for the social relationships domain (p-value < 0.01) of on-campus and off-campus nursing respondents. A p-value of 0.05 was calculated for the psychological health domains of on-campus and off-campus nursing respondents, which borders on statistical significance.

In the School for Allied Health Professions, only the psychological health domain score was higher for on-campus respondents. The physical health and social relationships domain scores were almost equal for on-campus and off-campus respondents. No statistically significant difference in the quality of life domain scores of on-campus and off-campus allied health respondents was observed.

The quality of life domain scores of respondents from urban and non-urban (rural) areas were analysed further. The results were used to address the fourth subsidiary research question, namely, "How do the quality of life domains differ for students who had resided in different types of living environments (i.e. urban/rural and formal/informal settlements) in the last year of high school?". Table 4.8 illustrates the mean values (standard deviation in parentheses) of the quality of life domains of respondents from urban and non-urban

(rural) areas.

Table 4.8: Quality of life domains of respondents from urban and non-urban (rural) areas

QUALITY OF LIFE DOMAINS	FACULTY OF HEALTH SCIENCES n=178					
	SCHOOL OF MEDICINE n=80		SCHOOL OF NURSING n=34		SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64	
	Urban n=70	Non-urban (rural) n=10	Urban n=31	Non-urban (rural) n=3	Urban n=58	Non-urban (rural) n=6
Physical health	67.5 (18.9)	65.0 (11.3)	67.5 (16.3)	66.7 (23.2)	73.6 (11.4)	77.1 (7.8)
Psychological health	65.2 (18.9)	64.3 (13.8)	**64.8 (16.7)**	**73.6 (2.4)**	69.7 (12.1)	71.9 (13.1)
Social relationships	63.6 (23.1)	62.5 (21.6)	71.2 (19.0)	88.9 (4.8)	68.6 (15.2)	80.6 (15.5)
Environment	71.4 (16.2)	61.9 (15.4)	69.4 (15.6)	69.8 (17.2)	73.5 (12.7)	76.0 (12.8)

For School of Medicine respondents, those from urban areas scored higher on all four quality of life domains than respondents from non-urban (rural) areas. In contrast, School for Allied Health Professions respondents from non-urban (rural) areas scored higher in all four quality of life domains. However, statistical analysis did not show statistically significant differences in the quality of life domain scores of respondents from urban and rural areas (School of Medicine and School for Allied Health Professions).

School of Nursing respondents from non-urban (rural) areas scored higher on most of the quality of life domains, except for the physical health domain. Only the psychological health domain showed a statistically significant difference (p=0.0127).

In the next section, the results of the respective quality of life domains and facets will be presented. Firstly, the physical health domain results will be provided.

4.3.3.1   *Physical health domain*

The physical health domain enquires about pain and discomfort (Question 3), dependence on medicinal substances and medical aids (Question 4), energy and fatigue (Question 10), mobility (Question 15), sleep and rest (Question 16) activities of daily living (Question 17) and work capacity (Question 18). Table 4.9 provides an overview of the respondents' responses on the physical health domain (mean, standard deviation and range).

Table 4.9: Physical health domain of respondents

PHYSICAL HEALTH DOMAIN	FACULTY OF HEALTH SCIENCES n=179						
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64			
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physiotherapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8
Mean (SD)	67.4 (18.1)		67.4 (16.6)	74.0 (11.1)			
	67.5 (18.3)	66.7 (0.0)		74.3 (9.1)	76.1 (7.5)	71.7 (13.2)	71.4 (18.7)
Range (min;max)	12.5;100.0		33.3;95.8	37.5;100.0			
	12.5; 100.0	66.7; 66.7		50.0; 87.5	58.3; 87.5	37.5; 91.7	45.8; 100.0

The physical health domain score was the highest in School for Allied Health Professions respondents (mean 74.0, SD 11.1). The mean score for physical health was the same for School of Nursing (mean 67.4) and School of Medicine (mean 67.4) respondents.

In the next section, the results of the most prominent facets of the physical health domain, namely, sleep and rest, energy and fatigue and work capacity, will be presented in detail. The results of the other facets are shown briefly (tables included in Appendix F).

Sleep and rest

Question 16 asked, "How satisfied are you with your sleep?", and was scored on the Likert scale between 1=very dissatisfied and 5=very satisfied. Table 4.10 indicates respondents' satisfaction with their sleep and rest.

Table 4.10: Sleep and rest of respondents

SLEEP AND REST	FACULTY OF HEALTH SCIENCES n=179							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physio-Therapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Very dissatisfied to dissatisfied (1-2)	n=21 (25.9%)		n=12 (35.3%)	n=14 (21.9%)				n=47 (26.3%)
	n=21 (26.6%)	n=0 (0.0%)		n=5 (27.8%)	n=5 (21.7%)	n=3 (20.0%)	n=1 (12.5%)	
Neither satisfied nor dissatisfied (3)	n=26 (32.1%)		n=7 (20.6%)	n=21 (32.8%)				n=54 (30.2%)
	n=25 (31.7%)	n=1 (50.0%)		n=5 (27.8%)	n=7 (30.4%)	n=5 (33.3%)	n=4 (50.0%)	
Satisfied to very satisfied (4-5)	n=34 (42.0%)		n=15 (44.1%)	n=29 (45.3%)				n=78 (43.6%)
	n=33 (41.8%)	n=1 (50.0%)		n=8 (44.4%)	n=11 (47.8%)	n=7 (46.7%)	n=3 (37.5%)	

Different groups of health sciences respondents' perceptions of sleep and rest seemed to be very similar. The majority of respondents (n=78, 43.6%) were satisfied to very satisfied with their sleep. Just over 30% of respondents were neither satisfied nor dissatisfied with their sleep, while 26% (n=47) were very dissatisfied to dissatisfied with their sleep. Percentages of respondents from the three schools that were satisfied to very satisfied with their sleep and rest were as follows: School of Medicine, 42.0%; School of Nursing, 44.1%; School for Allied Health Professions, 45.3%. Of the School of Nursing respondents, 35.3% were very dissatisfied to satisfied with their sleep, compared to 25.9% of respondents from the School of Medicine and 21.9% of respondents from the School for Allied Health Professions.

Energy and fatigue

Question 10 enquires about energy and fatigue: "Do you have enough energy for everyday life?", and responses are rated from 1=not at all to 5=completely. Table 4.11 indicates energy and fatigue as reported by the respondents.

Table 4.11: Energy and fatigue of respondents

ENERGY AND FATIGUE	FACULTY OF HEALTH SCIENCES n=179							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=79	BMedSc (Radia-tion Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physio-Therapy)9 n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
A little to not at all (1-2)	n=15 (18.5%)		n=7 (20.6%)	n=5 (7.8%)				n=27 (15.1%)
	n=15 (19.0%)	n=0 (0.0%)		n=1 (5.6%)	n=2 (8.7%)	n=2 (13.3%)	n=0 (0.0%)	
Moderately (3)	n=32 (39.5%)		n=10 (29.4%)	n=20 (31.3%)				n=62 (34.6%)
	n=30 (38.0%)	n=2 (100.0%)		n=7 (38.9%)	n=6 (26.1%)	n=5 (33.3%)	n=2 (25.0%)	
Mostly to completely (4-5)	n=34 (42.0%)		n=17 (50.0%)	n=39 (60.9%)				n=90 (50.3%)
	n=34 (43.0%)	n=0 (0.0%)		n=10 (55.6%)	n=15 (65.2%)	n=8 (53.3%)	n=6 (75.0%)	

Half the respondents (50.3%) indicated that they have mostly to completely sufficient energy. Almost 40% (39.5%) of respondents indicated having moderate amounts of energy, while 15.1% indicated having a little to no energy for daily living. Results for all three schools of the Faculty of Health Sciences displayed a similar trend. Percentages of health sciences respondents that reported mostly to completely sufficient energy for daily living, ranked from lowest to highest, are School of Medicine, 42.0%; School of Nursing, 50.0%; School for Allied Health Professions, 60.9%.

Work capacity

Question 18 ("How satisfied are you with your capacity for work?") was rated between 1=very dissatisfied and 5=very satisfied. Table 4.12 displays respondents' perceptions of their work capacity.

Table 4.12: Work capacity of respondents

WORK CAPACITY	FACULTY OF HEALTH SCIENCES n=179							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physio-Therapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Very dissatisfied to dissatisfied (1-2)	n=21 (25.9%)		n=5 (14.7%)	n=8 (12.5%)				n=34 (19.0%)
	n=21 (26.6%)	n=0 (0.0%)		n=2 (11.1%)	n=0 (0.0%)	n=3 (20.0%)	n=3 (37.5%)	
Neither satisfied nor dissatisfied (3)	n=15 (18.5%)		n=5 (14.7%)	n=9 (14.1%)				n=29 (16.2%)
	n=15 (19.0%)	n=0 (0.0%)		n=4 (22.2%)	n=2 (8.7%)	n=2 (13.3%)	n=1 (12.5%)	
Satisfied to very satisfied (4-5)	**n=45 (55.6%)**		n=24 (70.6%)	n=47 (73.4%)				n=116 (64.8%)
	n=43 (54.4%)	n=2 (100.0%)		n=12 (66.7%)	n=21 (91.3%)	n=10 (66.7%)	n=4 (50.0%)	

The majority of respondents (n=116, 64.8%) were satisfied to very satisfied with their work capacity, followed by 19.0% of respondents (n=34) who were very dissatisfied to dissatisfied with their work capacity. The lowest percentage of respondents (n=29, 16.2%) was neither satisfied nor dissatisfied with their work capacity. The percentage of School of Medicine respondents who were satisfied to very satisfied was the lowest of the three schools (55.6%).

Only a brief overview of the results of the facets activities of daily living, pain and discomfort, dependence on medicinal substances and medical aids and mobility will be presented (cf. tables in Appendix F). Similar trends were displayed by respondents of the three schools of the Faculty of Health Sciences.

Activities of daily living

Question 17 enquired about activities of daily living: "How satisfied are you with your ability to perform your daily living activities?" Most respondents (68.7%) indicated that they were satisfied to very satisfied with their activities of daily living (cf. Appendix F1).

Pain and discomfort

Responses to the question, "To what extent do you feel that your physical pain prevents you from doing what you need to do?" determined perceptions about pain and discomfort. Most respondents (71.3%) responded that pain prevented them from doing what they needed to do "a little to not at all". On the other hand, 20% of nursing respondents (n=7) indicated that pain affected them very much, to an extreme amount (cf. Appendix F2).

Mobility

Question 15 asked, "How well are you able to get around?" More than three quarters (76.5%) of respondents rated their mobility as good to very good (cf. Appendix F3).

Dependence on medicinal substances and medical aids

Question 4 enquired, "How much do you need any medical treatment to function in your daily life?" Almost 85% (84.9%) of respondents required a little to no medical treatment at

all. A similar trend was observed in all the health sciences disciplines, except for nursing respondents, of whom 17.7% indicated that they require medical treatment very much, to an extreme amount (cf. Appendix F4). One nursing student indicated in the open comments that she had chronic ulcerative colitis and was on medical treatment to improve her quality of life (cf. Table 4.23).

Summary of the physical health domain

The three most prominent facets of the physical health domain are sleep and rest, energy and fatigue, and work capacity. A similar trend is displayed in the three facets. The respondents were satisfied to very satisfied with their sleep: 45.3% from the School for Allied Health Professions, 44.1% from the School of Nursing and 42.0% of the School of Medicine. More than 60% of respondents from the School for Allied Health Professions reported mostly to completely sufficient energy, followed by half of the School of Nursing and 42.0% of School of Medicine respondents. Respondents who were satisfied to very satisfied with their work capacity were as follows: School for Allied Health Professions, 73.4%; School of Nursing, 70.6%; School of Medicine, 55.6% (cf. Appendix F5).

In the following section, the results of the psychological health domain will be reported.

4.3.3.2 *Psychological health domain*

The psychological health domain consists of the following six facets: positive and negative feelings (Questions 5 and 26 respectively), thinking, learning, memory and concentration (Question 7), self-esteem (Question 19), bodily image and appearance (Question 11) and spirituality/religion/personal beliefs (Question 6). Table 4.13 provides an overview of the psychological health domain of the respondents.

Table 4.13: Psychological health domain of respondents

PSYCHO-LOGICAL HEALTH DOMAIN	FACULTY OF HEALTH SCIENCES n=179						
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64			
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physio-therapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8
Mean (SD)	65.3 (18.2)		65.5 (16.1)	69.9 (12.1)			
	65.8 (18.1)	46.3 (12.4)		65.3 (14.4)	74.2 (7.0)	68.7 (13.7)	70.3 (12.7)
Range (min;max)	16.7;95.8		25.0; 87.5	29.2;91.7			
	16.7; 95.8	37.5; 55.0		29.2; 87.5	66.7; 91.7	50.0; 87.5	50.0; 91.7

The psychological health domain score was the highest for the School for Allied Health Professions, and almost equal for the Schools of Nursing and Medicine. The psychological health domain score was the highest for occupational therapy, followed by dietetics, optometry, medical, nursing and physiotherapy respondents.

Next, the results of the three most dominant facets of the psychological health domain, namely, thinking, learning, memory and concentration, negative feelings and bodily image and appearance, will be presented. A short interpretation of the results of the rest of the facets will follow (cf. tables in Appendix F).

Thinking, learning, memory and concentration

Respondents' perceptions of their thinking, learning, memory and concentration were indicated in responses to Question 7 ("How well are you able to concentrate?"), from 1=not at all, to 5=extremely well. Table 4.14 indicates perceptions of thinking, learning, memory and concentration of the respondents.

Table 4.14: Thinking, learning, memory and concentration of respondents

THINKING, LEARNING, MEMORY AND CONCENTRATION	FACULTY OF HEALTH SCIENCES N=179							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physio-therapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Not at all to a little (1-2)	n=9 (11.1%)		n=5 (14.7%)	n=5 (7.8%)				n=19 (10.6%)
	n=9 (11.4%)	n=0 (0.0%)		n=2 (11.1%)	n=2 (8.7%)	n=0 (0.0%)	n=1 (12.5%)	
A moderate amount (3)	n=42 (51.9%)		n=17 (50.0%)	n=31 (48.4%)				n=90 (50.3%)
	40 (50.6%)	2 (100.0%)		n=10 (55.6%)	n=6 (26.1%)	n=11 (73.3%)	n=4 (50.0%)	
Very much to extremely (4-5)	n=30 (37.0%)		n=12 (35.3%)	n=28 (43.8%)				n=70 (39.1%)
	n=30 (38.0%)	n=0 (0.0%)		n=6 (33.3%)	n=15 (65.2%)	n=4 (26.7%)	n=3 (37.5%)	

Half the respondents surveyed (n= 90, 50.3%) indicated that they were able to concentrate a moderate amount. Just over 10% (n=19, 10.6%) of respondents rated their concentration as not at all to a little, while 39.1% indicated that they could concentrate "very much to extremely". The Schools of Medicine, Nursing and Allied Health Professions showed a similar trend. The percentage of School of Nursing respondents who were able to concentrate very much to extremely well was the lowest (35.3%).

<u>Negative feelings</u>

Question 26 asked, "How often do you have negative feelings such as blue mood, despair, anxiety, depression?" and scores ranged between 1=never and 5=always in a negative direction. The scales were reverse coded during data analysis and, that is, 1=always and 5=never. Table 4.15 reports the presence of negative feelings in the respondents.

Table 4.15: Negative feelings of respondents

NEGATIVE FEELINGS	FACULTY OF HEALTH SCIENCES n=178							
	SCHOOL OF MEDICINE n=80		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=78	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physio-therapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Very often to always (2-1)	n=23 (28.8%)		n=11 (32.4%)	n=7 (10.9%)				n=41 (23.0%)
	n=22 (28.2%)	n=1 (50.0%)		n=4 (22.2%)	n=0 (0.0%)	n=3 (20.0%)	n=0 (0.0%)	
Quite often (3)	n=20 (25.0%)		n=8 (23.5%)	23 (35.9%)				n=51 (28.7%)
	n=19 (24.4%)	n=1 (50.0%)		n=4 (22.2%)	n=8 (34.8%)	n=7 (46.7%)	n=4 (50.0%)	
Never to seldom (5-4)	n=37 (46.3%)		n=15 (44.1%)	34 (53.1%)				n=86 (48.3%)
	n=37 (47.4%)	n=0 (0.0%)		n=10 (55.6%)	n=15 (65.2%)	n=5 (33.3%)	n=4 (50.0%)	

The majority of respondents (n=86, 48.3%) "never to seldom" experienced negative feelings, while 28.7% (n=51) of respondents "quite often" have negative feelings. A minority of respondents (n=41, 23.0%) "very often to always" experienced negative feelings. A similar trend was displayed in the Schools of Medicine and Nursing: More respondents had negative feelings "very often to always" than "quite often" in the School of Medicine (28.8% vs 25.0%) and School of Nursing (32.4% vs 23.5%). However, in the School for Allied Health Professions the trend was as follows (majority to minority of respondents): "never to seldom" (53.1%), "quite often" (35.9%) and "very often to always" (10.9%).

Bodily image and appearance

Question 11 asked, "Are you able to accept your bodily appearance?" and responses ranged between 1=not at all and 5=completely. Table 4.16 displays scores on perceptions of bodily image and appearance of the respondents.

Table 4.16: Bodily image and appearance of respondents

BODILY IMAGE AND APPEARANCE	FACULTY OF HEALTH SCIENCES n=178							
	SCHOOL OF MEDICINE n=80		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=78	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physio-therapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Not at all to a little (1-2)	n=12 (15.0%)		n=7 (20.6%)	n=6 (9.4%)				n=25 (14.0%)
	n=11 (14.1%)	n=1 (50.0%)		n=4 (22.2%)	n=1 (4.4%)	n=1 (6.7%)	n=0 (0.0%)	
Moderately (3)	n=20 (25.0%)		n=7 (20.6%)	n=22 (34.4%)				n=49 (27.5%)
	n=19 (24.4%)	n=1 (50.0%)		n=5 (27.8%)	n=8 (34.8%)	n=5 (33.3%)	n=4 (50.0%)	
Mostly to completely (4-5)	n=48 (60.0%)		n=20 (58.8%)	n=36 (56.3%)				n=104 (58.4%)
	n=48 (61.5%)	0 (0.0%)		n=9 (50.0%)	n=14 (60.9%)	n=9 (60.0%)	n=4 (50.0%)	

The majority of respondents (n=104, 58.4%) accepted their bodily image and appearance "mostly to completely". The lowest number of respondents (n=25, 14.0%) reported accepting their bodily image "not at all to a little". This trend was observed in respondents from the School of Medicine and School for Allied Health Professions. However, in the School of Nursing, an equal number of respondents (n=7, 20.6%) accepted their bodies "moderately" and "not at all to a little". The percentage of respondents in the three schools who accepted their bodily image and appearance "mostly to completely" were as follows: School of Medicine, 60%; School of Nursing, 58.8%; and School for Allied Health Professions, 56.3%.

A brief overview of the following facets will be provided: positive feelings, self-esteem and spirituality/religion/personal beliefs (cf. detailed results included in Appendix F). Results in the three Schools (School of Medicine, School of Nursing and School for Allied Health Professions) were comparable and displayed similar trends.

Positive feelings

Question 5 enquired, "How much do you enjoy life?". The majority of respondents (n=130, 72.6%) enjoyed life "very much, to an extreme amount" (cf. Appendix F5).

Self-esteem

Respondents' perception of their self-esteem was determined by the question "How satisfied are you with yourself?" Most of the respondents (n=131, 73.6%) were "satisfied to very satisfied", while 9.0% "very dissatisfied to dissatisfied". The same trend was noticed in the School of Medicine and School for Allied Health Professions. In contrast, the number of nursing respondents "neither satisfied, nor dissatisfied" and "very dissatisfied to dissatisfied" was the same (n=4, 11.8%) (cf. Appendix F6).

Spirituality/religion/personal beliefs

The question "To what extent do you feel your life to be meaningful?" was used to evaluate respondents' perception of spirituality. More than 70 percent (n=126, 72.4%) of the respondents indicated that they perceived the meaningfulness of their lives as "very much to an extreme amount" (cf. Appendix F7).

Summary of the psychological health domain

Thinking, learning, memory and concentration were the most prominent facets in the psychological health domain, followed by negative feelings and bodily image and appearance. Respondents reporting that they were able to concentrate "very much to extremely" well were mostly in the School for Allied Health Professions (43.8%), then the School of Medicine (37.0%) and, lastly, the School of Nursing (35.3%). Higher percentages of School of Nursing and School of Medicine respondents experienced negative feelings "very often to always" (32.4% and 28.8% respectively) than School for Allied Health Professions respondents (just over 10%). About 60 percent of School of Medicine respondents accepted their bodily image and appearance "mostly to completely", followed by the School of Nursing (58.8%) and the School for Allied Health Professions (56.3%).

In the next section, the results of the social relationships domain will be presented.

4.3.3.3 *Social relationships domain*

The social relationships domain relates to personal relationships (Question 20), sexual activity (Question 21) and social support (Question 22). Table 4.17 below indicates the scores of the social relationships domain for the respondents (mean, standard deviation and range).

Table 4.17: Social relationships domain of respondents

SOCIAL RELATION-SHIPS DOMAIN	FACULTY OF HEALTH SCIENCES n=179						
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64			
	MBChB n=79	BMedSc (Radia-tion Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physio-therapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8
Mean (SD)	63.5 (22.7)		72.8 (18.8)	69.7 (15.5)			
	63.8 (22.9)	50.0 (0.0)		61.3 (18.0)	74.6 (12.9)	71.1 (14.4)	71.9 (13.1)
Range (min;max)	8.3;100.0		25.0; 100.0	16.7;100.8			
	8.3;100.0	50.0; 50.0		16.7; 87.5	59.3; 100.0	41.7; 100.0	50.0; 87.5

The social relationships domain score was the highest for the School of Nursing, followed by the School for Allied Health Professions and the School of Medicine. The social relationships domain score was the highest for occupational therapy, followed by nursing, dietetics, optometry, medical and physiotherapy respondents.

Next, the results of the most prominent facet of the social relationships domain, namely, sexual activity, will be presented. Only a short interpretation of the facets of personal relationships and social support will be provided (cf. results given in Appendix F).

Sexual activity

Question 21 ("How satisfied are you with your sex life?") is scaled from 1=very dissatisfied, to 5=very satisfied. Table 4.18 below presents respondents' satisfaction with their sexual activity.

Table 4.18: Sexual activity of respondents

SEXUAL ACTIVITY	FACULTY OF HEALTH SCIENCES n=170							
	SCHOOL OF MEDICINE n=76		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=60				
	MBChB n=74	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physiotherapy) n=17	BOcc Ther n=22	BOptom n=15	BSc (Dietetics) n=6	
Very dissatisfied to dissatisfied (1-2)	n=19 (25.0%)		n=2 (5.9%)	n=7 (11.7%)				n=28 (16.5%)
	n=18 (24.3%)	n=1 (50.0%)		n=4 (23.5%)	n=2 (9.1%)	n=1 (6.7%)	n=0 (0.0%)	
Neither satisfied nor dissatisfied (3)	n=25 (32.9%)		n=14 (41.2%)	n=39 (65.0%)				n=78 (45.9%)
	n=24 (32.4%)	n=1 (50.0%)		n=12 (70.6%)	n=12 (54.6%)	n=9 (60.0%)	n=6 (100.0%)	
Satisfied to very satisfied (4-5)	n=32 (42.1%)		n=18 (52.9%)	n=14 (23.3%)				n=64 (37.7%)
	n=32 (43.2%)	n=0 (0.0%)		n=1 (5.9%)	n=8 (36.4%)	n=5 (33.3%)	n=0 (0.0%)	

Most respondents (n=78, 45.9%) in the Faculty of Health Sciences indicated that they were "neither satisfied, nor dissatisfied" with their sexual activity, followed by 37.7% (n=64) who were "satisfied to very satisfied" and 16.5% (n=28) "very dissatisfied to dissatisfied" with their sexual activity. A similar trend was displayed by School for Allied Health Professions respondents. However, in the School of Medicine and School of Nursing, the majority of respondents (42.1% and 52.9% respectively) were "satisfied to very satisfied" with sexual activity.

The researcher is of the opinion that respondents may have experienced this question as too personal, as only 170 respondents answered this question.

Personal relationships

Responses to the question, "How satisfied are you with your personal relationships?", indicate respondents' satisfaction with personal relationships. Most respondents (72.1%) were "satisfied to very satisfied", followed by those "neither satisfied nor dissatisfied" with their personal relationships. Respondents from the School of Medicine and School for Allied Health Professions displayed a similar trend. An equal number of nursing respondents were "neither satisfied, nor dissatisfied" and "very dissatisfied to dissatisfied" (n=4, 11.8%) (cf. Appendix F8).

The respondents (highest to lowest percentage) "satisfied to very satisfied" with their personal relationships, were as follows: optometry (86.7%), occupational therapy (82.6%), nursing (76.5%), medical (68.4%), physiotherapy (66.7%) and dietetics respondents (62.5%).

Social support

The question, "How satisfied are you with the support you get from your friends?", determined respondents' satisfaction with their social support. The majority of respondents (n=130, 72.6%) were "satisfied to very satisfied" with their social support. A similar trend was seen in all three schools of the Faculty of Health Sciences (cf. Appendix F9).

Summary of the social relationships domain

Sexual activity seemed the most prominent facet of the environment domain. The majority of respondents from the School of Medicine (42.1%) and School of Nursing (52.9%) was

"satisfied to very satisfied" with their sexual activity; 65% of School for Allied Health Professions respondents were "neither satisfied nor dissatisfied" with their sexual activity, compared to 41.2% and 32.9% of respondents from the School of Nursing and School of Medicine respectively. Most health sciences respondents were almost equally satisfied with their personal relationships and social support.

The results of the environment domain will be given in the next section.

4.3.3.4 *Environment domain*

The environment domain includes the facets freedom, physical safety and security (Question 8), physical environment (pollution/noise/traffic/climate, Question 9), financial resources (Question 12), opportunities for acquiring new information and skills (Question 13), participation in and opportunities for recreation and leisure (Question 14), home environment (Question 23), health and social care: accessibility and quality (Question 24) and transport (Question 25). Table 4.19 provides an overview of the environment domain (mean, standard deviation and range) of the respondents.

Table 4.19: Environment domain of respondents

ENVIRON-MENT DOMAIN	FACULTY OF HEALTH SCIENCES n=179						
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64			
	MBChB n=79	BMedSc (Radia-tion Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physio-therapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8
Mean (SD)	70.6 (16.5)		69.4 (15.5)	73.7 (12.6)			
	70.5 16.5	73.4 (19.9)		70.8 13.6	74.9 8.8	75.2 14.8	73.9 16.3
Range (min;max)	21.9;100.0		21.9;93.8	46.9;93.8			
	21.9; 100.0	59.4; 87.5		46.9; 90.6	59.4; 90.6	46.9; 93.8	50.0; 93.8

The environment domain score was the highest for the School for Allied Health Professions, followed by the School of Medicine and School of Nursing. Environment domain scores (highest to lowest score) were as follows: optometry, occupational therapy, dietetics, physiotherapy, medical, nursing.

The results of the three most dominant facets of the environment domain, namely, participation in and opportunities for recreation/leisure activities, physical safety and security, and physical environment (pollution/noise/traffic/climate), will be presented in detail. A brief overview of the results of the following facets will be provided: transport, home environment, financial resources, opportunities for acquiring new information and skills and health and social care: accessibility and quality. Each of the facets in the environment domain scores of on-campus and off-campus respondents were compared to determine statistically significant differences.

<u>Participation in and opportunities for recreation/leisure activities</u>

Question 14 enquired, "To what extent do you have the opportunity for leisure activities?" and was scaled between 1 (not at all) and 5 (completely). Table 4.20 reports on participation in and opportunities for recreation or leisure of health sciences respondents.

Table 4.20: Respondents' participation in and opportunities for recreation and leisure

PARTICIPATION IN AND OPPORTUNITIES FOR RECREATION AND LEISURE	FACULTY OF HEALTH SCIENCES n=179							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physio-therapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Not at all to a little (1-2)	n=23 (28.4%)		n=13 (38.2%)	n=15 (23.4%)				n=51 (28.5%)
	n=23 (29.1%)	n=0 (0.0%)		n=2 (11.1%)	n=7 (30.4%)	n=5 (33.3%)	n=1 (12.5%)	
Moderately (3)	n=37 (45.7%)		n=10 (29.4%)	n=24 (37.5%)				n=71 (39.7%)
	n=36 (45.6%)	n=1 (50.0%)		n=6 (33.3%)	n=9 (39.1%)	n=6 (40.0%)	n=3 (37.5%)	
Mostly to completely (4-5)	n=21 (25.9%)		n=11 (32.4%)	n=25 (39.1%)				n=57 (31.8%)
	n=20 (25.3%)	n=1 (50.0%)		n=10 (55.6%)	n=7 (30.4%)	n=4 (26.7%)	n=4 (50.0%)	

Almost 40% of health sciences respondents rated their participation in and opportunity for recreation or leisure activities as "moderately", while 31.8% of respondents scored their participation and opportunities for recreation or leisure as "mostly to completely". Almost a third (28.5%) of those surveyed reported "not at all to a little" participation in and opportunities for recreation or leisure. The three schools displayed different trends.

In the School of Medicine, most respondents (n=37, 45.7%) indicated that they had moderate opportunities for leisure, while 23 School of Medicine respondents (28.4%) had "not at all to a little" leisure time and just over a quarter (n=21, 25.9%) selected "mostly to completely" in relation to recreation and leisure. An almost statistically significant difference (p-value 0.05) was found between on-campus and off-campus School of Medicine respondents' participation in and opportunities for recreation and leisure – more on-campus than off-campus respondents participated in and had opportunities for recreation and leisure "mostly to completely".

In contrast, most nursing respondents (n=13, 38.2%) reported that they had "not at all to a little time" for recreation, followed by 32.4% of respondents (n=11) who rated their opportunities for leisure as "mostly to completely". Ten respondents (29.4%) indicated moderate participation and opportunities for recreation and leisure.

The majority of School for Allied Health Professionals respondents (n=25, 39.1%) rated their opportunity for leisure "mostly to completely", followed by 24 respondents (37.5%) who rated their leisure time "moderately". A minority of allied health respondents (n=15, 23.4%) indicated "not at all to a little" recreational opportunities. An equal number of occupational therapy respondents (n=7, 30.4%) indicated "mostly to completely" and "not at all to a little" opportunity for leisure activities.

Physical environment (pollution/noise/traffic/climate)

Question 9 asked, "How healthy is your physical environment?" and was scored from 1=not at all to 5=extremely. Table 4.21 indicates the responses relating to the physical environment of health sciences respondents.

Table 4.21: Physical environment of respondents

PHYSICAL ENVIRONMENT	FACULTY OF HEALTH SCIENCES n=177							
	SCHOOL OF MEDICINE n=80		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=63				
	MBChB n=78	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physio-therapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=7	
Not at all to a little (1-2)	n=4 (5.0%)		n=1 (2.9%)	n=1 (1.6%)				n=6 (3.4%)
	n=4 (5.1%)	n=0 (0.0%)		n=0 (0.0%)	n=0 (0.0%)	n=1 (6.7%)	n=0 (0.0%)	
A moderate amount (3)	n=22 (27.5%)		n=10 (29.4%)	n=20 (31.8%)				n=52 (29.4%)
	n=22 (28.2%)	n=1 (50.0%)		n=8 (44.4%)	n=9 (39.1%)	n=2 (13.3%)	n=1 (14.3%)	
Very much to extremely (4-5)	n=54 (67.5%)		n=23 (67.7%)	n=42 (66.7%)				n=119 (67.2%)
	n=52 (66.7%)	n=1 (50.0%)		n=10 (55.6%)	n=14 (60.9%)	n=12 (80.0%)	n=6 (85.7%)	

Just over two thirds (67.2%) of health sciences respondents perceived their physical environment as "very much to extremely" healthy. A small percentage (3.4%) of respondents considered their physical environment as "not at all to a little" healthy, compared to 29.4% of those surveyed who perceived their physical environment as moderately healthy. The physical environment facet displayed a similar trend across the Faculty of Health Sciences (schools and academic programmes).

In the School of Medicine, almost three quarters (74.6%) of off-campus respondents indicated that their physical environment was "very much to extremely" healthy. A statistically significant difference was found between the physical environments of on-campus and off-campus School of Medicine respondents (p-value 0.04). However, in the School of Nursing, more on-campus respondents (79.0%) perceived their physical environment to be "very much to extremely" healthy, though no statistically significant difference between the physical environment of on-campus and off-campus nursing respondents was noted (p-value 0.08).

Freedom, physical safety and security

Question 8 asked, "How safe do you feel in your daily life?" and was rated between 1=not at all and 5 =extremely. Table 4.22 indicates the respondents' perceptions of physical safety and security.

Table 4.22: Freedom, physical safety and security of respondents

FREEDOM, PHYSICAL SAFETY AND SECURITY	FACULTY OF HEALTH SCIENCES n=178							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=63				
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physio-Therapy) n=18	BOcc Ther n=22	BOptom n=15	BSc (Dietetics) n=8	
Not at all to a little (1-2)	n=4 (4.9%)		n=4 (11.8%)	n=2 (3.2%)				n=10 (5.6%)
	n=4 (5.1%)	n=0 (0.0%)		n=1 (5.6%)	n=0 (0.0%)	n=1 (6.7%)	n=0 (0.0%)	
A moderate amount (3)	n=23 (28.4%)		n=9 (26.5%)	n=14 (22.2%)				n=46 (25.8%)
	n=22 (27.9%)	n=1 (50.0%)		n=5 (27.8%)	n=4 (18.2%)	n=3 (20.0%)	n=2 (25.0%)	
Very much to extremely (4-5)	n=54 (66.7%)		**n=21 (61.8%)**	n=47 (74.6%)				n=122 (68.5%)
	n=53 (67.1%)	n=1 (50.0%)		n=12 (66.7%)	n=18 (81.8%)	n=11 (73.3%)	n=6 (75.0%)	

More than two-thirds of respondents (n=122, 68.5%) reported that they felt "very much to extremely" safe. Only 5.6% (n=10) responded that they felt "not at all to a little" safe. All three schools displayed a similar trend. School of Nursing respondents reported the lowest "very much to extremely safe" percentage (61.8%). No statistically significant differences were found between the physical environments of on-campus and off-campus respondents of any of the three schools.

A brief overview of the results of the following facets of the environment domain will be provided (cf. detailed results in Appendix F): transport, home environment, financial resources, opportunities for acquiring new information and skills, and health and social care: accessibility and quality. In general, the three schools, as well as the respective academic programmes within the Faculty of Health Sciences, displayed similar trends.

Transport

The question "How satisfied are you with your transport?" indicated respondents' perceptions of their transport. Health sciences respondents in the three schools and academic programmes displayed a similar trend in their satisfaction with transport. The majority of respondents (n=130, 72.6%) were "satisfied to very satisfied" with their transport, followed by respondents who were "dissatisfied to very dissatisfied" and the smallest percentage of respondents (11.7%), who were "neither satisfied nor dissatisfied" with transport (cf. Appendix F10).

The percentage of School of Nursing respondents "satisfied to very satisfied" with their tansport was the lowest (67.7%), with the highest percentage found in School of Medicine respondents (74.1%). Only School for Allied Health Professionals respondents showed a statistically significant difference (p-value 0.04) for transport between on-campus and off-campus respondents. More off-campus School for Allied Health Professionals respondents (81.8%) were "satisfied to very satisfied" with their transport (cf. Appendix F10).

Home environment

Responses to the question, "How satisfied are you with the conditions of your living place?" provided information about the respondents' home environments. Most health sciences respondents (n=131, 73.2%) were "satisfied to very satisfied" with the conditions of their living space, compared to 19.6% of respondents who were "neither satisfied nor dissatisfied" (cf. Appendix F11).

More than 90% of off-campus School for Allied Health Professionals respondents were "satisfied to very satisfied" with their home environments, and there is a statistically significant difference between satisfaction with the home environments of on-campus and off-campus respondents (p-value 0.03).

Financial resources

Question 12 asked, "Have you enough money to meet your needs?". Almost three quarters of health sciences respondents (n=133, 74.3%) indicated that they had "mostly to completely" enough money. A small portion of respondents (n=20, 11.2%) had "not at all to little" money at their disposal. No statistically significant difference between financial resources of on-campus and off-campus respondents was found in the three schools (cf. Appendix F12).

Health and social care: accessibility and quality

Question 24 enquired, "How satisfied are you with your access to health services?". Most respondents (n=147, 82.1%) indicated that they were "satisfied to very satisfied" with their access to health services. In none of the three schools a statistically significant difference was found between health care for on-campus versus off-campus respondents (cf. Appendix F13).

Opportunities for acquiring new information and skills

In response to the question, "How available to you is the information that you need in your day-to-day life?" more than 80% of respondents (n=143, 80.3%) indicated that they have opportunities for acquiring new information and skills "mostly to completely" (cf. Appendix F14). No statistically significant difference was found between reports of opportunities for acquiring new information and skills by on-campus and off-campus respondents in the School of Medicine, School of Nursing and School for Allied Health Professions.

In conclusion, a summary of the most prominent results of the environment domain will be provided.

<u>Summary of the environment domain</u>

The three most prominent facets of the environment domain were participation in and opportunities for recreation and leisure activities, physical environment (pollution/noise/traffic/climate) and freedom, physical safety and security. Respondents of the three schools perceived their physical environment as "very much to extremely" healthy in almost equal percentages: School of Medicine, 67.5%, School of Nursing, 67.7% and School for Allied Health Professions, 66.7%. Two thirds of School of Medicine respondents felt "very much to extremely safe", compared to almost three quarters of School for Allied Health Professions respondents and just over 60% of School of Nursing respondents.

The most prominent facet of the environment domain was participation in and opportunities for recreation and leisure activities. The highest percentage of respondents who reported that they had "not at all to a little" opportunity for leisure activities, were from the School of Nursing (38.2%), followed by the School of Medicine and School for Allied Health Professions respondents (28.4% and 23.4% respectively).

The WHOQOL-BREF questionnaire concludes with a single open question (cf. 4.3.4).

4.3.4   Comments about the WHOQOL-BREF questionnaire

Only 17 respondents (9.5%) answered the question, "Do you have any comments about the assessment?". Table 4.23 indicates the comments given in response to the last question of the WHOQOL-BREF questionnaire.

Table 4.23: Comments to the WHOQOL-BREF questionnaire

COMMENTS TO THE WHOQOL-BREF	n=17 (9.5%)
No, none, nope	11
Cool	1
It seems a bit personal but other than that it seems okay	1
Great study to do in first years. May it yield knowledgeable info to help future students	1
I need more chocolate in my life	1
Het Kroniese Ulseratiewe Collitis en is op strawwe mediese behandeling om lewensgehalte te verbeter [Suffer from Chronic Ulcerative Collitis and am on drastic medical treatment to improve quality of life]	1
Never had sex	1

A summary of the most significant findings of the quality of life domains will be provided in the next section.

4.3.5   Summary of the quality of life domains

The scores of the respondents' quality of life domains, ranked from lowest to highest, were for psychological health, followed by social relationships, physical health, and environment. The scores of the respondents in the three schools differed (cf. Table 4.3). In the School of Medicine, the social relationships domain score was the lowest, followed by psychological health, physical health and environment. In contrast, School of Nursing respondents' quality of life domain scores from lowest to highest were as follows: psychological health, physical health, environment and social relationships. In the School for Allied Health Professions, the lowest quality of life domain score was social relationships, followed by psychological health, the environment and, lastly, physical health.

At the time of the study, medical (MBChB) respondents made up 97.5% of the School of Medicine (cf. 4.2.2.1), therefore, the sequence of quality of life domain scores for medical respondents was the same as for the School of Medicine (social relationships domain, psychological health domain, physical health domain and environment domain). No inferences could be made from the radiation sciences respondents' results (n=2).

Between the various programmes of the School for Allied Health Professions, there were small differences in the order of the quality of life domains. The quality of life domain scores in the respective programmes were similar, except for physiotherapy respondents, whose social relationships domain score was the lowest, followed by the psychological health domain.

The quality of life domain scores of male and female respondents differed. Female respondents' quality of life domain scores were ranked, from lowest to highest, as follows: psychological health, social relationships, physical health and environment, while the quality of life domain score order (lowest to highest) of male respondents was social relationships, physical health, environment and psychological health. There were statistically significant differences between the psychological health and physical health domain scores of female and male respondents.

In the School of Medicine, respondents from urban areas scored higher on the quality of life domains than respondents from non-urban (rural) areas. In contrast, in the School for Allied Health Professions, respondents from non-urban (rural) areas scored higher on the quality of life domains. However, no statistically significant differences in the quality of life

domain scores of respondents from urban and non-urban (rural) areas (School of Medicine and School for Allied Health Professions) were found. In the School of Nursing, respondents from non-urban (rural) areas scored higher on most of the quality of life domains, except the physical health domain. The psychological health domain of urban and non-urban (rural) nursing respondents showed a statistically significant difference ($p=0.0127$).

4.4   ACADEMIC PERFORMANCE

In this study, academic performance was determined by calculating the final, average academic mark obtained for all the first-year modules as reflected on the respondents' academic records. This mark was compared to each participant's perception of his/her quality of life. At the UFS, medical students' academic programme (MBChB) comprises three phases. Phase 1 of the first-year medical students' programme runs for six months and concludes in June. The academic programmes of nursing, physiotherapy, occupational therapy, dietetics, optometry and radiation science students start in January and conclude in November. Therefore, the average percentage of the June examination results were used for the undergraduate medical programme and the November examination results for all the other programmes.

The respective admission requirements for the different academic programmes should be taken into consideration when interpreting the academic performance of the respondents. Admission to the following undergraduate programmes requires a minimum admission point of 36: medicine, radiation sciences, optometry, occupational therapy and physiotherapy (UFS 2018a:online; UFS 2018c:online). Admission points of 34 and 30 are required for the dietetics (UFS 2018c:online) and nursing programmes respectively (UFS 2018b:online).

The results of this correlation were used to address the last subsidiary research question, namely, "What is the correlation between quality of life and academic performance of these students?".

4.4.1   Academic performance and quality of life in the respondents

In this section, an overview of the academic performance, quality of life domains and the correlation between academic performance and quality of life will be provided. Academic performance is indicated by percentages (rounded off to one decimal place). The quality of life domain scores are indicated by mean value, standard deviations and ranges

(minimum;maximum). Correlation coefficients (r) and p-values are rounded off to three decimal places. Table 4.24 presents the quality of life domain scores (mean, standard deviation, ranges (min;max)) and academic performance (%) of the respondents.

Table 4.24: Academic performance and quality of life of respondents

Academic performance and quality of life	Physical health	Psychological health	Social relationships	Environ-ment	Academic perfor-mance (%)
Mean (SD)	69.8 (15.9)	67.0 (15.9)	67.5 (19.9)	71.5 (15.0)	70.5 (8.1)
Range (min;max)	12.5;100	16.7;95.8	8.3;100	21.9;100	44.0;89.0

There is a very weak positive correlation between academic performance and each of the quality of life domains: physical health (r=0.158, p-value=0.035*); psychological (r=0.088, p-value=0.240); social relationships (r=0.064, p-value=0.394) and environment (r=0.056, p-value=0.454). The only correlation that could be considered statistically significant, is the correlation between the physical health domain and academic performance (p-value=0.035).

Table 4.25 displays the quality of life domain scores (mean and standard deviation (first row) and range (second row)) and academic performance (%) of the respondents.

Table 4.25: Academic performance and quality of life of respondents per school and academic programme

ACADEMIC PERFORMANCE AND QUALITY OF LIFE	FACULTY OF HEALTH SCIENCES n=179						
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64			
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physiotherapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8
Physical health	67.4 (18.1)		67.4 (16.6)	74.0 (11.1)			
	12.5; 100			37.3; 100.0			
	67.5 (18.3)	66.7 (0.0)	33.3; 95.8	74.3 (9.1)	76.1 (7.5)	71.7 (13.2)	71.4 (18.7)
	12.5;100.0	66.7;66.7		50.0;87.5	58.3;87.5	37.5;91.7	45.8;100.0
Psychological health	65.3 (18.2)		65.3 (18.2)	69.9 (12.1)			
	16.7;95.8			29.2;91.7			
	65.8 (18.1)	46.3 (12.4)	16.7;95.8	65.3 (14.4)	74.2 (7.0)	68.7 (13.7)	70.3 (12.7)
	16.7;95.8	37.5;55.0		29.2;87.5	66.7;91.7	68.7;13.7	50.0;91.7
Social relationships	63.5 (22.7)		72.8 (18.8)	69.7 (15.5)			
	8.3;100			16.7;100			
	63.8 (22.9)	50.0 (0.0)	25.0;100	61.3 (18.0)	74.6 (12.9)	71.1 (14.4)	71.9 (13.1)
	8.3;100.0	50.0;50.0		16.7;87.5	58.3;100.0	41.7;100.0	50.0;87.5
Environment	70.6 (15.0)		69.4 (15.5)	73.7 (12.6)			
	21.9;100			46.9;93.8			
	70.5 (16.5)	73.4 (19.9)	21.9;93.8	70.8 (13.6)	74.9 (8.8)	75.2 (14.8)	73.9 (16.3)
	21.9;100.0	59.4;87.5		70.8;13.6	59.4;90.6	46.9;93.8	50.0;93.8
Academic performance	71.5 (7.7)		66.5 (8.7)	71.3(7.8)			
	57.0;89.0			52.0;87.0			
	71.5 (7.6)	69.0 (14.1)	44.0;85.0	68.8 (7.4)	75.0 (4.9)	67.3 (9.8)	73.9 (6.3)
	57.0;89.0	59.0;79.0		58.0;80.0	69.0;87.0	52.0;83.0	65.0;85.0

Table 4.26 presents the correlation (correlation coefficient (r) and p-value in parentheses) between academic performance and quality of life domains of respondents.

Table 4.26: Correlation between academic performance and quality of life of respondents

CORRELATION BETWEEN ACADEMIC PERFORMANCE AND QUALITY OF LIFE	FACULTY OF HEALTH SCIENCES n=179						
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64			
	MBChB n=79	BMedSc (Radia-tion Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physio-therapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8
Physical health	0.206 (0.066)		0.204 (0.247)	-0.002 (0.990)			
	0.210 (0.063)	. .		0.123 (0.628)	0.165 (0.451)	-0.198 (0.479)	-0.211 (0.616)
Psychological health	0.089 (0.431)		0.136 (0.443)	0.032 (0.802)			
	0.100 (0.383)	-1.000 .		-0.009 (0.971)	-0.321 (0.136)	-0.125 (0.658)	0.059 (0.891)
Social relationships	0.136 (0.225)		0.094 (0.599)	0.047 (0.713)			
	0.135 (0.235)	. .		0.170 (0.499)	0.089 (0.685)	-0.437 (0.103)	-0.077 (0.856)
Environment	0.159 (0.156)		0.095 (0.594)	-0.185 (0.143)			
	0.137 (0.228)	1.000 .		-0.235 (0.347)	0.009 (0.966)	-0.313 (0.256)	-0.361 (0.380)

In the Schools of Medicine and Nursing, a very weak positive correlation between academic performance and the quality of life domains was found. None of the correlations was statistically significant.

The correlation between academic performance and quality of life domains in the School for Allied Health Professions differs from results of the Schools of Medicine and Nursing. The correlations between academic performance and the quality of life domains of environment (r=-0.185) and physical health (r=-0.002) were negative. The correlations between academic performance and the social relationships and psychological health domains were very weakly positive (r=0.047 and r=0.032 respectively). None of the correlations was statistically significant.

4.4.2 Summary of academic performance and quality of life of respondents

In this study, a very weak positive correlation was found between academic performance and the four quality of life domains, physical health, psychological health, social relationships and environment. The only statistically significant correlation was found between academic performance and the physical health domain.

None of the correlations between academic performance and quality of life was statistically significant for the three schools or the respective academic programmes of the Faculty of Health Sciences.

4.5 CONCLUSION

In Chapter 4, **Results and interpretation of the survey**, the results of the questionnaire were presented and interpreted systematically. In the fifth chapter, **Discussion of the quality of life and academic performance of first-year health sciences students**, the results of the study will be discussed.

CHAPTER 5

DISCUSSION OF THE QUALITY OF LIFE AND ACADEMIC PERFORMANCE OF FIRST-YEAR HEALTH SCIENCES STUDENTS

5.1 INTRODUCTION

In Chapter 5, the results of the main and subsidiary research questions (cf. 1.4.1, 1.4.2, 4.1) will be used to adress the research problem. The results of the WHOQOL-BREF questionnaire, which was expanded to include demographic and academic performance information, will be discussed. First, a summary of the main results of the demographic information section will be provided (cf. 5.2). A discussion of the most important results of the WHOQOL-BREF questionnaire will follow (cf. 5.3). Lastly, the correlation of quality of life and academic performance of first-year health sciences students will be discussed (cf. 5.4).

5.2 DEMOGRAPHIC DESCRIPTION OF THE RESPONDENTS

In total 179 first-year health sciences students participated in the study. The majority of respondents were from the School of Medicine (cf. 4.2). The average age of the respondents was 18.7, and age ranged from 18 to 21 years (cf. Table 4.1). The majority of respondents were white and female (cf. Table 4.1). Most of the respondents resided in off-campus accommodation and had lived in urban areas in the last year of high school (cf. Table 4.1). All the respondents had lived in formal settlements before enrolling at university (cf. 4.2). In the next section, the results of the WHOQOL-BREF questionnaire will be discussed.

5.3 THE QUALITY OF LIFE OF FIRST-YEAR HEALTH SCIENCES STUDENTS AT THE UNIVERSITY OF THE FREE STATE

In the following section, the findings in relation to the study's first four objectives will be discussed:

i. To measure the physical health, psychological health, social relationships and environment domains of quality of life in these students. This objective addressed the first subsidiary research question, namely, *What are the student scores in the quality of life domains of physical health, psychological health, social relationships and environment?*

ii. To differentiate between the quality of life domains of students in the various health sciences disciplines. This objective addressed the second subsidiary research question, namely, *How do the quality of life domains differ between students in the various health sciences disciplines?*

iii. To differentiate between the quality of life domains of students who reside in on-campus and off-campus accommodation. This objective addressed the third subsidiary research question, namely*, How do the quality of life domains differ for students who reside in either on-campus and off-campus accommodation?*

iv. To differentiate between the quality of life of students who had resided in different types of living environments (i.e. rural/urban and formal/informal settlements) in the last year of high school. This objective addressed the fourth subsidiary research question, namely*, How do the quality of life domains differ for students who had resided in different types of living environments (i.e. urban/rural and formal/informal settlements) in the last year of high school?*

The results were obtained by administering the WHOQOL-BREF questionnaire (cf. 3.3). In the next section, the results of the first question of the WHOQOL-BREF questionnaire (cf. 4.3.1) will be discussed.

5.3.1   Overall quality of life

Almost 90% of this study's respondents perceived their overall quality of life as being "good to very good" (cf. Table 4.2). The overall quality of life was similar in all the programmes of the Schools of Medicine, Nursing and Allied Health Professions.

In this study, almost 80% of BSocSci (Nursing) respondents reported their overall quality of life as being "good to very good". This percentage is slightly lower than the 85% of undergraduate nurses at the University of Brasilia, Brazil, who reported the same level of satisfaction (Bampi, Baraldi, Guilhem, Pompeu & Campos 2013:127), but higher than the 60% of nursing students at the São Paulo School of Nursing (Arronqui *et al.* 2011:764) and the 67% reported at the Federal University of Piauí in Brazil (Moura, Nobre, Cortez, Campelo, Macedo & Silva 2016:e3). These studies in Brazil reported nurses' satisfaction with their overall quality of life across four years of study. The fact that first-year BSocSci (Nursing) students at the UFS perform clinical work (a total of 440 hours/year) in addition to their academic work may explain their relatively low overall quality of life compared to other medical sciences students at the UFS.

Cruz *et al.* (2018:137) report that the country of residence (irrespective whether it was classified as developed or developing) provides an indication of overall quality of life of nursing students in nine countries (Chile, Egypt, Greece, Hong Kong, India, Kenya, Oman, Saudi Arabia and the United States of America). For instance, in the United States and Greece, the overall quality of life score was the highest for nursing students, but the lowest in Hong Kong. However, even within countries, as seen in the abovementioned results of undergraduate nurses in Brazil, there is variability in the perceived overall quality of life of nursing students. There is limited data reporting the overall quality of life of students in other health sciences programmes.

Next, the overall health of the respondents, as determined by the WHOQOL-BREF questionnaire, will be discussed (cf. 4.3.2).

5.3.2   Overall health

Eighty three percent of this study's respondents were "satisfied to very satisfied" with their overall health (cf. Table 4.3). In general, respondents in all three Schools displayed a similar trend regarding their perceptions of their overall health.

As was the case with the overall quality of life, the lowest percentage of nursing respondents (73.5%) were satisfied to very satisfied with their overall health, which was higher than the 61.7% reported by Moura *et al.* (2016:e3). As reported by Cruz *et al.* (2018:137), the overall health perception of nursing students in various countries differed, e.g., the score was the lowest in Hong Kong and the highest in Greece.

In the next section, the results of the four quality of life domains (physical health, psychological health, social relationships and environment), as well as the most prominent facets (affected to a higher degree) in each domain will be discussed. The differences in the quality of life domain results for male and female respondents, on-campus and off-campus respondents and respondents from urban and non-urban (rural) areas will be explored.

5.3.3   Quality of life domains

For this study's respondents, the psychological health domain score was, overall, the lowest and the environment domain score the highest (cf. Table 4.4). The score order (lowest to highest) differed in the three schools and for different academic programmes (cf. Table

4.5).

In the School of Medicine, the social relationships domain score was the lowest and the environment domain score the highest (cf. table 4.5). In comparison, Zhang *et al*. (2012:e5) found the environment domain score the lowest in Chinese medical students.

In the School of Nursing, the social relationships domain score was the highest (cf. Table 4.5). These results correspond with the results reported by Saupe *et al*. (as cited by Eurich & Kluthcovsky 2008:e5), Arronqui *et al*. (2011:762), Moura *et al*. (2016:e1) and Moritz Pereira, Borba, Clapis, Gevert and Mantovani (2016:e1) for public and private nursing institutions in Brazil. These results differ from those of Bampi *et al*. (2013:125), for nursing students at the University of Brasilia, whose psychological health domain score was the highest.

In this study, the psychological health domain score was the lowest in the School of Nursing (cf. Table 4.5) and differed from the lowest domain scores at public and private nursing institutions in Brazil. For students at the São Paulo School of Nursing (Arronqui *et al*. 2011:764) and the Midwestern State University (Moritz *et al*. 2016:564), the physical health domain score was the lowest. The environment domain score was the lowest at the following Brazilian higher education institutions: the University of Brasilia (Bampi *et al*. 2013:125), a public university in the State of Paraná (Eurich & Kluthcovsky 2008:e1) and six nursing schools in South Region, Brazil (Saupe as cited by Eurich & Kluthcovsky 2008:e5). As for overall quality of life and health, there is variability in the domain score order of nursing students globally at higher education institutions.

As was the case in the School of Medicine respondents, the social relationships domain achieved the lowest score in the School for Allied Health Professions. The physical health domain score was the highest for School for Allied Health Professions respondents. In general, the quality of life domain scores of respondents in the various academic programmes of the School for Allied Health Professions were similar, except for the social relationships and the psychological health domain scores of physiotherapy respondents, which were the lowest scores of all the academic programmes. However, the participant numbers in the academic programmes of the School for Allied Health Professions were small (cf. 4.2). As far as could be established from literature searches, no studies using the WHOQOL-BREF questionnaire to evaluate the quality of life of physiotherapy, occupational therapy, optometry and dietetics first-year students have been documented in South Africa.

In summary, although the overall quality of life was good for students in all the schools and academic programmes of the Faculty of Health Sciences, the quality of life domain score order of respondents differed. This notion is supported by the study of Posadzki *et al*. (2009:253), which describes differences in the quality of life domains of faculties at Polish institutions (cf. 2.3.3).

In the following sections, differences in the quality of life domain scores of male and female respondents, respondents who lived on campus or off campus, and respondents who had resided in urban and non-urban (rural) areas in the last year of high school, will be discussed.

5.3.3.1 *Gender*

Gender differences in the quality of life domains could only be compared for MBChB respondents, because there were only a few male students in the other schools and programmes (cf. Table 4.1). All four quality of life domain scores were lower for female medical respondents, with statistically significant differences for the physical health and psychological health domains (cf. Table 4.6).

Contradictory results have been found in countries with varying levels of development (Brazil, Italy, New Zealand, Saudi Arabia, Spain and Sweden) (cf. 2.3.4). In Sweden, female university students' quality of life was higher than that of male students (Vaez & Laflamme 2003:160); however, this study enquired about students in general, and not medical students specifically. In Saudi Arabia (a country with a highly patriarchal and religious culture), male medical students had higher quality of life domain scores than their female colleagues, irrespective of the academic year (Shareef *et al.* 2015:e1). Similar results were reported for Italian first-year medical students (Messina *et al*. 2016:249). However, the median quality of life domain scores of male and female medical students at the University of KwaZulu-Natal, South Africa, were the same, with no statistically significant differences found between male and female students (Pillay *et al*. 2016:e4). A study done in Zaragoza, Spain, among individuals aged 16 to 30 (which included students), found men's perceived psychological health and environment quality of life domain scores to be higher than that of their female peers (Gil-Lacruz & Gil-Lacruz 2015:86). In their study, Gil-Lacruz & Gil-Lacruz (2015:85, 86) found higher scores for men on the following quality of life domain facets: freedom, physical safety and security, energy, bodily image and appearance,

opportunities for acquiring new information and skills, work capacity, self-esteem and personal relationships. The pain and discomfort, and negative feelings facet scores were higher for women than for men. Male medical students' physical and psychological health domains also scored higher than those of female medical students (Shareef *et al.* 2015:e1). Overall, quality of life seems to be better for male than for female students.

5.3.3.2   *Residential status*

In the next section, the quality of life domains of respondents living on campus and off campus will be discussed. All three schools displayed differences in the quality of life domain scores of these two groups of respondents (cf. Table 4.7).

For the School of Medicine, all four quality of life domains (physical health, psychological health, social relationships and environment) were lower for on-campus respondents, although no statistically significant differences were observed (cf. Table 4.7).

For the School of Nursing, the psychological health, social relationships (statistically significant) and environment quality of life domain scores were higher for on-campus than off-campus nursing students, but the physical health domain score was lower for on-campus students (cf. Table 4.7). These results are similar to those reported by Hicks and Heastie (2008:146), who found the physical health of on-campus students to be lower than that of off-campus students, and the psychological health better for on-campus students (cf. 2.3.5); however, this study was done for students in general, and not in nursing students specifically.

The psychological health domain score was higher for on-campus allied health professions respondents, with the physical health and social relationships scores almost the same for on-campus and off-campus respondents. None of the domain scores was statistically different between on and off-campus respondents (cf. Table 4.7).

5.3.3.3   *Area of residence before attending university*

The quality of life domain scores of students who had lived in urban and non-urban (rural) areas in the last year of high school were analysed. In the School of Medicine, all four quality of life domain scores of respondents from urban areas were higher than that of students from non-urban (rural) areas, though no statistically significant differences were seen (cf.

Table 4.8). The trend in this study is in line with the findings of Zhang *et al.* (2012:e4), who found that the psychological health and social relationship domain scores of Chinese medical students from rural areas were lower than that of their peers from urban areas. However, the median quality of life domain scores of medical students at the University of KwaZulu-Natal were the same and no statistically significant difference was found for students from urban, rural and peri-urban areas (Pillay *et al*. 2016:e4).

In contrast, the psychological health, social relationships and environment domain scores were lower for School of Nursing respondents from urban areas, with only the psychological health domain score showing a statistically significant difference (cf. Table 4.8) between urban and rural respondents. These results differ from those of Cruz *et al*. (2018:139), who report that respondents from urban areas had higher scores in the environment domain, as well as overall health, compared to their peers from rural and sub-urban areas.

Results for the School for Allied Health Professions differ from both the School of Medicine and School of Nursing, in that all four quality of life domain scores for School for Allied Health Professions respondents from urban areas were lower than that of their peers from rural areas. No statistically significant differences were, however, found.

In the next section, the most prominent facets of the four quality of life domains will be discussed. Quality of life domain scores and score orders have been found to vary in different countries (Cruz *et al.* 2018:135) and at different academic institutions in the same country e.g., Brazil (cf. 5.3.3). An overview of the most important results of the quality of life domains and facets for respondents of the three UFS schools will be provided. An explanation of how these facets interrelate with each other and correlate with academic performance will be provided. Firstly, the physical health domain and most prominent facets of the physical health domain will be discussed.

5.3.3.4 *Physical health domain*

The mean physical health domain score of this study' respondents was the second highest of all domains (cf. Table 4.4). The physical health domain score was the highest in the School for Allied Health Professions, and equal in the Schools of Medicine and Nursing (cf. Table 4.5).

In the School of Medicine, the physical health domain score was the second highest of the domain scores (cf. Table 4.5); this differs from findings relating to first-year medical students in China, whose physical health domain score was the highest of the domain scores (Zhang *et al*. 2012:e5).

In the School of Nursing, the physical health domain score was the third highest of the domain scores (cf. Table 4.5). These results differ from those reported for the São Paulo School of Nursing, Brazil (Arronqui *et al*. 2011:764), and for students in Saudi Arabia (Cruz *et al*. 2018:137), where the physical domain scores were the lowest. The physical health domain score was the highest at a public university in the State of Paraná, Brazil (Eurich & Kluthcovsky 2008:e5), and in Egypt, Greece and Hong Kong (Cruz *et al*. 2018:137).

The three most prominent facets of the physical health domain were sleep and rest, energy and fatigue, and work capacity. These three facets were also the most prominent facets in a study conducted by Bampi *et al*. (2013:129) in undergraduate nurses. The three facets are intertwined with one another, as the quantity and quality of sleep and rest may affect students' energy and work capacity, which all may influence academic performance.

In this study, the most prominent facet in the physical health domain was sleep and rest. In general, the respondents' perceptions of sleep and rest were comparable in all three schools and academic programmes (cf. Table 4.10) and with research in other countries (cf. 2.4.2.6).

Medical students' sleep problems have been researched extensively (Grady & Roberts 2017:661). A systematic review of literature performed by Azad *et al*. (2015:73) found that medical students worldwide have a higher prevalence of sleep problems than non-medical students and the general population. Sleep and rest were also one of the most prominent facets of the physical health domains of undergraduate nursing respondents at the University of Brasilia (Bampi *et al*. 2013:129) and the Midwestern State University (Moritz *et al*. 2016:570). Swanepoel (2014:87) reports that occupational therapy students at the UFS experience sleep problems, such as sleep deprivation (cf. 2.4.2.6). However, Catunda and Ruiz (as cited in Bampi *et al*. 2013:130) observed that the sleep of physical education, psychology and system information students was compromised, which may indicate that this facet is not only relevant in health sciences students, but also in the wider student population.

Academic (workload) and emotional expectations may increase students' susceptibility to sleep problems. Long study hours (Waqas *et al*. 2015:online) affect students' energy and activities of daily living (Bampi *et al*. 2013:130), which may impact their academic performance (Azad *et al*. 2015:73; Swanepoel 2014:87) and vice versa.

The second most prominent facet of the physical health domain is energy and fatigue. Half the respondents reported that they had "mostly to completely" enough energy for living (cf. Table 4.11), which correlates with a study by Lee *et al*. (2007:565), which showed that 48.9% female and 45.8% male Taiwanese first-year students experienced fatigue. Insomnia, poor exercise habits and irregular meal intake were statistically significant predictors of fatigue (Lee *et al*. 2007:569). Insomnia, as either cause or consequence of fatigue, could not be established, however (Lee *et al*. 2007:572). In the United States, the National College Health Assessment indicates that almost 80% of students in general experienced fatigue over a year (ACHA 2010:13). Swanepoel (2014:99) indicates that occupational therapy students' energy levels were affected by emotions, such as fear and anxiety (and the time spent dealing with these emotions), which may influence subsequent academic performance.

In this study, fewer medical respondents than respondents of other schools indicated that they had "mostly to completely" enough energy. In Japanese second-year medical students, the prevalence of fatigue correlated positively with irregular meals and skipping breakfast (Tanaka *et al.* 2008:985). Among medical students, level of fatigue was linked to sleep problems (Uyar, Gündoğan, Gürbüz & Özçakar 2016:164), and inadequate sleep (less than seven hours a night), poor exercise habits and a positive depression screen were associated with a higher burnout risk (Wolf & Rosenstock 2017:174).

Work capacity was the third most prominent facet of the physical health domain. The lowest percentage of respondents who reported being "satisfied to very satisfied" with their work capacity were from the School of Medicine, followed by the School of Nursing and the School for Allied Health Professions (cf. Table 4.12).

For students, the concept "work" primarily implies their academic responsibilities, although some students may perform other non-academic work. In the case of nursing students of the UFS, work includes both academic and clinical responsibilities (cf. 2.4.2.7). However, in this study, the perceived work capacity of School of Medicine respondents (who do not perform clinical hours yet) was lower than those of the nursing respondents. This perceived

lower work capacity among School of Medicine respondents should be explored further.

Studies investigating the work capacity of medical, nursing and other health sciences first-year students could not be found (as far as the researcher could establish from literature searches).

In the next section, the psychological health domain (and the most prominent facets) will be discussed.

5.3.3.5 *Psychological health domain*

In this study, the psychological health domain score was the lowest of all domain scores of School of Nursing respondents (cf. Table 4.5). This result contradicts that of Bampi *et al.* (2013:125), who found the psychological health domain score to be the highest in nursing students at the University of Brasilia. In a comparison of nine countries (cf. 2.3.2), the psychological health domain score of nursing students was the lowest in the United States and Hong Kong (Cruz *et al.* 2018:137) and the highest in India, Oman and Saudi Arabia. Physiotherapy respondents' psychological health domain scores was the lowest of all the programmes of the Faculty of Health Sciences (however, consider that this was a small group of only 18 respondents).

The three most prominent facets in the psychological health domain were thinking, learning, memory and concentration, negative feelings and bodily image and appearance. Thinking, learning, memory and concentration was the most prominent facet in the psychological health domain. All three schools displayed a similar trend, but this facet was most prominent in nursing respondents (cf. Table 4.14). Similarly, thinking, learning, memory and concentration was also the most prominent facet in the psychological health domain of nursing students at the University of Brasilia, Brazil (Bampi *et al.* 2013:128).

High-level thinking, learning, memory and concentration (cognitions) are vital for students if they are to succeed academically. Cognitions may be influenced by stress (Goff 2011:online), academic and social expectations (Swanepoel 2014:104), fatigue (Mehralizadeh, Ghorbani, Zolfaghari, Shahinfar, Nikkhah & Pourazizi 2013:663) and sleep deprivation (Durmer & Dinges 2005:120). Mehralizadeh *et al.* (2013:663) indicate that concentration was also affected by environmental classroom factors, e.g., lighting, ventilation and scheduling times (e.g., students concentrate better during morning lectures,

between 10 and 12 o'clock) and lecturer-related factors, e.g., teacher skills. These factors may, in turn, influence academic performance (Goff 2011:online). Research into factors that affect the concentration of students at the Faculty of Health Sciences may provide valuable insight into this aspect.

The second most prominent facet of the psychological health domain was negative feelings. The presence of negative feelings (e.g., sadness, anxiety, nervousness, depression, and panic attacks) and their effect on daily operation were explored by this facet. The nature, depth, specificity and prevalence of the negative feelings were not included in this assessment, as it does not form part of the WHOQOL-BREF questionnaire.

In this study, almost a third of nursing respondents experienced negative feelings "very often to always" (cf. Table 4.15). A recent systematic review and meta-analysis reported the global prevalence of depression in nursing students across 27 studies as 34%, and more than 40% in younger nursing students (Tung, Lo, Ho & Tam 2018:124). Nursing students at the University of Brasilia, Brazil, experienced negative feelings in the following frequencies: 64.3% "seldom", 14.3% "quite often", 10.7% "very often" and 8.9% "always" (Bampi *et al.* 2013:131). In comparison, the respondents at the UFS School of Nursing reported combined frequencies for negative feelings as follows: 44.1% "seldom to never", 23.5% "quite often" and 32.4% "very often to always" (cf. Table 4.15). In the study by Bampi *et al.* (2013:131) negative feelings have been ascribed to factors such as voluminous academic workload, clinical work and conflicted relationships with facilitators and lecturers.

In this study, medical students reported the second-highest percentage (28%) of feelings that are "very often to always" negative. These results compare well with those of a recent systematic review and meta-analysis, which estimates the prevalence of depression and depressive symptoms in medical students at 27.2% and suicidal ideation at 11.1% (Rotenstein, Ramos, Torre, Segal, Peluso, Guille, Sen & Mata 2016:2214). In KwaZulu-Natal, South Africa, 15.6% of students reported severe depressive symptoms (Pillay *et al.* 2016:e1).

The third-most-prominent facet of the psychological health domain was bodily image and appearance. A similar trend was observed in the three schools regarding respondents' perceptions of their bodily image and appearance, with the School for Allied Health Professions having the lowest percentage for accepting bodily image "mostly to completely"

(cf. Table 4.16). Not much research has been done about health sciences students' perceptions of their bodily image and appearance (cf. 2.4.3.1), and this topic should be explored further.

The next section will deal with findings in relation to the social relationships domain.

5.3.3.6 *Social relationships domain*

The order of social relationships domain scores of respondents of the three schools (highest to lowest) were as follows: School of Nursing, School for Allied Health Professions and School of Medicine (cf. Table 4.17). In general, the social relationships domain scores were similar for the different academic programmes, but lower for medical and physiotherapy students (cf. Table 4.17).

In this study, the social relationships domain score was the highest in nursing students. The result corresponds with the results reported at several higher education institutions in Brazil: six nursing schools in South Region, Brazil (Saupe *et al*. as cited in Eurich & Kluthcovsky 2008:e5), São Paulo School of Nursing (Arronqui *et al*. 2011:764), the Midwestern State University (Moritz *et al*. 2016:564) and the Federal University of Piauí (Moura *et al*. 2016:e4). Cruz *et al*. (2018:137) also reported the highest social relationships domain score for nursing students from the United States, Kenya and Chile.

In the social relationships domain, the most prominent facet was sexual activity. The question about sexual activity is a sensitive one, as confirmed by the lower response rate to this question (cf. Table 4.18). The researcher is of the opinion that some respondents might have responded to this question as "neither satisfied, nor dissatisfied" when they were not sexually active.

The quality of life domain scores of the other two facets of the social relationships domain, namely, personal relationships and social support, were almost equal (cf. Appendix F). These facets were also equally affected in the study done by Bampi *et al*. (2013:128) in nursing students at the University of Brasilia, Brazil.

In the following section, the results of the most prominent facets of the environment domain will be discussed.

5.3.3.7   *Environment domain*

In this study, the environment quality of life domain score was the highest of all domain scores of first-year health sciences respondents, and of School of Medicine respondents (cf. Table 4.5). This finding contradicts results of first-year medical students in China, where the environment domain score was the lowest (Zhang *et al*. 2012:e5). In this study, the environment domain obtained the second-highest domain score of all the domains for nursing respondents. In turn, these results contradict those of Eurich and Kluthcovsky (2008:e1), Saupe *et al*. (as cited in Eurich & Kluthcovsky 2008:e5) and Bampi *et al*. (2013:130), who found the environmental domain score to be the lowest in nursing students at various institutions in Brazil and Chile, Egypt, Greece (Cruz *et al*. 2018:137).

The three most prominent facets of the environment domain were participation in and opportunities for recreation/leisure activities, freedom, physical safety and security, and physical environment (pollution/noise/traffic/climate).

In this study, the most prominent facet of the environment domain was participation in and opportunities for recreation/leisure activities. Almost a third of respondents indicated that they participated in or had "no to little" opportunities for recreation or leisure activities (cf. Table 4.20). The highest percentage of nursing respondents perceived that they had "no to little" participation in or opportunities for leisure activities, which may be due to the requirement for nursing students to do 440 hours of clinical work in addition to attending lectures, practical and tutorial sessions. In their study, Moritz *et al*. (2016:570) consider academic workload to be a factor contributing to a lack in leisure time for Brazilian nursing students. One of the most prominent facets of nursing students at the University of Brasilia, Brazil, was participation in and opportunities for recreation/leisure activities, and transport (Bampi *et al.* 2013:130).

The second-most-prominent facet of the environment domain was the physical environment (noise, pollution, climate and general aesthetic environment). The quality of life of students may be affected by their physical environment, which may, in turn, influence their academic performance. In this study, the physical environment facet displayed a similar trend in the three schools and academic programmes (cf. Table 4.21).

In the School of Medicine, a statistically significant difference was found in the physical

environment scores of on-campus and off-campus respondents (cf. 4.3.3.4). Swanepoel (2014:100) indicates that factors, such as accommodation (on campus and off campus) and roommates, may affect first-year occupational therapy students' academic success either negatively or positively (cf. 2.4.5.7). These factors may have affected this study's School of Medicine respondents in a similar way.

The third most prominent facet of the environment domain was freedom, physical safety and security, which was prominent for nursing respondents. A possible explanation for this finding may be nursing students' weekend work shifts (07:00-19:00) at hospitals, and their resulting need to return home by either walking, using public transport or driving themselves.

Generally, there are concerns about the safety of students globally (Schafer, Lee, Burruss & Giblin 2018:319), including in South Africa. Several measures have been implemented to enhance the safety of off-campus students at the UFS, which includes a Student Crime Stop WhatsApp group (consisting of students and members of the South African Police Service, campus Protection Services, private security companies and the Community Police Forum) and regular patrols by security companies in residential areas adjacent to the university (cf. Appendix H).

Table 5.1 provides an overview of the ten most prominent facets of the quality of life domains identified in the respondents.

Table 5.1: Prominent facets in the respondents

QUALITY OF LIFE DOMAINS	PROMINENT FACETS
Physical health	• Sleep and rest • Energy and fatigue • Work capacity
Psychological health	• Thinking, learning, memory and concentration • Negative feelings • Bodily image and appearance
Social relationships	• Sexual activity
Environment	• Participation in and opportunities for recreation/ leisure activities • Physical environment (pollution/noise/traffic/climate) • Freedom, physical safety and security

Next, a summary of the quality of life domains will follow.

5.3.3.8 *Summary of the quality of life domains*

In this study's respondents, the psychological health domain score was the lowest and the environment domain score the highest (cf. Table 4.4). The most prominent facets of the psychological health domain, namely, thinking, learning, memory and concentration, negative feelings and bodily image and appearance, as well as the factors that influence these facets, may be researched in future.

The quality of life domain score sequence varied in the three schools and respective academic programmes (cf. Table 4.5). The findings of the quality of life domain scores strengthen the notion that domain scores differ greatly across countries, institutions and even within institutions, faculties and programmes. The 10 most prominent facets of the quality of life domains of this study's respondents were identified (cf. Table 5.1). These facets are interrelated with one another and may influence each other and academic performance, and vice versa.

In the next section, the correlation between academic performance and quality of life in this study's respondents will be discussed.

5.4   ACADEMIC PERFORMANCE AND QUALITY OF LIFE

The correlation between academic performance and quality of life was determined for this study's respondents (cf. 3.3.4.5). The results were used to address the last subsidiary research question, namely, *What is the correlation between quality of life and academic performance of these students?*

A very weak positive correlation between academic performance and each of the four quality of life domains was found (cf. 4.4.1). Only one of the correlations was statistically significant, namely, the correlation between academic performance and the physical health domain. Energy and fatigue (cf. 2.4.2.3), sleep and rest (cf. 2.4.2.6) and work capacity (cf. 2.4.2.7) are facets of the physical health domain, and these facets are known to affect academic performance. Shareef *et al*. (2015:e4) report a positive correlation between academic performance and physical health of medical students, and found that an increase in GPA was linked with a statistically significant increase in energy, mobility, activities of daily living and work capacity.

When considering the findings of the three schools, none of the correlations between academic performance and quality of life was statistically significant. A very weak positive correlation was found between academic performance and the quality of life domains in the School of Medicine and School of Nursing (cf. Table 4.26). Similar results were found in medical students in New Zealand (Lyndon *et al*. 2017:108) and Saudi-Arabia (Shareef *et al*. 2015:e1). In the School for Allied Health Professions, the correlations between academic performance and the environment and the physical health domain were negative. These results should be explored further.

The interrelatedness of academic performance and the other quality of life domains and facets that were prominent in this study (thinking, learning, memory and concentration (cf. 5.3.3.5), negative feelings (cf. 5.3.3.5), participation in and opportunities for leisure/recreation (cf. 5.3.3.7) and the physical environment (cf. 5.3.3.7)), are evident from research (cf. 2.4, 2.5).

5.5   CONCLUSION

In Chapter 5, **Discussion of the quality of life and academic performance of first-year health sciences students**, the results of the questionnaire were discussed. The sixth chapter, **Conclusions, recommendations and limitations of the study**, will provide a synopsis of the conclusions, the main limitations of the study, and suggestions for future research.

CHAPTER 6

CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS OF THE STUDY

> "And in the end, it's not the years in your life that count.
> It's the life in your years."
>
> (Abraham Lincoln)

6.1   INTRODUCTION

The problem that was addressed by this research study was the quality of life of first-year students enrolled in the Faculty of Health Sciences at the UFS. Diverse factors may impact academic performance, and the researcher wished to determine whether quality of life was included in these factors.

In Chapters 4 and 5, the results of the research were presented, interpreted and discussed. In Chapter 6, the researcher will document the conclusions of the study, endeavour to answer the research questions from which the research objectives were identified and discuss the limitations of the research study. Thereafter, recommendations will be made regarding strategies to address the quality of life and academic performance of first-year health sciences students. Finally, the researcher will make suggestions regarding possible topics for future research.

6.2   AN OVERVIEW OF THE STUDY

The following section presents an overview of the study.

6.2.1   The overall goal of the study

The overall goal of the study was to investigate the quality of life and academic performance of first-year health sciences students in the Faculty of Health Science, UFS (cf. 1.6). To achieve this goal, the researcher formulated the following aim and objectives.

6.2.2   Aim of the study

The aim of the study was to measure quality of life by using the WHOQOL-BREF

questionnaire, and to determine the correlation of quality of life scores with the academic performance of UFS first-year health sciences students (cf. 1.7).

6.2.3   Objectives of the study

To achieve the aim and answer the research questions, the following objectives were pursued:

i.   Measure the physical health, psychological health, social relationships and environmental domains of quality of life in these students. This objective addressed the first subsidiary research question, namely, *What are the student scores in the quality of life quality of life domains of physical health, psychological health, social relationships and environment?*

ii. Differentiate between the quality of life domains of students in the various health sciences disciplines. This objective addressed the second subsidiary research question, namely, *How do the quality of life domains differ between students in the various health sciences disciplines?*

iii. Differentiate between the quality of life domains of students who reside in on-campus and off-campus accommodation. This objective addressed the third subsidiary research question, namely*, How do the quality of life domains differ for students who reside in either on campus and off campus accommodation?*

iv. Differentiate between the quality of life of students who had resided in different types of living environments (i.e. rural/urban and formal/informal settlements) in the last year of high school. This objective addressed the fourth subsidiary research question, namely*, How do the quality of life domains differ for students who had resided in different types of living environments (i.e. urban/rural and formal/informal settlements) in the last year of high school?*

v.   Determine the correlation between quality of life and academic performance of these students. This objective addressed the fifth subsidiary research question, namely, *What is the correlation between quality of life and academic performance of these students?*

The above objectives were pursued using a literature study and administering the WHOQOL-BREF questionnaire, which was expanded to include demographic information (cf. 1.1, 3.3.1, 3.3.2). The fifth objective included the calculation of the final academic average mark obtained for all the first-year modules as reflected on the respondents' academic records (academic performance).

In the next section, the main conclusions derived from the study will be discussed.

6.3   CONCLUSIONS OF THE STUDY

The main research question, namely, *What is the quality of life of first-year UFS health sciences students and how does it correlate with their academic performance?,* addressed the problem stated.

In general, this study's respondents had a good quality of life, which was associated with good academic performance (cf. Table 4.24). Their perceived overall quality of life and health was good, and a similar trend was found for all three schools and academic programmes. Although the study revealed that the respondents had good quality of life, the psychological health domain score was the lowest (cf. Table 4.4). In general, the domain score order (from lowest to highest) differed for the three schools and the various academic programmes (cf. Table 4.5).

Gender differences in the quality of life domains were found between male and female medical students (cf. Table 4.6). For female medical students, all four quality of life domain scores were lower than those of their male peers, with statistically significant differences in the physical health and psychological health domains.

All three schools displayed differences in the quality of life domain scores of respondents living on and off campus (cf. Table 4.7). In general, the quality of life domain scores of on-campus School of Medicine and School for Allied Health Professions respondents were lower than their off-campus peers, but no statistically significant difference was found. The only statistically significant difference was found in the social relationships domain of nursing students, with on-campus respondents scoring higher than off-campus respondents.

In general, the quality of life domain scores of respondents from urban and non-urban (rural) areas in the three schools differ (cf. Table 4.8), though the only statistically significant difference was for the psychological health domain score of urban and non-urban (rural) nursing students. The differences between respondents from formal and informal settlements could not be researched, as all respondents indicated that they had lived in formal settlements in the last year of high school.

A very weak positive correlation between academic performance and the four quality of life

domains was found (cf. Table 4.26). However, only the correlation between academic performance and the physical health domain was statistically significant. In the physical health domain, the most prominent facets for the three schools were sleep and rest, energy and fatigue and work capacity, which has been linked to academic performance by other research studies (cf. 2.5). The other prominent facets in this study include the following: thinking, learning, memory and concentration, negative feelings, bodily image and appearance, sexual activity, participation in and opportunities for recreation and leisure, freedom, physical safety and security and the physical environment (pollution/noise/traffic/climate).

Figure 6.1 illustrates the correlation between the quality of life domains and academic performance. The circle indicates the four quality of life domains and facets. A graduation cap represents academic performance. A solid line arrow indicates the statistical significant correlation between the physical health domain and academic performance. The weak positive correlation between the other three quality of life domains (psychological health, social relationships and environment) are indicated by dotted line arrows.
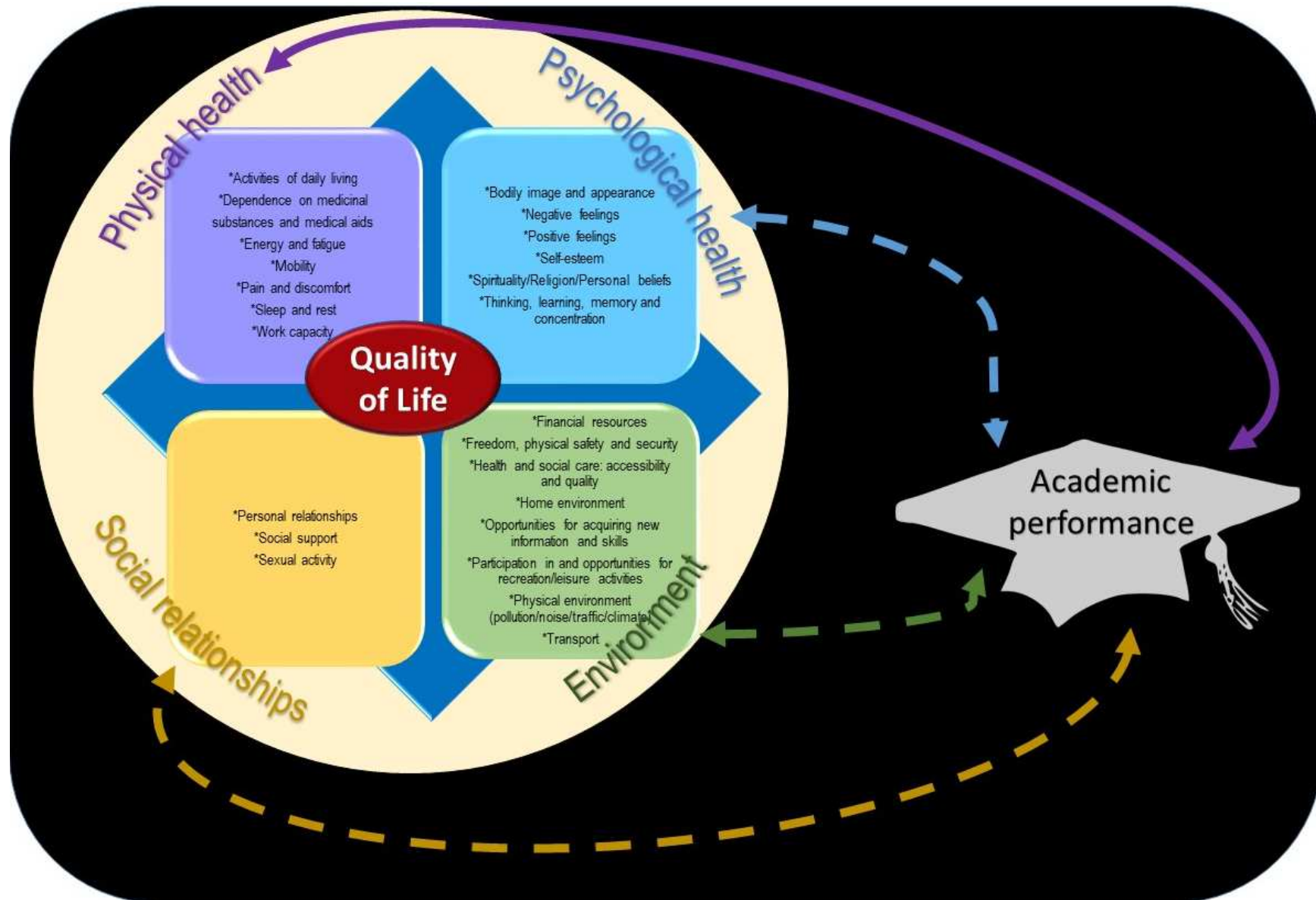
Figure 6.1: Diagrammatic overview of the correlation between quality of life and academic performance
Compiled by the researcher (Mostert 2018)

In the next section, recommendations to address the conclusions of the study will be made.

6.4   RECOMMENDATIONS

Literature indicates that quality of life domain scores differ greatly between countries and institutions, and even within institutions, faculties and programmes (cf. 2.3). This notion is supported by the findings of the present study, which found that quality of life domain score sequences varied in the three schools and between academic programmes (cf. Table 4.5). The 10 most prominent facets of the quality of life domains were also affected differently in the three schools and academic programmes (cf. 5.3.3.8). Therefore, future research and interventions should focus on these facets. The three schools of the UFS Faculty of Health Sciences should evaluate the effectiveness of wellness initiatives that have already been implemented, and develop targeted strategies to address the quality of life of first-year health sciences students.

With regard to gender differences, the only statistically significant difference was found in the physical health and psychological health domains of female and male medical students. Therefore, these findings should be researched further in medical students, and interventions should be employed to address the physical and psychological health well-being of female medical students, specifically.

Regarding residence status, and urban and non-urban (rural) background, the only statistically significant difference was found in the social relationships domain of on-campus and off-campus nursing students and the psychological health domain score of urban and non-urban (rural) nursing students. These findings should be explored further for the School of Nursing.

Although respondents' perception of their overall quality of life and health was good, the notion that quality of life can change several times over the course of a year should be kept in mind. Therefore, the researcher recommends that students should be informed about the facets that may affect their quality of life both positively and negatively over time.

A very weak correlation was found between all four quality of life domains and academic performance (cf. Table 4.26). Future research and strategies should focus on addressing students' physical health quality of life domain, as the only statistically significant correlation was found between academic performance and this domain. The most dominant facets of

the physical health domain, namely, energy and fatigue, sleep and rest and work capacity, should be researched further in first-year health sciences students.

Worldwide, several higher education institutions have focused on developing initiatives and interventions to address the well-being and quality of life of students. Several of these initiatives may be considered by the Faculty of Health Sciences to address quality of life issues, and will be discussed in the following paragraphs.

To address quality of life in general, the Faculty of Health Sciences of the UFS may consider adopting a Health Promoting Universities initiative, like that developed by the WHO in collaboration with several other institutions, projects and networks, for example, the WHO Healthy Cities Project Office, Lancaster University and University of Central Lancashire in England and the European Network of Health Promoting Universities (Tsouros, Dowding, Thompson & Dooris 1998:2). The aim of the World Health Organization's Health Promoting Universities framework is the creation of campus environments that improve the well-being of students, staff and faculty (Jarden & Jarden 2015:41). This framework encompasses the following initiatives: learning and working environments (e.g. furniture arrangement), services and supports, physical spaces (e.g., light, room temperature, access to nature), social interaction, personal development and campus policies. Since the development of the framework, many higher education institutions have adopted this framework or similar frameworks, including University of Central Lancashire (Dooris 2001:51), Simon Frazer University, British Columbia (The Healthy Campus Community Initiative) (Jarden & Jarden 2015:41) and several other universities and colleges in Canada (Okanagan Charter 2018:online). Therefore, the adoption of this or a similar framework may help the Faculty of Health Sciences of the UFS, South Africa, to address many of the prominent facets pointed out by this study.

Initiatives and interventions to address the quality of life of on-campus students, who live in residences, may include the following or similar interventions implemented by the University of Wollongong, Australia, which developed the world's first "positive student residence", Kooloobong Village (Jarden & Jarden 2015:40). The principles of positive psychology (e.g., healthy lifestyles, drug and alcohol awareness and mental health awareness) are applied at this residence to enhance students' well-being and academic and social experiences at university.

In New Zealand, a Computer Assisted Learning for the Mind (CALM) website was developed

to increase students' access to self-care resources to promote resilience and enhance the well-being and quality of life of students (Moir & Fernando 2015:152). On this website, students have access to evidence-based resources in an audio-file format, which include sections on mental resilience (e.g., skills to enhance positive thinking), management of stress, anxiety and depression, healthy relationships and finding meaning in life. The advantage of the CALM website and other similar resources is that students experiencing psychological health distress can access these resources and support services anonymously at any time, without the fear of being stigmatised (Moir & Fernando 2015:153, Schwenk *et al*. 2010:1181); doing so may enhance help-seeking behaviour in students (Moir & Fernando 2015:153-154). A similar web-based resource may enhance the quality of life of first-year health sciences students at the UFS, where the psychological health domain score was the lowest of all domain scores in this study.

Similar online resources and web-based support services may also be considered as an educational intervention to address challenges related to the quality of life and academic performance of UFS first-year health sciences students. These resources may be developed by the Faculty of Health Sciences to address specific quality of life and academic performance challenges in the three schools and academic programmes. For example, advice to improve the sleep and rest facet of the physical health domain could be provided online.

As quality of life could change several times during the course of a year, access to these resources, as and when needed, may foster a positive culture of well-being. These resources may be expanded, improved and updated to include scientifically relevant and applicable research. The resources should be developed with the aim of tailoring the physical health, psychological health, social relationships, environment and educational needs of students. Sections of the online resources could include resources about the 10 most prominent facets identified by this study (cf. Table 5.1): sleep and rest, energy and fatigue, work capacity, thinking, learning, memory and concentration, negative feelings, bodily image and appearance, sexual activity, freedom, physical safety and security, leisure and recreation and physical environment.

Online resources could also be expanded in the future to include an interactive online module. This module may include content about the constituents of a good quality of life and "the threats that a poor quality of life poses for individual well-being, professionalism and patient safety" (Pinnock & Hazell 2015:188). These resources could be utilised to

enhance the quality of life of all students in the Faculty of Health Sciences.

Pinnock and Hazell (2015:187) also suggest curriculum design interventions to address quality of life issues experienced by medical students. These curriculum design interventions could be expanded and may be adjusted to address the quality of life of first-year students in the Faculty of Health Sciences schools and academic programmes in a tailor-made fashion, as the quality of life domain scores of different groups differed. Table 6.1 suggests curriculum design interventions that could improve the quality of life of medical students (Pinnock & Hazell 2015:187).

Table 6.1: Curriculum design interventions to improve quality of life of medical students

QUALITY OF LIFE			
STRESSORS	**INTERVENTION**	**ASSESSMENT**	**OUTCOMES**
Mood disorders (anxiety and depression), substance abuse	Pastoral care and mentorship by adequately trained senior physicians. Recognise student vulnerability at times of transition and examinations	Learning environment and quality of life assessments	
Financial difficulties	Ensure tuition fees are kept as low as possible	Learning environment and quality of life assessments	Dropout rate
Negative behaviour in practice, supervision and assessment	Faculty development, "teach the teachers" sessions	Learning environment and quality of life assessments	Number of students requiring psychological health treatment
Concerns of academic progress. Unrealistic expectations (own and perceived). Summative assessments	Set clear objectives. Address cognitive overload. Reduce range of grades. Assessments throughout the academic year rather than high-stakes end-of-year assessments	Learning environment and quality of life assessments	
Poor social supports	Pastoral care and mentorship by adequately trained senior physicians		
Reluctance to seek help for physical and mental illness	Pastoral care and mentorship by adequately trained senior physicians		

(Pinnock & Hazell 2015:187)

Colby *et al*. (2018:e5) suggest that interventions to address the quality of life, and decrease burnout in medical students, are incorporated as part of medical curricula. Many

interventions, such as counselling, student support and stress management, are already incorporated at the UFS. However, the researcher is of the opinion that physical exercise and other physical domain facets, such as sleep and rest, energy and fatigue, and work capacity, should be addressed to an even greater degree, due to their significant correlation with academic performance. Therefore, future studies should explore these findings further.

In general, higher education institutions can promote first-year health sciences students' quality of life through education and promotion of self-care skills, and can employ a variety of interventions to enhance the quality of life and academic performance of these students.

In the next section, the limitations of the study will be discussed.

6.5   LIMITATIONS OF THE STUDY

Although the study had noteworthy findings, generalisation should be done with caution. Self-reported data from first-year health sciences students at the UFS was included in the study; therefore, these findings may not be generalised to health sciences students of other year groups or at other universities.

The first-year MBChB curriculum at the Faculty of Health Sciences, UFS, differs from other South African medical curricula with regard to the duration (5 years at UFS) and the structured learning content of the first year (Phase 1 comprises only 6 months). Therefore, the results and research findings may not translate to other South African medical schools.

The Departments of Radiation Sciences, Optometry and Nutrition and Dietetics admit fewer students to their respective academic programmes. Therefore, the participant numbers of these departments were smaller and data is not comparable to other academic programmes in the school. Therefore, research with larger participant numbers across all year groups in the different programmes of the Faculty of Health Sciences is recommended.

Quality of life is influenced by circumstances and the time at which questionnaires are completed. As the study was cross-sectional in nature, data was collected at a specific point in time. The questionnaires were distributed and completed at a single time of the year to ensure cross-sectional accuracy (10 to 25 August 2017). The questionnaires were distributed in August, before major semester tests, which could affect the students' quality of life. However, due to the cross-sectional nature of study, the causality and direction of the effect could not be determined.

Other factors that may impact quality of life and academic performance were not assessed, due to the quantitative nature of the study. Future qualitative studies may, therefore, add value to the present study.

Question 21 of the WHOQOL-BREF questionnaire, namely, "How satisfied are you with your sex life?", may have been considered as a sensitive question to some respondents, as it had a lower response rate. The WHO recognises that sexual practices are a difficult topic to enquire about, especially in certain cultures, and people from different gender and age groups may respond to the question in different ways. The WHO acknowledges that some respondents may have little or no sexual desire, without this affecting their quality of life negatively (cf. 2.4.4.3). The researcher is of the opinion that some respondents responded to this question as "neither satisfied, nor dissatisfied" when they were not sexually active, which might have influenced the social relationships domain score. In this study, the other two facets of the social relationships domain, namely, personal relationships and social support, were affected similarly.

In general, no challenges with regard to the compilation and collection of the questionnaires on EvaSys were experienced. The researcher attended training on the compilation of questionnaires on EvaSys, and was well supported by the Postgraduate School of the UFS.

6.6   CONTRIBUTIONS OF THE STUDY

The information gained from this study contributes to current knowledge about the quality of life of first-year health sciences students (medical, nursing, physiotherapy, occupational therapy, optometry, dietetics and radiation sciences) as a group and enables comparison between the different academic programmes. A comparison of the quality of life of on-campus and off-campus students, and the quality of life of students from urban and non-urban (rural) areas, was possible. Therefore, the findings of this study can be used to implement interventions to support students in the various programmes, and from diverse backgrounds.

As the study was performed in first-year health sciences students, the findings may be implemented to assist them with their transition from high school to university learning. This study also provides information about the first-year experience on a variety of academic programmes in the Faculty of Health Sciences.

Data obtained from this study may be used by the WHO to conduct further analysis of the psychometric properties of the WHOQOL-BREF questionnaire (cf. Appendix E). The researcher is of the opinion that, considering the research methods that were used in this study, the research questions were addressed and the objectives achieved. The WHOQOL-BREF questionnaire is a reliable, validated tool for assessing quality of life. The study population was representative of the target population; therefore, the findings of the study may be generalised to address the quality of life and academic performance of undergraduate first-year health sciences students at the UFS.

Future research and interventions may focus on the 10 most prominent facets (Table 5.1), especially the physical health domain facets, as quality of life in this domain correlated with academic performance.

In the last section, concluding remarks of the study will be provided.

6.7   CONCLUDING REMARKS

In general, the perceived overall quality of life and health of undergraduate first-year health sciences students was good. The quality of life domain score order differed between schools, academic programmes, on-campus and off-campus students and students who had lived in urban and non-urban (rural) areas before attending university.

The 10 most prominent facets of the four quality of life domains were the following: physical health (sleep and rest; energy and fatigue and work capacity), psychological health (thinking, learning, memory and concentration, negative feelings and bodily image and appearance), social relationships (sexual activity) and environment (freedom, physical safety and security, participation in and opportunities for recreation/leisure activities and physical environment).

The findings of this study may be of value to the Faculty of Health Sciences, as faculties are in a position to implement interventions that may promote and possibly improve students' quality of life and academic performance.

REFERENCES

ACHA (American College Health Association). 2010. *National College Health Assessment II: Reference group executive summary.* Linthicum MD: American College Health Association.

Agarwal, S., Bhalla, P., Kaur, S. & Babbar, R. 2013. Effect of body mass index on physical self-concept, cognition & academic performance of first year medical students. *Indian Journal of Medical Research* 138(4):515-522.

Ambrose, S.A., Bridges, M.W., DiPietro, M., Lovett, M.C. & Norman, M.K. 2010. *How learning works: seven research-based principles for smart teaching*. San Francisco, CA: Jossey-Bass.

AOTA (American Occupational Therapy Association). 2008. Occupational therapy practice framework: domain and process. 2nd ed. *American Journal of Occupational Therapy* 62:625-645.

Arhin, A.O. & Cormier, E. 2007. Using deconstruction to educate Generation Y Nursing Students. *Journal of Nursing Education* 46(12):562-567.

Arronqui, G.V., Lacava, R.M., Magalhães, S.M.F. & Goldman, R.E. 2011. Perceptions of nursing students on their quality of life. *Acta Paulista de Enfermagem* 24(6):762–765.

Azad, M.C., Fraser, K., Rumana, N., Abdullah, A.F., Shahana, N., Hanly, P.J. & Turin, T.C. 2015. Sleep disturbances among medical students: a global perspective. *Journal of Clinical Sleep Medicine* 11(1):69-74.

Backović, D.V., Maksimović, M., Davidović, D., Ilić-Živojinović, J. & Stevanović, D., 2013. Stress and mental health among medical students. *Srpski arhiv za celokupno lekarstvo* 141(11-12):780-784. Only abstract available in English.

Bampi, L.N.S., Baraldi, S., Guilhem, D., Pompeu, R.B. & Campos, A.C.O. 2013. Quality of life of undergraduate nursing students. *Revista Gaúcha de Enfermagem* 34(1):125-132.

Billington, R. & Krägeloh, C.U. 2015. Quality of life and higher education. In Henning, M.A., Krägeloh, C.U. & Wong-Toi, G. (Eds). *Student motivation and quality of life in higher education*. United Kingdom: Routledge. 28-36.

Boehm, J., Cordier, R., Thomas, Y. Tanner, B. & Salata, K. 2017. The first year experience of occupational therapy students at an Australian regional university: Promoting student retention and developing a regional and remote workforce. *Australian Journal of Rural Health* 25:22-27.

Bojuwoye, O. 2002. Stressful experiences of first year students of selected universities in South Africa. *Counselling Psychology Quarterly* 15(3):277-290.

Brinkworth, R., McCann, B., Matthews, C. & Nordström, K. 2009. First year expectations and experiences: Student and teacher perspectives. *Higher Education* 58:157-173.

Brown, C. & Czerniewicz, L. 2010. Debunking the "digital native": beyond digital apartheid, towards digital democracy. *Journal of Computer Assisted Learning* 26:357-369.

Calnan, M. 2013. Quantitative survey methods in health research. In Saks, M. & Allsop, J. (Eds). *Researching health: qualitative, quantitative and mixed methods.* London:Sage Publications. 190-215.

Camfield, L. & Skevington, S.M. 2008. On subjective well-being and quality of life. *Journal of Health Psychology* 13(6):764-775.

Centres for Disease Control and Prevention. 2019. *Well-being concepts*.
(https://www.cdc.gov/hrqol/wellbeing.htm)
Retrieved on 11 January 2019.

Clausing, S.L., Kurtz, D.L., Prendeville, J. & Walt, J.L. 2003. Generational diversity - The Nexters. *AORN Journal* 78(3):373-379.

Codrington, G. 2008. Detailed introduction to generational theory. *TomorrowToday* July.
(http://www.tomorrowtoday.uk.com/articles/pdf/TomorrowToday_detailed
intro_to_Generations.pdf)
Retrieved on 8 November 2018.

Colby, L., Mareka, M., Pillay, S., Sallie, F., Van Staden, C., Du Plessis, E.D. & Joubert, G. 2018. The association between the levels of burnout and quality of life among fourth-year medical students at the University of the Free State. *South African Journal of Psychiatry.* 24(0):e1-e6.

Collins English Dictionary. 2019. Wellbeing. *Collins English Dictionary*. Glasgow: HarperCollins.
(https://www.collinsdictionary.com/dictionary/english/wellbeing)
Retrieved on 2 January 2019.

Creswell, J.W. 2011. *Educational research: Planning, conducting, and evaluating quantitative and qualitative research.* Fourth edition. Boston: Pearson Education.

Cruz, J.P., Felicilda-Reynaldo, R.F.D., Lam, S.C., Contreras, F.A.M., Cecily, H.S.J., Papathanasiou, I.V., Fouly, H.A., Kamau, S.M., Valdez, G.F.D., Adams, K.A. & Colet P.C. 2018. Quality of life of nursing students from nine countries: A cross-sectional study. *Nurse Education Today* 66:135-142.

De Vries, E. & Reid, S. 2003. Do South African medical students of rural origin return to rural practice? *South African Medical Journal* 93:789-793.

Dooris, M. 2001. The "Health Promoting University": a critical exploration of theory and practice. *Health Education* 101(2):51-60.

Dube, M.B. & Mlotshwa, P.R. 2018. Factors influencing enrolled nursing students' academic performance at a selected private nursing education institution in KwaZulu-Natal. *Curationis* 41(1):e1-e7.

Durmer, J.S. & Dinges, D.F. 2005. Neurocognitive consequences of sleep deprivation. *Seminars in Neurology* 25(1):117-129.

Dusselier, L., Dunn, B., Wang Y., Shelley, M.C. & Whalen, D.F. 2005. Personal, health, academic and environmental predictors of stress for residence hall students. *Journal of American College Health* 54(1):15-24.

Dyrbye, L.N., Eacker, A., Durning, S.J., Brazeau, C., Moutier, C., Massie, F.S., Satele, D., Sloan, J.A. & Shanafelt, T.D. 2015. The impact of stigma and personal experiences on the help-seeking behaviors of medical students with burnout. *Academic Medicine* 90(7):961-969.

Dyrbye, L.N., Thomas, M.R., Eacker, A., Harper, W., Massie, F.S., Power, D.V., Huschka, M., Novotny, P.J., Sloan, J.A. & Shanafelt, T.D. 2007. Race, ethnicity, and medical student well-being in the United States. *Archive of Internal Medicine* 167(19):2103-2109.

Dyrbye, L.N., Thomas, M.R., Massie, F.S., Power, D.V., Eacker, A., Harper, W., Durning, S., Moutier, C., Szydlo, D.W., Novotny, P.J., Sloan, J.A. & Shanafelt, T.D. 2008. Burnout and suicidal ideation among U.S. medical students. *Annals of Internal Medicine* 149:334-341.

El Ansari, W. & 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.

Elkins, S.A., Braxton, J.M. & James, G.W. 2000. Tinto's separation stages and its influence on first-semester college students persistence. *Research in Higher Education* 41(2):251-268.

Eurich, R.B. & Kluthcovsky, A.C.G.C. 2008. Evaluation of quality of life of undergraduate nursing students from first and fourth years: the influence of sociodemographic variables. *Revista de Psiquiatria do Rio Grande do Sul* 30(3):e1-e10.

Ferguson, E., James, D., O'Hehir, F. & Sanders, A. 2003. Pilot study of the roles of personality, references and personal statements in relation to performance over the five years of a medical degree. *British Medical Journal* 326(7386):429-432.

Freitas, F.A. & Leonard, L.J. 2011. Maslow's hierarchy of needs and student academic success. *Teaching and Learning in Nursing* 6:9-13.

Gibney, A., Moore, N., Murphy, F. & O'Sullivan, S. 2011. The first semester of university life; "will I be able to manage it at all?". *Higher Education* 62:351-366.

Gil-Lacruz, M. & Gil-Lacruz, A.I. 2015. Health-related quality of life in a sample of young people in Spain. In Henning, M.A., Krägeloh, C.U. & Wong-Toi, G. (Eds) *Student motivation and quality of life in higher education*. United Kingdom: Routledge. 82-89.

Goff, A. 2011. Stressors, academic performance and learned resourcefulness in Baccalaureate nursing students. *International Journal of Nursing Education Scholarship* 8(1). (https://www.ncbi.nlm.nih.gov/pubmed/21291410). Retrieved on 26 November 2018.

Grady, F. & Roberts, L.W. 2017. Sleep deprived and overwhelmed: sleep behaviours of medical students in the USA. *Academic Psychiatry* 41:661-663.

Greene, R.R., Galambos, C. & Lee, Y. 2003. Resilience theory: Theory and professional conceptualizations. *Journal of Human Behavior in the Social Environment* 8(4):75-91.

Henning, M.A., Hawken, S., Krägeloh, C., Zhao, Y. & Doherty, I. 2011. Asian medical students: quality of life and motivation to learn. *Asia Pacific Education Review.* 12(3):437–445.

Henning, M.A., Krägeloh, C.U., Dryer, R., Moir, F. Billington, R. & Hill, A.G. 2018. Introduction: developing meaning and purpose. In Henning, M.A., Krägeloh, C.U., Dryer, R., Moir, F. Billington, R. & Hill, A.G. (Eds). *Wellbeing in Higher Education.* United Kingdom: Routledge.1-4.

Henning, M.A., Krägeloh, C., Hawken, S.J., Zhao, Y. & Doherty, I. 2012. The quality of life of medical students studying in New Zealand: A comparison with nonmedical students and a general population reference group. *Teaching and Learning in Medicine* 24(4):334–340.

Henning, M.A., Krägeloh, C., Moir, F., Doherty, I. & Hawken, S.J. 2012. Quality of life: international and domestic students studying medicine in New Zealand. *Perspectives on Medical Education* 1:129-142.

Hicks, T. & Heastie, S. 2008. High school to college transition: a profile of the stressors, physical and psychological health issues that affect the first-year on-campus college student. *Journal of Cultural Diversity* 15(3):143–147.

Hwang, I.C., Park, K.H., Kim, J.J., Yim, J., Ko, K.P., Bae, S.M. & Kyung, S.Y. 2017. Perceived social support as a determinant of quality of life among medical students: 6-month follow-up study. *Academic Psychiatry* 41:180-184.

IBM 2011. *SPSS Statistics 20 Core System User's Guide.* IBM.

Jafta, M.G. 2013. Perceptions of tutors and student nurses on factors that influence academic performance at a nursing college (Master's dissertation). Bloemfontein: University of the Free State.

Jama, M.P. 2018. Maximising the first-year experience through the incorporation of generic skills in a medical curriculum at the University of the Free State. *Journal of Student Affairs in Africa* 6(1):77–91.

Jarden, A. & Jarden, R. 2015. Applied positive psychology in higher education. In Henning, M.A., Krägeloh, C.U. & Wong-Toi, G. (Eds) *Student motivation and quality of life in higher education*. United Kingdom: Routledge. 28-36.

Jha, R.K., Shah, D.K., Basnet, S., Paudel, K.R., Sah, P., Sah, A.K. & Adhikari, K. 2016. Facebook use and its effects on the life of health science students in a private medical college of Nepal. *BMC Research Notes* 9:e1-e8.

Jimenéz, C., Navia-Osorio, P.M. & Diaz, C.V. 2009. Stress and health in novice and experienced nursing students. *Journal of Advanced Nursing* 66(2):442-455.

Kantanis, T. 2000. The role of social transition in students' adjustment to the first-year of university. *Journal of Institutional Research* 9:100-110.

Kennedy, G., Gray, K. & Tse, J. 2008. "Net Generation" medical students: technological experiences of pre-clinical and clinical students. *Medical Teacher* 30(1):10-16.

Krägeloh, C.U., Henning, M.A., Hawken, S.J., Zhao, Y., Shepherd, D. & Billington, R. 2011. Validation of the WHOQOL-BREF Quality of Life Questionnaire for use with medical students. *Education for Health* 24(2):e1-e5.

Krägeloh, C., Henning, M.A., Billington, R. & Hawken, S.J. 2015. The relationship between quality of life and spirituality, religiousness, and personal beliefs of medical students. *Academic Psychiatry* 39(1):85-89.

Kuh, G.D., Cruce, T.M., Shoup, R. & Kinzie, J. 2008. Unmasking the efects of student engagement on first-year college grades and persistence. *The Journal of Higher Education* 79(5):540-563.

Kuyken, W. (on behalf of the WHOQOL Group). 1995. The World Health Organization Quality of Life Assessment (WHOQOL): Position paper from the World Health Organization. *Social Science Medicine* 41(10):1403-1409.

Lee, Y.C., Chien, K.L. & Chen, H.H. 2007. Lifestyle risk factors associated with fatigue in graduate students. *Journal of the Formosan Medical Association* 106:565-572.

Li, K., Kay, N.S. & Nokkaew, N. 2009. The performance of the World Health Organization's WHOQOL-BREF in assessing the quality of life of Thai college students. *Social Indicators Research* 90:489-501.

Lievens, F., Coetsier, P., De Fruyt, F. & De Maeseneer, J. 2002. Medical students' personality characteristics and academic performance: a five-factor model perspective. *Medical Education* (36):1050-1056.

Lowe, H. & Cook, A. 2003. Mind the Gap: are students prepared for higher education? *Journal of Further and Higher Education* 27(1):53-76.

Lund, H.G., Reider, B.D., Whiting, A.B. & Prichard, J.R. 2010. Sleep patterns and predictors of disturbed sleep in a large population of college students. *Journal of Adolescent Health* 46:124-132.

Lyndon, M.P., Henning, M.A., Alyami, H., Krishna, S, Zeng, I, Yu, T-C. & Hill. A.G. 2017. Burnout, quality of life, motivation, and academic achievement among medical students: A person-oriented approach. *Perspectices on Medical Education* 6:108-114.

Matshotyana, N.V., Van Rooyen, R.M. & Du Randt., S. 2015. Experinces of first-year nursing students at a public nursing college in South Africa. *Africa Journal of Nursing and Midwifery* 17:S105-S121.

Mehralizadeh, S., Ghorbani, R., Zolfaghari, S., Shahinfar, H., Nikkhah, R. & Pourazizi, M. 2013. Factors affecting student concentration in classroom: Medical students' viewpoints in Semnan University of Medical Sciences. *Iranian Journal of Medical Education* 13(8):663-671.

Messina, G., Quercioli, C., Troiano, G., Russo, C., Barbini, E. Nisticò, F. & Nante, N. 2016. Italian medical students quality of life: year 2005-2015. *Annali Di Igiene* 28:245-251.

Moir, F. & Fernando, A. 2015. The Computer Assisted Learning for the Mind (CALM) website. In Henning, M.A., Krägeloh, C.U. & Wong-Toi, G. (Eds) *Student motivation and quality of life in higher education*. United Kingdom: Routledge. 149-157.

Moritz, A.R, Pereira, E.M., Borba, K.P., Clapis, M.J, Gevert, V.G. & Mantovani, M.F. 2016. Quality of life of undergraduate nursing students at a Brazilian public university. *Investigacíon y Educacíon en Enfermería* 34(3):564-572.

Moura, I.H., Nobre, R.S., Cortez, R.M.A., Campelo, V., Macedo, S.F. & Silva, A.R.V. 2016. Quality of life of undergraduate nursing students. *Revista Gaúcha de Enfermagem* 37(2):e1-e7.

Muula, A.S. 2007. How do we define 'rurality' in the teaching on medical demography? *Rural and Remote Health* 7(653):e1-e7.

Nel, C., Troskie-de Bruin, C. & Bitzer, E. 2009. Students' transition from school to university: Possibilities for a pre-university intervention. *South African Journal of Higher Education* 23(5):974-983.

News24. 2017. Zuma announces free higher education for poor and working class students. 16 December:online.
(www.news24.com/SouthAfrica/News/zuma-announces-free-higher-education-for-poor-and-working-class-students-20171216)
Retrieved on 2 January 2018.

Nimon, S. 2007. Generation Y and higher education: The other Y2K. *Journal of Institutional Research* 13(1):24-41.

Notarianni, M.A., Curry-Lourenco, K., Barham, P. & Palmer, K. 2009. Engaging learners across generations: the Progressive Professional Development Model. *Journal of Continuing Education in Nursing* 40(6):261–266.

Okanagan Charter. 2018.
(https://healthpromotingcampuses.squarespace.com/okanagan-charter)
Retrieved on 2 October 2018.

Oxford English Dictionary. 2019. Wellbeing. *Oxford Living Dictionaries*. Oxford: Oxford University Press.
(https://en.oxforddictionaries.com/definition/us/wellbeing)
Retrieved on 2 January 2019.

Pancer, S.M. Hunsberger, B. Pratt, M.W. & Alistat, S. 2000. Cognitive complexity of expectations and adjustment to university in the first year. *Journal of Adolescent Research* 15(1):38-57.

Parniyan, R., Kazemiane, A., Jahromi, M.K. & Poorgholami, F. 2016. A study of the correlation between religious attitudes and quality of life in students at Jahrom University of Medical Sciences in 2014. *Global Journal of Health Science* 8(10):43-49.

Pather, S. & Dorasamy, N. 2018. The mismatch between first-year students' expectations and experience alongside university access and success: A South African university case study. *Journal of Student Affairs in Africa* 6(1):49–64.

Pilcher, J.J., Ginter, D.R. & Sadowsky, B. 1997. Sleep quality versus sleep quantity: relationships between sleep and measures of health, well-being and sleepiness in college students. *Journal of Psychosomatic Research* 42(6):583-596.

Pillay, N., Ramlall, S. & Burns, J.K. 2016. Spirituality, depression and quality of life in medical students in KwaZulu-Natal. *South African Journal of Psychiatry* 22(1):e1-e6.

Pinnock, R. & Hazell, W. 2015. Quality of life, motivation and professionalism in higher education. Implications for medical curriculum. In Henning, M.A., Krägeloh, C.U. & Wong-Toi, G. (Eds) *Student motivation and quality of life in higher education*. United Kingdom: Routledge. 182-191.

Posadzki, P., Musonda, P., Debska, G. & Polczyk R. 2009. Psychosocial conditions of quality of life among undergraduate students : A cross sectional survey. *Applied Research in Quality of Life* 4(3):239-258.

Reid, D. 2008. Exploring the relationship between occupational presence, occupational engagement and people's well-being. *Journal of Occupational Science* 15(1):43-46.

Roberts, L.W., Warner, T.D., Carter, D., Frank, E., Ganzini, L. & Lyketsos, C. 2000. Caring for medical students as patients: access to services and care-seeking practices of 1,027 students at nine medical schools. Collaborative Research Group on Medical Student Healthcare. *Academic Medicine* 75(3):272-277.

Rotenstein, L.S., Ramos, M.A., Torre, M., Segal, J.B., Peluso, M.J., Guille, C., Sen, S. & Mata, D.A. 2016. Prevalence of depression, depressive symptoms and suicidal ideation among medical students: a systematic review and meta-analysis. *Journal of the American Medical Association* 316(21):2214-2236.

Saks, M. & Allsop, J. 2013a. Introduction: The context for researching health. In Saks, M. & Allsop, J. (Eds) *Researching health: qualitative, quantitative and mixed methods.* London: Sage Publications. 3-17.

Saks, M. & Allsop, J. (Eds). 2013b. *Researching health: qualitative, quantitative and mixed methods.* London: Sage Publications.

Sandars, J. & Morrison, C. 2007. What is the net generation? The challenges for future medical education. *Medical Teacher* 29(2-3):85-88.

SANRC (South African National Resource Centre). 2018.
(https:///www.sanrc.co.za)
Retrieved on 2 November 2018.

SASSE (South African Surveys of Student Engagement). *Annual report 2016*. Centre for Teaching and Learning. Bloemfontein: University of the Free State.
(https://www.siyaphumelela.org.za/documents/SASSE%20Report%202016.pdf)
Retrieved on 26 November 2018.

Saxena, S. & Orley, J. (on behalf of the WHOQOL Group). 1997. Quality of life assessment: the World Health Organization perspective. *European Psychiatry* 12(3):263-266.

Schafer, J.A., Lee, C., Burruss, G.W. & Giblin, M.J. 2018. College student perceptions of campus safety initiatives. *Criminal Justice Policy Review* 29(4):319-340.

Schwenk, T.L., Davis, L. & Wimsatt, L.A. 2010. Depression, stigma, and suicidal ideation in medical students. *Journal of the American Medical Association* 304(11):1181-1190.

Seattle Quality of Life Group. 2016. *SEAQOL instruments.*
(http://depts.washington.edu/seaqol/instruments)
Retrieved on 22 July 2016.

Shareef, M.A., AlAmodi, A.A., Al-Khateeb, A.A., Abudan, Z., Alkhani, M.A., Zebian, S.I., Qannita, A.S. & Tabrizi, M.J. 2015. The interplay between academic performance and quality of life among preclinical students. *BMC Medical Education* 15(1):e1-e8.

Shindel, A.W., Ferguson, G.G., Nelson, C.J. & Brandes, S.B. 2008. The sexual lives of medical students: A single institution survey. *The Journal of Sexual Medicine* 5(4):796–803.

Sidman, C.L., D'Abundo M.L. & Hritz, N. 2009. Exercise self-efficacy and perceived wellness among college students in a basic studies course. *International Electronic Journal of Health Education* 12:e1-e13.

Skevington, S.M., Lofty, M. & O'Connell, K.A. 2004. The World Health Organization's WHOQOL-BREF quality of life assessment: Psychometric properties and results of the international field trial. A Report from the WHOQOL Group. *Quality of Life Research* 13:299-310.

Skevington, S.M., Sartorius, N., Amir, M. & The WHOQOL Group. 2004. Developing methods for assessing quality of life in different cultural settings. *Social Psychiatry and Psychiatric Epidemiology* 39:1-8.

Skipper, T.L. 2017. What makes first-year seminar high impact? An exploration of effective educational practices. (Research reports on college transitions No. 7). Columbia, SC: University of South Carolina, National Resource Center for the First-Year Experience and Students in Transition.

Sohail, N. 2013. Stress and academic performance among medical students. *Journal of the College of Physicians and Surgeons Pakistan* 23(1):67–71.

Springer, K. 2010. *Educational research, a contextual approach.* John Wiley & Sons.

Statistics South Africa. 2003. *Census 2001: Investigation into appropriate definitions of urban and rural areas for South Africa: Discussion document.* Pretoria: Statistics South Africa.

Swanepoel, A. 2014. Factors influencing academic success of first year occupational therapy students at the University of the Free State (Master's dissertation). Bloemfontein: University of the Free State.

Tanaka, M., Mizuno, K., Fukuda, S., Shigihara, Y. & Watanabe, Y. 2008. Relationships between dietary habits and the prevalence of fatigue in medical students. *Nutrition.* 24:985-989.

Tartas, M., Walkiewicz, M., Majkowicz, M. & Budzinski, W. 2011. Psychological health factors determining success in a medical career : A 10-year longitudinal study. *Medical Teacher* 33(3):e163–e172.

Tiew, L.H., Creedy, D.K. & Chan, M.F. 2013. Student nurses' perspectives of spirituality and spiritual care. *Nurse Education Today* 33:574-579.

Tsouros, A.D., Dowding, G., Thompson, J. & Dooris, M. (eds). 1998. *Health promoting universities. Concept, experience and framework for action*. WHO.

Twenge, J. 2009. Generational changes and their impact in the classroom. *Medical Education* 43:398-405.

Tung, Y.-J., Lo, K.K.H., Ho, R.C.M & Tam, W.S.W. 2018. Prevalence of depression among nursing students: a systematic review and meta-analysis. *Nurse Education Today* 63:119-129.

UFS (University of the Free State). 2014. *EvaSys procedure*. Bloemfontein: UFS.
(https://www.ufs.ac.za/docs/librariesprovider43/directorate-for-institutional-research-and-academic-planning-(dirap)-documents/policies-and-guidelines-documents/evasys-procedure-using-evasys-(february-2014)-4677-eng.pdf?sfvrsn=7598f021_0)
Retrieved on 2 March 2016.

UFS (University of the Free State). 2016. *Language policy.* Bloemfontein: UFS.
(http://www.ufs.ac.za/docs/default-source/all-documents/language---policy-335-eng.pdf?sfvrsn=0)
Retrieved on 13 April 2016.

UFS (University of the Free State). 2018a. *Rule book School of Medicine undergraduate qualifications 2018*. Faculty of Health Sciences. Bloemfontein: UFS.
(http://www.ufs.ac.za/health/faculty-of-health-sciences-home/academic-information/academic-programmes)
Retrieved on 23 May 2018.

UFS (University of the Free State). 2018b. *Rule book School of Nursing undergraduate qualifications 2018*. Faculty of Health Sciences. Bloemfontein: UFS.
(http://www.ufs.ac.za/health/faculty-of-health-sciences-home/academic-information/academic-programmes)
Retrieved on 23 May 2018.

UFS (University of the Free State). 2018c. *Rule book School for Allied Health Professions 2018*. Faculty of Health Sciences. Bloemfontein: UFS.
(http://www.ufs.ac.za/health/faculty-of-health-sciences-home/academic-information/academic-programmes)
Retrieved on 23 May 2018.

UFS (University of the Free State). 2018d. *Surveys of student engagement/Origins of student engagement surveys.* Bloemfontein: UFS.
(https://www.ufs.ac.za/sasse/surveys-of-student-engagement-home/origins-of-student-engagement-surveys)
Retrieved on 3 October 2018.

UFS (University of the Free State). 2018e. *Surveys of student engagement/SASSE/About SASSE.* Bloemfontein: UFS.
(https://www.ufs.ac.za/sasse/sasse-home/about-sasse)
Retrieved on 3 October 2018.

UFS (University of the Free State). 2018f. *Surveys of student engagement/BUSSE/About BUSSE.* Bloemfontein: UFS.
(https://www.ufs.ac.za/sasse/busse-home/about-busse)
Retrieved on 3 October 2018.

UFS (University of the Free State). 2019. *Health Sciences Research Ethics Committee*. (https://www.ufs.ac.za/health/departments-and-divisions/health-sciences-research-ethics-committee)
Retrieved on 14 January 2019

 UN (United Nations). 2018. *World Economic Situation and Prospects 2018.* (https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/WESP2018_Full_Web-1.pdf)
Retrieved on 14 January 2019.

Usefy, A.R., Ghassemi, Gh.R., Sarrafzadegan, N., Mallik, S., Baghaei, A.M. & Rabiei, K. 2010. Psychometric properties of the WHOQOL-BREF in an Iranian adult sample. *Community Mental Health Journal* 100(46):139–147.

Uyar, K., Gündoğan, R., Gürbüz, Ö.B. & Özçakar, N. 2016. Status of fatigue and sleep quality in clinical medical students. *Marmara Medical Journal* 29(3):164–169.

Vaez, M., Kristenson, M. & Laflamme, L. 2004. Perceived quality of life and self-rated health among first-year university students. *Social Indicators Research* 68:221–234.

Vaez, M. & Laflamme, L. 2003. Health-behaviors, self-rated health, and quality of life: A study among first-year Swedish university students. *Journal of American College Health* 51(4):156-162.

Van der Merwe, L.J. 2011. An educational approach for the generation profile of undergraduate students in the Faculty of Health Sciences, University of the Free State (PhD HPE thesis). Bloemfontein: University of the Free State.

Van der Merwe, L.J., Van Zyl, G.J., St Clair Gibson, A., Viljoen, M., Iputo, J.E., Mammen, M., Chitha, W., Perez, A.M., Hartman, N., Fonn, S., Green-Thompson, L., Ayo-Ysuf, O.A., Botha, G.C., Manning, D., Botha, S.J., Hift, R., Retief, P., Van Heerden, B.B. & Volmink, J. 2016. South African medical schools: Current state of selection criteria and medical students' demographic profile. *South African Medical Journal* 106(1):76-81.

Walker, J.T., Martin, T., White, J., Elliott, R., Norwood, A., Mangum, C. & Haynie, L. 2006. Generational (Age) Differences in nursing students' preferences for teaching methods. *Research Briefs* 45(9):371–374.

Walsh, J.M. Feeney, C., Hussey, J. & Donnellan, C. 2010. Sources of stress and psychological health morbidity among undergraduate physiotherapy students. *Physiotherapy* 96(3):206–212.

Waqas, A., Khan, S., Sharif, W., Khalid, U. & Ali, A. 2015. Association of academic stress with sleeping difficulties in medical students of a Pakistani medical school: A cross sectional survey. *PeerJ* 3:e840.
(https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4369327/)
Retrieved on 26 November 2018.

Wilson-Strydom, M. 2010. Traversing the chasm from school to university in South Africa: A student perpective. Paper presented in track 2 at the EAIR 32nd Annual Forum in Valencia, Spain. 1-4 September 2010.

Wolf, M.R. & Rosenstock, J.B. 2017. Inadequate Sleep and Exercise Associated with Burnout and Depression Among Medical Students. *Academic Psychiatry* 41:174-179.

Wong, M.L., Lau, E.Y.Y., Wan, J.H.Y., Cheung, S.F., Hui, C.H. & Mok, S.S.Y. 2013. The interplay between sleep and mood in predicting academic functioning, physical health and psychological health: A longitudinal study. *Journal of Psychosomatic Research* 74:271-277.

WHO (World Health Organization). 1996. *WHOQOL-BREF Introduction, administration, scoring and generic version of the assessment.* Switzerland: WHO.

WHO (World Health Organization). 1998. *WHOQOL user manual.* Switzerland: WHO.

York, T., Gibson, C. & Rankin, S. 2015. Defining and measuring academic success. *Practical Assessment, Research & Evaluation* 20(5):1-20.

Zhang, Y., Qu, B., Lun, S., Wang, D., Guo, Y. & Liu, J. 2012. Quality of life of medical students in China: A study using the WHOQOL-BREF. *PLoS ONE* 7(11):e1-e9.

Zhou, C. 2015. Motivation to learn and quality of life: An undergraduate student's perspective. In Henning, M.A., Krägeloh, C.U. & Wong-Toi, G. (Eds) *Student motivation and quality of life in higher education*. United Kingdom: Routledge. 5-9.

PERSONAL COMMUNICATIONS

Volkan, S. 2016a. Information Evidence and Research (IER) Department, The World Health Organization, Switzerland. e-mail received on 3 February 2016.

Volkan, S. 2016b. Information Evidence and Research (IER) Department, The World Health Organization, Switzerland. e-mail received on 19 February 2016.

Volkan, S. 2016c. Information Evidence and Research (IER) Department, The World Health Organization, Switzerland. e-mail received on 6 July 2016.

Welman, A. 2018. School of Nursing, University of the Free State. e-mail received on 31 October 2018.

LIST OF APPENDICES

APPENDIX A: Approval from the Health Sciences Research Ethics Committee (HSREC), Faculty of Health Sciences, UFS

APPENDIX B:

APPENDIX B-1:   Information document: English

APPENDIX B-2:   Inligtingsdokument: Afrikaans

APPENDIX C:

APPENDIX C-1:   Consent form: English

APPENDIX C-2:   Toestemmingsvorm: Afrikaans

APPENDIX D:

APPENDIX D-1:   Research instrument: WHOQOL-BREF questionnaire; expanded to include demographic information

APPENDIX D-2:   Navorsingsinstrument: WHOQOL-BREF vraelys; uitgebrei om demografiese inligting in te sluit

APPENDIX E: WHOQOL-BREF User Agreement

APPENDIX F: Additional statistical data

APPENDIX G: Letter from the language editor

APPENDIX H: Communication from the Rector, UFS

APPENDIX A

APPROVAL FROM THE HEALTH SCIENCES RESEARCH ETHICS COMMITTEE (HSREC),
FACULTY OF HEALTH SCIENCES, UFS

UNIVERSITY OF THE
FREE STATE
UNIVERSITEIT VAN DIE
VRYSTAAT
YUNIVESITHI YA
FREISTATA

UFS·UV
HEALTH SCIENCES
GESONDHEIDSWETENSKAPPE

IRB nr 00006240
REC Reference nr 230408-011
IORG0005187
FWA00012784

08 September 2016
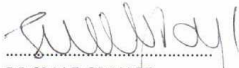
DR A MOSTERT
DEPT OF BASIC MEDICAL SCIENCES
FACULTY OF HEALTH SCIENCES
UFS

Dear Dr Mostert

HSREC 133/2016(UFS-HSD2016/1079)
SUPERVISOR(S): DR LJ VAN DER MERWE, DR MP JAMA
DIVISION HEALTH SCIENCES EDUCATION
PROJECT TITLE: QUALITY OF LIFE AND ACADEMIC PERFORMANCE OF UNIVERSITY OF THE FREE STATE FIRST-YEAR HEALTH SCIENCES STUDENTS

1. You are hereby kindly informed that the Health Sciences Research Ethics Committee (HSREC) approved the study. This decision will be ratified at the next meeting to be held on 20 September 2016.

2. The Committee must be informed of any serious adverse event and/or termination of the study.

3. Any amendment, extension or other modifications to the protocol must be submitted to the HSREC for approval.

4. A progress report should be submitted within one year of approval and annually for long term studies.

5. A final report should be submitted at the completion of the study.

6. Kindly use the **HSREC NR** as reference in correspondence to the HSREC Secretariat.

7. The HSREC functions in compliance with, but not limited to, the following documents and guidelines: The SA National Health Act. No. 61 of 2003; Ethics in Health Research: Principles, Structures and Processes (2015); SA GCP(2006); Declaration of Helsinki; The Belmont Report; The US Office of Human Research Protections 45 CFR 461 (for non-exempt research with human participants conducted or supported by the US Department of Health and Human Services- (HHS), 21 CFR 50, 21 CFR 56; CIOMS; ICH-GCP-E6 Sections 1-4; The International Conference on Harmonization and Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH Tripartite), Guidelines of the SA Medicines Control Council as well as Laws and Regulations with regard to the Control of Medicines, Constitution of the HSREC of the Faculty of Health Sciences.

Yours faithfully

DR SM LE GRANGE
CHAIR: HEALTH SCIENCES RESEARCH ETHICS COMMITTEE

Health Sciences Research Ethics Committee
Office of the Dean: Health Sciences
T: +27 (0)51 401 7795/7794 | F: +27 (0)51 444 4359 | E: ethicsfhs@ufs.ac.za
Block D, Dean's Division, Room D104 | P.O. Box/Posbus 339 (Internal Post Box G40) | Bloemfontein 9300 | South Africa
www.ufs.ac.za

APPENDIX B

APPENDIX B1: INFORMATION DOCUMENT: ENGLISH
APPENDIX B2: INLIGTINGSDOKUMENT: AFRIKAANS

INFORMATION DOCUMENT FOR RESPONDENTS

Dear Participant

Request to participate in the Magister study titled:

QUALITY OF LIFE AND ACADEMIC PERFORMANCE OF UNIVERSITY OF THE FREE STATE FIRST-YEAR HEALTH SCIENCES STUDENTS (HSREC 133/2016)

I am currently doing a Magister degree in Health Professions Education at the University of the Free State. I am investigating the Quality of Life (QOL) and academic performance of University of the Free State first-year health sciences students.

QOL is a complex concept that is affected by people's perception of their physical and psychological health, social relationships and environment. Academic performance is measured by academic marks.

You are invited to take part in the study. Your participation may contribute to new insight about the QOL and academic performance of first-year health sciences students. The information gained from this study may be used to address issues related to QOL and academic performance at the Faculty of Health Sciences at the University of the Free State.

Your participation in the study is voluntary and you will not be penalised or lose benefits if you refuse to participate or decide to terminate participation. You may withdraw from the study at any time without being penalised for doing so. You will not receive any additional benefits, compensation, academic mark adjustments or special privileges for participation in the study.

There are no costs or risks involved in taking part in the study. All personal information will be treated as confidential. The results of the study will be used for academic purposes. The information may also be used in research presentations and journal publications.

By signing the consent form the researcher accepts that you give permission to complete the questionnaire. It also grants the researcher permission to access your academic marks for the purpose of this research.

The questionnaire will be completed in a computer laboratory at the Faculty of Health Sciences before or after a scheduled contact session. You will access the questionnaire through the EvaSys survey-management system by means of a password provided by the researcher. It takes approximately 15 minutes to complete the questionnaire.

You will be asked to provide your student number on the questionnaire. You will only be identifiable by your student number, but only the researcher will have access to this. The student numbers are necessary to enable the researcher access to your academic records. No participant will be personally identified at any time. Although absolute confidentiality cannot be guaranteed, the researcher will endeavour to keep personal information confidential as far as possible.

You may contact me at (051) 401 7294 if you need more information about the research. You may contact the Secretariat of the Health Sciences Research Ethics Committee of the Faculty of Health Sciences, UFS at (051) 401 7794/5 if you have any questions about your rights as a participant.

Thank you for taking the time to read this information document. I hope that you will be willing to participate in this project.

Yours sincerely

Dr Arnelle Mostert
Department of Basic Medical Sciences
Faculty of Health Sciences
University of the Free State
Bloemfontein

INLIGTINGSDOKUMENT AAN DEELNEMERS

Beste Deelnemer

Versoek om deel te neem in 'n Magisterstudie getiteld:

LEWENSKWALITEIT EN AKADEMIESE PRESTASIE VAN UNIVERSITEIT VAN DIE VRYSTAAT EERSTEJAAR GESONDHEIDSWETENSKAPPE STUDENTE (HSREC 133/2016)

Ek is tans besig met 'n Magistergraad in Gesondheidswetenskappe Onderwys aan die Universiteit van die Vrystaat. Ek wil die lewenskwaliteit en akademiese prestasie van Universiteit van die Vrystaat eerstejaar gesondheidswetenskappe studente ondersoek.

Lewenskwaliteit is 'n komplekse begrip wat beïnvloed word deur mense se persepsie van hulle fisieke en psigologiese gesondheid, sosiale verhoudings en omgewing. Akademiese prestasie word gemeet deur akademiese punte.

U word genooi om aan die studie deel te neem. U deelname kan bydra tot 'n beter begrip van die lewenskwaliteit en akademiese prestasie van eerstejaar gesondheidswetenskappe studente. Die inligting wat hierdie studie inwin kan gebruik word om kwessies aangaande lewenskwaliteit en akademiese prestasie by die Fakulteit Gesondheidswetenskappe by die Universiteit van die Vrystaat aan te spreek.

U deelname aan die studie is vrywillig en u sal nie gepenaliseer word of voordele verbeur indien u weier om deel te neem of besluit om deelname te staak nie. U mag op enige tydstip aan die studie onttrek sonder dat u daarvoor gepenaliseer sal word. U sal nie enige bykomende voordele, vergoeding, akademiese punteaanpassings of spesiale voordele ontvang vir deelname aan die studie nie.

Daar is geen kostes of risikos verbonde aan deelname aan die studie nie. Alle persoonlike inligting sal vertroulik hanteer word. Die resultate van die studie sal gebruik word vir akademiese doeleindes. Die inligting kan ook gebruik word vir navorsingsvoordragte en joernaalpublikasies.

Deur die toestemmingsvorm te onderteken, aanvaar die navorser dat u toestemming verleen om die vraelys te voltooi. Dit verleen ook toestemming aan die navorser om u akademiese punte te bekom vir die doeleinde van hierdie navorsing.

Die vraelys sal voltooi word in 'n rekenaarlaboratorium by die Fakulteit Gesondheidwetenskappe voor of na 'n geskeduleerde kontaksessie. U sal toegang verkry tot die vraelys deur die EvaSys opnamebestuurstelsel, deur middel van 'n wagwoord wat die navorser voorsien. Die sisteem waarborg vertroulikheid. Dit neem ongeveer 15 minute om die vraelys te voltooi.

U sal gevra word om u studentenommer op die toestemmingsvorms en vraelyste te voorsien. U sal net deur middel van u studentenommer geïdentifiseer word, maar net die navorser sal daartoe toegang hê. Die studentenommers is nodig om die navorser toegang te gee tot u akademiese rekords. Geen deelnemer sal te enige tyd persoonlik geïdentifiseer word nie. Alhoewel absolute vertroulikheid nie gewaarborg kan word nie, sal die navorser poog om persoonlike inligting so vertroulik moontlik te hou.

U kan my kontak by (051) 401 7294 as u meer inligting oor die navorsing benodig. U mag die Sekretariaat van die Gesondheidswetenskappe Navorsingsetiekkomitee van die Fakulteit Gesondheidswetenskappe, Universiteit van die Vrystaat, by telefoonnommer (051) 401 7794/5 kontak indien u enige vrae oor u regte as 'n deelnemer het.

Dankie vir u tyd om deur die inligtingsdokument te lees. Ek hoop dat u bereid sal wees om deel te neem aan hierdie projek.

Die uwe

Dr Arnelle Mostert
Departement Basiese Mediese Wetenskappe
Fakulteit Gesondheidswetenskappe
Universiteit van die Vrystaat
Bloemfontein

APPENDIX C

APPENDIX C1: CONSENT FORM: ENGLISH

APPENDIX C2: TOESTEMMINGSVORM: AFRIKAANS

CONSENT TO PARTICIPATE IN RESEARCH

QUALITY OF LIFE AND ACADEMIC PERFORMANCE OF UNIVERSITY OF THE FREE STATE FIRST-YEAR HEALTH SCIENCES STUDENTS (HSREC 133/2016)

I _____,

student number _____ hereby

confirm that I am willing to take part in the above-mentioned study.

I understand that participation in this study is voluntary. I understand that I will not be penalised or lose benefits if I refuse to participate or decide to terminate participation. I will not receive any compensation if I choose to participate in this study. Participation in the study will not incur costs from me.

I understand that by signing the consent form I give permission to the researcher to use the data and access my academic records.

I understand that I may contact the Secretariat of the Health Sciences Research Ethics Committee of the Faculty of Health Sciences, UFS, at telephone number (051) 401 7794/5 if I have any questions about my rights as a participant.

The researcher, Dr Arnelle Mostert, explained the study to me verbally. I also received a written information document.

I understand what my involvement in the study means and I voluntarily agree to participate.

_____   _____
Signature of **Participant**   Date

_____   _____
Signature of **Researcher**   Date

TOESTEMMING TOT DEELNAME AAN NAVORSING

LEWENSKWALITEIT EN AKADEMIESE PRESTASIE VAN UNIVERSITEIT VAN DIE VRYSTAAT EERSTEJAARSTUDENTE GESONDHEIDSWETENSKAPPE STUDENTE (HSREC 133/2016)

Hiermee bevestig ek _____,

studente nommer _____ dat ek

bereid is om aan die bogenoemde studie deel te neem.

Ek verstaan dat deelname aan hierdie studie vrywillig is. Ek verstaan dat ek nie gepenaliseer sal word of voordele verbeur as ek weier om deel te neem of as ek deelname aan die studie te staak nie. Ek sal geen vergoeding ontvang vir deelname aan hierdie studie nie. Deelname aan die studie sal geen onkoste vir my inhou nie.

Ek verstaan dat ek, deur die toestemmingsvorm te onderteken, aan die navorser toestemming verleen om die data te gebruik en om toegang te verkry tot my akademiese uitslae.

Ek verstaan dat ek die Sekretariaat van die Gesondheidswetenskappe Navorsingsetiekkomitee van die Fakulteit Gesondheidswetenskappe, Universiteit van die Vrystaat, by telefoonnommer (051) 401 7794/5 kan kontak indien ek enige vrae oor my regte as 'n deelnemer het.

Die navorser, Dr Arnelle Mostert, het die studie mondelings aan my verduidelik. Ek het ook 'n skriftelike inligtingstuk ontvang.

Ek verstaan wat my betrokkenheid by die studie behels en ek stem vrywillig in om deel te neem.

....

Handtekening van **Deelnemer**   Datum

....

Handtekening van **Navorser**   Datum

APPENDIX D

APPENDIX D1: WHOQOL-BREF QUESTIONNAIRE; EXPANDED TO INCLUDE DEMOGRAPHIC INFORMATION

APPENDIX D2: WHOQOL-BREF VRAELYS; UITGEBREI OM DEMOGRAFIESE INLIGTING IN TE SLUIT

WHOQOL-BREF questionnaire; expanded to include demographic information

---

TOPIC: QUALITY OF LIFE AND ACADEMIC PERFORMANCE OF UNIVERSITY OF THE FREE STATE FIRST-YEAR HEALTH SCIENCES STUDENTS

RESEARCHER: DR A. MOSTERT

You have been asked to participate in a research study. Your participation in the study is voluntary. You may withdraw from this study at any time without being penalised for doing so. You will not receive any additional benefits, compensation, academic mark adjustments or special privileges if you participate in this study. Your data will be treated confidentially at all times and no personal identifiers will appear in any reports or publications. The results of the study may be published or presented at congresses.

Please tick the appropriate answer.

<u>DEMOGRAPHIC INFORMATION</u>

FOR OFFICE USE
Unique identification number (1 - 392):

1-3

1. Student number:

4-13

2. Date (dd/mm/yy):

14-19

3. Gender:
   Male (1) ☐   Female (2) ☐

20

4. Age: ☐☐ years

21-22

5. Matriculated in (year e.g. 2015):

23-26

6. To which ethnic group do you belong?
   1. Asian
   2. Black
   3. Coloured
   4. Indian
   5. White
   6. Other: Specify ……………………

27

7. Which course do you study?

1. MBChB (Medicine) ☐

2. BSocSci (Nursing) ☐

3. BScPhysiotherapy (Physiotherapy) ☐

4. BOccTher (Occupational therapy) ☐ ☐ 28

5. BOptom (Optometry) ☐

6. BSc (Dietetics) ☐

7. BMedSc (Radiation Sciences) ☐

8. Residential status?
   1. On campus accommodation
   2. Off campus accommodation ☐ 29

9. Off-campus
   1. Living with parents or family ☐
   2. Living in a student house ☐ ☐ 30
   3. Living in a flat or town house ☐
   4. Other: Specify ……………………………… ☐

10. Before attending university, did you reside in an urban or non-urban (rural) area?
    1. [1]Urban area ☐ 31
    2. [2]Non-urban (rural) area

11. Before attending university, did you reside in a formal or informal settlement?
    1. [3]Formal settlement ☐ 32
    2. [4]Informal settlement

⊕ ⊕ ⊕

[1]Urban area: An area that has its own municipal or local authority. Examples of urban areas include ordinary towns or city areas or formal structures, e.g., houses, flats, boarding houses, old age homes, caravan parks, and school and university hostels. This area include informal dwellings or 'squatter areas' in urban areas (Statistics South Africa 2003:185).

[2]Non-urban (rural) area: The area does not share a common boundary with a proclaimed municipal area. Examples of non-urban areas include semi-towns (towns without local authorities), villages/settlements without local authorities, tribal areas, informal dwellings ('squatter area') in non-urban areas, areas with farms and agricultural holdings (Statistics South Africa 2003:185).

[3]Formal settlement: A formal settlement is structured and organised. Land parcels (plots or erven) make up a formal and permanent structure. A local council or district council controls development in these areas. Services such as water, electricity and refuse removal are provided, and roads are formally planned and maintained by the council. This category includes suburbs and townships (Statistics South Africa 2003:187).

[4]Informal settlement: Informal settlements or 'squatter camps' occur on land which has not been surveyed or proclaimed as residential, and the structures are usually informal. These settlements are usually found on the outskirts of towns or along railways and roads (Statistics South Africa 2003:187).

WHOQOL-BREF QUESTIONNAIRE:

This assessment asks how you feel about your quality of life, health or other areas of your life. **Please answer all the questions.** If you are unsure about which response to give to a question, **please choose the one** that appears most appropriate. This can often be your first response.

Please keep in mind your standards, hopes, pleasures and concerns. We ask you to think about your life **in the last two weeks.** For example, thinking about the last two weeks, a question might ask:

		Not at all	Not much	Moderately	A great deal	Completely
	Do you get the kind of support from others that you need?	1	2	3	4	5

You should circle the number that best fits how much support you got from others over the last two weeks. So you would circle the number '4' if you got a great deal of support from others, as follows.

		Not at all	Not much	Moderately	A great deal	Completely
	Do you get the kind of support from others that you need?	1	2	3	4	5

You would circle number '1' if you did not get any of the support that you needed from others in the last two weeks.

Please read each question, assess your feelings, and circle the number on the scale for each question that gives the best answer for you.

		Very poor	Poor	Neither poor nor good	Good	Very good	
1.	How would you rate your quality of life?	1	2	3	4	5	☐ 33

		Very dis-satisfied	Dis-satisfied	Neither satisfied nor dis-satisfied	Satisfied	Very satisfied	
2.	How satisfied are you with your health?	1	2	3	4	5	☐ 34

The following questions ask about **how much** you have experienced certain things in the last two weeks.

		Not at all	A little	A mode-rate amount	Very much	An extreme amount	
3.	To what extent do you feel that your physical pain prevents you from doing what you need to do?	1	2	3	4	5	☐ 35
4.	How much do you need any medical treatment to function in your daily life?	1	2	3	4	5	☐ 36
5.	How much do you enjoy life?	1	2	3	4	5	☐ 37
6.	To what extent do you feel your life to be meaningful?	1	2	3	4	5	☐ 38

		Not at all	A little	A moderate amount	Very much	Extremely	
7.	How well are you able to concentrate?	1	2	3	4	5	☐ 39
8.	How safe do you feel in your daily life?	1	2	3	4	5	☐ 40
9.	How healthy is your physical environment?	1	2	3	4	5	☐ 41

The following questions ask about **how completely** you experience or were able to do certain things in the last two weeks.

		Not at all	A little	Mode-rately	Mostly	Com-pletely	
10.	Do you have enough energy for everyday life?	1	2	3	4	5	☐ 42
11.	Are you able to accept your bodily appearance?	1	2	3	4	5	☐ 43
12.	Have you enough money to meet your needs?	1	2	3	4	5	☐ 44
13.	How available to you is the	1	2	3	4	5	☐ 45

	information that you need in your day-to-day life?					
14.	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

☐ 46

		Very poor	Poor	Neither poor nor good	Good	Very good
15.	How well are you able to get around?	1	2	3	4	5

☐ 47

The following questions ask you to say how **good or satisfied** you have felt about various aspects of your life over the last two weeks.

		Very dis-satisfied	Dis-satisfied	Neither satisfied nor dis-satisfied	Satisfied	Very satisfied
16.	How satisfied are you with your sleep?	1	2	3	4	5
17.	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18.	How satisfied are you with your capacity for work?	1	2	3	4	5
19.	How satisfied are you with yourself?	1	2	3	4	5
20.	How satisfied are you with your personal relationships?	1	2	3	4	5
21.	How satisfied are you with your sex life?	1	2	3	4	5
22.	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23.	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24.	How satisfied are you with your access to health services?	1	2	3	4	5

☐ 48

☐ 49

☐ 50

☐ 51

☐ 52

☐ 53

☐ 54

☐ 55

☐ 56

| 25. | How satisfied are you with your transport? | 1 | 2 | 3 | 4 | 5 | | 57 |

The following question refers to **how often** you have felt or experienced certain things in the last two weeks.

		Never	Seldom	Quite often	Very often	Always		
26.	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	1	2	3	4	5		58

Do you have any comments about the assessment?

_____

_____

_____

_____

⊕ ⊕ ⊕**THANK YOU FOR YOUR PARTICIPATION**⊕ ⊕ ⊕

WHOQOL-BREF vraelys; uitgebrei om demografiese inligting in te sluit

ONDERWERP: LEWENSKWALITEIT EN AKADEMIESE PRESTASIE VAN UNIVERSITEIT VAN DIE VRYSTAAT EERSTEJAAR GESONDHEIDSWETENSKAPPE STUDENTE

Navorser: Dr A. Mostert

U is gevra om aan 'n navorsingstudie deel te neem. U deelname aan die studie is vrywillig. U mag op enige tydstip van die studie onttrek sonder dat u gepenaliseer sal word daarvoor. U sal nie enige bykomende voordele, vergoeding, aanpassings aan u akademiese punte, of spesiale voordele ontvang vir deelname aan die studie nie. U data salt e alle tye vertroulik hanteer word en geen persoonlike identifikasie sal in verslae of publikasies verskyn nie. Die resultate van die studie kan moonlik gepubliseer of by kongresse voorgedra word.

Merk asseblief die gepaste antwoord.

INLIGTING OOR DEMOGRAFIE EN AKADEMIESE PRESTASIE

VIR KANTOORGEBRUIK
Unieke identifikasienommer (1 - 392):

1-3

1.   Studentenommer:

4-13

2.   Datum (dd/mm/jj):

14-19

3.   Geslag:
      Manlik (1)   Vroulik (2)   20

4.   Ouderdom:
              jaar   21-22

5.   Gematrikuleer in (jaar, bv. 2015):

23-26

6.   Aan watter etniese groep behoort u?
      1.   Asiaties   27
      2.   Swart
      3.   Gekleurd
      4.   Indies
      5.   Wit
      6.   Ander: Spesifiseer ……………………

7.   Watter kursus studeer u?
      1.   MBChB (Medies)   28

2.   BSocSci (Verpleging)   ☐

3.   BScPhysiotherapy (Fisioterapie)   ☐

4.   BOccTher (Arbeidsterapie)   ☐

5.   BOptom (Optometrie)   ☐

6.   BSc (Dieetkunde)   ☐

7.   BMedSc (Stralingswetenskappe)   ☐

8.   Residensiële status?
      1.   Kampusakkomodasie
      2.   Af-kampus akkomodasie
      ☐ 29

9.   Af-kampus
      1.   Bly saam met ouers of familie   ☐
      2.   Bly in 'n studentehuis   ☐
      3.   Bly in 'n woonstel of meenthuis   ☐
      4.   Ander: Spesifiseer ……………..……   ☐
      ☐ 30

10.   Voordat u universiteit bygewoon het, het u in 'n stedelike of landelike gebied gebly?
      1.   [1]Stedelike gebied
      2.   [2]Landelike gebied
      ☐ 31

11.   Voordat u universiteit bygewoon het, het u in 'n formele of informele nedersetting gebly?
      1.   [3]Formele nedersetting
      2.   [4]Informele nedersetting
      ☐ 32

⊞ ⊞ ⊞

[1]Stedelike gebied: 'n Gebied met sy eie munisipale of plaaslike owerheid. Voorbeelde van stedelike gebiede sluit gewone dorpe of stadsgebiede of formele strukture bv. huise, woonstelle, losieshuise, ouetehuise, karavaanparke, en skool-en universiteitskoshuise in. Hierdie gebied sluit informele wonings of 'plakkersareas' in stedelike gebiede in (vertaal deur navorser Mostert 2016).

[2]Landelike gebied: Hierdie gebied deel nie 'n gemeenskaplike grens met 'n verklaarde munisipale area nie. Voorbeelde van landelike gebiede sluit semi-dorpe (dorpe sonder plaaslike owerhede), dorpies/nedersettings sonder plaaslike owerhede, stamgebiede, informele wonings ('plakkersareas') in landelike gebiede, gebiede met plase en landbouhoewes in (vertaal deur navorser Mostert 2016).

[3]Formele nedersetting: 'n Formele nedersetting is gestruktureerd en georganiseerd. Persele (plotte of erwe) vorm formele en permanente strukture. 'n Plaaslike raad of distriksraad beheer ontwikkeling in hierdie gebiede. Dienste soos water, elektrisiteit en vullisverwydering word verskaf, en paaie word formeel beplan en in stand gehou deur die raad. Hierdie kategorie sluit voorstede en dorpswyke in (vertaal deur navorser Mostert 2016).

[4]Informele nedersetting: Informele nedersettings of 'plakkerskampe' kom voor op grond wat nog nie opgemeet of verklaar is as residensieël nie, en strukture is gewoonlik informeel. Hierdie nedersettings word gewoonlik aangetref aan die buitewyke van dorpe of langs treinspore en paaie. (vertaal deur navorser Mostert 2016).

WHOQOL-BREF VRAELYS:

Hierdie assessering vra uit oor hoe u voel oor u lewenskwaliteit, gesondheid of ander areas van u lewe. **Beantwoord asseblief al die vrae.** As u onseker is oor die antwoord op 'n gegewe vraag, **kies asseblief die een** wat vir u na die mees gepaste antwoord lyk. Dit is dikwels die eerste antwoord wat by u opkom.

Hou asseblief u standaarde in gedagte, asook die dinge waarop u hoop, dinge wat vir u plesier verskaf en dinge waaroor u besorg is. Dink asseblief aan u lewe **in die afgelope twee weke.** Byvoorbeeld, as u dink aan die afgelope twee weke, sou 'n vraag dalk só kon lui:

		Glad nie	Nie juis nie	Taamlik	Regtig baie	Geheel en al
	Kry u die soort ondersteuning van ander mense wat u nodig het?	1	2	3	4	5

Omkring asseblief die syfer wat die beste aanduiding is van hoeveel ondersteuning u die afgelope twee weke van ander mense gekry het. U sou dus die syfer '4' omkring as u regtig baie ondersteuning van ander gekry het, soos volg:

		Glad nie	Nie juis nie	Taamlik	Regtig baie	Geheel en al
	Kry u die soort ondersteuning van ander mense wat u nodig het?	1	2	3	4	5

U sou die syfer '1' omkring as u glad nie in die afgelope twee weke die ondersteuning wat u van ander nodig gehad het, gekry het nie.

Lees asseblief elke vraag deur, assesseer u gevoelens, en omkring vir elke vraag die syfer op die skaal wat die beste by u situasie pas.

		Baie swak	Swak	Nóg swak, nóg goed	Goed	Baie goed	
1.	Assesseer asseblief u lewenskwaliteit.	1	2	3	4	5	33

		Baie ontevrede	Onte-vrede	Nóg te-vrede, nóg ontevrede	Tevrede	Baie tevrede	
2.	Hoe tevrede is u met u gesondheid?	1	2	3	4	5	34

Onderstaande vrae handel oor **die mate waarin** u in die afgelope twee weke sekere dinge ervaar het.

		Glad nie	'n Bietjie	Taamlik baie	Regtig baie	Uitermate	
3.	In watter mate voel u dat fisieke pyn u daarvan weerhou om te doen wat u behoort te doen?	1	2	3	4	5	☐ 35
4.	Hoe nodig het u enige mediese behandeling om in u daaglikse lewe te kan funksioneer?	1	2	3	4	5	☐ 36
5.	Hoeveel geniet u die lewe?	1	2	3	4	5	☐ 37
6.	In watter mate voel u is u lewe betekenisvol?	1	2	3	4	5	☐ 38

		Glad nie	'n Bietjie	Taamlik baie	Regtig baie	Uit-stekend	
7.	Hoe goed kan u konsentreer?	1	2	3	4	5	☐ 39
8.	Hoe veilig voel u in u daaglikse lewe?	1	2	3	4	5	☐ 40
9.	Hoe gesond is u fisieke omgewing?	1	2	3	4	5	☐ 41

Onderstaande vrae handel oor **hoe volledig** u die afgelope twee weke sekere dinge ervaar het of in staat was om sekere dinge te doen.

		Glad nie	'n Bietjie	Taamlik	Meestal	Geheel en al	
10.	Het u genoeg energie vir die alledaagse lewe?	1	2	3	4	5	☐ 42
11.	Is u in staat om u fisieke voorkoms te aanvaar?	1	2	3	4	5	☐ 43
12.	Het u genoeg geld om aan u behoeftes te voldoen?	1	2	3	4	5	☐ 44
13.	Hoe beskikbaar is die inligting wat u vir u daaglikse lewe nodig het?	1	2	3	4	5	☐ 45
14.	Hoeveel kans kry u vir ontspannings-aktiwiteite?	1	2	3	4	5	☐ 46

		Baie swak	Swak	Nóg swak, nóg goed	Goed	Baie goed	
15.	Hoe goed is u vermoë om van plek tot plek te kom?	1	2	3	4	5	47

Onderstaande vrae handel oor hoe **gelukkig of tevrede** u die afgelope twee weke oor verskillende aspekte van u lewe gevoel het.

		Baie onte-vrede	Onte-vrede	Nóg tevrede, nóg ontevrede	Tevrede	Baie tevrede	
16.	Hoe tevrede is u met u slaap?	1	2	3	4	5	48
17.	Hoe tevrede is u met u vermoë om u daaglikse lewens-aktiwiteite te verrig?	1	2	3	4	5	49
18.	Hoe tevrede is u met u werksvermoë?	1	2	3	4	5	50
19.	Hoe tevrede is u met uself?	1	2	3	4	5	51
20.	Hoe tevrede is u met u persoonlike verhoudings?	1	2	3	4	5	52
21.	Hoe tevrede is u met u sekslewe?	1	2	3	4	5	53
22.	Hoe tevrede is u met die ondersteuning wat u van u vriende kry?	1	2	3	4	5	54
23.	Hoe tevrede is u met die omstandighede waarin u woon?	1	2	3	4	5	55
24.	Hoe tevrede is u met u toegang tot gesondheids-dienste?	1	2	3	4	5	56
25.	Hoe tevrede is u met u vervoer?	1	2	3	4	5	57

Onderstaande vrae handel oor **hoe dikwels** u in die afgelope twee weke sekere dinge gevoel of ervaar het.

		Nooit nie	Selde	Taamlik dikwels	Baie dikwels	Altyd
26.	Hoe dikwels het u negatiewe gevoelens soos bedruktheid, wanhoop, angstigheid, depressie?	1	2	3	4	5

58

Het u enige kommentaar oor die assessering?

_____

_____

_____

_____

⊕ ⊕ ⊕**DANKIE VIR U DEELNAME**⊕ ⊕ ⊕

APPENDIX E

APPENDIX E: WHOQOL-BREF USER AGREEMENT

WHOQOL-BREF USER AGREEMENT

User Agreement for "WHOQOL-100" and/or WHOQOL-BREF and related materials

This agreement is between the World Health Organization ("WHO") and
ARNELLE MOSTERT . WHO hereby grants the User a
nonexclusive, royalty-free license to use the World Health Organization Quality of
Life Questionnaire and/or related materials (hereafter referred to as "WHOQOL-100"
or "WHOQOL-BREF") in User's study outlined below. The term of this User
Agreement shall be for a period of 1 year, commencing on
(date) 01 AUGUST 2016

The approved study for this User Agreement is:

Study Title	Factors influencing the Quality of life and academic performance of undergraduate first-year health sciences students
Principal Investigator	Arnelle Mostert
Sample characteristics	First-year health sciences students (medical, Nursing, occupational therapy,
Sample size	Physiotherapy, optometry and dietetics students
Treatment Intervention	None
Total number of assessments	600
Assessment time points	ONCE-OFF
"WHOQOL-100" or WHOQOL-BREF version – *Please specify language version(s) you would like to receive.*	WHOQOL-BREF ENGLISH VERSION AND AFRIKAANS VERSION
Other measures	DEMOGRAPHIC INFORMATION

This User Agreement is based upon the following conditions:

1. User shall not modify, abridge, condense, translate, adapt, recast or transform the
WHOQOL-100 or BREF in any manner or form, including but not limited to any minor
or significant change in wording or organization, or administration procedures, of the
WHOQOL-100 or BREF. If User thinks that changes are necessary for its work, or if
translation is necessary, User must obtain written approval from WHO in advance of
making such changes.

2. User shall not reproduce WHOQOL-100 or BREF, except for the limited purpose of
generating sufficient copies for its own uses and shall in no event distribute copies of
the WHOQOL-100 or BREF to third parties by sale, rental, lease, lending, or any
other means. In addition, User agrees that it will not use the WHOQOL-100 or BREF
for any purpose other than conducting studies as specified above, unless agreed in
writing by WHO. In any event, the WHOQOL-100 or BREF should not be used for
research or clinical purposes without prior written authorization from WHO.

10/17/13
1 of 3

3. User agrees to provide WHO with an annual update regarding activities related to the WHOQOL-100 or BREF.

4. User agrees to provide WHO with a complete copy of User's raw data and data code books, including the WHOQOL-100 or BREF and any other instruments used in the study. This data set must be forwarded to WHO upon the conclusion of User's work. While User remains the owner of the data collected in User's studies, these data may be used in WHO analyses for further examining the psychometric properties of the WHOQOL-100 or BREF. WHO asserts the right to present and publish these results, with due credit to the User as the primary investigator, as part of the overall WHOQOL-100 or BREF development strategy.

5. WHO shall be responsible for preparing and publishing the overall WHOQOL-100 or BREF results under WHO copyright, including:

   a. the overall strategy, administrative set-up and design of the study including the instruments employed;

   b. common methods used by two or more Users;

   c. the data reported from two or more Users ;

   d. the comparisons made between the data reported from the Users;

   e. the overall findings and conclusions.

6. User shall be responsible for publications concerning information developed exclusively by User and methods employed only by User. Publications describing results obtained by User will be published in User's name and shall include an acknowledgement of WHO. User agrees to send to WHO a copy of each such paper prior to its submission for publication.

7. WHO may terminate this User Agreement at any time, in any event. Should WHO terminate this User Agreement, User shall immediately cease all use of the WHOQOL100 or BREF and destroy or return all copies of the WHOQOL-100 or BREF. In the event of such termination, all other collateral materials shall be destroyed and no copy thereof shall be retained by User. Notwithstanding the return or destruction of the WHOQOL-100 or BREF and its collateral materials, User will continue to be bound by the terms of this User Agreement.

8. It is understood that this User Agreement does not create any employer/employee relationship. User and its affiliates are not entitled to describe themselves as staff members of WHO. User shall be solely responsible for the manner in which work on the project is carried out and accordingly shall assume full liability for any damage arising therefrom. No liability shall attach to WHO, its advisers, agents or employees.

Please confirm your agreement with the foregoing by signing and returning one copy of this letter to WHO, whereupon this letter agreement shall become a binding agreement between User and WHO.

WHO:

Dr. Somnath Chatterji
Health Statistics and Health Information Systems (HSI)
World Health Organization
Avenue Appia
Geneva 27
CH 1211 Switzerland

Date:

USER:

By: ARNELLE MOSTERT
Title: DR.
Institution: UNIVERSITY OF FREE STATE
Address: UN 184
BASIC MEDICAL SCIENCES
425, UFS 9999
Date: 10 FEBRUARY 2016

10/17/13
3 of 3

APPENDIX F: ADDITIONAL STATISTICAL DATA

APPENDIX F1:   **ACTIVITIES OF DAILY LIVING OF RESPONDENTS**

APPENDIX F2:   **PAIN AND DISCOMFORT OF RESPONDENTS**

APPENDIX F3:   **MOBILITY OF RESPONDENTS**

APPENDIX F4:   **PARTICIPANT'S DEPENDENCE ON MEDICINAL SUBSTANCES AND MEDICAL AIDS**

APPENDIX F5:   **POSITIVE FEELINGS OF RESPONDENTS**

APPENDIX F6:   **PARTICIPANT'S SELF-ESTEEM**

APPENDIX F7:   **SPIRITUALITY/RELIGION/PERSONAL BELIEFS OF RESPONDENTS**

APPENDIX F8:   **PERSONAL RELATIONSHIPS OF RESPONDENTS**

APPENDIX F9:   **SOCIAL SUPPORT OF RESPONDENTS**

APPENDIX F10:   **TRANSPORT OF RESPONDENTS**

APPENDIX F11:   **HOME ENVIRONMENT OF RESPONDENTS**

APPENDIX F12:   **FINANCIAL RESOURCES OF RESPONDENTS**

APPENDIX F13:   **HEALTH AND SOCIAL CARE OF RESPONDENTS**

APPENDIX F14:   **OPPORTUNITIES FOR ACQUIRING NEW INFORMATION AND SKILLS OF RESPONDENTS**

ACTIVITIES OF DAILY LIVING OF RESPONDENTS

ACTIVITIES OF DAILY LIVING	FACULTY OF HEALTH SCIENCES n=179							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physiotherapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Very dissatisfied to dissatisfied (1-2)	n=11 (13.6%)		n=6 (17.7%)	n=4 (6.3%)				n=21 (11.7%)
	n=11 (13.9%)	n=0 (0.0%)		n=3 (16.7%)	n=0 (0.0%)	n=1 (6.7%)	n=0 (0.0%)	
Neither satisfied nor dissatisfied (3)	n=21 (25.9%)		n=6 (17.7%)	n=8 (12.5%)				n=35 (19.6%)
	n=19 (24.1%)	n=2 (100.0%)		n=3 (16.7%)	n=1 (4.4%)	n=3 (20.0%)	n=1 (12.5%)	
Satisfied to very satisfied (4-5)	n=49 (60.5%)		n=22 (64.7%)	n=52 (81.3)				n=123 (68.7%)
	n=49 (62.0%)	n=0 (0.0%)		n=12 (66.7%)	n=22 (95.7%)	n=11 (73.3%)	n=7 (87.5%)	

PAIN AND DISCOMFORT OF RESPONDENTS

PAIN AND DISCOMFORT	FACULTY OF HEALTH SCIENCES n=178							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=33	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=78	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=33	BSc (Physiotherapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Very much to an extreme amount (1-2)	n=12 (14.8)		n=7 (21.2%)	n=0 (0.0)				n=19 (10.7%)
	n=11 (13.9%)	n=1 (50.0%)		n=0 (0.0%)	n=0 (0.0%)	n=0 (0.0%)	n=0 (0.0%)	
A moderate amount (3)	n=15 (18.5%)		n=4 (12.1%)	n=13 (20.3)				n=32 (18.0%)
	n=15 (19.0%)	n=0 (0.0%)		n=3 (16.7%)	n=2 (8.7%)	n=5 (33.3%)	n=3 (37.5%)	
A little to not at all (4-5)	n=54 (66.7%)		n=22 (66.7%)	n=51 (79.7)				n=127 (71.3%)
	n=53 (67.1%)	n=1 (50.0%)		n=15 (83.3%)	n=21 (91.3%)	n=10 (66.7%)	n=5 (62.5%)	

MOBILITY OF RESPONDENTS

MOBILITY	FACULTY OF HEALTH SCIENCES n=179							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physiotherapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Very poor to poor (1-2)	n=5 (6.2%)		n=4 (11.8%)	n=2 (3.1%)				n=11 (6.2%)
	n=5 (6.3%)	n=0 (0.0%)		n=0 (0.0%)	n=0 (0.0%)	n=1 (6.7%)	n=1 (12.5%)	
Neither poor nor good (3)	n=18 (22.2%)		n=5 (14.7%)	n=8 (12.5%)				n=31 (17.3%)
	n=18 (22.8%)	n=0 (0.0%)		n=1 (5.6%)	n=3 (13.0%)	n=2 (13.3%)	n=2 (25.0%)	
Good to very good (4-5)	n=58 (71.6%)		n=25 (73.5%)	n=54 (84.4)				n=137 (76.5%)
	n=56 (70.9%)	n=2 (100.0%)		n=17 (94.4%)	n=20 (87.0%)	n=12 (80.0%)	n=5 (62.5%)	

PARTICIPANT'S DEPENDENCE ON MEDICINAL SUBSTANCES AND MEDICAL AIDS

DEPENDENCE ON MEDICINAL SUBSTANCES AND MEDICAL AIDS	FACULTY OF HEALTH SCIENCES n=179							
	SCHOOL OF MEDICINE n=80		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=62				
	MBChB n=78	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physiotherapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Very much to an extreme amount (1-2)	n=3 (3.7%)		n=6 (17.7%)	n=1 (1.6%)				n=10 (5.6%)
	n=3 (3.8%)	n=0 (0.0%)		n=0 (0.0%)	n=0 (0.0%)	n=0 (0.0%)	n=1 (12.5%)	
A moderate amount (3)	n=10 (12.4%)		n=2 (5.9%)	n=5 (7.8%)				n=17 (9.5%)
	n=10 (12.7%)	n=0 (0.0%)		n=1 (5.6%)	n=2 (8.7%)	n=1 (6.7%)	n=1 (12.5%)	
A little to not at all (4-5)	n=68 (84.0%)		n=26 (76.5%)	n=58 (90.6%)				n=152 (84.9%)
	n=66 (83.5%)	n=2 (100.0%)		n=17 (94.4%)	n=21 (91.3%)	n=14 (93.3%)	n=6 (75.0%)	

POSITIVE FEELINGS OF RESPONDENTS

POSITIVE FEELINGS	FACULTY OF HEALTH SCIENCES n=179							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=33	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physiotherapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Not at all to a little (1-2)	n=3 (3.7%)		n=0 (0.0%)	n=0 (0.0%)				n=3 (1.7%)
	n=3 (3.8%)	n=0 (0.0%)		n=0 (0.0%)	n=0 (0.0%)	n=0 (0.0%)	n=0 (0.0%)	
A moderate amount (3)	n=26 (32.1%)		n=13 (38.2%)	n=7 (10.9%)				n=46 (25.7%)
	n=25 (31.7%)	n=1 (50.0%)		n=2 (11.1%)	n=0 (0.0%)	n=4 (26.7%)	n=1 (12.5%)	
Very much to an extreme amount (4-5)	n=52 (64.2%)		n=21 (61.8%)	n=57 (89.1%)				n=130 (72.6%)
	n=51 (64.6%)	n=1 (50.0%)		n=16 (88.9%)	n=23 (100%)	n=11 (73.3%)	n=7 (87.5%)	

RESPONDENTS' SELF-ESTEEM

SELF-ESTEEM	FACULTY OF HEALTH SCIENCES n=178							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=63				
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physiotherapy) n=18	BOcc Ther n=22	BOptom n=15	BSc (Dietetics) n=8	
Very dissatisfied to dissatisfied (1-2)	n=10 (12.4%)		n=4 (11.8%)	n=2 (3.2%)				n=16 (9.0%)
	n=9 (11.4%)	n=1 (50.0%)		n=2 (11.1%)	n=0 (0.0%)	n=0 (0.0%)	n=0 (0.0%)	
Neither satisfied nor dissatisfied (3)	n=18 (22.2%)		n=4 (11.8%)	n=9 (14.3%)				n=31 (17.4%)
	n=17 (21.5%)	n=1 (50.0%)		n=5 (27.8%)	n=2 (9.1%)	n=0 (0.0%)	n=2 (25.0%)	
Satisfied to very satisfied (4-5)	n=53 (65.4%)		n=26 (76.5%)	n=52 (82.5%)				n=131 (73.6%)
	n=53 (67.1%)	n=2 (100.0%)		n=11 (61.1%)	n=20 (90.9%)	n=15 (100.0%)	n=6 (75.0%)	

SPIRITUALITY/RELIGION/PERSONAL BELIEFS OF RESPONDENTS

SPIRITUALITY/ RELIGION/PERSONAL BELIEFS	FACULTY OF HEALTH SCIENCES n=174							
	SCHOOL OF MEDICINE n=79		SCHOOL OF NURSING n=32	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=63				
	MBChB n=78	BMedSc (Radiation Sciences) n=1	BsocSci (Nursing) n=32	BSc (Physiotherapy) n=18	BOcc Ther n=23	BOptom n=14	BSc (Dietetics) n=8	
Not at all to a little (1-2)	n=5 (6.3%)		n=2 (6.3%)	n=1 (1.6%)				n=8 (4.6%)
	n=5 (6.4%)	n=0 (0.0%)		n=0 (0.0%)	n=0 (0.0%)	n=1 (7.1%)	n=0 (0.0%)	
A moderate amount (3)	n=22 (27.9%)		n=5 (15.6%)	n=13 (20.6%)				n=40 (23.0%)
	n=21 (26.9%)	n=1 (100.0%)		n=4 (22.2%)	n=2 (8.7%)	n=5 (35.7%)	n=2 (25.0%)	
Very much to an extreme amount (4-5)	n=52 (65.8%)		n=25 (78.1%)	n=49 (77.8%)				n=126 (72.4%)
	n=52 (66.7%)	n=0 (0.0%)		n=14 (77.8%)	n=21 (91.3%)	n=8 (57.1%)	n=6 (75.0%)	

PERSONAL RELATIONSHIPS OF RESPONDENTS

PERSONAL RELATIONSHIPS	FACULTY OF HEALTH SCIENCES n=179							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BsocSci (Nursing) n=34	BSc (Physiotherapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Very dissatisfied to dissatisfied (1-2)	n=10 (12.4%)		n=4 (11.8%)	n=3 (4.7%)				n=17 (9.5%)
	n=10 (12.7%)	n=0 (0.0%)		n=2 (11.1%)	n=0 (0.0%)	n=1 (6.7%)	n=0 (0.0%)	
Neither satisfied nor dissatisfied (3)	n=17 (21.0%)		n=4 (11.8%)	n=12 (18.8%)				n=33 (18.4%)
	n=15 (19.0%)	n=2 (100.0%)		n=4 (22.2%)	n=4 (17.4%)	n=1 (6.7%)	n=3 (37.5%)	
Satisfied to very satisfied (4-5)	n=54 (66.7%)		n=26 (76.5%)	n=49 (76.6%)				n=129 (72.1%)
	n=54 (68.4%)	n=0 (0.0%)		n=12 (66.7%)	n=19 (82.6%)	n=13 (86.7%)	n=5 (62.5%)	

SOCIAL SUPPORT OF RESPONDENTS

SOCIAL SUPPORT	FACULTY OF HEALTH SCIENCES n=179							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BsocSci (Nursing) n=34	BSc (Physiotherapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Very dissatisfied to dissatisfied (1-2)	n=13 (16.1%)		n=2 (5.9%)	n=2 (3.1%)				n=17 (9.5%)
	n=13 (16.5%)	n=0 (0.0%)		n=1 (5.6%)	n=0 (0.0%)	n=1 (6.7%)	n=0 (0.0%)	
Neither satisfied nor dissatisfied (3)	n=19 (23.5%)		n=7 (20.6%)	n=6 (9.4%)				n=32 (17.9%)
	n=18 (22.8%)	n=1 (50.0%)		n=2 (11.1%)	n=2 (8.7%)	n=1 (6.7%)	n=1 (12.5%)	
Satisfied to very satisfied (4-5)	n=49 (60.5%)		n=25 (73.5%)	n=56 (87.5%)				n=130 (72.6%)
	n=48 (60.8%)	n=1 (50.0%)		n=15 (83.3%)	n=21 (91.3%)	n=13 (86.7%)	n=7 (87.5%)	

TRANSPORT OF RESPONDENTS

TRANSPORT	FACULTY OF HEALTH SCIENCES n=179							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physiotherapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Very dissatisfied to dissatisfied (1-2)	n=13 (16.1%)		n=6 (17.7%)	n=9 (14.1%)				n=28 (15.6%)
	n=13 (16.5%)	n=0 (0.0%)		n=2 (11.1%)	n=1 (4.4%)	n=4 (26.7%)	n=2 (25.0%)	
Neither satisfied nor dissatisfied (3)	n=8 (9.9%)		n=5 (14.7%)	n=8 (12.5%)				n=21 (11.7%)
	n=8 (10.1%)	n=0 (0.0%)		n=3 (16.7%)	n=4 (17.4%)	n=1 (6.7%)	0 (0.0%)	
Satisfied to very satisfied (4-5)	n=60 (74.1%)		n=23 (67.7%)	n=47 (73.4%)				n=130 (72.6%)
	n=58 (73.4%)	n=2 (100.0%)		n=13 (72.2%)	n=18 (78.3%)	n=10 (66.7%)	n=6 (75.0%)	

HOME ENVIRONMENT OF RESPONDENTS

HOME ENVIRONMENT	FACULTY OF HEALTH SCIENCES n=179							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BsocSci (Nursing) n=34	BSc (Physiotherapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Very dissatisfied to dissatisfied (1-2)	n=7 (8.6%)		n=3 (8.8%)	n=3 (4.7%)				n=13 (7.3%)
	n=7 (8.9%)	n=0 (0.0%)		n=3 (16.7%)	n=0 (0.0%)	n=0 (0.0%)	n=0 (0.0%)	
Neither satisfied nor dissatisfied (3)	n=20 (24.7%)		n=5 (14.7%)	n=10 (15.6%)				n=35 (19.6%)
	n=19 (24.1%)	n=1 (50.0%)		n=4 (22.2%)	n=5 (21.7%)	n=0 (0.0%)	n=1 (12.5%)	
Satisfied to very satisfied (4-5)	n=54 (66.7%)		n=26 (76.5%)	n=51 (79.7%)				n=131 (73.2%)
	n=53 (67.1%)	n=1 (50.0%)		n=11 (61.1%)	n=18 (78.3%)	n=15 (100.0%)	n=7 (87.5%)	

FINANCIAL RESOURCES OF RESPONDENTS

FINANCIAL RESOURCES	FACULTY OF HEALTH SCIENCES n=179							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BsocSci (Nursing) n=34	BSc (Physiotherapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Not at all to a little (1-2)	n=10 (12.4%)		n=6 (17.7%)	n=4 (6.3%)				n=20 (11.2%)
	n=10 (12.7%)	n=0 (0.0%)		n=3 (16.7%)	n=0 (0.0%)	n=0 (0.0%)	n=1 (12.5%)	
Moderately (3)	n=12 (14.8%)		n=7 (20.6%)	n=7 (10.9%)				n=26 (14.5%)
	n=11 (13.9%)	n=1 (50.0%)		n=3 (16.7%)	n=1 (4.4%)	n=2 (13.3%)	n=1 (12.5%)	
Mostly to completely (4-5)	n=59 (72.8%)		n=21 (61.8%)	n=53 (82.8%)				n=133 (74.3%)
	n=58 (73.4%)	n=1 (50.0%)		n=12 (66.7%)	n=22 (95.7%)	n=13 (86.7%)	n=6 (75.0%)	

HEALTH AND SOCIAL CARE OF RESPONDENTS

HEALTH AND SOCIAL CARE	FACULTY OF HEALTH SCIENCES n=179							
	SCHOOL OF MEDICINE n=81		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=79	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physiotherapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Very dissatisfied to dissatisfied (1-2)	n=6 (7.4%)		n=3 (8.8%)	n=2 (3.1%)				n=11 (6.2%)
	n=6 (7.6%)	n=0 (0.0%)		n=2 (11.1%)	n=0 (0.0%)	n=0 (0.0%)	n=0 (0.0%)	
Neither satisfied nor dissatisfied (3)	n=12 (14.8%)		n=4 (11.8%)	n=5 (7.8%)				n=21 (11.7%)
	n=11 (13.9%)	n=1 (50.0%)		n=1 (5.6%)	n=2 (8.7%)	n=2 (13.3%)	n=0 (0.0%)	
Satisfied to very satisfied (4-5)	n=63 (77.8%)		n=27 (79.4%)	n=57 (89.1)				n=147 (82.1%)
	n=62 (78.5%)	n=1 (50.0%)		n=15 (83.3%)	n=21 (91.3%)	n=13 (86.7%)	n=8 (100.0%)	

OPPORTUNITIES FOR ACQUIRING NEW INFORMATION AND SKILLS OF RESPONDENTS

OPPORTUNITIES FOR ACQUIRING NEW INFORMATION AND SKILLS	FACULTY OF HEALTH SCIENCES n=178							
	SCHOOL OF MEDICINE n=80		SCHOOL OF NURSING n=34	SCHOOL FOR ALLIED HEALTH PROFESSIONS n=64				
	MBChB n=78	BMedSc (Radiation Sciences) n=2	BSocSci (Nursing) n=34	BSc (Physiotherapy) n=18	BOcc Ther n=23	BOptom n=15	BSc (Dietetics) n=8	
Not at all to a little (1-2)	n=3 (3.8%)		n=1 (2.9%)	n=1 (1.6%)				n=5 (2.8%)
	n=3 (3.9%)	n=0 (0.0%)		n=0 (0.0%)	n=0 (0.0%)	n=0 (0.0%)	n=1 (12.5%)	
Moderately (3)	n=21 (26.3%)		n=4 (11.8%)	n=5 (7.8%)				n=30 (16.9%)
	n=21 (26.9%)	n=0 (100.0%)		n=2 (11.1%)	n=1 (4.4%)	n=1 (6.7%)	n=1 (12.5%)	
Mostly to Completely (4-5)	n=56 (70.0%)		n=29 (85.3%)	n=58 (90.6%)				n=143 (80.3%)
	n=54 (69.2%)	n=2 (100.0%)		n=16 (88.9%)	n=22 (95.7%)	n=14 (93.3%)	n=6 (75.0%)	

APPENDIX G

APPENDIX G: LETTER FROM THE LANGUAGE EDITOR

Declaration

15 January 2019

Hester Sophia Human
PO Box 86602
Eros
Windhoek
Namibia

Student: Arnelle Mostert

Dissertation: Quality of life and academic performance of University of the Free State first-year Health Sciences students

I confirm that I edited this dissertation and audited the references.

HSHuman

Hettie Human

WRITER | EDITOR | TRANSLATOR | INTERPRETER

+264 813 359 120 | hettie.human@gmail.com

APPENDIX H

APPENDIX H: COMMUNICATION FROM THE RECTOR, UFS

From the Office of the Rector and Vice-Chancellor
Prof Francis Petersen

Good morning, Kovsie staff and students

It is not often that I sit in a venue where you can literally feel the roof lifting. This is what it felt like on Monday 8 October 2018 when our Dream Team beat the defending champions, Tuks, by 63-59 in the Varsity Netball final in front of a sold-out Callie Human Centre. With this, they are now the most successful team in the history of the competition.

It was an immensely proud moment to see so many of our students, staff, and members of the public cheering the team on and celebrating their victory. Congratulations to the head coach, Burta de Kock, and her team of coaches, and especially to the Dream Team led by Alicia Puren. Well done to the rest of the players as well with this exceptional achievement. We also applaud Khanyisa Chawane, who was named the Player of the Tournament. She is the first player to be awarded the best player title in the Premier League, National Championship, and Varsity Netball in the same year – and to crown it all, she has now been selected for the national Protea team.

The end-of-year examinations is nearing and, with October being Mental Health Month, it is crucial for us all to

remember that we should be caring and sensitive towards ourselves and others and seek help if and when needed. The university has just released the first draft of its first ever Student Mental Health Policy (https://www.ufs.ac.za/mentalhealthpolicy). The aim of the policy is to redress the inequalities and disadvantages created by prejudice and discrimination against persons with mental-health disabilities and difficulties. The policy provides us with a roadmap on how to acknowledge and deal with mental-health issues – not only as individuals, but as a university community. I encourage you to engage with the policy and to provide comment and feedback by sending an email to SCD@ufs.ac.za by Friday 19 October 2018.

The recent tragic death of a staff member and a student in Bloemfontein during separate incidents related to stabbing, again brought attention to the safety of specifically off-campus students. Together with the executive management, I remain concerned about this matter and want to reiterate the number of focused measures that currently exist regarding the safety of our off-campus students in Bloemfontein and Qwaqwa: (i) accreditation of off-campus providers of student accommodation; (ii) and continuous discussions with and cooperation from the South African Police Service (SAPS). Other measures in place on the Bloemfontein Campus include: (i) a Student Crime Stop WhatsApp group consisting of students, members of the South African Police Service (SAPS), the Community Police Forum (CPF), Sector Policing, armed security companies, and Protection Services. Criminal activity can be reported on the group instantaneously; (ii) regular patrols are conducted by marked and unmarked armed security-company vehicles in areas where large numbers of students reside; (iii) the UFS is represented on Community Police Forum (CPF) committees for sectors 3 and 4. In the near future, the CPF will be established on the Bloemfontein Campus to ensure student participation; and (iv) discussions with mobile operators are underway regarding Wi-Fi access within a specified diameter around the Bloemfontein Campus. In this way, students could be part of the Student Crime Stop WhatsApp group.

The implementation of the Integrated Transformation Plan (ITP) is making good progress, with the task-team convenors leading the implementation of their specific action plans. The Implementation Committee will be meeting in the coming week to discuss progress made with the plan. In addition, the ITP Funding Committee has approved funding for various ITP-related projects/initiatives by staff and students. The ITP Funding Committee would like to thank all staff and students who applied for funding and wishes them success during the implementation phase of their respective projects. The university community is encouraged to initiate ITP-related projects and apply for funding in the future when an open call is made. You are welcome to send ITP-related questions to ITP@ufs.ac.za.

With the end-of-year examinations starting on 5 November 2018, this is indeed a short academic term that needs us all to focus and work towards the successful completion thereof.

I wish you all the best for the remainder of the term.

Kind regards

Prof Francis Petersen
Rector and Vice-Chancellor