

**ATTRITION OF UNDERGRADUATE NURSING
STUDENTS**

at

South African Universities

by

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master's degree qualification Magister Societatis Scientiae
(Nursing) in the Department of Nursing in the Faculty of Health
Sciences at the University of the Free State**

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SUMMARY

The aim of the study was to determine and describe the attrition rate and the factors influencing undergraduate nursing students to discontinue the nursing programme at selected South African universities. Knowing the current attrition rate and understanding why nursing students do not complete an undergraduate programme can be a possible means to decrease the poor production rate of degree qualified registered nurses. These comprehensively trained registered nurses are needed to assist in implementing the healthcare plans made by the current South African Government. They are the frontline practitioners in providing healthcare to the South African population.

A quantitative descriptive design was used to gather the required information, with a specifically designed questionnaire and structured interview guide. Two populations were selected, namely Study Population One: Universities, which are grantees of the Atlantic Philanthropies and ELMA Group of Foundations under the University-based nursing education of South Africa (UNEDSA) project. The second study population is identified as former nursing students, who were enrolled at the nursing educational institutions within the selected universities.

No intervention or treatments were used therefore, no harm was anticipated for the participants of this study. The expected outcome was to determine, calculate and compare attrition rates at the selected universities and to identify and trend the factors influencing former nursing students to discontinue their undergraduate nursing studies. This information could be valuable in making recommendations to existing selection criteria used to select candidates for an undergraduate nursing programme. Furthermore, recommendations can be made to establish and maintain a data base to gather information of the completion and attrition rates of nursing students per intake. The information received from the data base is needed for strategic planning for the following year. Lastly, recommendations can be made to implement strategies to assist at-risk nursing students, who consider discontinuing the undergraduate programme.

The study revealed that attrition of undergraduate nursing students does occur at the participating universities. Attrition furthermore occurs at a higher rate than prescribed by the South African Department of Higher Education. A further discovery was that not all selected candidates register for the undergraduate nursing programme, thus contributing to the low number of degree qualified registered nurses. The second phase of the study reveals the main factors influencing undergraduate nursing students to discontinue the undergraduate programme to be academic and financial reasons. Another factor of a high occurrence that influenced former nursing students to discontinue their undergraduate studies was poor wellness and health.

From the above-mentioned discoveries recommendations could be made with regards to the following:

- Review the current selection criteria to perform a personal interview with each candidate, establish personality traits of applicants to further select the best possible candidate and include a general health questionnaire and medical certificate to declare the candidate fit to practice nursing
- Establish and maintain a data base at each Nursing Educational Institution to determine the number of applicants, the number of candidates selected and the number of students who finally registered for the nursing programme as well as the number of nursing students who discontinue each year
- Investigate reasons why selected candidates did not register for the undergraduate nursing programme
- Share attrition and completion rates with the South African Nursing Council (SANC) to maintain a national data base

- Perform an exit interview with a nursing student who voice the decision to discontinue the undergraduate nursing programme to determine and trend the possible factors that influenced the student to discontinue the programme
- Identify retention strategies to best assist the at-risk nursing students to include academic and clinical support, financial assistance and wellness and health programmes

OPSOMMING

Die studie het ten doel gehad om die uitvalsyfer onder voorgraadse verpleegkundestudente by geselekteerde universiteite in Suid-Afrika te bepaal en beskryf. Kennis van die huidige uitvalsyfer en begrip van die redes hoekom verpleegkundestudente die voorgraadse studies staak, kan 'n moontlike manier wees om die swak uitset van graadgekwalifiseerde verpleegkundiges te verhoog. Omvattend opgeleide verpleegkundiges word benodig vir die implementering van die teenswoordige gesondheidsorgplanne van die Suid-Afrikaanse regering. Verpleegkundiges is die eerste linie versorgers wat gesondheidsorg aan die Suid-Afrikaanse populasie verskaf.

'n Kwantitatief beskrywende ontwerp is gebruik om die nodige inligting te versamel. 'n Spesifiek ontwerpte vraelys en gestruktureerde onderhoudsgids is hiervoor saamgestel. Twee studiepulasies is gekies, naamlik Studiepulasie Een: Universiteite wat finansiële ondersteuning ontvang van die “Atlantic Philanthropies” en “ELMA Group of Foundations” deur middel van die “University-based nursing education of South Africa”- (UNEDSA) projek. Die tweede studiepulasie is voormalige verpleegkundestudente wat in die verpleegskole van die geselekteerde universiteite geregistreer was.

Aangesien geen intervensie of behandeling tydens die studie toegepas is nie, is geen benadeling van die deelnemers aan die studie voorsien nie. Die verwagte uitkoms was om die uitvalsyfer by die uitgesoekte universiteite te bepaal, te verwerk en dan vergelykings tussen die resultate van die verskillende universiteite te tref. Daar is verwag om die redes te identifiseer hoekom voormalige verpleegkundestudente besluit om hulle voorgraadse studies te staak en dan tendense vas te stel. Die inligting kan waardevol wees om aanbevelings te maak ten opsigte van hersiening van huidige seleksiekriteria om voornemende verpleegkundestudente te keur. Dit kan verder ook van waarde wees om 'n databasis te skep en te onderhou wat die voltooiing- en uitvalsyfers van verpleegkundestudente per jaargroep aandui. So 'n databasis kan gebruik word

tydens die strategiese beplanningssessies vir 'n volgende jaar. Laastens, kan strategieë voorgestel word om risiko-verpleegkundestudente in die verpleegprogram te behou.

Die studie het uitgewys dat uitvalle van voorgraadse verpleegkundestudente wel by die deelnemende universiteite voorkom teen 'n hoër tempo as waarvoor die Suid-Afrikaanse Departement van Hoër Onderwys voorsiening maak. Daar is verder bepaal dat nie alle geselekteerde kandidate wel as studente vir die voorgraadse verpleegprogram registreer nie. Dit kan nog 'n moontlike rede wees hoekom daar 'n laer getal verpleegkundestudente gradueer. Die tweede fase van die studie het die twee hoof faktore wat voorgraadse verpleegkundestudente beïnvloed het om die verpleegstudies te staak uitgewys. Dit blyk dat swak akademiese vordering en 'n voorgesette tekort aan finansiering die meeste voorgraadse verpleegkundestudente beïnvloed om die voorgraadse verpleegprogram te staak. 'n Verdere faktor is dat die verpleegkundestudente gesondheidsprobleme ervaar wat hulle vermoë om hulle studies te voltooi, belemmer het.

Uit die bevindinge kan aanbeveel word:

- Hersien die huidige seleksiekriteria om 'n persoonlike onderhoud met elke voornemende kandidaat te voer, stel die persoonlikheidskenmerke van voornemende kandidate vas om sodoende die beste moontlike kandidaat te vind en sluit 'n gesondheidsvraelys en 'n mediese sertifikaat in, wat verklaar dat die voornemende verpleegkundestudent by magte is om verpleegtake uit te voer
- Skep 'n databasis by elke verpleegskool wat bepaal hoeveel kandidate aansoek doen, hoeveel kandidate gekeur word en hoeveel kandidate uiteindelik as studente vir die voorgraadse verpleegprogram registreer, sowel as die getal verpleegstudente wat die verpleegprogram staak en voltooi
- Identifiseer die redes hoekom geselekteerde kandidate nie vir die voorgraadse verpleegprogram registreer nie

- Deel uitval- en voltooiingsgetalle met die Suid-Afrikaanse Raad op Verpleging (SARV) om 'n nasionale databasis tot stand te bring
- Voer 'n uittredingsonderhoud met elke verpleegkundestudent wat besluit om te staak. Hierdie inligting kan waardevolle insette in die faktore en die tendense van staking van studie vasstel.
- Identifiseer die bes moontlike strategie om die risiko-verpleegkundestudent te ondersteun. Van die planne kan akademiese en kliniese ondersteuningsprogramme, finansiële ondersteunings- en gesondheidverbeteringsprogramme insluit.

TABLE OF CONTENTS

	<i>Page</i>
DECLARATION	
LANGUAGE EDITING	
ACKNOWLEDGEMENTS	
SUMMARY	a
OPSOMMING	d
 CHAPTER 1: <i>Introduction and problem statement</i>	
<hr/>	
1.1 INTRODUCTION	1
1.2 PROBLEM STATEMENT	8
1.3 RESEARCH QUESTION	9
1.4 AIM AND OBJECTIVES	9
1.5 CONCEPTUAL FRAMEWORK	9
1.6 RESEARCH DESIGN	13
1.7 STUDY POPULATION	13
1.7.1 Study Population One: Universities	14
1.7.1.1 Sampling	14
1.7.1.2 Research technique	14
1.7.1.3 Data collection	14
1.7.2 Study Population Two: Former nursing students	15
1.7.2.1 Sampling	15
1.7.2.2 Research technique	15
1.7.2.3 Data collection	16
1.8 PILOT STUDY	16
1.9 DATA ANALYSIS	16

	Page
2.3.2.2 Academic and clinical support	38
2.3.2.2.1 Academic support	38
2.3.2.2.2 Clinical support	40
2.3.2.3 Financial assistance	41
2.3.2.4 Wellness programme	41
2.4 CONCLUSION.....	42

CHAPTER 3: Research methodology

3.1 INTRODUCTION	43
3.2 RESEARCH AIM AND OBJECTIVES	43
3.3 RESEARCH DESIGN.....	44
3.3.1 Quantitative research	45
3.3.2 Non- experimental descriptive design.....	46
3.4 RESEARCH METHODOLOGY	47
3.4.1 Study population.....	47
3.5 STUDY POPULATION ONE: UNIVERSITIES.....	48
3.5.1 Sampling	48
3.5.2 Research technique.....	49
3.5.3 Pilot study.....	53
3.5.4 Data collection.....	55
3.5.5 Data analysis.....	59
3.6 STUDY POPULATION TWO: FORMER NURSING STUDENTS.....	59
3.6.1 Sampling	59
3.6.2 Research technique.....	60
3.6.3 Pilot study.....	65
3.6.4 Data collection.....	66
3.6.5 Data analysis.....	69
3.7 RELIABILITY	70
3.8 VALIDITY	71
3.9 ETHICAL CONSIDERATIONS	72
3.10 CONCLUSION.....	74

CHAPTER 4: Data analysis

4.1	INTRODUCTION	75
4.2	STUDY POPULATION ONE: UNIVERSITIES	75
4.2.1	Overview of Study Population One: Universities	75
4.2.2	Selection criteria	77
4.2.3	Applicants	79
4.2.4	Candidates	81
4.2.5	Registered students.....	82
4.2.6	Attrition and completion rates	83
4.3	STUDY POPULATION TWO: FORMER NURSING STUDENTS.....	86
4.3.1	Characteristics.....	88
4.3.1.1	Gender	88
4.3.1.2	Age.....	89
4.3.1.3	Ethnicity.....	89
4.3.2	Demographic information	90
4.3.2.1	Marital status and dependants	90
4.3.2.2	Residential and travel arrangements.....	91
4.3.3	Additional biographical information.....	91
4.3.3.1	Social integration.....	91
4.3.3.2	Time span between matriculation and the first year of study.....	92
4.3.3.3	Study year during which the nursing programme was discontinued.....	92
4.3.4	The factors that influenced the former nursing students to discontinue their undergraduate studies.....	92
4.3.4.1	Academic reasons.....	94
4.3.4.2	Financial reasons	94
4.3.4.3	Poor wellness and health problems.....	95
4.3.4.4	Wrong career choice	95
4.3.4.5	Clinical environment difficulties	96
4.3.5	Retention strategies.....	96

	Page
4.4 FEEDBACK ON FINDINGS OF THE RESEARCH.....	97
4.5 CONCLUSION.....	97

CHAPTER 5: Conclusions and recommendations

5.1 INTRODUCTION	98
5.2 AIM AND OBJECTIVES OF THIS STUDY	98
5.3 STUDY CONCLUSIONS	99
5.4 RECOMMENDATIONS	100
5.5 LIMITATIONS TO THIS STUDY	108
5.6 VALUE OF THE STUDY	109
5.7 REFLECTION BY THE RESEARCHER	110
5.8 CONCLUSION.....	110
 REFERENCES.....	 112

LIST OF FIGURES

	<i>Page</i>
FIGURE 1.1: Production rate of Registered Nurses	5
FIGURE 1.2: Undergraduate nursing student attrition and retention framework	12
FIGURE 3.1: Components of the research design	45
FIGURE 3.2: Target, study population and sample	48
FIGURE 3.3: Former nursing student participation rate.....	68
FIGURE 4.1: University One: Number of applicants compared to the number of candidates selected	80
FIGURE 4.2: University Two: Number of applicants compared to number of candidates selected	80
FIGURE 4.3: University Two: Number of candidates selected compared to number of student that registered	83
FIGURE 4.4: Attrition and completion rates for University One	85
FIGURE 4.5: Attrition and completion rates for University Two	86
FIGURE 4.6: Percentage of former student participants per participating university.....	88
FIGURE 4.7: Frequency distribution of factors that influenced former nursing students to discontinued their undergraduate studies.....	93

LIST OF TABLES

	Page
TABLE 3.1: Questionnaire to Head of the Nursing Educational Institution.....	52
TABLE 3.2: Difficulties experienced during collection of data for phase one	56
TABLE 3.3: Structured Interview guide for former nursing student..	61
TABLE 4.1: Admission criteria to enter an undergraduate nursing programme at universities.....	78
TABLE 4.2: Characteristics of the former nursing students, 2009 – 2012, n54	90

LISTS OF ADDENDUMS

		<i>Page</i>
ADDENDUM 1:	Approval from Evaluation Committee, University of the Free State.....	131
ADDENDUM 2:	Approval Ethical Committee, University of the Free State.....	133
ADDENDUM 3:	Approval Ethical Committee, University of Pretoria.....	135
ADDENDUM 4:	Approval Ethical Committee, Tshwane University of Technology.....	137
ADDENDUM 5:	Approval from Faculty of Health Science, University of the Free State.....	140
ADDENDUM 6:	Approval from Head of Nursing Educational Institution: Fort Hare.....	142
ADDENDUM 7:	Approval from Head of Nursing Educational Institution: University of the Western Cape.....	144
ADDENDUM 8:	Approval from Head of Nursing Educational Institution: University of Pretoria.....	146
ADDENDUM 9:	Approval Head of Nursing Educational Institution: University of the Free State.....	148
ADDENDUM 10:	Approval Head of Nursing Educational Institution: Tshwane University of Technology.....	150

		Page
ADDENDUM 11:	Participant information leaflet to participate in a research: Study Population One: Universities ...	152
ADDENDUM 12:	Participant information leaflet to participate in a research: Study Population Two: Former student nurses.....	156
ADDENDUM 13:	Amended - Participant information leaflet to participate in a research: Study Population Two: Former student nurses.....	159
ADDENDUM 14:	Questionnaire for the Head of the Nursing Educational Institution	161
ADDENDUM 15:	Amended questionnaire for the Head of the Nursing Educational Institution	167
ADDENDUM 16:	Structured interview guide for the participating former nursing student	171

LISTS OF CONCEPTS

For the purpose of this study the following concepts are clarified:

Attrition:

Attrition is defined as the departure of a student from an educational programme without successful completion or graduation (Park, Berry & Edwards, 2011:39). Attrition can be involuntary or voluntary, depending on the factors influencing a student to discontinue the programme.

Involuntary attrition is the termination of a student's placement in an undergraduate nursing programme due to academic reasons, such as failure to meet the minimum academic requirements of the university. Another reason can be dismissal due to disciplinary action, by not meeting the requirements of clinical practice.

Voluntary attrition is self-termination by a student from an undergraduate nursing programme due to personal or non-academic reasons (Jeffreys, 2004:8).

This study will focus on involuntary and voluntary attrition. Furthermore, academic reasons will refer to involuntary attrition and non-academic reasons will refer to voluntary attrition.

Nursing education:

Nursing education is a guided process of learning to facilitate students into the art of nursing, from novices until they can assume responsibility for own decisions and actions as registered nurses.

The nursing student must successfully complete a theoretical and clinical component in order to graduate. An undergraduate nursing programme is divided into periods when the theoretical component is offered and time allocated to a clinical environment to reach the skills, behaviours and attitudes needed to practice nursing. During the theoretical component, contact time with a nurse educator and fellow nursing students takes place. Theoretical outcomes are reached by means of formal lectures and / or group activities to independently reach theoretical outcomes through research for best and evidence-based practices. Various forms of assessment determine competence in reaching the theoretical outcomes.

During the clinical placement time the nursing student receives demonstrations on practices, behaviours and attitudes of nursing, practice these skills under the direct and indirect supervision of nurse educators, qualified nurses, mentors and / or clinical preceptors, as well as fellow students. The nursing student must prove competence of the clinical outcomes by means of an assessment to be advanced to more complex skills and behaviours (Pitt, Powis, Levett-Jones & Hunter, 2012:903).

The above-mentioned learning process enables the successful candidate to register in the training category in the registers of the South African Nursing Council (SANC). According to the Nursing Act 33 of 2005, different categories of nurses are trained to include registered nurses, enrolled nurses and enrolled nurse assistants. These nurses receive education and training in accredited Nursing Educational Institutions in South Africa (South Africa, Nursing Act 33 of 2005:30).

The accredited Nursing Educational Institutions can function within either a public or private higher educational institution. The Nursing Educational Institution determines the programme content and obtains accreditation by the SANC, the Department of Higher Education and the South African Qualifications Authority (*ibid.*). Nursing colleges are currently not declared as higher educational institutions in South Africa. This will be rectified in the near future as suggested by a Ministerial Task Team to the Minister of Health after a National Nursing Summit that took place in April 2011 (South Africa, Department of Health [DoH], 2014:7).

Registered nurses are produced by candidates obtaining either a diploma or a degree qualification. The diploma qualification is obtained at an accredited nursing college or private nursing higher educational institution. The person that obtained a diploma qualification at a nursing college can register at the SANC to practise comprehensive nursing care as a registered nurse.

Some registered nurses are produced by the Bridging Programme that advances an enrolled nurse to the registered nurse level. This two-year programme was introduced in 1989 by the SANC. Successful completion enables the candidate to register and practise as a general registered nurse, mostly in a hospital setting. They cannot provide the much-needed maternity and community healthcare in a primary healthcare clinic without further training (Subedar, 2005:90; Breier, Wildschut & Mggolozana, 2007:1). These candidates hold a diploma in nursing.

The nursing degree qualification is obtained at a university or a university of technology. As a registered nurse, this candidate can register with the SANC to practise in general nursing, community health, psychiatric nursing or midwifery (Subedar, 2005:92).

For the purpose of this research the interest lies in registered student nurses obtaining a baccalaureate degree qualification at an accredited university or university of technology.

Undergraduate nursing student:

An undergraduate nursing student is a student enrolled for a nursing programme leading to a Baccalaureate Degree in Nursing at an accredited Nursing Educational Institution situated within a university or university of technology. These students must register with the SANC as student nurses (South Africa, Nursing Act 33 of 2005:27). The successful nursing student exits with a Baccalaureate Degree in Nursing and registers as a Registered Nurse with the SANC to practise in general, community health and psychiatry nursing, as well as in midwifery. For the purpose of

the study the definition nursing student will be used when discussing a student nurse, as registered with the South African Nursing Council.

Traditional versus non-traditional nursing student:

Due to the change in education policies by the South African Government in 1996, previously disadvantaged racial groups now have equal access to enrol at higher educational institutions. These policies brought about a change in the characteristics of undergraduate nursing students from the traditionally white, younger and female student to now include a high number of non-traditional students. The non-traditional student is characterised as being from any racial group, older and both genders. These students in addition have broader family responsibilities. A further characteristic is that English is rarely the first language of these students (Wright & Maree, 2007:601; Mc Lachlan, 2010: Online; Mdepa & Tshiwula, 2012:22).

It should be clarified that nursing is a predominantly female profession due to the nature of the profession. Therefore, the male nursing student is also seen as a non-traditional student in an undergraduate nursing programme (Dyck, Oliffe, Phinney & Garrett, 2009:649).

University:

A university or a university of technology is an institution in higher education with a department where students receive training and education in nursing. For the purpose of this study, a university will refer to a higher educational institution where the nursing student exits with a Baccalaureate Degree in Nursing. The term nursing educational institution will be used to refer to the department of nursing at a university or university of technology.

Clinical placement environment:

Approximately half the time in an undergraduate nursing programme is spent in the clinical environment where the nursing student learns the practice of nursing and accomplishes new behaviours, as well as attitudes (Huybrecht, Loeckx, Quaeyhaegens, De Toebel & Mistiaen, 2011:274). The clinical environment should be conducive to ensure optimum work integrated learning opportunities for the nursing student. A positive clinical environment is characterised by collaboration between the management staff of the clinical environment and the nurse educators from the Nursing Educational Institution regarding the expected theoretical and clinical outcomes the nursing student must reach within given timelines. Nursing students are orientated during the first week of placement in a new nursing unit in order for the student to adjust to the culture and climate of the unit and to meet the assigned mentor / clinical preceptor and other nursing unit personnel (Jokelainen, Turunen, Tossavainen, Jamookeeah & Coco, 2011:2860).

The learning that occurs within the clinical environment is known as work integrated learning and is divided into experiential learning and work-base learning. During experiential learning the nursing student practices nursing in real-life situations, but do not form part of the service team, while work-base learning occurs when the nursing student is allocated as part of the service team. Work integrated learning takes place under the guidance of a clinical mentor and / or preceptor, who is a registered nurse (Frazer, Connolly, Naughton & Kow, 2014:1104).

Mentor versus preceptor:

The clinical mentor / preceptor assists the nursing student to build confidence in nursing patients in authentic clinical situations (South Africa, DoH, 2014:83) and furthermore assist the nursing student in achieving the clinical learning outcomes (Baker, 2010:216).

The terms mentor or preceptor is both used in the literature to describe the person who assists the nursing student to achieve the skills of nursing practice. However, a difference between the two terms is found in the aim of the outcomes that will be achieved by the two. A mentor is seen as the person with who the nursing student will form a friendly, relaxed and long-term relationship without the conflict of being assessed on competency. In disparity to a mentor, a preceptor forms a short-term relationship with the nursing student and assesses the nursing student on competencies reached (Huybrecht *et al.*, 2011:275).

A mentor / preceptor is known as a generalist clinical preceptor in the South African contex. A Ministerial Task Team proposed to the Minister of Health after the recent Nursing Summit in April 2011, the clinical preceptor should oversee and accompany the nursing student during clinical placement periods. He / she will furthermore demonstrate nursing skills to the undergraduate nursing student as well as assist the nurse educator to assess the competencies of the clinical learning outcomes (South Africa, DoH, 2014:87). The term clinical preceptor will be used when referring to a clinical mentor.

LIST OF ABBREVIATIONS

APS	Admission Point Score
CHE	Council of Higher Education
DoE	Department of Education
DoH	Department of Health
FUNDISA	Forum of University Deans in South Africa
NBT	National Benchmark Test
NEI	Nursing Educational Institution
OECD	Organisation for Economic Co-operation and Development
REAP	Rural Education Access Programme
SANC	South African Nursing Council
SAQA	South African Qualifications Authority
WHO	World Health Organization
UNEDSA	University-based Nursing Education of South Africa

CHAPTER 1

Introduction and problem statement

1.1 INTRODUCTION

The nursing profession forms the backbone of any healthcare system (South African Nursing Council [SANC], 2008: Online; Buchan & Aiken, 2008:3263; Lloyd, Sanders & Lehmann, 2010:171; Klopper & Uys, 2013:283) and therefore needs a consistent supply of qualified registered nurses to deliver continuous safe quality healthcare and replace the nurses leaving or retiring from the profession. An increased demand and undersupply of nurses seems to be an international cyclical event that has occurred throughout decades, dating as far back as the Great Depression in the 1930s (Whelan, 2012: Online). The current cycle started in 1998, peaked in 2001 and still continues today (Aya Healthcare, [n.d.]: Online; Buerhaus, 2005:58; Oulton, 2006:34S), to such an extent that the quality of care and the safety of patients within hospitals are compromised (Institute of Medicine, 1999: Online; Buerhaus, 2005:58; Kane, Shamliyan, Mueller, Duval & Wilt, 2007: Online; Buchan & Aiken, 2008:3263; Odom-Forren, 2010:209; Needleman, Buerhaus, Pankratz, Leibson, Stevens & Harris, 2011: 1043; Blegan, Goode, Spetz, Vaughn & Hye Park, 2011:409). Not only is the care in the hospital environment compromised, but the care provided in settings outside hospitals is compromised as well.

To ensure sustained quality nursing care, the World Health Organization (WHO) suggested in 2006 that a minimum number of 200 nurses per 100 000 of a population would be needed to meet the health related Millennium Development Goals, as set by the United Nations (WHO, 2006: Online; Wildschut & Mggolozana, 2008:20). Although high-income countries have nurse-to-population ratios of 1 000 : 100 000, a shortage of all nurse categories is still reported and projected for the future. This is due to the increasing healthcare demands of a growing and aging society, the declining number of student nurse applicants and an increasingly aged nursing workforce (Aya Healthcare, [n.d.]: Online; American Association of Colleges of Nursing, [n.d.]: Online; Buerhaus, 2005:59; Oulton, 2006:35S; Buchan & Aiken,

2008:3263; Juraschek, Zhang, Ranganathan & Lin, 2011:1; McMenamin, 2014: Online). The WHO specifically identified critical shortages of nurses in Sub-Saharan Africa and South-East Asian countries, where as few as 21 nurses per 100 000 of the population are available (WHO, 2006: Online). The situation in South Africa is not yet seen as equally critical. There is currently an active nurse-to-population ratio of 383 : 100 000 (Econex, 2010a: Online; SANC, 2011c: Online). The concern however, is the current production rate of nurses, and specifically the production rate of comprehensively trained registered nurses which may not be sufficient to meet the specific healthcare needs of this country (South Africa, DoH, 2011: Online; Klopper & Uys, 2013:283). The approach to delivery of healthcare has changed from hospital-centered care to promotion of health and prevention of disease through primary healthcare, thus strengthening the District Health System (South Africa, SANC, 2008: Online; South Africa, DoH, 2011: Online; Klopper & Uys, 2013:277; South Africa, DoH, 2014:17). Despite the successes in reforming healthcare since 1994, certain areas of shortcoming have been identified and strategic plans developed to improve child mortality, maternal health, the burden of transmittable diseases and the high rates of injury due to crime (South Africa, DoH, 2010b: Online; Schaay, Sanders & Kruger, 2011: Online; Motsoaledi, 2011: Online; South Africa, DoH, 2011: Online). The ultimate goal is to improve the general health of the population through quality healthcare and ensuring that all South Africans can afford healthcare (South Africa, DoH, 2010a; Online; South Africa, DoH, 2010c: Online).

The success of the above-mentioned plans greatly rely on nurses working in the public sector to provide and manage the healthcare of 85% of the current population of 50 million people (Subedar, 2005:90; Lloyd *et al.*, 2010:173; South Africa, SANC, 2011c: Online). This places a high burden on these nurses, considering that 58,6% of all active nurses are employed in the public sector of South Africa (Breier *et al.*, 2007:3; Lehmann 2008:166; Solidarity, 2009: Online; Econex, 2010a: Online; South Africa, DoH, 2011: Online). Alarming, increasing burn-out (Van den Berg, Bester, Janse van Rensburg-Bonthuyzen, Engelbreth, Hlophe, Summerton, Smit, du Plooy & van Rensburg, 2006:17) and dissatisfaction regarding working conditions is being reported (Pillay 2009:7; Breier, Wildshut & Mqgolozana, 2009:54; Delobelle, Rawlinson, Ntuli, Malatsi, Decock & Depoorter, 2010:380), resulting in the migration of nurses to urban areas, the private health sector, and high-income countries for better working conditions and remuneration (Breier *et al.*, 2007:2; Dovlo, 2007:1374;

Wildschut & Mqolozana, 2008:13; Lloyd *et al.*, 2010:172). As no clear records are kept of nurses emigrating, it is estimated that 7,3% of all nurses registered with the South African Nursing Council work in other high-income countries (Econex, 2010a: Online). Of importance is that mostly registered nurses with the degree qualification are sought after (Breier *et al.*, 2009:45; Econex, 2010a: Online). To counter the shortage of registered nurses in their hospitals, a specific private healthcare group has started recruiting registered nurses with specialized training in intensive care, operating theatre and maternity care from India, and continues to do so today (Breier *et al.*, 2009:51).

Not only is there a misdistribution of nurses between rural and urban areas, and in the public and private sector, the South African nursing profession is aging fast. According to current SANC registers only 39% of active nurses are under the age of 30. This can indicate that only a small number of young nurses is entering the profession and not enough new nurses are being produced to replace the ones leaving or retiring (Econex, 2010a: Online; South Africa, SANC, 2011d: Online; South Africa, SANC, 2011e: Online; Klopper & Uys, 2013:281).

The last factor of concern is the negative impact of HIV and Aids on this profession. This places a high demand on the South African nursing staff and also reduces the workforce (Buchan & Calman 2005: Online), as it is estimated that one out of seven South African nurses and student nurses are HIV positive (Connelly, Veriava, Roberts, Tsotetsi, Jordan, DeSilva, Rosen & Bachman DeSilva, 2007:115; Keller, McCarthy, Mosendane, Tellie, Venter, Noble, Scott, Stevens, Van Rie, 2009:72; George, Quinlan & Reardon 2009: Online).

As stated earlier, South Africa presently does not have a critical shortage of nurses compared to the other Sub-Saharan African countries. However, there are specific national healthcare plans for the future that demand the availability of nurses who will be able to provide healthcare to patients in the absence of medical practitioners and pharmacists (Econex, 2010a: Online; Econex, 2010b: Online). It will be expected of nurses to man the healthcare clinics, take charge of healthcare settings, diagnose illness, manage all minor and most chronic conditions, as well as prescribe and administer certain scheduled medicines, such as anti-retroviral medication and broad spectrum antibiotics (Breier *et al.*, 2007:2; Lehman, 2008:172; Econex, 2010a:

Online; Mayers, 2010: Online). Only a registered nurse can provide these services, which fall outside the scope of practice of enrolled nurses or enrolled nurse auxiliaries.

To accommodate the shift in the tasks of registered nurses in primary healthcare settings, a proposal to change the qualification of a registered nurse to a degree-only qualification is currently up for public comment and will probably become a reality in the near future. This level of qualification is imperative to enable the practitioner to make decisions based on evidence and researched best practice (FUNDISA, 2012: Online), and for the academic growth of the profession (Subedar, 2005:92). Not only will this change align nursing qualifications offered in South Africa with international trends, it will also broaden the scope of practice of registered nurses to successfully manage the suggested shift in tasks (SAQA, [n.d.]: Online; Klopper & Uys, 2013:289).

The inconsistent production rate of all nurse categories has increased with only an average of 4,8% annually since the year 2000 (Econex, 2010a: Online; Klopper & Uys, 2013:280), although the production rate of registered nurses shows a considerable increase from the year 2005, as indicated in the figure on the next page:

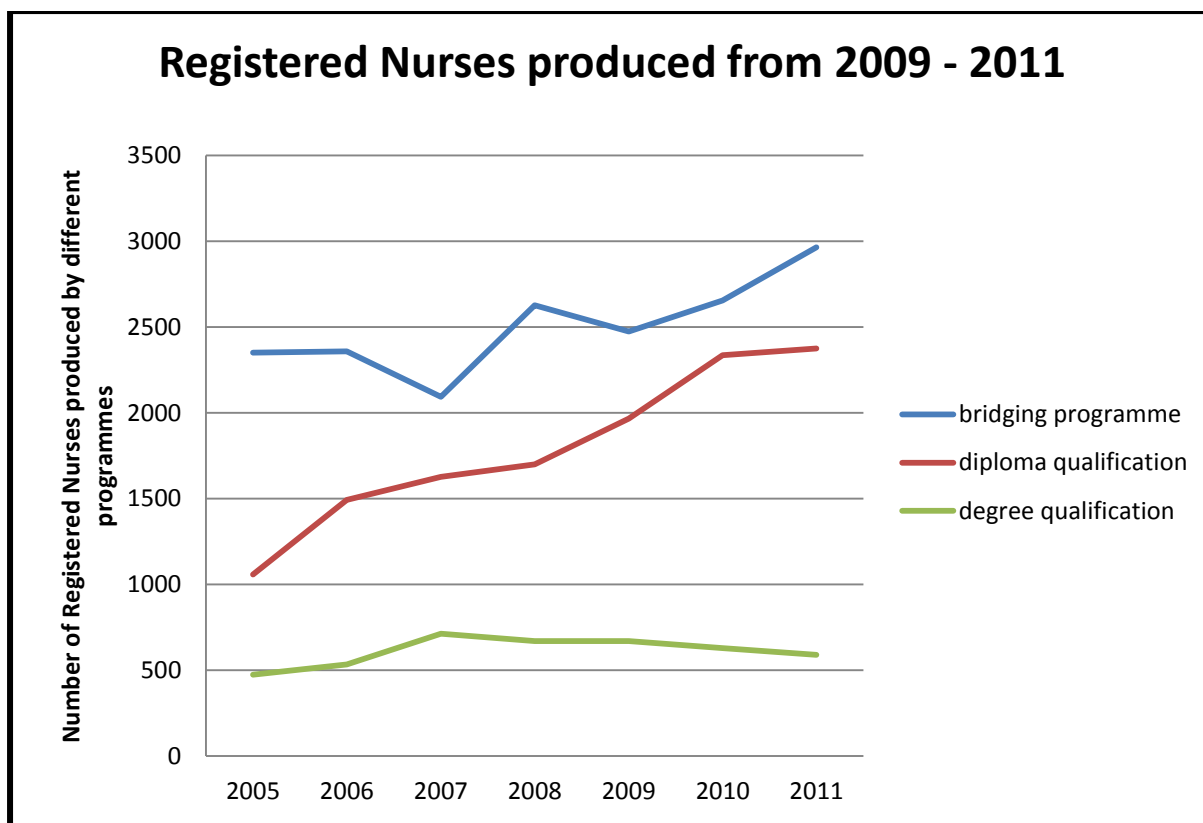


FIGURE 1.1: Production rate of Registered Nurses (SANC 2011b & 2011f)

As indicated in Figure 1.1, a greater number of registered nurses are being produced through the bridging and the diploma nursing programmes, than via the degree qualification (Breier *et al.*, 2009:67; South Africa, SANC, 2011f: Online). As the nursing programmes in which registered nurses obtain a diploma qualification and the bridging programme will fall away as soon as the degree-only qualification is accepted, the production rate of registered nurses yielded by means of a diploma programme is not considered in the evaluation of the production rate of registered nurses.

When one studies the yield of registered nurses trained through the four-year comprehensive degree programme offered by universities, it would seem that there has been a steady decline in numbers over time and an inherent low output rate (Breier *et al.*, 2009:73). Figures indicate a decrease in numbers from 714 students in 2007 to 590 in 2011 (Econex, 2010a: Online; South Africa, SANC, 2011b: Online). In the absence of other healthcare practitioners, this yield rate will not provide an adequate number of registered nurses with the appropriate qualification to provide the proposed healthcare. The data supplied by the South African Nursing Council regarding the growth in number of nursing students for all programmes that train

registered nurses indicates a consistent growth in the total student numbers in the last ten years, with numbers that have increased from 10 338 in 2002, to 20 581 in 2011 (South Africa, SANC, 2011a: Online). However, the output rate of registered nurses is much lower, as indicated in Figure 1.1. A possible reason for this poor output rate is the factor that all nursing students are not completing their undergraduate nursing programmes.

Attrition by students from academic programmes is of international concern in all higher educational settings, as all countries need an educated workforce (Angelino, Williams & Natvig, 2007:2; Letseka & Maile, 2008:5). Increased attrition by nursing students is of specific concern in the growth of the nursing profession and the alleviation of current international shortages of nurses (O'Holloran, 2009: Online; Cook, 2010:12). It would seem high attrition rates from all nursing programmes are experienced in most countries, and many initiatives to improve throughput of nursing students from nursing programmes are consistently published.

In the United Kingdom, nursing student attrition has been intensively researched due to the critical shortage of nurses in that country and the financial burden the high attrition rate places on the taxpayer. Attrition rates that vary from 15-34% have been reported in the United Kingdom (Moseley & Mead 2008:470; Waters, 2008:12; O'Holloran, 2009: Online; Scott, 2009:10; Shepherd, 2009: Online; Waters, 2010:5; Clover, 2011: Online), with the highest prevalence in Scotland and the lowest in Northern Ireland (O'Donnell, 2009:745). An alarming attrition rate of 56% of nursing students in the United Kingdom was reported in 2006 by the BBC news. Not only was the emphasis on the financial loss, but also the devastating effect on the nursing students and their families (BBC news, 2008: Online). By 2011, this high attrition rate had been successfully reversed, and it was reported that a lower number of nursing students terminated their nursing programmes (Clover, 2011: Online).

Other countries that have reported high attrition rates, but have successfully reduced this through various initiatives, include the United States of America (Cook, 2010:17; Peterson 2009:411), Jamaica (Wilson, 2010: Online) and Australia (Stott, 2007:326). In 2009, the attrition rate among nursing students in the United States was as high as 30%. Despite the need to alleviate the shortage of nurses, a large number of applicants were turned away due to lack of classroom and simulation laboratory

space, limited sites for clinical practice, and an insufficient number of nurse educators at that time (Peterson, 2009:411; Lewis, 2010:61).

Previous studies conducted in South Africa confirm the occurrence of attrition by nursing students. In 1995, a study conducted by the Head of the Department of Nursing at the University of Zululand and a lecturer at the Department of Nursing Science at the University of South Africa reported that nursing student attrition has been an on-going occurrence in South Africa since 1965 (Mashaba & Mhlongo, 1995:371).

In 2007, a study at Tshwane University of Technology reported a high attrition rate under first-year nursing students due to their misconception of what the nursing profession entails, as well as the fact that studies were offered only in English. This is not the mother tongue or the daily language of most students in South Africa (Wright & Maree, 2007:596).

Another study conducted at the Cape University of Technology determined that 70% of the 2005 intake of nursing students left the nursing programme within year one or two of their studies. A large number of students who did not really want to practise nursing entered the programme with bursaries. They were not prepared for what the clinical practice entailed (Jeptha, 2008: Online).

A report by Solidarity Research Institute has stated that only 13% of the nursing students who enrolled in 2004 graduated in 2007. This figure reflects an attrition rate as high as 87% (Solidarity, 2009: Online).

A study conducted in 2007 at the Western Cape College of Nursing by a student of the University of the Western Cape supported these findings on attrition. An attrition rate of 34,4% for the 2003 intake group was reported. It would seem that a first-year nursing student is most likely to leave the nursing programme due to not reaching the minimum academic requirements (Mc Lachlan, 2010: Online).

From the studies mentioned above, it would seem that attrition does indeed actively occur among nursing students in South Africa. Of concern is that no further studies stated whether the attrition diminished at these nursing educational institutions after the initial research had been done.

In light of the reform plans for national health in South Africa, the proposed change in the registered nursing qualification and the resulting increased demand in the supply of nurses, it is worth determining the incidence of, and the factors leading to attrition of undergraduate nursing students from university-based nursing education. This can be one way in which to address the undersupply of comprehensively trained registered nurses.

1.2 PROBLEM STATEMENT

This study will focus on attrition among undergraduate nursing students at South African universities, because of the proposed change to the degree-only qualification, anticipated national plans for healthcare and international grants received. University-based nursing education of South Africa (UNEDSA) is funded by the Atlantic Philanthropies and ELMA Group of Foundations. These are international organisations providing grants to improve health and social welfare by supporting nursing education in identified countries, of which South Africa is one (The Atlantic Philanthropies, [n.d.]: Online). The nursing educational institutions at grant holding universities include the Universities of Fort Hare, Free State, Limpopo, Pretoria, the Western Cape and Tshwane University of Technology.

As stated in the previous section, it would seem that a significant number of undergraduate nursing students do not complete the nursing programmes offered at various universities in South Africa. This has a negative impact on the production rate of registered nurses that are required to implement the specific future healthcare plans of the Department of Health in South Africa.

1.3 RESEARCH QUESTION

The research questions for this study include:

- a) What is the current attrition rate among undergraduate nursing students at the selected South African universities?
- b) Which factors influenced the former nursing students to discontinue their undergraduate studies?

1.4 AIM AND OBJECTIVES

The aim of this study is to determine and describe the attrition rate of undergraduate nursing students at selected South African universities.

The objectives of this study include:

- obtaining the current attrition rates of undergraduate nursing students at five identified universities, and
- assessing the factors leading to the attrition.

1.5 CONCEPTUAL FRAMEWORK

From the existing theories on undergraduate student attrition and retention, the researcher developed the conceptual framework for the study that is displayed on page 11 (Tinto, 1975:96; Astin, 1993:6; Astin, 1999:522; Bean & Eaton, 2001 - 2002:74). The conceptual framework indicates that an undergraduate nursing student may experience the challenges within the higher education institution to such an extent that the student may consider discontinuing the undergraduate nursing programme. Several factors can influence a nursing student's decision to either persist or discontinue from studies if these challenges are encountered.

The main factors that influence an undergraduate nursing student to withdraw from the undergraduate programme are identified as academic and non-academic factors (Astin, 1999:522; Tinto, 2006:2; Park *et al.*, 2011:38).

Academic factors include challenges that prevent the undergraduate nursing student from reaching the expected theoretical and clinical outcomes to succeed in the academic programme. The academic challenges include personal attributes of the nursing student (Prymachuk, Easton & Littlewood, 2008:157; Park *et al.*, 2011:38), the learning style of the nursing student (*ibid.*, :40), unpreparedness for higher education (Mashaba & Mhlongo, 1995:365; Badat, Botman, Jansen, Mokgalong, Nongxa & Price, 2009:5; Mdepa & Tshiwula, 2012:23), receiving education in a language other than their mother tongue (Wright & Maree, 2007:601; Mc Lachlan, 2010: Online) and lastly the difficulties experienced in the clinical environment (O'Regan, 2005:18; Airey, 2012:310).

Non-academic factors include financial difficulties (Fowler & Norrie, 2009:1198; Lewis, 2010:59; Mc Lachlan, 2010: Online), poor wellness and health (Van Lingen, Douwman & Wannenberg, 2011:405), wrong career choice (Wright & Maree, 2007:597; O'Holloran, 2009: Online; Cook, 2010:12) and demographic factors, like being an older nursing student or a male nursing student (Prymachuk *et al.*, 2008:157; Mc Lachlan, 2010: Online; Pitt *et al.*, 2012:906).

Previous attrition and retention models and theories that were developed regarding undergraduate students included the degree of integration with academic and social life within the higher educational institution. The degree to which the undergraduate student can adapt to the new environment assists the student to persist with the undergraduate studies. Lastly, the level to which the student will search for coping mechanisms to overcome the challenges he / she experiences can be of assistance to complete the undergraduate studies (Bean & Eaton, 2001:74; Tinto, 2006:3; Wilmer, 2009:55).

The various retention strategies available to at-risk undergraduate nursing students have been developed to assist them to cope with the challenges when encountered. The aim is to guide the at-risk undergraduate student to successful integration and adaptation into the higher education institution by adding academic and non-academic support. The retention strategies can include specific selection criteria, various academic support programmes and assistance with non-academic challenges.

Selection criteria for entering a higher educational institution are determined by the institution itself and the academic programme to include pre-entry and personality type testing, as well as assessment of previous academic achievement (Newton & Moore, 2009:274; Cameron, Roxburgh, Taylor & Lauder, 2010:1379; Pitt *et al.*, 2012:908). The academic support programmes will allow more contact time per module, as well as increased nurse educator and peer involvement (Bowden, 2008:54). The non-academic assistance involves financial support (Karstadt, 2010:663) as well as attending wellness and health programmes (Van Lingen *et al.*, 2011:405).

Despite the available support structures and retention strategies for undergraduate nursing students, attrition is sometimes beyond the power of influence of the university (Park *et al.*, 2011:38).

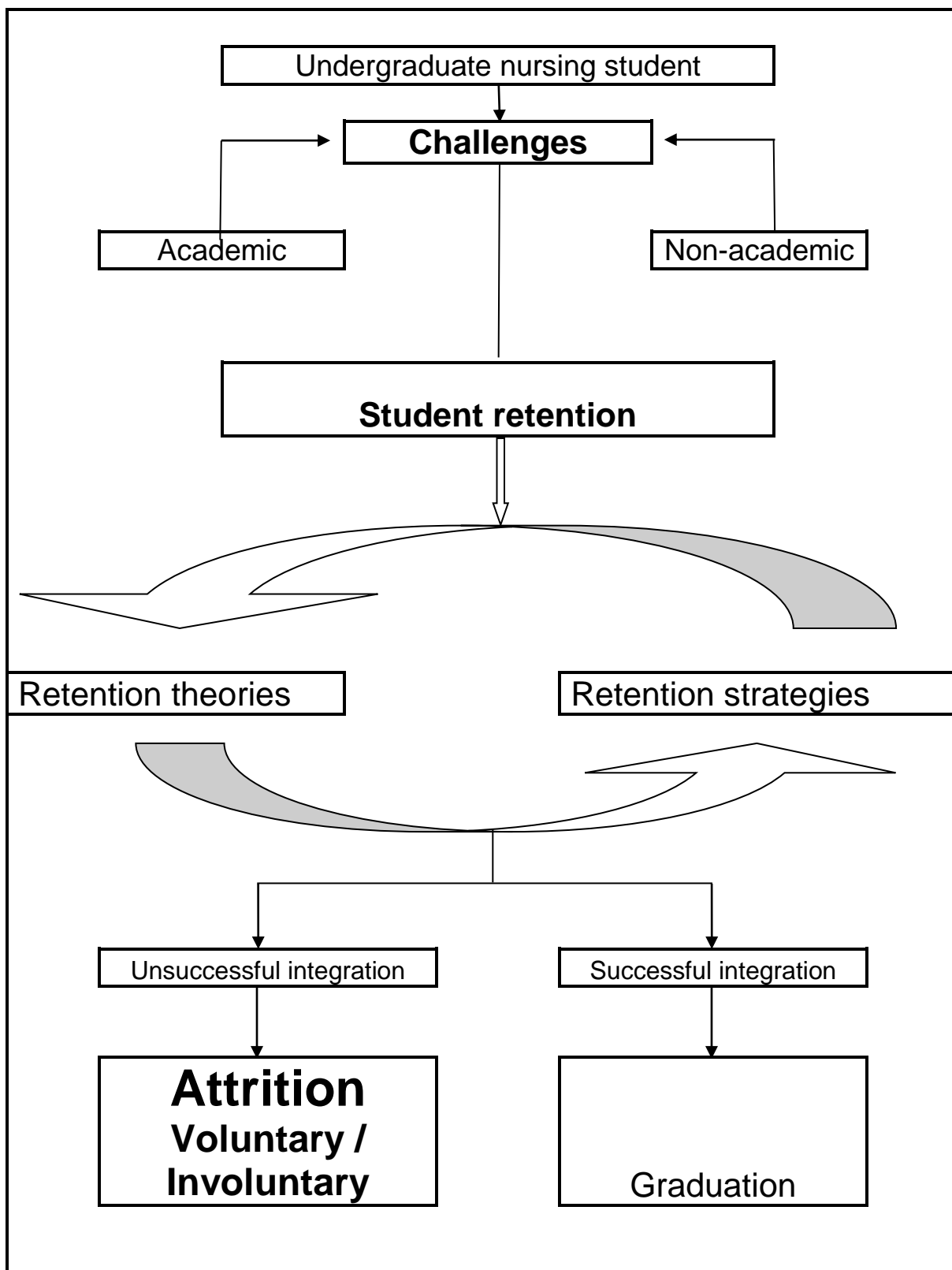


FIGURE 1.2: Undergraduate nursing student attrition and retention framework

The research methodology for the study will be briefly described in the following section 1.6 to section 1.12. A broad description of the research methodology will follow in chapter three.

1.6 RESEARCH DESIGN

The area of interest identified was the attrition rate among undergraduate nursing students and the factors that influenced the former nursing students to discontinue their studies. Information was gathered to explore and understand the phenomenon of attrition in selected South African universities by means of a descriptive quantitative research design (Botma, Greeff, Mulaudzi & Wright, 2010:110; Brink, van der Walt & van Rensburg, 2012:113; Polit & Beck, 2012:226; Grove, Burns & Gray, 2013:43). This design furthermore assisted the researcher to follow logical sequential steps to reach the aim and objectives of this study.

1.7 STUDY POPULATION

The individuals who provided the information that answered the research question were identified and chosen by the researcher. For this study two populations were identified. Study Population One included the universities offering a nursing programme leading to a Baccalaureate Degree in Nursing, and Study Population Two included those students who discontinued the undergraduate nursing programme at these universities during any of their four years of study starting from 2007 to 2012.

Due to cost and time restraints it was not possible to include all the universities offering a nursing programme, neither all the former nursing students who discontinued their studies at these universities. Therefore clear inclusion criteria were set to determine the accessible and target populations (Brink *et al.*, 2012:131; Polit & Beck, 2012:274).

The sampling process, the research technique and data collection for the two study populations will be discussed separately in the following sections.

1.7.1 Study Population One: Universities

1.7.1.1 Sampling

A purposive sampling method was used to select participants for Study Population One: Universities offering a nursing programme. These universities were selected according to the inclusion criteria that will be discussed in chapter three, section 3.5.1.

The sample included all the selected universities meeting the inclusion criteria, and was determined by the responses received from them (Botma *et al.*, 2010:123; Brink *et al.*, 2012:139; Polit & Beck, 2012:279).

1.7.1.2 Research technique

The data collected from Study Population One: Universities was by means of a survey technique, specifically by a questionnaire (see Addendum 14 & 15). The questionnaire was newly designed and consisted of 17 items. These items were structured to identify the various Universities' selection criteria, determined the intake and attrition rates for a selected period of time, defined the reasons for the attrition (as identified by the universities) and collected the contact information of the nursing students who discontinued their undergraduate nursing programme.

1.7.1.3 Data collection

The questionnaire used to collect the data from Study Population One: Universities was e-mailed as an attachment to the Heads of the Nursing Educational Institutions who previously indicated a willingness to participate. The e-mail outlined the aim of the study, anonymity and voluntary participation. The participants were ensured they would be allowed to withdraw at any time during the study without providing any reason for this decision. It furthermore indicated the approximate time to complete the questionnaire once all the information was gathered. Thereafter the participants were reminded with three consecutive emails to increase a slow response rate (Polit

& Beck, 2012:311). The survey was closed after a three month period from receiving the questionnaire.

1.7.2 Study Population Two: Former nursing students

1.7.2.1 Sampling

As discussed in section 1.7, it was not feasible to use all the former nursing students who have discontinued their studies in undergraduate nursing programmes. Therefore the inclusion criteria for study population two were decided on. These inclusion criteria will be broadly described in chapter three, section 3.6.1.

The study population (nursing students) was selected through non-probability convenience sampling from those former nursing students who met the selection criteria, who were available and could be reached telephonically. The sample for study population two included those former nursing students who responded to the telephonic interview and agreed to participate (Botma *et al.*, 2010:124; Polit & Beck, 2012:276).

1.7.2.2 Research technique

The research technique to obtain the data from Study Population Two was a structured telephonic interview. The newly developed interview guide (see Addendum 16) consisted of 20 question items to gather general and demographic information, the year the former nursing student started the study, when he / she discontinued from the nursing programme, whether the former nursing student received a bursary or not, the social integration of the former nursing student, the reasons why the former nursing student decided to discontinue the nursing programme, and lastly any intervention that could have assisted the former nursing student in continuing with the nursing programme.

1.7.2.3 Data collection

During phase one of this study, information was collected from the selected universities. Upon receiving the names and contact information of the applicable former nursing students, phase two – the structured telephonic interview was initiated.

At the start of the telephonic interview the aim of the study and the reason for the former nursing student's involvement, as well as anonymity and voluntary participation was explained. After consent was explained, obtained and indicated, the willing participant was reminded that he / she was allowed to withdraw at any time during the interview without providing any reason. The interviewer then started at the top of the interview guide and marked answers as provided by the participant nursing student. The open-ended answers were written down as concisely as possible.

1.8 PILOT STUDY

A pilot study was conducted at one of the universities included in the study, using former undergraduate nursing students from the university. The pilot study was conducted using an intake year prior to the ones included in the actual study. The participants were selected according to the inclusion criteria previously discussed. Any problems encountered while conducting the pilot study was used to adjust the final questionnaire and the structured interview guide (Polit & Beck, 2012:195, Grove, *et al.*, 2013:46).

1.9 DATA ANALYSIS

By means of descriptive statistics, viz. averages and standard deviations or medians and percentiles for continuous data, and frequencies and percentages for categorical data, will be computed during data analysis.

The data will be analysed with the assistance of the indicated statistician at the Department of Biostatistics at the University of the Free State.

1.10 RELIABILITY

In this study two aspects of reliability were adhered to, namely stability and homogeneity. Stability of the research instrument was ensured by allocating the set period of three months for study population one to answer the questionnaire. Only thereafter did the researcher contact the participants of study population two to complete the answers on the structured interview guide. The interviews continued for a period of one month (Grove, *et al.*, 2004:389).

Homogeneity ensured that all the items of the research instrument consistently measured the same variable (Botma *et al.*, 2010:177; Brink *et al.*, 2012:170). In this study, the variable under scrutiny is the prevalence of attrition and the reasons for it. The questions on both research instruments only focussed on attrition and the reasons thereof.

1.11 VALIDITY

Validity of a research design was measured with internal and external validity. This research design is a non-experimental design, where no variables were manipulated. However, sampling bias could be a threat to internal validity, for which the researcher used the inclusion criteria when selecting participants for this study (Botma *et al.*, 2010:175; Brink *et al.*, 2012:134).

External validity is the degree to which findings could be generalised to other people or settings. In this study, former undergraduate nursing students from different sites were invited to participate. Generalisation could also be ensured by the design, whereby the sample was representative of the whole study population (Botma *et al.*, 2010:77; Brink *et al.*, 2012:111).

A questionnaire and structured interview guide were used as the tools to gather the information. As a means to ensure face and content validity, both instruments were evaluated by an Evaluation Committee of the Nursing Educational Institution at the University of the Free State, before the pilot study was conducted. Content validity was further enhanced by the literature review.

1.12 ETHICAL CONSIDERATIONS

This research was guided by ethical actions, which included the submission and approval of the research proposal to an Evaluation Committee of the Nursing Educational Institution at the University of the Free State. Thereafter it was submitted for approval to the Ethical Committee of the Faculty of Health Science of the University of the Free State. From there the proposal was submitted to the Ethical Committees of the selected universities, when this was a requirement (see Addendums 1 – 5). Only then was the research conducted.

In this study, the following three ethical principles was applied, namely respect for persons, beneficence and justice (Botma *et al.*, 2010:3).

Respect for persons was provided by allowing participants to decide willingly whether they want to participate or not. They received the required information and provided either written or verbal consent (see Addendum 6 – 10).

This study was a non-experimental analysis and no harm to the participants was expected. The principle of beneficence was adhered to by treating all the participants with fairness and by being constantly aware of any discomfort that might possibly be caused (Botma *et al.*, 2010:3; Brink *et al.*, 2012:35).

The researcher protected the identity of the participants by providing each participant questionnaire and interview guide with a code. Only this code was used when discussing the information and not the participant's name. The lists with the names and telephone numbers of the former nursing students were kept in the researcher's office in a locked cabinet and will be destroyed after a five year clearing period.

1.13 VALUE OF THE STUDY

The study should determine the incidence of attrition among undergraduate nursing students from selected South African universities, and identify factors leading to the attrition. This information can be used to make recommendations to decrease attrition rates among undergraduate nursing students and to improve the throughput

rate. This can possibly increase the production rate of registered nurses with a degree qualification and assist in alleviating the present and future shortage of this professional skill.

In the next chapter, attention will be given to the reasons why attrition takes place in undergraduate nursing studies.

CHAPTER 2

Literature review

2.1 INTRODUCTION

In this chapter the phenomenon of attrition will be reviewed to provide the background and possible reasons why undergraduate nursing students leave nursing programmes. As can be expected, the literature on attrition is closely linked to theories on student retention. Some of these theories will be discussed to provide a framework for retention strategies that are used in undergraduate nursing programmes. The chapter will therefore conclude with some suggested retention strategies from the literature to improve throughput in undergraduate nursing programmes, which might be of assistance in the retention of undergraduate nursing students.

2.2 ATTRITION

The primary goal of higher education is to assist the student in developing high and higher-middle level skills and gaining the knowledge to practice their profession autonomously and independently after graduation (Dearnley & Matthew, 2007:378; Badat *et al.*, 2009:6). Some students accomplish graduation despite the challenges they encounter during higher education. However, a number of students are not able to overcome these challenges and will discontinue the undergraduate programme before graduation.

During the late 1960s attrition of students from educational programmes and strategies to retain these students in the programmes became topics of interest in higher education. Specific research into attrition started within the sociological domain in the 1970s, distinguishing between the behaviour of the students who left and the students who stayed. Blame for attrition was placed on the unsuccessful student, rather than any other influence (Tinto, 2006:2). Towards the 1980s, socio-psychological approaches changed the previous theory, taking into account the

influence of the higher educational institution itself on a student's development, retention or attrition. This approach furthermore placed emphasis on the degree of integration by the student within the academic environment as a method to determine success or failure to complete the educational programme (*ibid.*, :2; Wilmer, 2009:56). An important discovery was the influence of the educator on a student's decision to stay or leave, especially during the first year of study (Tinto, 2006:1-4).

During the 1990s, the influence of the declining economy became a topic of interest. The effect of the continuing global economic crisis resulted in declining governmental funding and weaker value of endowments available for higher education, causing the tuition fees paid by the student or parents of the student to increase to such an extent that family income was outpaced (Eger & Rudra, 2013:28; Deloitte, 2011: Online). This forced students in America to choose cheaper options for their further education than the programmes offered at universities, (Bradley, 2011:7; Chea, 2011:7) or being part-time employed while being a full-time student (Pascarella, 2006:512). In the United Kingdom, potential students claim they would not be able to attend a higher educational institution, should fees continue to rise as presently experienced (Allen, 2012:48). From 1987 to 2003 tuition fees at South African universities have increased with 49% (De Villiers & Nieuwoudt, 2010: Online; Wangenge-Ouma, 2012:835), forcing students to rely increasingly on the university subsidy paid by the taxpayer, funding from philanthropic groups, student loans or bursaries. Although most governments support underprivileged students financially, the loans and bursaries have not kept pace with the sharp increase in tuition fees, thus making higher education unaffordable for many students or forcing undergraduate students to discontinue an undergraduate educational programme (Badat *et al.*, 2009:18; De Villiers & Nieuwoudt, 2010: Online; Mdepa & Tshiwula, 2012:25).

The rise in tuition fees has the potential to decrease the number of students entering the higher education arena. Therefore, to ensure adequate student numbers, participation in higher education has changed from a privileged, closed access to a universal, open access. This open access allows the non-traditional student to enter the higher educational system, thus diversifying the cultural characteristics of students (Pascarella, 2006:512). In the nineties, the diverse cultural characteristics

of students became a second topic of interest to educationalists (Bean [n.d.]: Online).

The traditional characteristics of an undergraduate student have changed from young, single and predominantly male to an older, mature student with complex family responsibilities, as well as being employed part-time (Pascarella, 2006:512, Park, Perry & Edwards, 2011:38). Even students of different genders, from racial minorities or previously disadvantaged groups now have equal access to higher education (Jeffreys, 2004:7). In 1996, post-apartheid policies in South Africa opened access to all previously disadvantaged racial groups to enrol at any university. By 2008 75% of all enrolments were by non-traditional black students. This action changed the traditional characteristics of the undergraduate student in South Africa to include all races, genders and even disabilities (Mdepa & Tshiwula, 2012:22).

Attrition itself is defined as the departure of a student from an academic programme before graduation (Park *et al.*, 2011:39), based either on an involuntary or a voluntary decision. Involuntary attrition includes the termination of a student's placement in an undergraduate programme for academic reasons, such as failure to meet the minimum academic requirements of the university. Voluntary attrition includes self-termination by the student from an undergraduate programme for personal or non-academic reasons (Jeffreys, 2004:8). The definitions of involuntary attrition and voluntary attrition are not often used in the literature, therefore the definition "academic reason(s)" will be used to discuss issues regarding involuntary attrition and "non-academic reason(s)" will be used to discuss voluntary attrition.

A definition commonly used in literature for not completing a higher educational programme is "drop-out". This term can also refer to a person not behaving according to accepted society norms (Pocock, 2012:2). To ensure no negative connotation is attached to the phenomenon, it was decided to use the definition of "attrition" in this study.

None of the above definitions indicates all the reasons why students leave an educational programme. It should also be considered that most students rarely leave for a single reason, thus supporting the fact that multiple factors contribute to a student's decision to leave (Cameron *et al.*, 2010:1373).

Reasons why nursing students decide to leave an undergraduate nursing programme mirror the reasons why students from other educational programmes leave (Taylor, 2005:367). Valuable information regarding the reasons why nursing students discontinue the undergraduate programme can be obtained with an exit interview. The reasons can be recorded, rated and categorised to maintain a data base for future use and planning (Glossop, 2002:377; Ascend Learning, 2012: Online). The main reasons seem to indicate various factors contributing to academic difficulty, and certain non-academic related factors (Taylor, 2005:369; Mulholland, Anionwu, Atkins, Tappern & Franks, 2008:51).

2.2.1 Academic factors

Failure to succeed academically is one of the main reasons why nursing students leave an undergraduate nursing programme (Prymachuk *et al.*, 2008:151; O'Holloran, 2009: Online). Various factors can contribute to a student not achieving academic success, for example the personal attributes and behavioural styles of a student as an individual, the specific learning styles of the student and the teaching styles of the educator, unpreparedness for higher education, not receiving an education in the mother tongue, and clinical placement difficulties (Wright & Maree, 2007:597; Cameron *et al.*, 2010:1373; Park *et al.*, 2011:38).

2.2.1.1 Personal attributes and behavioural styles

Research has shown that positive personal attributes, such as being self-efficient, determined and committed, assist students in persisting with their studies, should a challenge occur. The personal attributes of the individual student that most likely contribute to achieving good previous academic results in itself is a strong motivation to succeed at higher academic levels. Studies regarding this factor universally showed that the better the previous academic achievements were, the more likely

the student will persist in current studies (Prymachuk *et al.*, 2008:157; Park *et al.*, 2011:38).

Furthermore, nursing students who portrayed good critical thinking skills fare better academically, as well as during clinical placements. Behavioural skills that can influence academic performances include high levels of anxiety and lack of support-seeking skills. A nursing student that portrays high levels of anxiety when being assessed contributes to more errors being made and subsequently not achieving success. Various studies furthermore indicate a nursing student that is able to seek support when experiencing a challenge was more determined to complete an undergraduate nursing programme. The significance of the nurse educator and peer support with reaching theoretical and clinical outcomes is highlighted by interviews conducted with nursing students who considered withdrawal from a nursing programme in the United Kingdom (Pitt *et al.*, 2012:907).

2.2.1.2 *Learning and teaching styles*

Each student has individual learning styles, using visual, auditory or tactile senses. Matching the individual learning style of a student to the specific teaching style of an educator is not always possible. The inability of a student to adapt to the specific educator's teaching style can cause students to leave an educational programme (Park *et al.*, 2011:40). Furthermore, students in higher education need to be able to study independently and take responsibility for their own learning as they are now adult learners. If a student is not able to adapt to this independence, it can negatively impact on succeeding academically (Mckendry, Wright & Stevenson, 2014:875).

2.2.1.3 *Unpreparedness for higher education*

A major factor influencing academic performances in the South African educational context seems to be a consequence of the racially segregated schools of the past regime. Although all schools reside under the Department of Education from 1994, students from poorer social backgrounds do not have the same opportunities as the students from better educational environments (Mc Lachlan, 2010: Online). Consequently, unpreparedness for higher educational studies contributes to students

not completing educational programmes (Mashaba & Mhlongo, 1995:365; Badat *et al.*, 2009:5; Mdepa & Tshiwula, 2012:26).

2.2.1.4 *Receiving education in a language other than the mother tongue*

A further factor contributing to the poor academic performances of undergraduate nursing students seems to be receiving an education in a language other than their mother tongue (Wright & Maree, 2007:601; Mc Lachlan, 2010: Online).

The preferred language for all education in South Africa remains English (Klopper & Uys, 2013:275) or Afrikaans, neither of which is the mother tongue of most nursing students. For these nursing students it is therefore more difficult to comprehend certain concepts and to translate their understanding of the learned modules successfully (Mc Lachlan, 2010: Online; Mdepa & Tshiwula, 2012:26). A study described by the *Rural Education Access Programme* (REAP) in 2008 stated that undergraduate students from all racial groups reported difficulty in studying in second and third languages (REAP, 2008: Online). Studies conducted in the United Kingdom too found that students speaking English as a second language were more likely to leave undergraduate nursing programmes. One possible explanation was that these students experienced academic difficulties due to their language problems (Prymachuk *et al.*, 2008:157).

2.2.1.5 *Clinical environment difficulties*

Specifically in the case of nursing students, another factor that contributes to the decision to leave the nursing programme is an inability to reach the required practical outcomes, especially in combination with pressure from the clinical practice in the clinical environment. The first clinical placement and the nursing student's experience within the first area of placement can play a major role in the student's decision to leave a nursing programme (Airey, 2012:310).

Dire staff shortages can negatively impact on the experience of the nursing student in the clinical placement and the expected clinical outcomes the nursing student must reach. Not enough qualified personnel to assist the nursing students to obtain new skills, adopt new behaviours and acquire new attitudes cause the nursing student to fear clinical assessments as they were not adequately prepared to reach competency in the clinical learning outcomes (Huybrecht *et al.*, 2011:275; Stevenson, 2014:para. 4).

As will be more broadly discussed in section 2.2.2.2 conflict with qualified nurses, verbal abuse and personality conflicts with the clinical preceptor can result in dissatisfaction with the clinical environment (Frazer *et al.*, 2014:1105).

A nursing student, who is not self-efficient, determined and committed, might not be as able to balance a large educational workload and time, and adjust effectively to rotational placement in a clinical facility. Such a nursing student would find it more difficult to successfully adjust to the demands of higher education and is therefore more likely to leave the undergraduate nursing programme (Tinto, 2006:2; Fowler & Norrie, 2009:1198; O'Donnell, 2011:55).

2.2.2 Non-academic factors

The second main category of factors influencing a nursing student to leave the undergraduate nursing programme includes non-academic factors. Non-academic factors that seem to most influence undergraduate nursing students to discontinue a nursing programme include the lack of financial support, poor wellness and health on admission and during the programme, wrong career choices, and two demographic factors, namely age and gender.

2.2.2.1 Financial support

Lack of financial support plays an important role in a nursing student's decision to leave an academic programme. This occurs more often if the nursing student is older and has dependants (Lewis, 2010:59). A high incidence of attrition is also seen among undergraduate nursing students who are not hospital employees, who do not receive a salary and are therefore totally dependent on grants, or their parents for financial support (O'Regan, 2005:17; Fowler & Norrie, 2009:1198; Mc Lachlan, 2010: Online). These students are mostly first generation students and their parents are often not in a position to offer the continually needed financial support (Mashaba & Mhlongo, 1995:365; Cameron *et al.*, 2010:1373).

Financial burden adds stress and anxiety to a nursing student's workload, often resulting in poor academic achievement. Nursing students who cannot afford to stay on campus have the added stress of being reliant on public transport, which is often expensive and unreliable (Mc Lachlan, 2010: Online). Due to specific training bursaries that are sometimes offered, students will choose nursing in order to support their families. These students are not motivated to stay on the nursing programme, complete their studies and discontinue the undergraduate nursing programme early when things go wrong (Mc Lachlan, 2010: Online). It would seem rural-based undergraduate nursing students are most vulnerable due to the scarcity of financial resources available to them. Nursing students often come from poorer communities (Pillay & Ngcobo, 2010:234).

2.2.2.2 Wellness and health on admission and during the study period

Nursing is the art of caring for a patient holistically. This is achieved by taking a patient's physical, emotional, cultural and spiritual needs into consideration. Not only is the wellness and health of patients important, but also that of the nurse and nursing student. Although there is currently no research to indicate a relationship between physical and emotional wellness and academic performance, there are indications of the importance of wellness and health on achieving academic success (Van Lingen *et al.*, 2011:405). Despite being taught health promoting strategies as

part of a nursing curriculum, nursing students often tend to have unhealthy behaviours themselves. Research reveals nursing students are often physically inactive, follow unhealthy diets, smoke and on occasion consume excessive amounts of alcohol. These unhealthy behaviours affect their physical and emotional wellness and health. An undergraduate nursing student seems to be specially vulnerable due to the varied academic and clinical workload, increasing financial burden as well as the current developmental level the student might find him / herself in (Pillay & Ngcobo, 2010:234; Bryer, Cherkins & Raman, 2013:410).

It has furthermore been noted that a high academic workload together with the high demands of clinical practice can cause stress levels to rise continually and subsequently causes more rapid burnout of nursing students. Due to the clinical components of the undergraduate nursing curricula, nursing students have less time to study, further contributing to the stress levels (Deary, Watson & Hogston, 2003:78; Cook, 2010:12; Pulido-Martos, Augusto-Landa & Lopez-Zafra, 2011:15; Baker, 2012:37). Nursing students enrolled in nursing programmes in the United Kingdom reported that conflict with qualified nurses, lack of support and inadequate preparation for what the clinical environment entails, were the main reasons for stress and subsequent burnout (O'Regan, 2005:18; Pulido-Martos *et al.*, 2011:21).

Research reveals a high occurrence of verbal abuse among nurses and that it is especially the younger nurses and nursing students who are targeted. This disruptive behaviour places added stress on the nursing student, resulting in dissatisfaction with the clinical placement area and an inability to reach expected clinical outcomes, ending in attrition (Budin, Brewer, Chao & Kovner, 2013:309).

2.2.2.3 Wrong career choice

Nursing students from South Africa, Ireland and United Kingdom have reported that they had not known what the nursing profession entailed before entering the programme and therefore made wrong career choices (Wright & Maree, 2007:597; O'Holloran, 2009: Online; Cook, 2010:12; O'Donnell, 2011:58). This is mainly due to the misrepresentation portrayed by society that nurses are trained vocationally and do not need complex knowledge. Not all prospective nursing students are informed of the intensity of the different undergraduate nursing programmes beforehand and

when any difficulty is experienced, it becomes another cause to leave the programme (O'Donnell, 2011:55). Once the nursing student enters the reality of the clinical environment itself, disillusionment regarding the nursing profession can occur as well. Although nursing might be the student's first choice of career, poor working conditions and remuneration packages, limited career opportunities and subordination to medical doctors cause the nursing student to lose interest and discontinue the programme (Wright & Maree, 2007;597).

2.2.2.4 Demographic factors

Specific demographic factors that impact significantly on a nursing student's academic success include age and gender. Studies have found that older students academically perform better than do younger students. A possible explanation is that an older student is often more motivated and committed to succeed due to previous experiences or failures (Prymachuk *et al.*, 2008:157). Gender is a strong indicator for attrition. Males tend to leave the nursing programmes twice more often than do females (Mc Lachlan, 2010: Online; Pitt *et al.*, 2012:906).

Any study of attrition should be closely linked to strategies to retain students in educational programmes and to assist them to successfully complete the course and graduate. It must be taken into account that not all the reasons why a student leaves would be addressed by strategies that a university could try to implement. Rather, it is more important to recognize possible problems early on and address these as best as possible.

2.3 STUDENT RETENTION

A major challenge in higher education is to balance expanding enrolment numbers, diverse student characteristics, increasing high fees for higher education as well as the retention of students in undergraduate programmes. Not only are there aspects of educational failure and great financial implications involved, but also an increasing pressure to produce a highly educated workforce to sustain the global economy (Angelino *et al.*, 2007:2; Letseka & Maile, 2008:5; De Villiers & Nieuwoudt, 2010: Online; Bradley, 2011:7; Klopper & Uys, 2013:13). Comparison of graduation and attrition rates is used as an important quality assurance tool within higher education

facilities (O'Donnell, 2011:55), and high attrition rates can be seen as a failure by the university to reach its primary goal (Bean, [n.d.]: Online).

Attrition rates between 35% and 44% have been reported since the 1990s by universities in America, Canada, the United Kingdom and Australasia (Thelin, 2010: Online; Pocock, 2012:2). The concern is that despite strategies to improve quality in higher educational institutions, the attrition rate remains alarmingly high. In 2012, a feasibility study reported by the Organisation for Economic Co-operation and Development (OECD), found that an average of 31% of students entering higher education, fail to graduate. Furthermore, there is a concern regarding the time lost on repeating programmes with no assurance that policies to improve quality in higher education are having the desired effect (Tremblay, Lalancette & Roseveare, 2012:31).

High attrition rates seem to persistently plague higher education in South Africa. The graduation rate from universities is not reaching the goal of 75%-80% set by the South African Department of Education (Bunting, 2004:22; Badat *et al.*, 2009:10). In 2007 a graduation rate of 44% was reported (South Africa, CHE, 2007: Online) and by 2009 only a 2% increase had been noted (Strydom, Mentz & Kuh, 2010: Online). Of great concern is the attrition rate of 48% of students receiving financial assistance through the National Student Financial Aid Scheme (Wangenge-Ouma, 2012:834), as well as the attrition rate of non-traditional Black students, that is still double that of traditional White students (South Africa, CHE, 2007: Online; Letseke & Maile, 2008:1; Badat *et al.*, 2009:11; Wangenge-Ouma, 2012:833). This has a devastating effect on providing the much needed diversely educated workforce to sustain the financial wellbeing of South Africa.

As mentioned previously, the phenomenon of attrition is closely linked to theories on student retention and strategies to improve the throughput of students on educational programmes.

2.3.1 Theories and models on student retention

One of the most prominent theories on student retention is that of Alexander Astin, which focuses on the student's involvement with the academic environment (Wilmer, 2009:55). The second prominent theory is Tinto's theory on student departure due to a lack of integration within the academic environment (Tinto, 2006:3; Wilmer, 2009:55). Additionally, Bean and Eaton's theory on academic and social integration adds an important third and fourth theory, thought to be of great significance (Bean & Eaton, 2001 - 2002:74). These theories are based on models representing attrition and retention within the higher education setting, as presented by the authors. Each of these theories will be discussed shortly, to provide the background for strategies already in use to retain undergraduate nursing students.

Alexander Astin claims that the higher educational environment has an effect on the academic and personal development of a student. This will eventually influence the student's overall satisfaction in the choice of the university and the outcome of the study. His research has shown that the more involved a student is in the learning experience, the better the academic outcome. Students gained not only general knowledge, but also developed their critical thinking, and problem-solving skills as well as an ability to write (Astin, 1993:6).

An important discovery during Alexander Astin's research is the powerful influence that the peer group has on the student's learning outcomes and personal development. It would seem that group discussions and working together on group projects had a positive effect on the study outcomes. Social involvement with the peer group, such as sporting events, being part of a social fellowship and socialising in student clubs or organisations, increased participation with their peers and eventually increased the participation in academic events (*ibid.*, :7).

A second factor that influenced an undergraduate student's development is the level of involvement of the educator with a student. It would seem to assist with the student's intellectual and personal growth, cultural understanding and involvement in environmental care programmes. While working with the educator, a student not only contributes to the general pool of knowledge, but also interacts with the educator. Positive interaction leads to students who would willingly assist other students with

academic challenges (*ibid.*, :10). It would seem that the more involved a student was in the activities on campus, the more likely he / she would be to develop a support system that would motivate other students to persist in their studies (Astin, 1999:522; Wilmer, 2009:55).

The second model on student retention is that of Vincent Tinto, with regard to the integration of the student into the higher educational setting. This study was initially based on the research of William Spady, identifying suicidal behaviour and drop-out rate in a course as a personal inability to integrate and adapt to a new system (Tinto, 2006:2). In later models, Tinto supported the concept of Arnold van Gennep, namely that Rites of Passage are important. He believed that attrition was caused by the student's inability to cope with transitioning from high school to university life, combined with a lack of self-motivation.

According to the Rites of Passage, a student's degree of transition and lack of self-motivation is firstly influenced by prior academic experiences. The more positive the previous academic experiences, the more involved the student will be in the future educational programme. This level of involvement will determine the degree of successful transitioning. Secondly, the aspirations of the student, the individual goals set by the student and the motivation to reach these goals influence the student to adapt to a new environment, as well as persist and reach graduation. Thirdly, the more positively the student experiences the transition into the university, the more motivated that student will be to complete his studies. Fourthly, external commitments such as family responsibilities, economic factors and any added efforts the student has to make while at the university, greatly influence the commitment positively or negatively to complete their studies. Lastly, academic and social integration during the various years of study form the student's perceptions of the study experience and can influence the commitment to complete the intended studies (Tinto, 1975:96-98; Hald [n.d.]: Online).

It was only during the 1970s that the viewpoint changed that only the student was to blame for any failures, when the role that the institution plays in student attrition was investigated and formalized (Tinto, 2006:3). The model, however, did not take into consideration the effects of factors outside the institution namely lack of finances and the influences of peers (Cook, 2010:21).

The third theory of importance is that of John Bean and Shevawn Eaton (Bean & Eaton, 2001 - 2002:74). It was preceded by the development of a conceptual model of outside factors impacting on a student's decision to leave an academic programme. These outside factors were classified as academic, social-psychological and environmental factors. An important theory postulated from the results of the study confirmed that successful social integration has a major influence on a student's decision to complete an academic programme. The second discovery was that fellow students have even a greater influence on a student's decision to stay than the educator (Cook, 2010:23).

Although integration is also the basis for the fourth model to follow, it proposes four coping theories that lead to the academic and social integration that would assist a student to persist in study. This includes the attitude behavioural theory, the coping behavioural theory, the self-efficiency theory and the attribution theory. In this work, the authors claim that if a student has a positive attitude towards the university, he / she will find some coping mechanism that allows him / her to adapt and fit into the institutional environment. Secondly, if students have high levels of self-confidence and can handle criticism positively, they are more likely to persist. Lastly, the authors theorised that a student who can manage the outcome of any given situation in a positive manner, is more likely to persist and complete his / her studies (Bean & Eaton, 2001 - 2002:77).

A review of the theories discussed above makes it clear that the reasons why students do not complete their studies are complex, and that no single reason contributes to this decision. Various characteristics of the student himself or herself play a role in persistence, as well as the level of adaption to the university environment. Seemingly, the assistance of the faculty members, and those retention strategies that are already developed at university level are quite important factors in the final decision the student will make. It would thus seem that theories on student retention are very closely linked to any strategies to enhance the student's successful graduation.

2.3.2 Retention strategies

As has been indicated, various strategies have already been developed and implemented by universities as a means to retain nursing students in their undergraduate nursing programmes. There is a tendency to scrutinise two groups of students, namely the group of students who stayed to complete their studies, and the group of students that did not complete their studies. Students who stay in a course often also experience difficulties throughout the course. However, they have found ways to overcome this and to complete their studies. It is important to note that if students can successfully be persuaded to stay rather than to leave, the methods of identifying the at-risk students and the type of assistance required and offered to them become more important (Cameron *et al.*, 2010:1374).

Retention strategies that have proved to be beneficial include the setting of selection criteria, academic and clinical support services to the at-risk student, finding financial assistance and joining wellness programmes (Jeffreys, 2004:9; Williams, 2010:363).

2.3.2.1 Selection criteria

Admission to a nursing programme begins with meeting the selection criteria as determined by an individual university and each academic programme. This is done to select the best possible candidates for the programme in order to ensure successful graduation, irrespective of the open access to higher education, fewer educators and less positive clinical environments encountered later (Schmidt & MacWilliams, 2011:171). When the selection process begins, prospective candidates who meet the selection criteria are offered a place in the programme. Some of the most successful selection criteria to select nursing students described in the literature include pre-entry level test scores, personal interviews, personality profile type testing, wellness and health questionnaires and previous academic performance(s) calculated by grade point averages (Newton & Moore, 2009:274; Schmidt & MacWilliams, 2011:171), also known as admission point score in South Africa (University of Fort Hare, [n.d.]: Online).

To be selected for an undergraduate nursing programme at a South African university, the prospective student must have obtained a National Senior Certificate during basic education, a minimum of 30% in the teaching language at the Higher Educational Institution, as well as achieved specific levels of academic performances in designated subjects (South Africa, DoE, 2008:8; South Africa, DoHE, [n.d.]: Online).

2.3.2.1.1 Pre-entry level testing

Pre-entry level test scores are used as an entry requirement in most undergraduate nursing programmes. The results of application tests determine a student's competency to do a certain type of work, at a specified level. The results of the tests are a strong predictor of a student's future academic success and correct career choice (*ibid.*, : Online). In South Africa, the pre-entry test to higher education is known as a National Benchmark Test (NBT). The purpose of this testing is to determine a student's readiness for academic studies at a higher education facility and to advise the higher educational institution of the type of academic support students might need to be successful in their studies (National Benchmark Tests [n.d.]: Online). It has also been suggested that background tests, references and personal interviews be included in selecting appropriate candidates, in combination with open information days held at universities (Keeling, 2009:61).

2.3.2.1.2 Personal interviews

Personal interviews are conducted to determine those non-academic factors, personal characteristics and behavioural skills not portrayed on the application form that could influence a nursing student's successful completion of an undergraduate programme (Schmidt & MacWilliams, 2011:173). Furthermore, a prospective candidate's real understanding of what the nursing profession entails can be determined. Any misunderstandings can be clarified immediately, ensuring a better completion rate (Airey, 2012:310). As mentioned in section 2.2.2.3, nursing students often discontinue an undergraduate nursing programme once they realize precisely what the nursing profession entails. The information available to the prospective candidate should include practical nursing information as expected salaries,

employee benefits, working conditions and career opportunities once qualified (Hayes, 2007:261).

2.3.2.1.3 Personality profiling

Due to the unique nature of the nursing profession, it is beneficial to determine the prospective candidate's personal profile type before selecting the applicant (Baldacchino & Galea, 2012:419). Knowledge of the type of personality of the applicant is not only beneficial to choose an appropriate candidate for the profession, but also to ensure a successful nursing student, who will be able to qualify, register and join the nursing profession.

Researchers have found that nursing students with higher neuroticism personality scores are more likely to discontinue courses, as they tend to be impulsive, apathetic and emotionally cold. They have a tendency not to make an effort to succeed and mostly have poor performance. This personality trait does not allow empathy or a desire to care, thus such persons are not good candidates for the nursing profession, which is essentially a caring profession (McLaughlin *et al.*, 2007:217; Baldacchino & Galea, 2012:419; Pitt *et al.*, 2012:908). Behavioural factors such as portraying high levels of anxiety and inability to seek support can furthermore influence a nursing student to not succeed academically and is thus more likely to discontinue the undergraduate nursing programme (*ibid.*, 2012:908).

Studies have also found that students with strong self-efficiency traits, open mindedness, who are truthful and conscientious, are more likely to persist, as they have more self-confidence. This is a positive personality trait for nursing students, as these students tend to take control of their own learning and development (Dearnley & Matthew, 2007:390; McLaughlin *et al.*, 2007:218; Peterson, 2009:412; Cameron *et al.*, 2010:1378; Baldacchino & Galea, 2012:419).

2.3.2.1.4 Wellness and health questionnaires

Wellness and health questionnaires are included in a selection process to determine the actual physical and emotional wellness and health of a prospective nursing student before admission. The nursing profession requires an ability to perform certain physical tasks that can strain the musculo-skeletal system and any previous injuries must be noted to prevent further damage (Sorrentino & Remmert, 2012:247). A possible candidate portraying high levels of anxiety with not efficient stress-coping skills can come to poor wellness and health during the undergraduate nursing programme. The aim of determining the health status of the prospective candidate beforehand is not necessarily to exclude the candidate from the nursing programme, but to offer appropriate support to the nursing student should he / she finally enrol in the nursing programme (Pitt *et al.*, 2012:908).

2.3.2.1.5 Past academic performances

Various studies have further indicated that the use of past academic performances to assist in identifying an at-risk student is a valuable tool. Once the at-risk student is identified, strategies for academic support can be implemented (Peterson, 2009:412; Cameron *et al.*, 2010:1379). Past academic performances that should be taken into account to identify the at-risk student include secondary school achievements and pre-admission testing. Past academic performances are calculated by using a Grade Point Average. To gain entry into an academic programme at a South African university, a similar method is used to determine past academic performances. This method is known as Admission Point Score (APS) and point values are allocated to the level of achievement obtained for subjects at National Senior Certificate Level (University of Fort Hare, [n.d.]: Online).

Most studies have found that good former academic results and better pre-admission levels result in better performance during the nursing programme, and that these are one possible means to improve the through-put rate of undergraduate students (Pitt *et al.*, 2012:907). It is however, advisable to always use previous academic achievements in combination with pre-entry level tests, personality tests and personal interviews and not just as a single factor to determine admission to the undergraduate nursing programme (Schmidt & MacWilliams, 2011:171).

2.3.2.2 Academic and clinical support

Research has shown that key academic factors influencing nursing students to discontinue an undergraduate programme include an inability to reach theoretical and clinical outcomes (Taylor, 2005:369; Bowden, 2008:50; Williams, 2012:363). To provide the best possible support to an at-risk student, it is best to identify the student as soon as possible. The undergraduate nursing student most likely to need support is identified as first and second year nursing students (Mashaba & Mhlongo, 1995:372; Mc Lachlan, 2010: Online; Clover, 2011: Online) and the non-traditional student (Harris, Rosenberg & O'Rourke, 2014:31). In South Africa, the non-traditional student is seen as a student from a previously disadvantaged racial group, who was not adequately prepared for higher education and receives education in a language that is not the mother tongue of the student (Mc Lachlan, 2010: Online; Mdepa & Tshiwula, 2012:26).

The support services that could be beneficial to the at-risk nursing student seem to be various programmes of academic and clinical support.

2.3.2.2.1 Academic support

As discussed in section 2.2.1.3 undergraduate nursing students enter higher education academically unprepared, and that negatively impacts on some students achieving academic success. The identified at-risk nursing student benefits from academic support that involves more contact time per module (Baker, 2010:219; Roberts, 2011:195), and activities such as applying teaching skills in order to study, communicate, develop critical thinking skills and socialising with fellow-students (Cook, 2010:23; Igbo *et al.*, 2011:376). Added contact time furthermore allows a guided academic, social and professional integration process. The socialisation that occurs in the classroom and during added contact time might be the only area where an older nursing student with extended family responsibilities and who does not stay on campus has an opportunity for academic and social interaction. In addition the nurse educator assists the nursing student to develop as a professional by the example he / she sets during the interactions in the classroom. The much-needed academic and social integration that takes place (Al-Hussami, Saleh, Hayajneh,

Abdalkader & Mahadeen, 2011:321), supports the theories by Alexander Astin and Vincent Tinto of allowing time for undergraduate students to integrate into the academic and social milieu of higher education, as well as the important role the educator plays in developing the student to his / her full potential (Tinto, 1975:96-98; Hald [n.d.]: Online; Astin, 1999:522; Mckendry *et al.*, 2014:874).

From the wide variety of support programmes that have been implemented in the past, the success of an academic mentoring programme has been well documented (Bowden, 2008:54; Harris *et al.*, 2014:33). The involvement of the educator and fellow students in an academic support programme has proven to be successful in decreasing attrition rates and improving persistence. While an academic staff member facilitates the mentoring programme, the involvement of fellow-students provides a comfortable and safe team approach where the at-risk student can reach the necessary theoretical outcome. The study programme should be structured to continually increase personal motivation and improve academic results, as the mentored student voluntarily studies at more regular intervals (Fergy, Marks-Maran, Ooms, Shapcott & Burke, 2011:107; Robinson & Niemer, 2012:286; Harris *et al.*, 2014:33; Mckendry *et al.*, 2014:875).

The second type of programme that can assist an at-risk student challenged with academic inability to reach theoretical outcomes, is the enquiry-based learning programme. A learning programme is divided into modules and the students are allocated to a set group and nurse educator at the beginning of the programme. As the students or the group progress from one module to another, the nurse educator remains the same, thus gaining an overview of the student's academic abilities (Taylor, 2005:370). The nurse educator moves to the role of a facilitator who only intervenes when needed. Enquiry-based learning is very helpful to nursing students, as they need to identify problems in clinical practice. They must find their own means to fill knowledge gaps and to solve problems. This study method enhances collaboration between the students and becomes an essential life-skill for solving clinical problems in later practice. Furthermore enquiry-based learning seems to link theory to practice (*ibid.*, :371; Peace, 2012:361).

2.3.2.2.2 Clinical support

Not only is being part of a mentoring programme beneficial for the theoretical outcomes of the individual nursing student, but a mentor-support programme can also assist in reaching clinical outcomes in the broader undergraduate nursing programme. Mentored nursing students have reported that being part of a support team promotes professional accountability, communication skills, problem-solving skills and also assists the nurse practitioner in coping with any ambiguity in the clinical practice (Andersen, Strumpel, Fensom & Andrews, 2011:2). The assistance of a clinical preceptor has proven to play a key role in a student's decision to stay in, or leave a course (Airey, 2012:310; Cameron *et al.*, 2010:1379).

Added clinical support is reached by allocating the at-risk nursing student to one clinical preceptor only, as well as to the same working shifts. This will ensure a positive relationship to start and develop. During the placement in the nursing unit, time is allocated for the clinical preceptor and the nursing student to meet at regular time intervals to plan the learning that should take place, to give feedback on the progress of learning that took place and areas to improve. The at-risk nursing student must be offered the opportunity to ask questions and discuss difficulties he / she experienced, and under the guidance of the clinical preceptor develop plans to overcome these difficulties. The meeting stimulates reflection, a valuable learning skill to bridge the theory-practice gap and reduces anxiety experienced by some nursing students (Meyer, Naude & v Niekerk, 2004:81; Huybrecht, *et al.*, 2011:274; Jokelainen *et al.*, 2011:2860; Frazer *et al.*, 2014:1105).

Accompaniment by the nurse educator can be beneficial for any nursing student, but more so for the at-risk nursing student. The interaction with the nurse educator in the clinical environment can promote theory-practice integration (Meyer *et al.*, 2004:82) and professional socialisation outside the classroom. During the accompaniment the nurse educator can evaluate the nursing student's perception of the nursing profession and can accordingly adjust the educational experience to better support the nursing student to mature as a successful student (Al-Hussami *et al.*, 2011:320).

2.3.2.3 Financial assistance

A predominant factor influencing nursing students in leaving an undergraduate nursing programme, is the lack of finance to either enter the programme or to complete a course. Referring to sections 2.2 and 2.2.2.1, the steep increase in tuition fees over the past twenty years is forcing students to look at cheaper options rather than the undergraduate programmes offered at universities. This is mostly found among students from lower income families or older students with extended family responsibilities. Although a student can apply for a university bursary, the amount paid is not enough to pay for both studies and decent living arrangements. This forces the student to work temporarily in addition to studying, noticeably reducing study time (Gray, 2008:1; Badat *et al.*, 2009:12; Karstadt, 2009:345). The international tendency to move nursing training from the Department of Health to the Department of Education means that nursing students no longer have employee status and therefore are not remunerated. The South African Department of Health is proposing a funding model for nursing students to include support for tuition fees, textbooks and study materials, living costs, as well as medical aid and indemnity fees (South Africa, DoH, 2014:36). In light of the global shortage of nurses, it should aid in increasing the nursing student numbers, if adequate financial assistance could be found (Karstadt, 2010:663).

2.3.2.4 Wellness programme

Poor wellness and health affect undergraduate nursing students, as explained in section 2.2.2.2. It is therefore beneficial to determine the general wellness and health of a prospective candidate before selecting the person, as well as keeping the wellness and health profile updated. This can be achieved by allowing nursing students to annually complete a wellness and health questionnaire. It is furthermore recommended that health promotion is included as part of the undergraduate curricula (Van Lingen *et al.*, 2011:405; Bryer *et al.*, 2013:414).

The above strategies aim to assist the at-risk nursing student to successfully adapt to the higher education and clinical setting and furthermore learn to cope with the challenges they face. The success of achieving the above would support the theories of Astin, Tinto, Bean and Eaton, all stating the importance of adaption, academic and social integration into higher education.

2.4 CONCLUSION

The literature review provided the researcher with much needed information about the phenomenon of attrition. This provided a background to determine the research design and methodology of the research. The information has also been applied in the development of the questionnaire, and the structured interview guide used to gather the study data.

The following chapter will describe the processes that were followed to collect the information needed to answer the research questions. The data will be used to determine how many undergraduate nursing students have left nursing programmes at the specified South African universities during the study period, and to help identify the factors that resulted in the decision by the former nursing students to discontinue their undergraduate nursing programme in the first place.

CHAPTER 3

Research methodology

3.1 INTRODUCTION

In Chapter 2, the phenomenon of attrition from undergraduate educational programmes was discussed. The study of the existing literature has portrayed a picture of international undergraduate nursing attrition, but not necessarily helps to build a complete picture of the current situation in South Africa. Therefore, in Chapter 3 the logical and linear flow of steps followed to explore, understand and eventually describe undergraduate nursing attrition in selected South African universities during a specified period of time will be described. By following this process, the researcher was able to gather the required information and attempt to answer the research questions that were formulated at the beginning of the research process (Botma *et al.*, 2010:83; Grove, Burns & Gray, 2013:39).

As indicated, the research questions were formulated well before setting the aims and objectives for the research itself (Polit & Beck, 2012:57). This provided an introduction to the research design and the methodology used to collect the data. Considerations of validity, reliability and ethicality were identified as guidelines combined with the research methodology identified.

The sequential steps of the process as it occurred will be explored next.

3.2 RESEARCH AIM AND OBJECTIVES

Two research questions were formulated for this study. These research questions included, what the current attrition rate among undergraduate nursing students at selected South African universities was, and secondly which factors influenced the former nursing students to discontinue their undergraduate studies. Accordingly, the aim and objectives of the study were determined.

The aim identified was determining and describing the current attrition rate among undergraduate nursing students at selected South African universities. The objectives that followed from the aim include:

- obtaining the current attrition rates of undergraduate nursing students at five identified universities, and
- identifying the factors influencing a nursing student to discontinue the undergraduate nursing programme.

Only after this step was completed, a design to gather the needed information and describe attrition among undergraduate nursing students at selected South African universities was decided upon.

3.3 RESEARCH DESIGN

The research design provides the basic plan to follow in answer to the research questions, as previously mentioned. The researcher first had to decide if an intervention would be applied or not. Cost and time restraints, as well as the aim of this study further influenced the decisions made by the researcher in choosing a quantitative, non-experimental descriptive research design (Brink *et al.*, 2012:113; Grove *et al.*, 2013:207).

The following figure indicates the components included in the research design. Afterwards each component will be discussed individually:

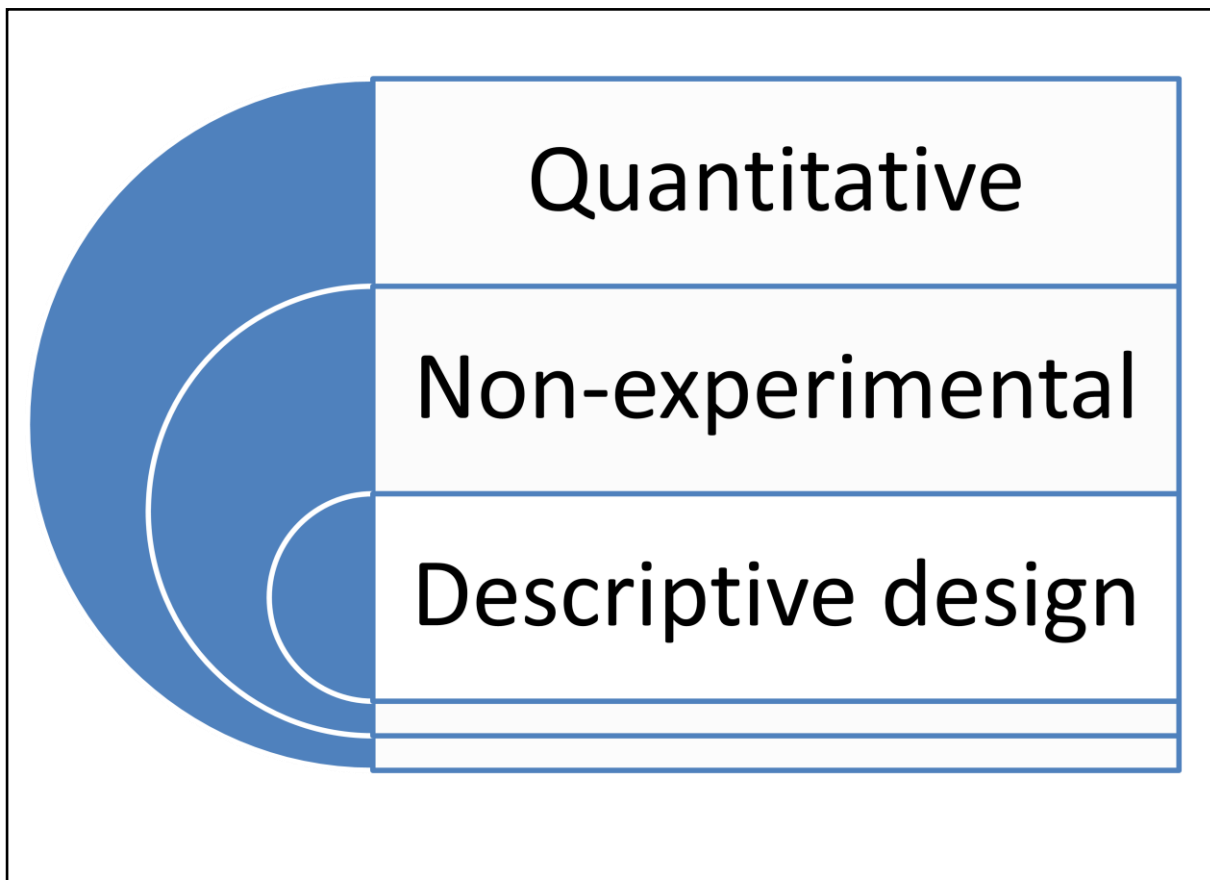


FIGURE 3.1: Components of the research design (Botma *et al.*, 2010:307)

3.3.1 Quantitative research

A quantitative research method was used to generate more knowledge regarding the area of interest, namely the attrition among undergraduate nursing students. The attrition rate was determined by means of calculation to obtain a numerical value. The factors influencing nursing students to discontinue the nursing programme were identified, after which the statements of the different participants were trended. These methods differentiate quantitative research from qualitative research, which aims to describe the life experiences of participants and give meaning to these experiences within specific contexts (Grove *et al.*, 2013:49).

Although this design does not support contributory assumptions of occurrence, the final aim was to describe the incidence of attrition, and then trend the occurrence of identified factors of attrition as they occur in the natural setting, without the use of an intervention. It can therefore be stated that a non-experimental descriptive design was applied to this study (Botma *et al.*, 2010:182; Brink *et al.*, 2012:113; Polit & Beck, 2012:228).

3.3.2 Non-experimental descriptive design

As the researcher had collected a large amount of information within a relatively short period of time, without an intervention or manipulation of variables, a non-experimental descriptive design is appropriate. The aim of the study is not to determine any relationship between variables, but to explore and describe the phenomenon of attrition (Botma *et al.*, 2010:110). In order to accomplish the above, the researcher used the collected data from the selected universities to describe the frequencies of the occurrence of attrition over a set period of time. The researcher then described the factors influencing former nursing students to discontinue as trends (Polit & Beck, 2012:226). The researcher was finally able to describe all the findings by using descriptive statistics, staying true to the descriptive design (Coughlan, Cronin & Ryan, 2007:662).

Survey techniques were identified as the best possible means to collect the data for this study. Two different survey techniques were employed, namely a questionnaire and a structured interview guide. The reasons these two techniques were employed and specifics regarding these two techniques will be described more broadly in sections 3.5.2 and 3.6.2.

3.4 RESEARCH METHODOLOGY

Research methodology refers to the methods used to gather information to answer the formulated research questions. These processes include the process of selecting participants, as well as the methods to collect and analyse the data in a scientific manner (Polit & Beck, 2012:59).

3.4.1 Study population

An important step in the research process was to choose the participants who provide the information to answer the research questions. The population can be defined as an entire group of persons who meet the inclusion criteria, as determined by the researcher. Due to cost restraints and feasibility, it was not always possible to select an entire group of people, and some participants may not have been available for the study. Therefore, the accessible population was seen as those participants who met the selection criteria and were accessible to the researcher. This accessible population is referred to as the *study population*. The *target population* includes those specific participants who meet the generalisations set by the researcher (Polit & Beck, 2012:274).

For this study, two study populations were identified. Study population one included those universities offering a nursing programme leading to a Baccalaureate Degree in Nursing and were grant holders of the Atlantic Philanthropies and ELMA Group of Foundations under the UNEDSA project. Study population two included those former nursing students who discontinued the undergraduate nursing programme at these universities during any of their four years of undergraduate study between 2007 and 2012. The *accessible populations* included the universities meeting the inclusion criteria, and the former nursing students who met the inclusion criteria. The *sample* would be the universities that returned the questionnaire and the former nursing students who were available when contacted telephonically.

The figure below shows the target, study population and sample for this study:

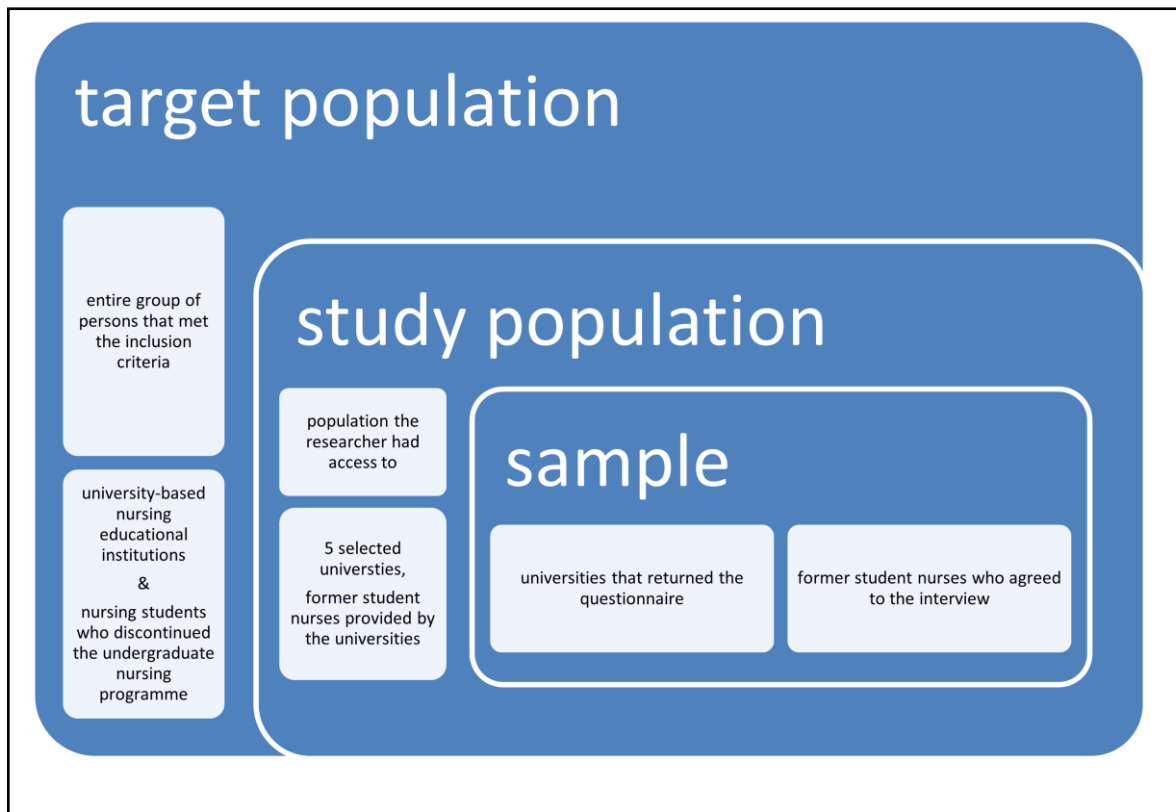


FIGURE 3.2: Target, study population and sample (Adapted from Engelbrecht, 2010: Online)

To better explain the processes followed in obtaining data from the two study populations, the sampling process, the research technique, pilot study, data collection and analysis for these study populations will be discussed separately under sections 3.5 and 3.6.

3.5 STUDY POPULATION ONE: UNIVERSITIES

3.5.1 Sampling

The sampling method and inclusion criteria were clearly set out before choosing the different participants (Botma *et al.*, 2010:123; Brink *et al.*, 2012:139; Polit & Beck, 2012:279).

A purposive sampling method was used to select the participants for Study Population One: Universities offering an undergraduate nursing programme. The universities that were purposefully selected offer a Baccalaureate Degree in Nursing. Secondly, these universities were distributed across South Africa and represent both the urban and rural areas of South Africa. Thirdly, these universities were accessible to the researcher, via the program manager of the UNEDSA project (Grove *et al.*, 2013:365). By selecting the participants for Study Population One: Universities in this specific way, the researcher ensured that the representative requirements of a quantitative research design were met in the sample (Polit & Beck, 2012:273).

According to the inclusion criteria, five universities were selected as they:

- are accredited with the SANC as nursing educational institutions,
- provide education and training to nursing students, leading to a Baccalaureate Degree in Nursing, that enables the successful nursing student to register at the SANC as a registered nurse, and
- are grant holders of the University-based nursing education of South Africa (UNEDSA) project, funded by the Atlantic Philanthropies and ELMA Group of Foundations.

The sample included all the selected universities meeting the inclusion criteria, and was finally determined by the responses received. Six South African universities are grantees of the UNEDSA project, however two universities were collaborating in their efforts. Therefore five universities were finally selected (UNEDSA [n.d.]: Online).

3.5.2 Research technique

The data gathered from Study Population One: Universities, was collected by means of a survey technique, namely a questionnaire. This method of collecting data was chosen because a wide variety of information can be gathered within a short period of time (Botma *et al.*, 2010:135). Although the researcher did know the identity of the participants for this study population, no name that could link a university to a questionnaire was recorded in the questionnaire itself. The researcher coded each

questionnaire by means of a numerical number. This coding is known only to the researcher and was used throughout the process when communicating information to the research supervisor, co-supervisor and statistician. By using a code system confidentiality was ensured. A further advantage is that using a questionnaire often results in a better response to sensitive questions. Lastly, with the questionnaire, the interviewer could not influence any responses from the participants (Botma *et al.*, 2010:110; Brink *et al.*, 2012:154; Polit & Beck, 2012: 305; Grove, *et al.*, 2013:425). Although information collected by means of a questionnaire can frequently be collected via computer, it was decided not to develop a website for this questionnaire. The reason for this decision is that, as only five universities were selected, there was not a large enough population included to justify such a procedure (Grove *et al.*, 2013:425).

The researcher was aware of the disadvantages of questionnaires, namely the risk of a low response rate, and the return of incomplete questionnaires. It was decided that the advantages mentioned above, outweighed the disadvantages. Therefore the researcher chose to continue with the questionnaire. It was further proposed that involving the programme manager of the UNEDSA project in contacting universities should ensure a better response rate (Grove *et al.*, 2013:525).

The questionnaire was structured with the following principles in mind. The questions should:

- be clear and concise,
- contain only one main thought per question,
- start with general questions, then move to more sensitive or personal questions, and
- consist of a combination of open-ended and close-ended questions (Botma *et al.*, 2010:133; Brink *et al.*, 2012:155; Polit & Beck, 2012:297; Grove *et al.*, 2013:425).

The final questionnaire was developed using theories on attrition and retention as a framework. These theories were discussed in Chapter 2, after completion of a comprehensive literature review on attrition of students in higher education, and specific attention to attrition from nursing programmes. The questionnaire was finally developed with the assistance of the research supervisor, co-supervisor and a statistician from the Department of Biostatistics of the University of the Free State. Before the pilot study was done an Evaluation Committee of the Nursing Educational Institution at the University of the Free State consisting of nursing and healthcare educators and research specialists from the same university, reviewed the questionnaire. The final questionnaire consisted of 15 items grouped to identify the student selection criteria, determine the universities' intake and attrition rates for a selected period of time, and contact information on the nursing students who discontinued the undergraduate nursing programme.

For each item in the universities' questionnaire, a response area was developed. For those responses to open-ended questions, a few lines were created to fill in the participant's answer to the question. As the answers to the closed-ended questions could not be predicted beforehand, an alternative response list of possible answers was not included. A space was created to indicate the specific information as per data from each university. At the top of the questionnaire instructions were given on how to answer the questions, to ensure that no misinterpretations would occur (Grove *et al.*, 2013:426-427).

Table 3.1 indicates the different items on the questionnaire and the rationale for asking these specific questions:

TABLE 3.1: Questionnaire to Head of the Nursing Educational Institution (to be continued)

QUESTION	TOPIC	DESCRIPTION	RATIONALE
	Code number	A numeric value randomly allocated to each university by the researcher	<ul style="list-style-type: none"> To connect a questionnaire to a specific university
1	Informed consent	After reading the information leaflet, the study participant can volunteer to take part and sign written consent	<ul style="list-style-type: none"> To have written proof of voluntary participant consent
2	Date of completion of the form	Indicate the date on which the information was completed	<ul style="list-style-type: none"> To indicate this form was completed within the research period
3 & 4	Selection criteria used for prospective nursing students	Indicate the selection criteria in the space provided	<ul style="list-style-type: none"> Identify the individual selection criteria used by different universities To compare and trend the selection criteria of the different universities
5	Number of applications received annually	Indicate the individual applicant numbers per different year	<ul style="list-style-type: none"> To determine if nursing is still a profession of interest To compare the number of applicants per region in the country To compare the number of applicants from rural and urban areas in the country
6	Number of applicants selected per year	Indicate the number of students selected against the various years	<ul style="list-style-type: none"> To identify the number of candidates selected To compare selection rates between universities
7	Number of acceptable students who actually registered per year	Indicate the number of nursing students who finally registered during the various years	<ul style="list-style-type: none"> To determine if the candidates that were selected actually entered the programme or not To obtain a baseline count to calculate possible attrition
8, 10 & 12	Number of students who started in a particular year, and who completed the whole programme	Indicate the number of nursing students who actually started in each particular year and completed their course in the allocated time	<ul style="list-style-type: none"> Determine the throughput rate for a particular intake year

TABLE 3.1: Questionnaire to Head of the Nursing Educational Institution

QUESTION	TOPIC	DESCRIPTION	RATIONALE
9, 11 & 13	Number of students who discontinued during a particular year	Indicate the individual number of nursing students who discontinued their studies during each year	<ul style="list-style-type: none"> • Determine the attrition associated with a particular year • To compare results of this study to information collected from the literature review
14	Contact details of nursing students who discontinued in the research period	Compile a list of the names and telephone numbers of the former nursing students	<ul style="list-style-type: none"> • To contact these participants for completion of part two of the study
15	Indicate interest in receiving the results of the study	Reply with a yes or a no	<ul style="list-style-type: none"> • To e-mail the final results of this study to the interested participating universities

The actual questionnaire is attached as Addendum 15.

3.5.3 Pilot study

The pilot study is seen as a pre-test to determine the feasibility of the research. Not only was the selection process, the research technique and the method of collecting the data tested, but this process also served as a training opportunity for the researcher (Polit & Beck, 2012:198). One of the universities that were included in the study, namely the University of the Free State, was selected for applying the pilot study. Firstly, the reasons for choosing this university included the fact that the university and former nursing students met the selection criteria, as previously determined. Secondly, the researcher had easy access to the university and its records. A third reason was that the researcher's supervisor, co-supervisor and the statistician were based at this university and could easily be contacted should any problem be encountered.

As explained in the previous section, a questionnaire was used to collect the data from Study Population One: Universities. The specially designed questionnaire, needed to be tested to determine whether the instructions and questions were clear, the questions flowed in a logical manner from less sensitive to more sensitive, to assess the total time required to complete the questionnaire, as well as whether this chosen method of collecting the data was appropriate. A draft of the questionnaire was reviewed by the researcher's supervisor, co-supervisor and statistician. Thereafter the questionnaire was referred for input to the nursing and healthcare educators from the Nursing Educational Institution of the University of the Free State, as well as research specialists from the same university (Botma *et al.*, 2010:275; Brink *et al.*, 2012:174; Polit & Beck, 2012:195). For the questionnaire that was finally used in the pilot study, it was decided to use an intake of students one year prior to the ones included in the actual study. Therefore, an intake and completion year was added to the specifications in the actual questionnaire.

The data collection for the pilot study followed the same pattern as was planned for the actual study. It was conducted in two phases, phase one obtaining the completed questionnaire from the Head of the Nursing Educational Institution and phase two conducting a telephonic interview with the university's former nursing students. Phase two will be discussed in section 3.6, to follow.

The first phase was initiated by obtaining the necessary approval from the Head of the Nursing Educational Institution at the University of the Free State. As will be explained in section 3.5.4, the approval of the Ethical Committee of the University of the Free State granted permission to continue with the pilot study, and therefore the process could continue without any delay. On receiving the questionnaire back from the Head of the Nursing Educational Institution of the University of the Free State, the questions and answers were reviewed by the researcher, the research supervisor, co-supervisor and the statistician. The problems encountered were discussed. It was decided to exclude two questions regarding the number of nursing students leaving the undergraduate nursing programme for academic and non-academic reasons. This specific information was not kept on the data bases of the Nursing Educational Institution or the University used in the pilot study and therefore was not accessible. Feedback from a representative of the Department of Institutional Research and Academic Planning from the University of the Free State

indicated that no records were kept of the individual reasons why students discontinue an undergraduate programme. The existing data base from this department could also not provide information whether students terminate academic programmes for academic or non-academic reasons.

3.5.4 Data collection

The actual collection of data for the study followed a sequential flow of events. The first step had been to obtain approval from the Evaluation and Ethical Committees of the University of the Free State. Secondly, approval was obtained from each of the Heads of the Nursing Educational Institutions at the selected universities. This was done via e-mail. It was decided to use e-mail communication as it is possible to track the message delivery and read responses of each participant. E-mail communication is also a less costly and less time-consuming method of communication.

The purpose of the initial e-mail was to sensitise and invite the participants of Study Population One to take part in the survey. This initial e-mail furthermore provided the necessary information regarding the study outline and the reasons why the particular participant had been chosen. It furthermore underlined the principle of anonymous and voluntary participation. The researcher requested written permission from the participants so that information from the specific nursing educational institution could be used and to request information regarding the process required for approval to conduct the study at each university. The letters with the written permission received from the Heads of the Nursing Educational Institutions are attached as Addendums 6-10.

Furthermore, the complete proposal, as accepted by the Ethical Committee of the University of the Free State, the approval letter from this committee and a PDF copy of the questionnaire were attached and forwarded to the Heads of the Nursing Educational Institutions so they could decide whether they wanted to participate in the research or not. Two of the universities required that the researcher submitted the protocol to their own ethical committees for approval.

After clearance from the Ethical Committee of the University of the Free State was obtained, two processes occurred simultaneously, namely the completion of the pilot study and the approval submission to the different Ethical Committees from the selected universities. While waiting for the necessary approval from those universities other than the Free State University, the pilot study was conducted to test the survey techniques chosen to gather information. The pilot study was discussed in section 3.5.3.

Two universities' ethical committees gave approval immediately, on grounds of the approval from the Ethical Committee of the University of the Free State. The Ethical Committee of two universities expected a more detailed submission. The members of the Ethical Committee of one university provided valuable feedback. This, however, turned out to be a lengthy and unplanned process that delayed the response from this university by six months. The members of the Ethical Committee of the last university gave immediate approval after a review and consent from the Head of the Nursing Educational Institution.

Once the necessary approval was received from the different Ethical Committees, a second individualised e-mail was sent to the Heads of the Nursing Educational Institutions. An introductory letter included the request to complete the questionnaire. Again the detailed proposal, all the approval letters from the Ethical Committees and Heads of the Nursing Educational Institution from each university were attached to the e-mail to support the request for completion of the questionnaire. The participants from Study Population One: Universities were thus informed of the study, while consent was implied by answering the questions and returning the completed questionnaire to the researcher (Botma *et al.*, 2010:16). Participants were, however, able to specifically indicate their voluntary participation consent on an appropriate area of the questionnaire. Each was informed that they were permitted to withdraw from the survey without providing any reason, if they so wished. The participants were informed that all the results of the study might be published or presented. It was also indicated that there was no cost involved for the participants and that they would not receive any remuneration for participating in this study. The time frame for completion of the questionnaire once the information was gathered, was included.

Instruction on how to answer all the questions preceded the list of actual questions, to ensure that the correct information was obtained. By reminding the participants of the study via three consecutive follow-up e-mails, it was hoped that an improved response rate would be ensured. Once each Head of the Nursing Education Institution agreed to participate and the questionnaire was emailed to the relevant person as indicated, a period of three months was allowed for the return of the completed questionnaire. Thereafter, the survey was concluded.

A response rate of 50% was calculated from Study Population One: Universities (Polit & Beck, 2012:258). Two universities provided detailed completed questionnaires and a list with the contact numbers of the former nursing students. One university only completed some of the questions, but included a list with names and contact numbers of their former nursing students. Two universities withdrew from the research on receiving the questionnaire, indicating that the completion of the questionnaire was perceived to be too labour intensive to continue. Table 3.2 indicates the difficulties experienced in collecting the data during phase one of the research.

TABLE 3.2: Difficulties experienced during collection of data for phase one

DIFFICULTIES EXPERIENCED	REMEDIAL ACTION AND OUTCOME
<p>Delayed approval from the Heads of Nursing Educational Institutions to obtain data from the nursing educational institution database.</p> <p>This delayed the further research process.</p>	<p>Department heads were e-mailed with the request and information required to complete the questionnaire. Three consecutive e-mails were sent to universities three, four and five after no reply was initially received. The assistance of the researcher's supervisors and UNEDSA program manager was obtained to expedite the process. Approval from the participating universities was finally obtained after a period of four months.</p>
<p>Some universities required approval from their own Ethical Committees. University Four requested a complete submission and a substantial fee for the review.</p> <p>This delayed the process to obtain data from University Four for a period of six months.</p>	<p>The researcher had to collect the fee requested. This took three months to arrange. After funding from the Nursing Educational Institution of the University of the Free State, the submission could continue. However, at the time of submission the specific university's administrative officer explained that a mistake had occurred and that no fees were required. The members of this university's Ethical Committee provided valuable feedback.</p>
<p>Slow response times to receive completed questionnaires.</p>	<p>The Heads of Nursing Educational Institutions three, four and five were reminded via three consecutive e-mails and even contacted telephonically in the hope of improving their participation.</p>
<p>Withdrawal from the research at a late stage.</p>	<p>Universities four and five withdrew from the research at a late stage. Despite feedback from the members of the Ethical Committee from each university and initial letters to indicate that they were willing to participate, these universities then indicated that the search for data was too labour intensive for them to continue.</p>

On reception of the completed questionnaires, the information was captured in a Microsoft Excel spreadsheet and coded per instructions of the statistician. Different work sheets were used on one spreadsheet: One work sheet per university. Each university was identified by means of a random code and colour allocation, known only to the researcher. This was an additional action to ensure the confidentiality of each participating university. Once all the sheets had been completed, the electronic spreadsheet was handed over to the statistician for analysis of the information.

The results of this data analysis will be explored next.

3.5.5 Data analysis

Statistical techniques were employed to assist in the process of making the data more meaningful and to describe the findings. By using descriptive statistics, the researcher was able to answer research question one, namely what is the current attrition rate among undergraduate nursing students at selected South African universities (Grove *et al.*, 2013:538). The techniques employed included frequencies and percentages for categorical data, which was then computed by using the Statistical Analysis System (Maltby, Day & Williams, 2007:25; Plichta & Garzon, 2009:21; Brink *et al.*, 2012:179). The data was analysed with the assistance of the statistician from the Department of Biostatistics of the University of the Free State.

The second phase of this research will be discussed next.

3.6 STUDY POPULATION TWO: FORMER NURSING STUDENTS

3.6.1 Sampling

As discussed in section 3.4.1, it was not feasible to use all the nursing students who had discontinued their studies in the various undergraduate nursing programmes. Therefore the following inclusion criteria for study population two was decided on. The participating former nursing student must have:

- been enrolled as a nursing student in an undergraduate nursing programme at one of the five selected universities funded by the Atlantic Philanthropies and ELMA Group of Foundations, and
- discontinued the undergraduate nursing programme before graduation during any of the four years of study, between the year 2007 and 2012.

This study population was selected through non-probability convenience sampling and included those former nursing students who met the selection criteria, were available and could be reached telephonically. The sample of the former nursing students included those suitable persons who responded to the telephonic interview (Botma *et al.*, 2010:124; Polit & Beck, 2012:276). This included nursing students from both genders and all racial groups, who had discontinued their studies during any of their four years of study.

This sampling method was chosen because the researcher had access to a large specific population once the selection criteria had been set. The researcher could not determine beforehand which former nursing students would answer the telephone nor had he / she any access to specific information that could control the representativeness of the sample. Answers to the questions during the telephonic interviews were received and immediately documented, therefore saving time and the cost of posting answers back to the researcher (Botma *et al.*, 2010:125; Polit & Beck, 2012:276). Although this type of sampling provides little control of bias, the selection criteria were specified before selecting participants for study population two. The selection criteria did not limit the participants to a specific gender, racial group or year of study. This ensured that the sample was as representative as possible. The generalisation of the study could thus be ensured by selecting participants from different universities, across South Africa (Polit & Beck, 2012:276; Grove *et al.*, 2013:197).

3.6.2 Research technique

The research technique for obtaining the data from Study Population Two: Former Nursing Students was a structured interview. A telephonic structured interview with the participating former nursing students was finally chosen, as it could be assumed that the former nursing students would be more difficult to reach by ordinary mail or e-mail. A telephonic interview furthermore ensured a better response rate by keeping the required information needed short, concise and not too time consuming (Polit & Beck, 2012:265).

Using a structured interview guide ensured that all participants heard the same questions, in the same sequential order. The interview guide was developed with the same principles and theories in mind as contained in the questionnaire, discussed in section 3.5.2 (Botma *et al.*, 2010:140; Polit & Beck, 2012:276). The interview guide consisted of 20 items to gather general and demographic information, the year the former nursing student started his / her studies, when he / she discontinued the nursing programme, the social integration of the former nursing student and whether the former nursing student had received a bursary. Lastly the reason(s) why the former nursing student decided to discontinue his / her undergraduate nursing programme and any suggestions to improve throughput in the educational facility was included. The former nursing student could indicate if he / she was interested in receiving the results for this study. On affirmation an e-mail address was required for this process.

To ensure the economic use of time during the documentation of the answers from the participants in study population two, spaces were included in the structured interview guide to write down their responses to the open-ended questions. An alternative response list was created for the close-ended questions. The alternative response list included all the possible alternative answers per question and did not exclude certain intervals and responses. The alternative responses consisted of one word to express a phrase or concept (Polit & Beck, 2012:308).

Table 3.3 explains the questions asked during the interview and the rationale for asking these questions:

TABLE 3.3: Structured Interview guide for former nursing student (to be continued)

QUESTION	TOPIC	DESCRIPTION	RATIONALE
	Date of completion of the form	Indicates the date the interview was conducted	<ul style="list-style-type: none"> To track the time line for completing phase two
	Name and signature of interviewer		<ul style="list-style-type: none"> To know the name of the person who conducted the interview
1	Consent to interview	Tick appropriate box	<ul style="list-style-type: none"> To have written proof of individual consent to conduct the research
2	Gender	Tick appropriate box	<ul style="list-style-type: none"> To identify the gender distribution in this research To describe the characteristics of the former nursing students
3	Age in year one	Tick appropriate box	<ul style="list-style-type: none"> To calculate the age of the former nursing student at the time of study To describe the characteristics of the former nursing students
4	Ethnicity / race	Tick appropriate box	<ul style="list-style-type: none"> To calculate the inclusion and the participation rate of the different ethnic groups in the South African population To describe the characteristics of the former nursing students
5	Marital status	Tick appropriate box	<ul style="list-style-type: none"> To determine the marital status of each participant during the time of the study To describe the demographic information of the former nursing students

TABLE 3.3: Structured Interview guide for former nursing student (to be continued)

QUESTION	TOPIC	DESCRIPTION	RATIONALE
6 & 7	Dependants and number of dependants	Tick appropriate box	<ul style="list-style-type: none"> To determine if the former nursing student had extended family responsibilities during the time of enrolment in the programme To describe the demographic information of the former nursing students
8	Living arrangements	Tick appropriate box	<ul style="list-style-type: none"> To determine accommodation arrangements during the time of the study To describe the demographic information of the former nursing students
9	Distance living from campus	Tick appropriate box	<ul style="list-style-type: none"> To calculate the average distance the nursing student had to travel to the campus on a daily basis To describe the demographic information of the former nursing students
10	Travel arrangements	Tick appropriate box	<ul style="list-style-type: none"> To identify a nursing student's method of transport To describe the demographic information of the former nursing students
11	Secondary school attendance	Write name of the school	<ul style="list-style-type: none"> To trend regions with one another
12	Year matriculated	Write the year provided	<ul style="list-style-type: none"> To determine interval between matriculation and enrolment in the programme
13	TP count	Write the count provided by the former student	<ul style="list-style-type: none"> To determine previous academic achievement

TABLE 3.3: Structured Interview guide for former nursing student

QUESTION	TOPIC	DESCRIPTION	RATIONALE
14	Motivation to study nursing	Write responses of participant	<ul style="list-style-type: none"> • Determine main reasons why nursing was initially chosen as a profession • To trend responses of participants and calculate frequency
15	Year started course	Tick appropriate box	<ul style="list-style-type: none"> • To calculate actual years of completed study per former nursing student
16	Year discontinued course	Tick appropriate box	<ul style="list-style-type: none"> • To calculate actual years of completed study per former nursing student • To identify the critical year attrition occurred
17	Bursary received or not	Tick appropriate box	<ul style="list-style-type: none"> • To determine if a nursing student received financial assistance or not
18	Participation of social events	Tick appropriate box	<ul style="list-style-type: none"> • To determine the degree of social integration at the university
19	Reasons for discontinuation	Write reasons provided by the participants	<ul style="list-style-type: none"> • To identify individual / universal reasons for discontinuation • To trend occurrences of the reasons given
20	Interventions that could have let you continue studying	Write interventions as suggested by participant	<ul style="list-style-type: none"> • To formulate possible suggestions for the participating nursing educational institution(s)
	Interest in receiving the outcome of the study	Indicate a yes or no response	<ul style="list-style-type: none"> • To determine who would like to receive the outcome of this study
	E-mail address of student	Write the e-mail address as provided by the former nursing student	<ul style="list-style-type: none"> • To e-mail the results of this study to the participants

The final interview guide is attached as Addendum 16.

3.6.3 Pilot study

The data collecting instrument for Study Population Two: Former Nursing Students is a structured interview guide. As this was specially designed for the study, the assistance of the researcher's supervisor, co-supervisor and the statistician from the University of the Free State was used. The interview guide needed to be tested, as had the questionnaire, to determine whether the instructions and questions were clear, the questions flowed in a logical manner from less sensitive to more sensitive, what the total time was needed to complete the interview and questionnaire, and whether the chosen method of collection of the data was appropriate. After a draft of the structured interview guide was reviewed by the researcher's supervisor, co-supervisor and the statistician, it was then referred for input to nursing and healthcare educators from the Nursing Educational Institution of the University of the Free State and research specialists at the same university (Botma *et al.*, 2010:275; Brink *et al.*, 2012:175; Polit & Beck, 2012:195).

As previously explained, the data collection followed the same pattern as was planned for the actual study. Thus, after the data for phase one was obtained and reviewed, phase two was initiated by contacting the former nursing students per telephone. Twenty eight former nursing student names and telephone numbers were received with which to conduct the pilot study for phase two. Of these 28 names, 20 former nursing students could be reached and agreed to participate in the research. The participation rate of 71,42% as calculated during the pilot study of phase two is slightly lower than the ideal 80-90% response rate indicated in literature sources for face-to-face interviews (Polit & Beck, 2012:305).

No problems were encountered with the structured interview guide. It was only noted that the information leaflet was extremely lengthy and took longer to read to the participant than conducting the whole interview itself. A shortened leaflet was subsequently compiled, that contained similar information to that which had initially been approved by the Ethical Committee of the University of the Free State. It was also noted during the pilot study that it was best to phone the former nursing student between seven and eight 'o'clock at night as this was the most likely time that most of the former nursing students could be reached. It was thought that the person

would have completed work by this time and would likely also have completed most responsibilities at home.

3.6.4 Data collection

As explained in section 3.5.4, once the necessary approvals were obtained and the pilot study had been conducted, the actual gathering of information could take place. During phase one, information was collected from the identified universities. Upon receiving the names and contact information of the former nursing students, phase two was initiated. This was done by means of a telephonic interview, as explained in section 3.6.2 (Botma *et al.*, 2010:275-276).

It had been expected that some of the former nursing students would rather speak Sesotho or IsiXhosa due to the demographic areas in which their universities were situated. Therefore, it had been initially decided that two field workers who would be fluent in Sesotho and / or IsiXhosa would be trained to assist with the telephonic interviews, as the researcher was only fluent in Afrikaans and English. However, during the pilot study it became clear that all the student participants had no difficulty in speaking and understanding English, therefore the researcher finally conducted all the interviews herself.

At the start of the telephonic interview, the aim of the study and the reason for the former nursing student's involvement was explained. The former nursing student was then given an opportunity to agree to answer the questions voluntarily and informed that they could withdraw from the study, at any time during the telephonic interview. Consent was implied by the participant's willingness to answer the questions and this was then documented on the interview guide. The participants were informed that the results of this study might be used for publication or presentation. Voluntary participation would not have a cost implication for these participants and neither would they receive any remuneration for taking part. The participants were then informed that the interview would last about ten minutes. They were given a second opportunity to decide whether they wanted to participate or not. The interviewer started at the top of the interview guide and ticked off the answers as provided by the participant. Answers to open-ended questions were verbally written down as concisely as possible.

This part of the survey was initiated by gathering all the items that would be needed to conduct each interview. The researcher needed the printed interview guides, a black ink pen, the former student list as provided by each university and a cell phone.

A total list containing 157 names and telephone numbers of former nursing students was compiled for the pilot and actual study. When a former nursing student answered the telephone call and was willing to participate, a corresponding coded number from the interview guide was written behind the name on the former students' list. If no answer was received on the first call, two consecutive telephone calls were made to this number on different nights, and even at different times of the evening.

As shown in the following figure (Figure 3.3), 62% of the numbers that had been received no longer existed on the cellular networks or no response was received during the three times the number was dialled. Of the remaining 38% of the names, only 35% of the former nursing students were willing to participate. Although the telephone had been answered, in the case of 2% of the names received, the interview was not conducted in the end as they did not meet the selection criteria of being enrolled in an undergraduate nursing programme. These persons were excluded from the research. Only one former nursing student did not want to participate. The response rate for this survey technique compares well to indications in the literature of a higher response rate for interviews than for just a questionnaire, as participants are less likely not to cooperate when contacted personally (Polit & Beck, 2012:305).

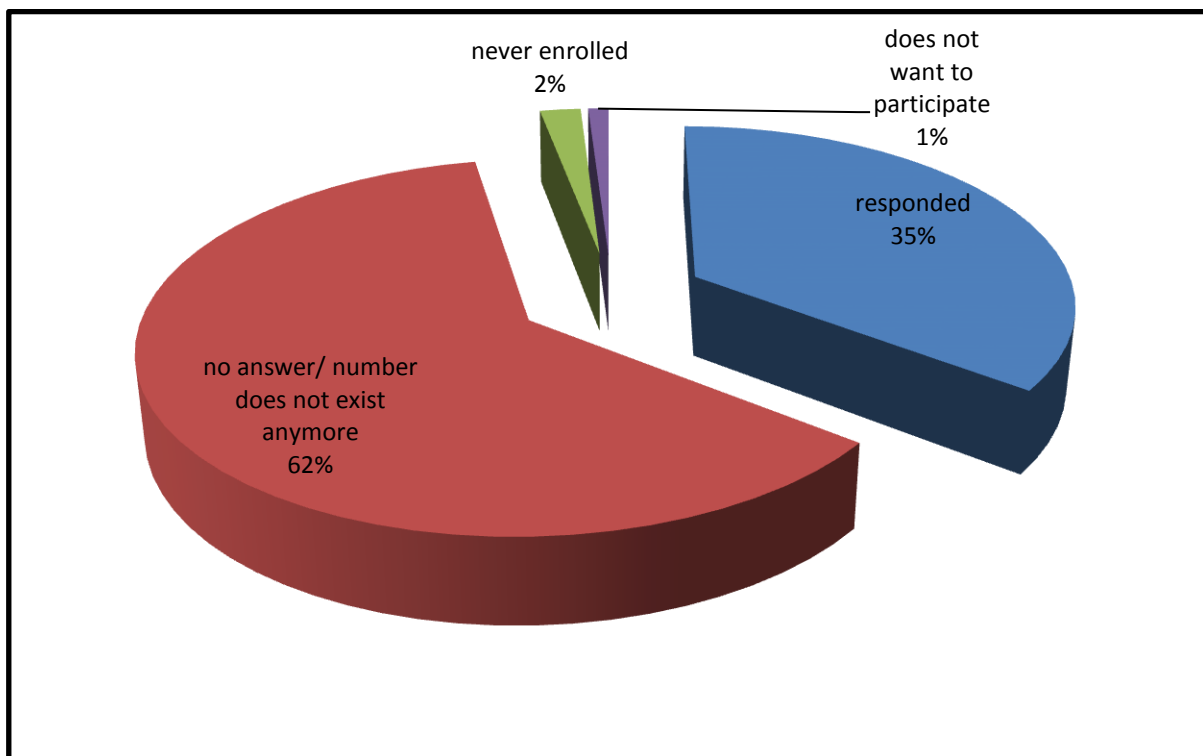


FIGURE 3.3: Former nursing student participation rate (Botma *et al.*, 2010:307)

Although it was advised to gather 150 former nursing student responses, this was impossible with the two universities that withdrew from the research during phase one. In a follow-up e-mail, these universities were asked to provide names and telephone numbers of former nursing students, despite not completing the questionnaire. However, no response was ever received from them.

The only difficulty experienced during the collection of data during phase two was the manner in which some of the cell phone numbers of the former nursing students had been listed on receipt from the nursing educational institutions. All the numbers had been written without spaces between groups of numbers, which made the reading of the number difficult and resulted in incorrect numbers being dialled. This difficulty was overcome by adjusting the list of numbers to make reading more reliable and easier.

The information received during the structured interviews was captured on an Excel spreadsheet with a worksheet allocated for each former nursing student participant. The worksheet was identified with the corresponding code number written on the interview guide and next to each former nursing student's name on the list, as received from the universities. The worksheet was colour coded with a colour allocated to each university. This was done so that the researcher could allocate a response from a former nursing student to the corresponding university. This coded number and colour was known only to the researcher, to help protect the identity of each participant. The capturing was done each night after a number of interviews had been conducted in order to capture all information correctly. Each entry was coded as per the instruction from the statistician. The completed spreadsheet was e-mailed to the statistician for analysis of the data. This analysis will be discussed in the following section.

3.6.5 Data analysis

The data gathered during phase two was analysed by means of descriptive statistics, viz. averages and standard deviations or medians and percentiles for the continuous data (Maltby *et al.*, 2007:25; Plichta & Garzon, 2009:21; Brink *et al.*, 2012:180). These techniques enabled the researcher to firstly describe the characteristics of the participants at the time of the study by means of age, gender, race and demographic information such as marital status, type of residence and medium of transport. Secondly, these methods enabled the researcher to answer the next research question, namely which factors influenced the former nursing students to discontinue their undergraduate nursing programme. The analysis of the data will be broadly discussed in Chapter 4.

Not only had the data to be gathered and analysed, the researcher needed to ensure the accuracy and consistency of the data as well. These measures were reached by means of reliability and validity, which was planned for and implemented during this study.

3.7 RELIABILITY

In quantitative research, the quality of a study can be ensured and assessed by means of the concepts reliability and validity.

Reliability refers to the consistent outcome of findings every time the research instrument is applied (Grove *et al.*, 2013:45). In this study a questionnaire and a structured interview guide were developed. Two aspects of reliability were adhered to, namely stability and homogeneity. Each of these aspects will be discussed next to indicate how the principle was applied in this study.

Stability is defined as the consistency with which the research instrument will measure the same concepts at different times (Grove *et al.*, 2013:389). The stability of the research instrument was enhanced by allocating the set time of three months for the participants of Study Population One to answer and return the questionnaire. Due to the delay while waiting for the permission of the Ethical Committee from University Four, this university received the questionnaire at a later stage than the other universities that had given permission immediately. The subsequent late withdrawal of this university meant that the researcher could only start contacting the participants of Study Population Two: Former Nursing Students for the answers to the structured interview guide after a lengthy interrupted time frame. The structured interviews were conducted within a month of receiving the names from the universities (Polit & Beck, 2012:331).

Homogeneity means ensuring that all the items on the research instrument consistently measure the same variable (Botma *et al.*, 2010:177; Brink *et al.*, 2012:177; Polit & Beck, 2012:333). In this study the variable of interest is attrition. The information gathered on both research instruments determine an attrition rate over a set period of time, and illustrates the factors that had influenced the former nursing student to discontinue an undergraduate nursing programme.

3.8 VALIDITY

Validity refers to the control of the research design and the instrument that will be used to gather the information (Grove *et al.*, 2013:393). Validity of a research design is measured on the grounds of internal and external validity.

Internal validity is threatened by the degree to which the independent variable can affect the dependent variable (Polit & Beck, 2012:236). The identified threats to internal validity include history, maturation, testing, instrumentation, mortality, demoralisation and selection bias (Botma *et al.*, 2010:100). This study design is a non-experimental design, where no variables were manipulated, nor was the setting influenced. However, sampling bias was identified as a potential threat to the internal validity of this study, which was addressed by the set criteria, as discussed in section 3.5.1 and section 3.6.1 during the selection of participants for this study (Botma *et al.*, 2010:175; Brink *et al.*, 2012:175; Polit & Beck, 2012:247).

External validity is the degree to which findings can be generalised to other people or settings (Polit & Beck, 2012:250; Grove *et al.*, 2013:202). In this study, the possibility for generalisation could be enhanced by the selection criteria that were set as broadly as possible. Firstly, invited participants from Study Population One came from different locations distributed across South Africa, representing various provinces, as well as the urban and rural areas. Secondly, the participants for Study Population Two included both genders, as well as a variety of age and racial groupings. These participants came from any of four different years of undergraduate studies. Lastly, these participants were also from different locations in South Africa according to the location of the universities. Other threats to external validity included the reaction of the participants to the questions being asked and the researcher's ability to control the setting or influence the responses given (Botma *et al.*, 2010:77; Brink *et al.*, 2012:158). Both these threats were addressed by the fact that the researcher had not participated in the data gathering during phase one and could therefore not have influenced the responses of the university participants. During the gathering of data for phase two, the researcher was also prevented from influencing the responses given by the former nursing students, as she exclusively asked the pre-set questions provided on the structured interview guide and only marked off the answers provided.

As a set questionnaire and structured interview guide were used as the tools to gather the information, this enhanced face and content validity.

Face validity is simply whether the questions used on both data gathering tools would gather the required information regarding attrition by the nursing students on face value. Content validity refers to the number of questions required to gather sufficient and appropriate information (Botma *et al.*, 2010:175; Brink *et al.*, 2012:166; Polit & Beck, 2012:336). As a means to ensure face and content validity, both instruments were designed after a thorough review of the literature regarding attrition from undergraduate programmes and specifically attrition from undergraduate nursing programmes. The researcher gained valuable insight into the concept of attrition, improving her knowledge on the subject. Furthermore, before the pilot study was conducted, both instruments were evaluated by an Evaluation Committee consisting of nursing and non-nursing research experts and a statistician from the University of the Free State.

3.9 ETHICAL CONSIDERATIONS

Any research must be guided by ethical actions, which ensures that no harm is done to any of the participants. Throughout the process of the research, ethical considerations were included. These considerations are summarised as follows:

Firstly, the researcher identified key persons that could assist in the research. These key persons included the research supervisor, co-supervisor, the statistician and the information librarian. Other key persons identified were the Heads of the Nursing Educational Institutions that assisted with the data gathering in phase one. Secondly, while reporting on the review of the literature and the research process, the researcher refrained from any form of plagiarism. This was ensured by applying paraphrasing methods, during the citing and referencing of all ideas from other authors. Thirdly, once the research design was decided on, the researcher was guided by the research supervisor and co-supervisor during the study process. This ensured that the researcher followed the study guidelines for a quantitative, non-experimental descriptive design. Lastly, the participants to this study were protected

from any harm by applying solid research ethics for obtaining the necessary approval and consent before conducting the study (Botma *et al.*, 2010:6).

The research proposal was submitted to various evaluation and ethical committees, e.g. approval by an Evaluation Committee of the Nursing Educational Institution of the University of the Free State was requested. Thereafter it was submitted to the Ethical Committee of the Faculty of Health Science of the University of the Free State for approval. Lastly, the research proposal was submitted for approval by the Ethical Committees of the other four universities.

Furthermore, in this study, the following three ethical principles were applied, namely respect for persons, beneficence and justice (Botma *et al.*, 2010:3).

Respect for persons was implemented by allowing participants to decide willingly whether they wanted to participate or not. They received information regarding the research and had the opportunity to consent or refuse. The participants were allowed to withdraw at any time during the research, without having to give any reason for this decision (Brink *et al.*, 2012:35). They were informed that there was no cost implication in taking part and that no remuneration was offered during the study. The participants could lastly indicate if they wished to be informed of the results of the research.

This research is a non-experimental analysis and no harm to the participants was anticipated. The principle of beneficence was adhered to by treating all the participants with fairness and by being constantly aware of any possible discomfort that may be caused (Brink *et al.*, 2012:36).

The principle of justice was adhered to by ensuring the confidentiality of all participants' responses. The researcher had access to the identities of the participants, however each participant's questionnaire and interview guide was only identified with a numerical and colour code. Only the numerical code was used when discussing the information with the supervisor, co-supervisor and the statistician, not to identify any of the participants by name. It was expected that the universities provide the names and contact numbers of the former nursing students, but confidentiality was enhanced by allowing only the researcher to have access to

these lists (Brink *et al.*, 2012:37). The lists were kept in the office of the researcher in a locked cabinet and will be destroyed after five years. The participants were informed that the results of this study might be used for publication or presentation, but assured that they would not be implicated by name.

3.10 CONCLUSION

Through thorough planning and diligent tracing of the steps of the research process, it was possible to gather the data needed on the phenomenon of nursing student attrition. Despite careful planning and budgeting, it became necessary to re-plan some steps to overcome the difficulties mentioned in this chapter. However, the researcher was finally able to collect and analyze the data.

The research findings will be discussed in Chapter 4.

CHAPTER 4

Data analysis

4.1 INTRODUCTION

The process of data analysis was used to transfer the raw collected data into a meaningful discussion. The information received from the various participants of Study Population One: Universities was compared to one another within each group. Responses from participants of Study Population Two: Former nursing students were trended to determine the incidence of occurrences. These methods made it possible for the researcher to answer the research questions formulated at the beginning of the research process, while exploring and describing the phenomenon of undergraduate nursing student attrition.

In this chapter, the findings from each study population will be discussed by firstly giving an overview of the respondents, after which the results of each phase for this study will be discussed and compared to findings from existing literature.

4.2 STUDY POPULATION ONE: UNIVERSITIES

4.2.1 Overview of Study Population One: Universities

In South Africa twenty one nursing educational institutions offer an undergraduate nursing programme at university level. These universities are distributed across seven of the nine provinces of the country, and include rural and urban areas (South Africa, SANC, [n.d.]: Online). As mentioned previously, six of these university-based nursing educational institutions have received grants from the Atlantic Philanthropies and ELMA Group of Foundations via the UNEDSA project. Two universities collaborated in their efforts, and therefore five universities were purposefully selected to participate in this research. This selection was explored in Chapter 3, section 3.5.1.

At the time of the main data collection period, all five the Heads of the selected Nursing Educational Institutions within the universities indicated a willingness to participate in the study. However, as explained in the previous chapter in section 3.5.4, only two of the Heads of the Nursing Educational Institutions ultimately returned completed questionnaires, while one Head returned an incomplete questionnaire, together with the names and telephone numbers of a large number of former undergraduate nursing students. Two of the Heads of Nursing Educational Institutions withdrew from the study at a late stage, and finally did not respond to a request to provide names and telephone numbers of former nursing students.

The universities that participated will be described by the demographic information of the university and their criteria used to select candidates for the undergraduate nursing programme offered at that university. The number of applicants and candidates who were initially selected and finally registered at the universities, will also be discussed. Lastly the reported attrition and completion rates will be discussed.

The nursing educational institutions that returned data represented one rural university and two urban universities. These three universities are situated in three different provinces, to include a northern, central and eastern region. Due to the participating universities representing only three of the universities offering an undergraduate nursing programme, no generalisation could be made. However, the findings from these three universities could be compared and possible trends identified. Valuable interpretations could also be made to better understand the phenomenon of nursing student attrition and in addition determine at what level attrition does occur. These universities provided names and telephone numbers that enabled the researcher to answer the second research question, namely to explore the factors that led to the discontinuation of the undergraduate nursing programmes.

4.2.2 Selection criteria

Selection criteria are advised as a method to select the best suitable candidate for an undergraduate nursing programme, as well as a strategy to prevent attrition (Airey, 2012:310). To enter an undergraduate nursing programme at a South African university, the candidate must meet the minimum entry requirements as determined by the Department of Higher Education of South Africa (South Africa, DoHE, [n.d.]: Online). The three nursing educational institutions that participated in the actual study all make use of selection criteria to select their possible candidates. The following selection criteria were provided by these nursing educational institutions.

The prospective candidate must have achieved the following requirements at senior certificate level or grade 12: Candidates must:

- Hold a senior certificate with an overall admission point score that qualifies them to enter an undergraduate programme at a university. The admission point score is a calculation of marks obtained for specified subjects at a set average, as prescribed by each university (University of Fort Hare, [n.d.]: Online). This admission point score is a strong indicator of past academic performances, which can be an indication for future academic achievements (Pitt *et al.*, 2012:907). The admission point score for the three nursing educational institutions ranged between 27 and 29.
- Have achieved minimal language skills, specifically English at level 4, which is a percentage between 50 – 59%. A pass rate or better for English as language is of importance, as English is often the second or third language for most undergraduate nursing students in South Africa (Wright & Maree, 2007:601; Mc Lachlan, 2010: Online). The undergraduate nursing programmes are all offered in English, or in some instances in Afrikaans at the universities.

- Have acquired mathematical skills, either at level 3 or a percentage between 40-49%, or at level 4, a percentage between 50-59%. Mathematical literacy is also accepted at some universities, but the student must have achieved this at level 5, a percentage between 60-69% or at level 7, a percentage between 90-100%.
- Have attained life science skills or physical science at level 4, a percentage between 50-59%, or level at 5, a percentage between 60-69%.
- Two of the universities make use of a selection committee and / or a personal interview to further refine the best possible selection of candidates. The advantage of a personal interview is that certain personality traits and lack of behavioural skills not portrayed on the admission form can often be detected during an interview, thus eliminating non-suitable candidates (Schmidt & MacWilliams, 2011:173).

The table below summarises the admission criteria as provided by the three participating universities.

TABLE 4.1: Admission criteria to enter an undergraduate nursing programme at universities

	UNIVERSITY ONE	UNIVERSITY TWO	UNIVERSITY THREE
Senior certificate	✓	✓	✓
Admission point score	29	28	27
Language skill: English	Level 4 50-59%	Level 4 50-59%	Level 4 50-59%
mathematical skills	Level 4 50-59%	Level 3 40-49%	Level 4 50-59%
Maths literacy	Level 5 60-69%	Level 7 90-100%	-
Physical science	Level 4 50-59%	Level 4 50-59%	Level 4 50-59%
Life science	Level 4 50-59%	Level 5 60-69%	Level 4 50-59%
Selection by a committee	No	Yes	No
Personal interview	No	No	Yes

4.2.3 Applicants

One interesting finding in this study was the total number of applicants that annually apply to study nursing at the participating universities. Figure 4.1 and Figure 4.2 reflect that the number of applications received by University One and Two seem to outweigh the number of candidates that were selected annually between 2007 and 2012. University Three did report the number of applications received between 2009 and 2012, but did not report the number of candidates selected. Therefore, a comparison cannot be made with the information received from University One and Two.

University One received 690 applications for 2007, 814 for 2010, 974 for 2011 and 1170 for 2012. The number of applications received for the years 2008 and 2009 were not provided by this university. University Two did not report the applications received for 2007, but this university reported 298 applications for 2008, 331 for 2009, 488 for 2010, 523 for 2011 and 510 for 2012.

University Three received 600 applications for both the years 2007 and 2008, and 700 applications for all the years from 2009 to 2012.

The higher number of applicants compared to the candidates that could be selected, can be seen as an indication that nursing is still seen as a profession of choice in many communities.

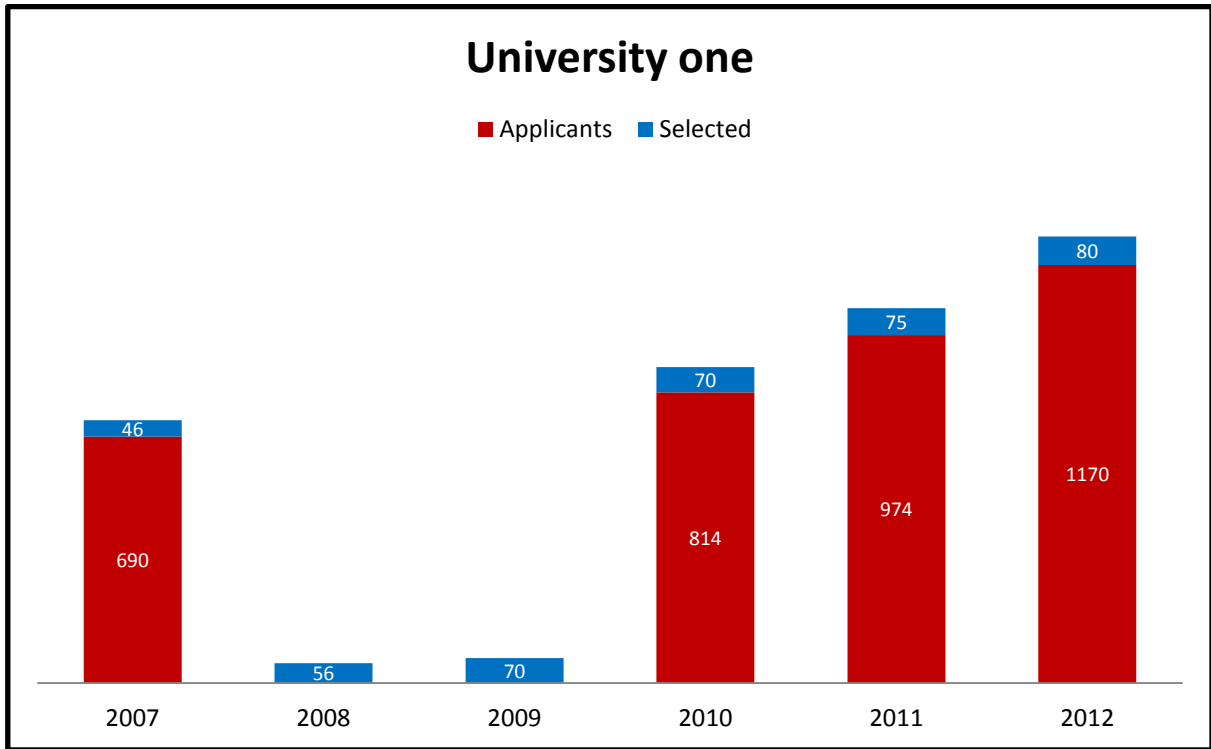


FIGURE 4.1: University One: Number of applicants compared to the number of candidates selected

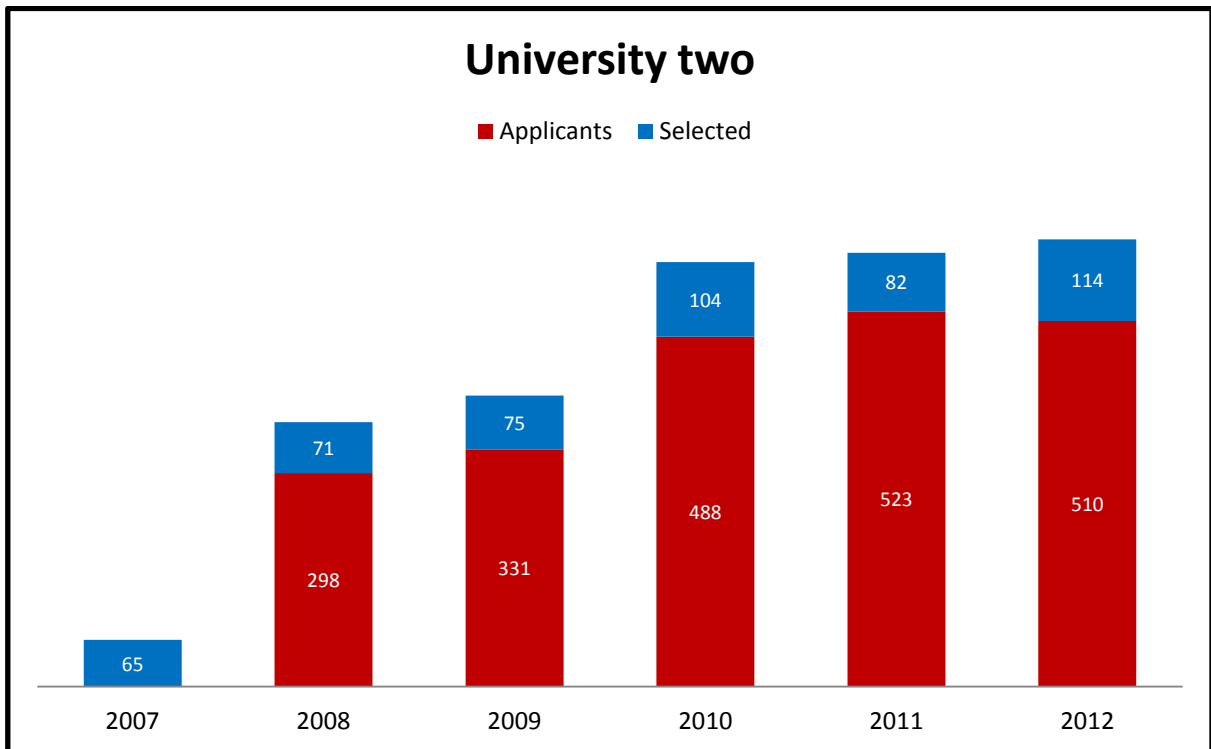


FIGURE 4.2: University Two: Number of applicants compared to number of candidates selected

4.2.4 Candidates

Also of interest in Figure 4.1 and Figure 4.2 is the inconsistent number of candidates that were selected during the different years. The number of candidates that were selected at University One annually varies between 46 and 80 candidates and the number of candidates that are selected at University Two annually varies between 65 and 114 candidates, showing a different number for each year.

The aim of this research was not to determine the number of placements in an undergraduate nursing programme. However, in the light of the number of applicants received by these universities and the low through-put rate of undergraduate nursing students, it can be of interest for future research to investigate the availability of student placement slots in university-based nursing educational institutions.

Figures 4.1 and 4.2 further indicate that consistent information was not kept by the administrators of the nursing educational institutions or the universities during the previous years. Although it was not the aim of the study to determine whether information was kept or not, the lack of dependable data increased the difficulty to generalise findings.

The percentage of candidates that were selected at University One varied between 6,66% and 8,60% of the applications received, whereas the percentage of candidates selected at University Two varied between 15,67% and 23,82% of their applications received. The proportions of candidates that were finally selected between the universities are statistically significantly different. It would seem that university two could select more candidates than university one. This might be due to University One being situated in a rural area and that less clinical learning opportunities might be available for these nursing students than those available for nursing students from University Two, situated in an urban area.

4.2.5 Registered students

University One did not provide the numbers of selected candidates that finally registered, therefore no conclusions or comparison with the data received from the other universities could be made regarding the number of student registrations.

A point of interest provided by University Two was the number of candidates that had initially been selected, who did not register as students in fact. Although this is not a consistent number across every year, it might be of interest to determine why these selected nursing students did not register. In reference to the shortage of degree-qualified nurses in Chapter 1, ensuring that all selected nursing students do register at universities could be one possible means to increase the annual output numbers. Figure 4.3 on page 88 indicates the difference between the numbers of candidates selected who did not register, and the number of candidates who actually registered as nursing students at University Two.

Another finding from University Two, also indicated below in Figure 4.3, is the fact that the number of nursing students that had registered for the intake for year 2011 seems to be five more than the number of candidates that had initially been selected. No explanation for this result was given. The inconsistent number of students entering the undergraduate nursing programme yearly makes planning for the next year difficult (O'Holloran, 2009: Online). Further research is needed to determine whether the under or over utilisation of placements have an influence on the attrition and / or completion rate.

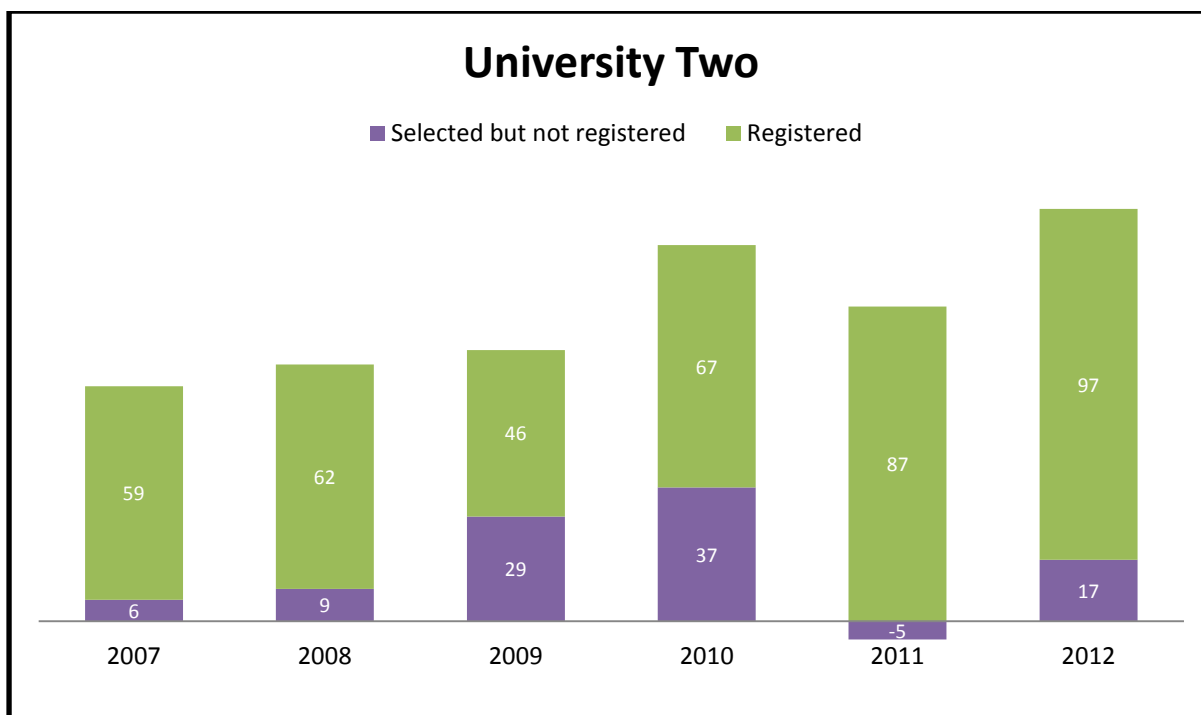


FIGURE 4.3: University Two: Number of candidates selected compared to number of student that registered

University Three reported that 30 students each registered for the undergraduate nursing programme for 2007 and 2008, and that 35 students had registered for 2009, while 40 students registered for 2010 and 48 students registered for both the years 2011 and 2012. The number of students that finally registered at University Two and Three is significantly different, although both these universities are situated in urban areas. Nursing Educational Institutions determine the number of placements per intake. However, SANC can also impose restrictions on the number of student placements (Wright & Maree, 2007:596).

4.2.6 Attrition and completion rates

Attrition relates to the number of students who fail to complete the undergraduate nursing programme successfully, irrespective of whether for an academic or non-academic reason. There seem to be many variations in the calculation of an attrition rate. For this study, the following method of calculation was used: The number of students who successfully completed the programme was subtracted from the number of students that started the programme four years earlier. This number was then compared to the enrolment number, to obtain a percentage (O'Holloran, 2009:

Online; South Africa, CHE, 2010: Online). The formula below outlines this calculation:

$\frac{\text{Total starters} - \text{Total completers}}{\text{Total starters}} \times 100 = \% \text{ attrition}$

No acceptable attrition rate could be found in any of the literature sources under study. Therefore, the findings of this study will be compared to the benchmark of a 75%-80% graduation rate, set by the South African Department of Higher Education (Bunting, 2004:22; Badat *et al.*, 2009:10).

Unfortunately, University Three did not complete this part of the questionnaire, therefore only the data provided by University One and Two will be discussed.

Figure 4.4 and Figure 4.5 on the following pages indicates the completion and discontinuation numbers per study year reported by University One and University Two. It also indicates the number of students unaccounted for. It is not the aim of this study to determine the outcome of the undergraduate nursing students that are unaccounted for. These students could either have completed in another year or could have discontinued the undergraduate nursing programme due to an unsuccessful second opportunity to prove academic or clinical competence.

University One reported an attrition rate of 54,34% for the 2007 intake, 39,28% for the 2008 intake and 42,85% for the 2009 intake.

University Two reported an attrition rate of 55,93% for the 2007 intake, 50% for the 2008 intake and 58,69% for the 2009 intake. It would seem as if the reported attrition rate at University Two is higher than the reported attrition rate of University One.

The reported attrition rates further indicate that the graduation rates do not meet the benchmark set by the Department of Higher Education, which is a matter of grave concern.

Of interest among the findings reported for this study, is the study year during which attrition most often occurred. This seems to be year two, as indicated by both University One and Two. University One reported that one student left during year two of the 2007 intake, six left during year two of the 2008 intake, while seven left during year two of the 2009 intake.

University Two reported that seven students left during year two of the 2007 intake, 12 left during year two of the 2008 intake, and 11 left during year two of the 2009 intake.

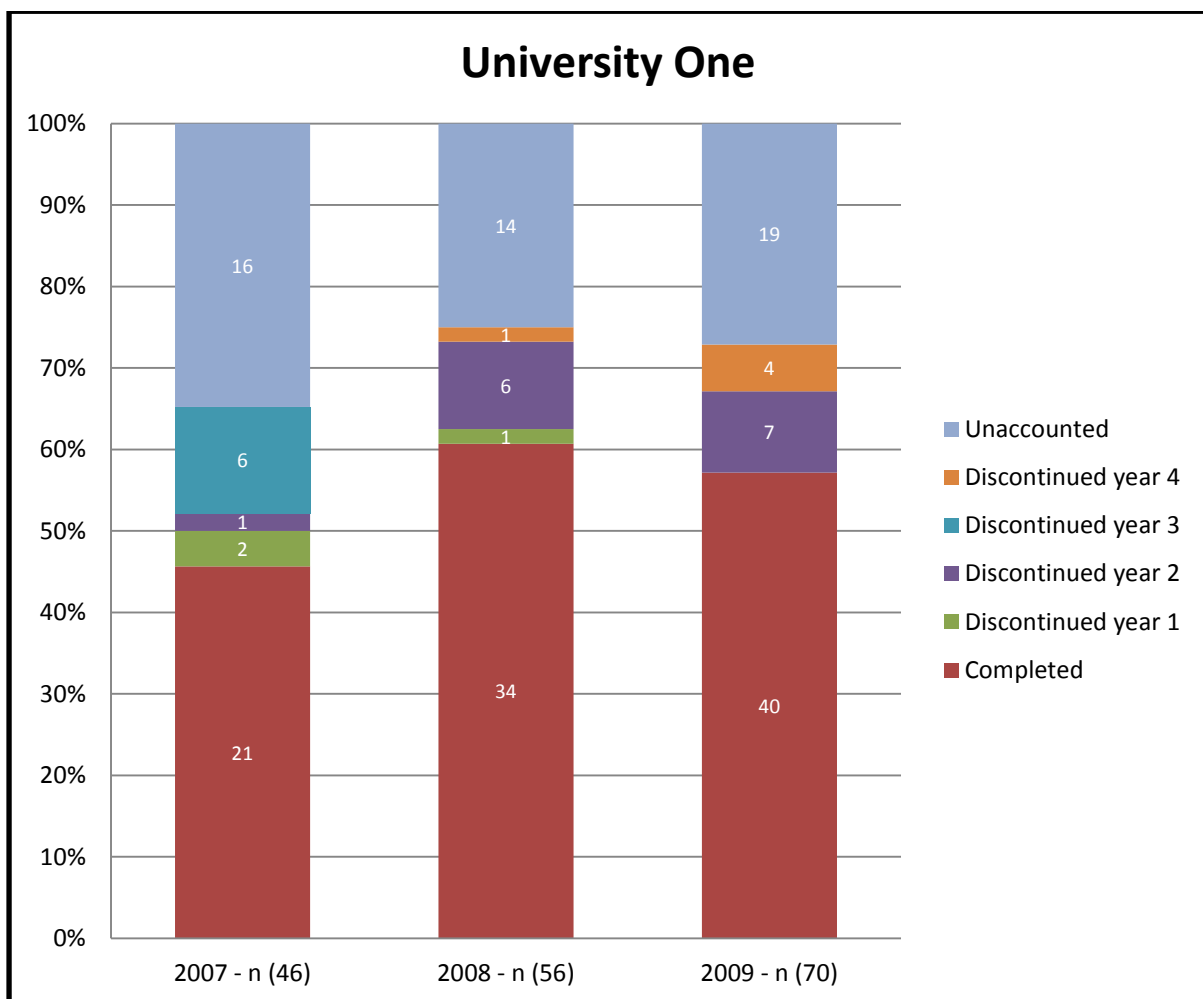


FIGURE 4.4: Attrition and completion rates for University One

Existing literature indicates that year one and year two are the critical years during which attrition most often occurs (Mashaba & Mhlongo, 1995:372; Glossop, 2002:382; Mc Lachlan, 2010: Online; Clover, 2011: Online).

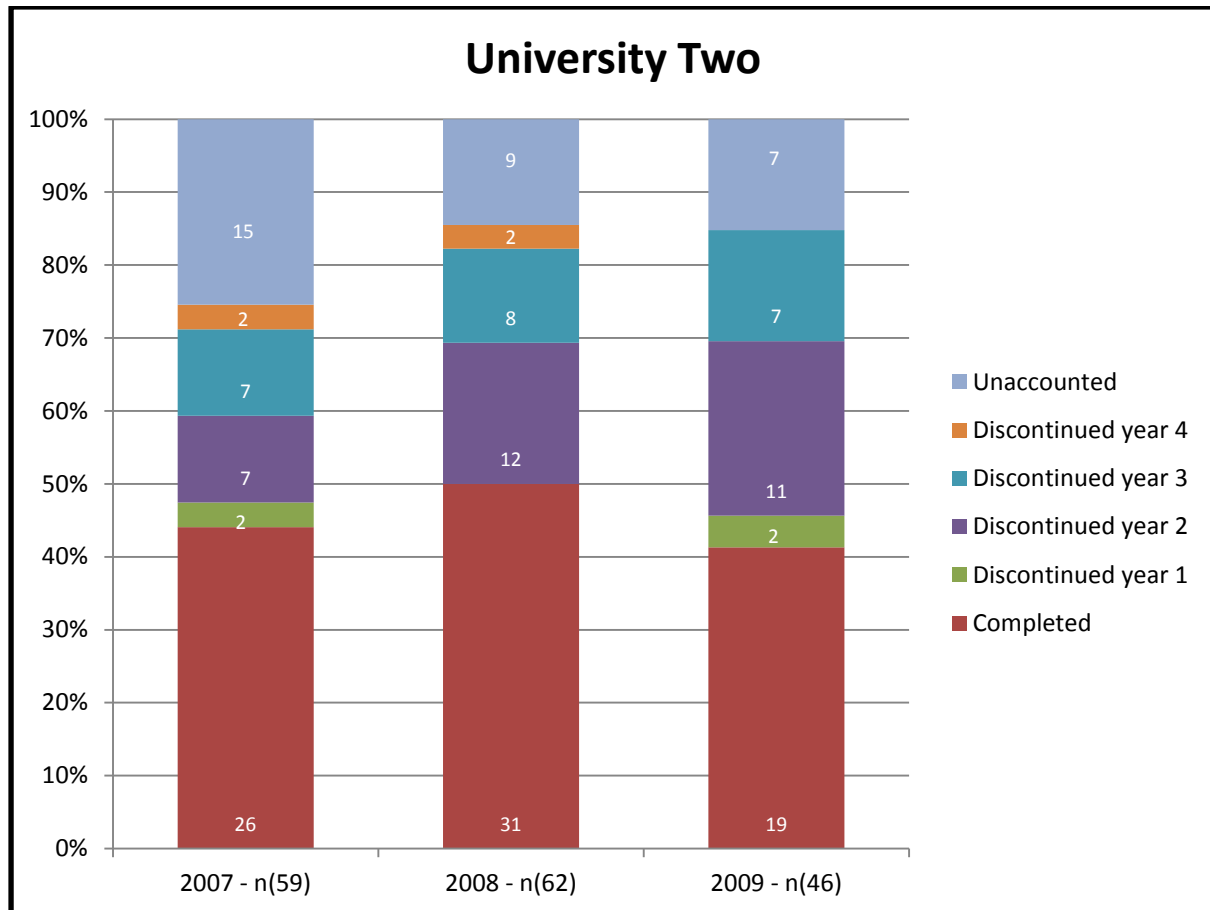


FIGURE 4.5: Attrition and completion rates for University Two

4.3 STUDY POPULATION TWO: FORMER NURSING STUDENTS

Firstly, it should be noted that due to the two universities that withdrew at a late stage of the study and the small total number of all former nursing students that could be reached telephonically, it was decided to add the responses of the former nursing students that participated in the pilot study to the data collected in the actual study. Furthermore, the sample of participants in the actual study during phase two was too small to gather sufficient data that could identify possible trends. This decision was taken in consultation with the research supervisor, co-supervisor and on recommendation of the statistician. The Ethical Committee of the University of the Free State was informed of this decision in writing. Limited literature sources advise this practice, if the data gathering tool and method to collect the data do not change

between conducting the pilot study and the actual study (Van Teijlingen & Hundley, 2001:para. 7).

The number of names and telephone numbers received from the three participating universities totalled 157. The number of former nursing students contacted during the pilot study is included in this number. Of the 157 names, only 62 former nursing students could be reached telephonically. Of these, only one was not willing to participate in the research. Seven participants were excluded as they did not meet the selection criterion of being registered at one of the selected universities as a nursing student. These students had been selected, but did not register for the undergraduate nursing programme. Therefore, only 54 former nursing students participated in this study, of which 20 of the participants were contacted during the pilot study.

The proportion of the former nursing students from each of the three participating universities is depicted in Figure 4.6, on the next page. Due to the uneven number of participants per university, it was impossible to make generalisations. However, the characteristics and demographic information of the participants could be described and compared to the information gathered from the existing literature (Polit & Beck, 2012:379).

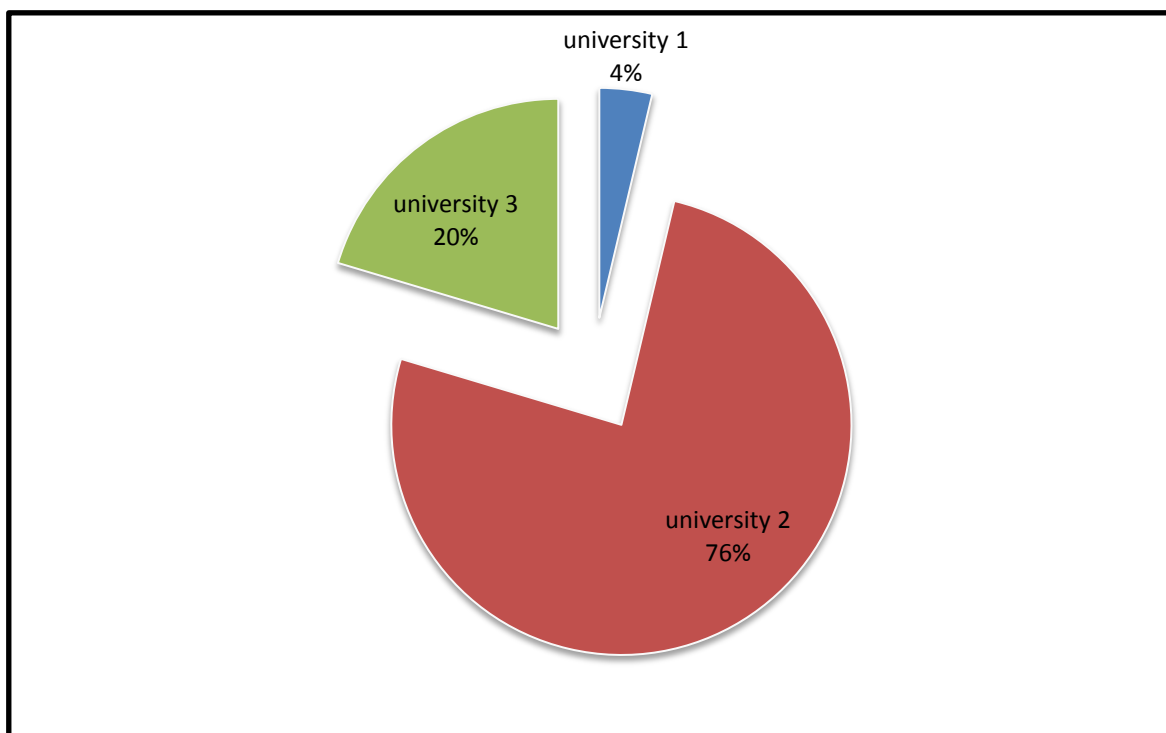


FIGURE 4.6: Percentage of former student participants per participating university

The participating former nursing students will be described according to their characteristics, including gender, age, ethnic race and demographic information, including their family responsibilities, marital status and their number of dependants, while residential data, travel arrangements and social integration will conclude the oversight of this group of participants.

4.3.1 Characteristics

4.3.1.1 Gender

Of the 54 participating former nursing students (n 54), seven (13%) were males and 47 (87%) were female. Due to nursing being a predominantly female profession, it is understandable that the number of males in an undergraduate nursing programme would be smaller compared to those of the female students. This could explain the results showing a smaller number of males leaving the undergraduate nursing programme compared to the larger number of former female nursing students. The

literature states that males tend to leave nursing programmes more readily (Stott, 2007:326; Dyck *et al.*, 2009:649).

4.3.1.2 Age

All of the participating former students supplied their age during year one of their studies ($n = 54$). The ages of the former students ranged from 18 to 36 years, with a mean age 21,3 years, and a median age of 20,0 years. Twenty three (42,60%) of the respondents were 19 years or younger, ten respondents (18,52%) were 20 years old, 14 respondents (25,92%) were between 21 years and 25 years old, four respondents (7,4%) were between 26 years and 30 years old and three respondents (5,55%) were older than 30 years of age. The results of this study show that the number of younger students that discontinued their nursing programme is much higher than that among the older students. These results compare well to findings in the existing literature, stating that older students are more likely to persist as they are more committed to study due to previous academic successes and / or failures (Prymachuk *et al.*, 2008:157).

4.3.1.3 Ethnicity

A further characteristic of interest under the former nursing respondents is that of ethnicity. The Black ethnic group was the best represented with 33 participants (61,11%), the White ethnic group was represented by 20 participants (37,04%) and only one Coloured participant (1,85%) was included. The high number of Black students not completing the undergraduate nursing programme is of concern, as the Black ethnic group represents the largest proportion of the population of South Africa, yet the graduating rates of this ethnic group is among the lowest in the country (South Africa CHE, 2007: Online; Letseka & Maile, 2008:1; Wangenge-Ouma, 2012:833).

The characteristics mentioned above are summarised in the table below.

TABLE 4.2: Characteristics of the former nursing students, 2009 – 2012, n (54)

	FORMER NURSING STUDENTS		
Gender	Male 7	Female 47	-
Age	Minimum 18	Mean 21,3	Maximum 36
Ethnicity	Black 33	White 20	Colored 1

4.3.2 Demographic information

4.3.2.1 Marital status and dependants

While enrolled in the undergraduate nursing programme, 44 respondents (81,48%) had been single and 10 respondents (18,52%) had been married. Thirty eight (38) respondents (70,37%) indicated that they had no dependants during the time of their enrolment, while 16 respondents (29,63%) had dependants during the time of their study. The number of dependants varied between one and four dependants.

Four former students (7,40%) reported personal problems as a reason why they discontinued the undergraduate nursing programme. The specifics as experienced by these students are not part of this study. However, the literature does suggest that personal problems can include extended family responsibilities while married, and having dependants. The inability of a nursing student to manage an academic workload, clinical demands and family responsibilities, could become a challenge that the nursing student is unable to overcome (Pulido-Martos *et al.*, 2011:16).

4.3.2.2 Residential and travel arrangements

Forty one former students (75,93%) stayed off-campus while 13 former students (24,07%) stayed on-campus. Of the students staying off-campus, 23 respondents (56,10%) had their own transport and 18 respondents (43,90%) depended on public transport. Most former students living off-campus stayed 20 kilometers or less from the campus (63,42% of the respondents), while only 11 respondents (26,83%) lived between 20 and 50 kilometers from the campus. Four respondents (9,76%) lived further than 50 kilometers from the campus.

One of the challenges facing higher education in South Africa is that the National Student Financial Aid System established in 1991, does not cover living and travel expenses for undergraduate students. The undergraduate student is therefore often forced to live in residential areas a distance away from the university, which is not necessarily conducive to learning. The fees to live and commute to and from the university are often high (Mdepa & Tshiwula, 2012:24). As found during a study of the *Rural Education Access Programme* in 2008, undergraduate students from rural backgrounds and lower income families are often affected most (REAP, 2008: Online).

4.3.3 Additional biographical information

4.3.3.1 Social integration

The degree of social integration is the last factor of interest in describing characteristics of the participating former students. Only 24 former nursing students (44,44%) ever participated in the social events arranged by the universities, with 30 former nursing students (55,56%) never participating in the social events. The existing research by Alexander Astin and Vincent Tinto supports the findings that a lack of social integration can influence the student's decision to leave an undergraduate programme (Astin, 1999:7; Tinto, 2006:2).

4.3.3.2 *Time span between matriculation and the first year of study*

Most participants (61%) started their nursing course within year one or two after obtaining their National Senior Certificate. These nursing students could be seen as the more traditional students, who are usually younger, single and have no dependants. This is in line with the findings from the literature study regarding the age, marital status and added family responsibilities of the nursing students, as discussed in section 4.3.1.2.

4.3.3.3 *Study year during which the nursing programme was discontinued*

Reports from the Nursing Educational Institutions indicated year two to be a critical year, during which most of the former nursing students discontinued their undergraduate nursing programme. These findings are generally discussed in section 4.2.6. However, the results obtained from the participating former nursing students themselves indicated that year one was a critical year. Thirty five respondents (64%) discontinued the undergraduate nursing programme during year one of their studies. This result is in line with the existing literature that indicates that year one and year two are critical years during which attrition most often occurs (Mashaba & Mhlongo, 1995:372; Glossop, 2002:382; Mc Lachlan, 2010: Online; Clover, 2011: Online)

4.3.4 *The factors that influenced the former nursing students to discontinue their undergraduate studies*

To answer the second research question, the factors as provided by the participants that influenced the undergraduate nursing students to discontinue their nursing programme will be summarized and the findings explored in more detail.

All of the participants (n = 54) provided at least one reason as to why their undergraduate nursing programme was discontinued, while six participants also provided a second reason for discontinuing. The two major contributors for leaving the undergraduate nursing programme seem to have been academic and financial difficulties. Sixteen former students (29,62%) left due to academic reasons and 15 (27,77%) due to financial difficulties.

The frequency distribution table below indicates the factors that influenced the participating former nursing students to discontinue their undergraduate studies as trended for this study, thereafter each factor will be discussed.

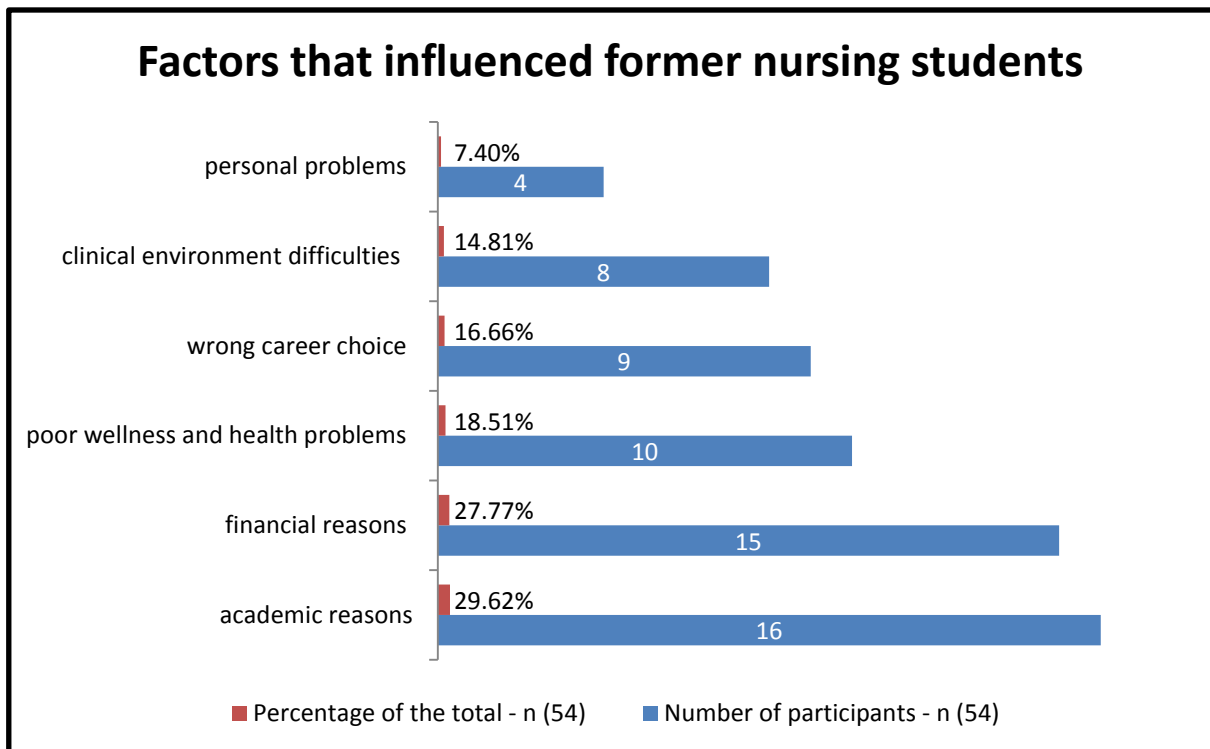


FIGURE 4.7: Frequency distribution of factors that influenced former nursing students who discontinued their undergraduate studies (Polit & Beck, 2012:382)¹

¹ As explained at the beginning of this page, some participants provided more than one reason why they discontinued their studies. This resulted in the percentage and number of total participants in the frequency distribution table to calculate to more than 100% or more than 54 participants.

4.3.4.1 Academic reasons

In the existing literature, academic difficulties are reported to be one of the main reasons why undergraduate nursing students leave the nursing programme (Wright & Maree, 2007:597; Prymachuk *et al.*, 2008:151; O'Holloran, 2009: Online; Cameron *et al.*, 2010:1373; Park *et al.*, 2011:38), therefore this finding compared well with the main reason(s) reported in literature as to why nursing students discontinue their undergraduate studies. In this study the specific details regarding the reported academic difficulty were not investigated. The students' past academic performances could not be determined as only 24 of the former students (44,44%) could remember their admission point score required to be selected for the nursing programme.

4.3.4.2 Financial reasons

Escalating cost for participating in higher education is of great concern in South Africa. The high cost for training makes higher education unaffordable for many students and creates difficulty in completing studies, despite the various forms of financial assistance on offer (Wright & Maree, 2007:601; De Villiers & Niewoudt, 2010: Online; Mc Lachlan, 2010: Online). Of special note in this study is the absence of financial assistance reported by the participants of study population two, the former nursing students. Of the 54 participants (n = 54) only 11 (20,37%) received a bursary, while 43 participants (79,63%) did not receive any bursary to study in the undergraduate nursing programme. It is not known whether these former nursing students requested financial assistance other than a bursary from any financial institution.

Literature regarding international studies does mention that the lack of financial assistance in the form of a bursary or other financing would force the undergraduate student to work temporarily, thus reducing their available study time (Gray, 2008:1; Karstadt, 2010:345).

4.3.4.3 Poor wellness and health problems

The third most reported factor that influenced the former nursing students to discontinue their undergraduate studies was poor wellness and health problems. Ten former students (18,51%) claimed that poor wellness and / or a health problem was the reason why they discontinued the undergraduate nursing programme. The various types of wellness and health problems were not investigated during this study, therefore it is not known whether this might be a problem that had already been experienced at the time of admission or whether the wellness and / or health problem developed during training. However, literature does suggest that stress experienced due to fear of academic failure, lack of financial assistance, extended family responsibilities, the demands of the combined academic and clinical outcomes and the way nursing students experience qualified nurses and medical staff in the clinical setting, can lead to high degrees of stress, burnout and other health problems (O'Regan, 2005:17). A study conducted at a South African university confirmed that the previously mentioned stressors were frequently reported by rural first-year undergraduate students (Pillay & Ngcobo, 2010:236). Another study at a different South African university determined that undergraduate nursing students who portray good physical and mental health perform better academically (Van Lingen *et al.*, 2011:405).

4.3.4.4 Wrong career choice

Interestingly enough, 11 former students (20,37%) reported a wrong career choice as the reason for leaving the undergraduate nursing programme. Existing literature states that not all prospective students are fully informed of what the nursing profession entails, and that once they enter the clinical setting they are disillusioned by what they encounter (Wright & Maree, 2007:597; O'Holloran, 2009: Online; Cook, 2010:12; O'Donnell, 2011:58). Therefore, it can be beneficial to inform prospective candidates of exactly what the nursing profession entails during open days at universities and during a personal interview. Information can be determined by the current knowledge of the candidate (Hayes, 2007:261).

4.3.4.5 Clinical environment difficulties

Due to the nature of the profession, reaching clinical outcomes is always part of any nursing programme. Eight former students (14,81%) reported that the demands of the clinical setting and their experiences in the clinical setting contributed to their decision to leave the undergraduate nursing programme. The responses varied from “*just a bad clinical experience*” to “*could not handle the demands of the clinical practice, especially in combination with academic demands*”. Feedback from successful students show that their first clinical placement on introduction to nursing was of significant importance, as was the involvement of a clinical preceptor and regular visits from a tutor to ensure theory – practice integration (Airey, 2012:310).

The least reported factor that influenced the former nursing students to discontinue the undergraduate nursing programme, namely personal problems has been discussed in section 4.3.2.1. The specifics of the reported personal problems experienced were not explored during the structured interview. However, the literature study guided the decision to view personal problems as being married and having dependants to care for.

4.3.5 Retention strategies

The participating former students were asked to list intervention(s) that could have contributed to making them stay in the programme. A majority of 29 former nursing students (53,70%) stated that no intervention could have made them continue with the undergraduate nursing programme; 12 (22,22%) mentioned academic assistance and 11 others (20,37%) believed that financial assistance would have been beneficial. Two former students (1,85%) each stated that appropriate referrals for a health problem and information regarding what nursing entailed, could have been of assistance to them.

4.4 FEEDBACK ON FINDINGS OF THE RESEARCH

All the participants in Study Population One: Universities indicated that they were interested in receiving a report on the findings of this research, whereas the participants of Study Population Two: Former nursing students were less interested in receiving feedback. A minority of 23 (43%) former nursing students were interested in receiving the results of this research and provided their e-mail addresses, while the majority of the former nursing students (57%) declined receiving the results of this study.

4.5 CONCLUSION

The data gathered during the study was analysed and described in order to draw conclusions and to answer the two set research questions. This chapter provides a reflection of three universities offering undergraduate nursing programmes and fifty four former nursing students who discontinued from these nursing programmes. Although a generalisation could not be drawn as to whether attrition is an actual problem occurring at all universities offering an undergraduate nursing programme within South Africa, it does occur at a high rate in at least two of the universities participating in this study. It was found that the reasons why former nursing students decided to leave the undergraduate nursing programme compared positively with trends reflected in existing international literature.

The conclusions made in Chapter 4 leads to an overall study summary, included in Chapter 5, as well as the identification of recommendations and limitations in this study. Chapter 5 will conclude with a reflection on the study experience by the researcher.

CHAPTER 5

Conclusions and recommendations

5.1 INTRODUCTION

Chapter 5 will reintroduce the aim and objectives of this study, as determined at the planning phase. Thereafter, the study conclusions will be portrayed followed by the recommendations to improve throughput of undergraduate nursing students at universities. To conclude this chapter, the limitations of the study will be described as well as a personal reflection on the study by the researcher.

5.2 AIM AND OBJECTIVES OF THIS STUDY

The aim of this study was to determine and describe attrition among undergraduate nursing students at South African universities. The objectives were identified as firstly, to obtain the attrition rate from selected universities and secondly, to identify the factors influencing the former nursing students to discontinue their studies. Data gathered and analysed provided valuable information regarding the phenomenon of attrition. It would seem that attrition occurs at the participating universities at a higher rate than the ideal set by the South African Department of Higher Education (Bunting, 2004:22; Badat *et al.*, 2009:10). The factors that influenced the former undergraduate nursing students to discontinue their studies have been identified and trended.

Data obtained during the study was used to draw conclusions after analysis. The analysis of the data has been generally discussed in chapter four. The next section will provide the study conclusions that were drawn from the results of this study.

5.3 STUDY CONCLUSIONS

As mentioned previously, the first objective was to obtain the attrition rate of undergraduate nursing students at selected universities. The study conclusion for objective one is that a high rate of attrition occurs among undergraduate nursing students at the participating South African universities. The attrition rates reported by the universities are between 39,28% and 58,69% of intakes from 2007 to 2009. These rates are significantly higher than the 20-25% attrition rate set by the Department of Higher Education in South Africa, to reach the benchmark of an ideal 75-80% throughput rate (Bunting, 2004:22; Badat *et al.*, 2009:10).

The second objective was to identify the factors influencing nursing students to discontinue the nursing programme. The study conclusion for objective two highlighted the two major factors contributing to the nursing student's decision to discontinue the undergraduate nursing programmes, namely academic and financial reasons. Of interest was a third contributing factor, identified as poor wellness and health problems that influenced nursing students to discontinue an undergraduate nursing programme. Other factors that influenced the undergraduate nursing students included the wrong career choice, clinical difficulties and personal problems.

The mentioned study conclusions from objective one and two have been used to make recommendations to review the universities' selection criteria, ensure adequate utilisation of student selection placement, determine attrition rates among undergraduate nursing students at different Nursing Educational Institutions, identify reasons why nursing students discontinue their undergraduate studies and to formulate strategies to assist an at-risk nursing student. These recommendations may become a possible means to improve the future throughput rate of undergraduate nursing students and alleviate the shortage of degree-qualified registered nurses in the country as a whole.

5.4 RECOMMENDATIONS

To improve the throughput rate of undergraduate nursing students at selected South African universities, the following recommendations are made:

RECOMMENDATION 1: Review selection criteria for new candidates

The participating Nursing Educational Institutions reported that their selection criteria were in line with those as stipulated by the South African Department of Higher Education (South Africa, DoE, 2008: Online). Only one of the participating Nursing Educational Institutions indicated that personal interviews were conducted to further select the best possible candidates. Another participating Nursing Educational Institution required that a general health questionnaire be completed and certification by a medical practitioner that the candidate is fit to practice nursing. As a result of the outcomes of this study it is recommended that conducting a personal interview and including a health questionnaire as well as pre-requisite medical certificate be included as part of the selection process.

Recommendation 1.1: Conduct a personal interview with applicants as part of the selection process

Conduct a personal interview to determine those personality traits and behavioural skills not portrayed on the application form, as well as critical thinking skills. Determine the candidate's actual knowledge regarding the profession with probing questions and immediately rectified areas of poor understanding that are identified (Schmidt & MacWilliams, 2011:173; Pitt *et al.*, 2012:908). Valuable information regarding nursing practice as a career can further assist the prospective candidate in finalising the decision to join the undergraduate programme or not. The information can include, but is not limited to, the expected salary, employee benefits, working conditions and possible career opportunities after qualification (Hayes, 2007:261). A personal interview needs not be a face-to-face interaction, but can be held via telephone or web-based mediums due to financial and time constraints.

Recommendation 1.2: Establish the personality traits of applicants

Due to the nature of the nursing profession as a caring profession, it is beneficial to establish the personality traits of applicants for an undergraduate nursing programme. Universities should choose a personality model that will analyse personality regarding the following five domains, namely neuroticism, extraversion, openness, agreeableness and conscientiousness (Baldacchino & Galea, 2012:419). Identify those applicants with low scores in neuroticism and high scores in altruistic personality types, as people who score high in the altruistic trait tend to be caring, willing to help others, are more prone to socialise and work well in teams (Eley, Eley, Bertello & Rogers-Clark, 2012:1552).

Recommendation 1.3: Include a health questionnaire and a medical certificate as part of the application

The discovery of the third most reported reason to leave the undergraduate nursing programme, namely poor wellness and health, raises concerns about the actual wellness and health of undergraduate nursing students, either before selection or during the programme period. A study under undergraduate nursing students conducted at a South African Higher Educational Institution found a correlation between higher levels of wellness and better academic performance (Van Lingen *et al.*, 2011:205). Literature furthermore suggests nursing students are more prone to experience stress and burnout due to the high academic workload in combination with the high demands experienced in the clinical placement setting (Deary, Watson & Hogston, 2003:78; O'Regan, 2005:17; Cook, 2010:12; Pillay & Ngcobo, 2010:236; Pulido-Martos *et al.*, 2011:15). Therefore, it would seem important to have knowledge of the current wellness and health status of a prospective student, in order to refer the student for medical assistance speedily.

On investigation it was found that only one of the Nursing Educational Institutions requires completion of a health questionnaire and certification by a medical doctor that the prospective candidate is physically and emotionally fit to practice nursing.

Further research is needed to determine whether this Nursing Educational Institution reports a lower attrition rate since the implementation of this practice.

RECOMMENDATION 2: Ensure optimum utilisation of student placement slots

One of the unexpected outcomes of this study is the fact that all the available student slots are not filled with selected candidates. This lowers the total number of students entering the undergraduate nursing programme, as well as the total number of nursing students completing the undergraduate nursing programme. It is recommended that the available placements be optimally used.

Recommendation 2.1: Maintain a data base regarding student selection

It is recommended that nursing educational institutions should maintain a data base of the number of applicants received, number of candidates finally selected and number of actual student registrations to have data on hand if all available student slots are utilised (O'Holloran, 2009: Online).

Recommendation 2.2: Explore why the selected candidates did not accept or utilise the student placement slots available to them

An administrative officer at the Nursing Educational Institution should contact candidates who did not register as planned to determine the possible reason why they had not utilised the student placement slots available to them in the undergraduate nursing programme.

These reasons should be registered on the mentioned data base. The information can assist with a review whether and why available placements were utilised completely or what it is about the undergraduate programme that causes prospective students to withdraw (O'Holloran, 2009: Online).

RECOMMENDATION 3: Calculate and monitor attrition rates at Nursing Educational Institutions

A significant finding of this study is that not all Nursing Educational Institutions or Universities keep a data base in order to calculate and monitor attrition rates. Throughput rate is usually used to determine the quality of the learning process within an undergraduate programme, which is measured against the benchmark of 75-80% throughput rate as set by the Department of Higher Education (Bunting, 2004:22; Badat *et al.*, 2009:10). Furthermore, universities in South Africa are funded according to the number of students that graduate, thus emphasising the importance of keeping students moving through a programme and increasing the throughput rate (South Africa, CHE, 2010: Online; Strydom, Mentz & Kuh, 2010: Online). Future planning should depend on the availability of sound data bases (O'Holloran, 2009: Online). One of the limitations in this study was the inconsistent availability of data from the different universities, seemingly because detailed data bases were not kept by the Nursing Educational Institutions or the Universities.

Recommendation 3.1: Maintain a data base regarding student attrition rates

The information needed to calculate attrition rates must be freely available. Maintain a data base that includes, but is not limited to, the intake and completion rate of each specific yearly intake of students. Furthermore, include the number of students who terminate training in each specific year of the training programme and the factors that influenced the former nursing students to discontinue their undergraduate studies in this data base as a quality assurance tool.

Recommendation 3.2: Establish and maintain national data bases regarding attrition of students

It is recommended that, once a nursing student deregisters at the South African Nursing Council as a student nurse, the factors leading to the deregistration should be investigated. The findings of this investigation can be reported in the deregistration documentation that is completed to inform the SANC of the nursing student's withdrawal. The collected information on attrition from all Nursing Educational Institutions needs to be available on national level, preferably at the South African Nursing Council. Legally the SANC acts as a quality monitor of nursing education and training in South Africa.

RECOMMENDATION 4: Explore the factors influencing the nursing student to discontinue undergraduate nursing programmes

This study identified the various factors that contribute to a nursing student's decisions to leave an undergraduate nursing programme and sometimes more than one factor plays a role.

Recommendation 4.1: Conduct an exit interview

Include the nursing student who intends to leave the undergraduate nursing programme in an exit interview. Record the reasons for exiting the undergraduate programme as provided by the nursing student and categorise the reason(s) as main and additional reasons. Keep the information gathered during the exit interview on the student data base. Consider the reasons and trends when formulating retention strategies to improve the throughput rate in the undergraduate nursing programmes (Glossop, 2002:377; Ascend Learning, 2012: Online).

RECOMMENDATION 5: Formulate and implement retention strategies to improve the throughput rate in undergraduate nursing programmes.

Once the various factors leading to a decision to discontinue the undergraduate nursing programmes have been identified and trended, retention strategies can be formulated to assist at-risk nursing students in preventing future occurrences of existing programmes. Academic and non-academic staff should know how to identify at-risk nursing students and where to refer these students for the required support and guidance.

It would seem that support structures are available to most universities' undergraduate nursing students, for example academic / clinical, or financial support. Further research is required to determine why at-risk nursing students did not access the support structures available in higher educational institutions.

The retention strategies that have been identified in the literature as successful, seem to be the programmes that offer academic / clinical support, financial assistance and evaluating and implementing of wellness programmes.

Recommendation 5.1: Offer academic support

It is recommended that academic staff of the nursing educational institutions discuss and identify possible reasons for students' apparent inability to attain a pass mark, and offer them academic support. Once an agreement with the at-risk nursing student is reached, the at-risk student should be placed on an appropriate academic support programme. The types of academic support programmes which could be implemented by the Nursing Educational Institutions should include more contact time per module (Baker, 2010:219; Roberts, 2011:195), with the involvement of an academic mentor. The academic mentor can either be the nurse educator or a skilled fellow nursing student (Bowden, 2008:54). Programmes to develop critical thinking skills should be included in the all academic support programmes (Igbo, *et al.*, 2011:376). The following guidelines for the academic support programme should be considered:

Randomly divide the nursing students into groups to include various academic levels and equity.

Improve study skills by determining the at-risk nursing students' individual learning styles and possible methods to adapt to the teaching style of the individual nurse educator. Include resources to provide more information regarding a topic and methods of using the resources already available to undergraduate students, for example the library and professional journals.

Advise students on how to improve their time management and organisational skills by allowing each student to draw up a timetable of preparation for different types of assessments and due dates.

Break down modules into smaller parts that must be mastered before advancing to the next concept, as well as utilising mock examinations to further prepare at-risk nursing students and reduce anxiety levels.

Set smaller goals, and allow methods of celebration when the group reached the goals as motivation to succeed.

Structure time during allowed contact time to include some form of socialising that could build peer relationships (Fergy *et al.*, 2011:114).

Recommendation 5.2: Offer clinical support

Nursing Educational Institutions should induce clinical support by creating a positive clinical environment in which to place the at-risk student, for example:

Initiate regular meetings with the clinical nursing unit management and clinical preceptors to keep these personnel updated with the current expectations and the clinical outcomes that must be reached, as well as the theoretical content that was covered before the clinical placement.

Pursue a student orientation programme for the first week in a new nursing unit to ensure that the nursing students is introduced to the climate and culture of the nursing unit, the clinical personnel and the preceptors, as well as the local method of task delegation (Frazer *et al.*, 2014:1106).

Allocate one clinical preceptor to every 15-20 nursing students (South Africa, DoH, 2014:85).

Allocate similar off-duty times for the nursing students as that of the clinical preceptor, to allow a positive relationship to build and ideally this should constitute 80% of the clinical learning time during the undergraduate nursing programme (South Africa, DoH, 2014:85).

Allocate time for regular meetings between the clinical preceptor and the mentee nursing student to plan for future clinical skills that need to be mastered, give feedback and provide time for reflection on the learning that has taken place, and to discuss areas that need to be improved (Jokelainen *et al.*, 2011:2860; Frazer *et al.*, 2014:1106).

Arrange accompaniment in the clinical environment by the nurse educator on a regular basis during clinical placement to ensure theory-practice integration (Airey, 2012:310) and to assess the student's competence in the required level of clinical skills. Ideally, accompaniment time should constitute 20% of the work-integrated learning time during the undergraduate nursing programme (South Africa, DoH, 2014:83).

Use scenarios and case studies taken from the clinical environment as a teaching strategy in the classroom to further ensure theory-practice integration (South Africa, DoH, 2014:87).

Demonstrate clinical skills in the simulation laboratory (South Africa, DoH, 2014:87). Assist the undergraduate nursing students in reaching clinical skills by allowing more time to practice in the simulation laboratory. The mastering of the expected clinical skills in a safe environment would develop the confidence of the at-risk nursing student (Pulido-Martos *et al.*, 2011:23).

Recommendation 5.3: Provide or arrange financial assistance

Develop a funding model in alignment with the suggestions of the Ministerial Task Team, appointed by the Minister of Health after the recent Nursing Summit in 2011. This funding model should support a nursing student in the procurement of tuition, books, study materials, living and transport costs, as well as insurance and medical aid fees (South Africa, DoH, 2014:36).

Recommendation 5.4: Implement a wellness programme

Allow undergraduate nursing students to complete a wellness evaluation of lifestyle questionnaire at the beginning of each year of study. An allocated nurse educator should follow the scores of each student across the four years of study. If a medium to low score is detected, the at-risk student should be allocated to a wellness programme that would make the nursing student aware of his / her own responsibility for own wellness, the role of exercise and nutrition on the health of a person, and strategies to reduce stress and promote wellbeing in undergraduate nursing students (Van Lingen *et al.*, 2011:405).

Finally, the researcher could recommend further research when the above mentioned recommendations are implemented to determine if this continuous tracing could assist the Heads of the Nursing Educational Institutions in managing attrition more successfully.

The study provided valuable data but had limitations.

5.5 LIMITATIONS TO THIS STUDY

A major limitation to this study was the withdrawal of two of the universities at a late stage during the study's first phase despite the initial agreement to participate in the study. This resulted in limited statistical analysis and an inability to make generalisations from the information received. Furthermore, the withdrawal of these two universities greatly influenced phase two of the research, as these universities

were not willing to provide the names and telephone numbers of their former nursing students.

The second limitation identified during this study was the fact that detailed information regarding student attrition was not kept by all the Higher Educational Nursing Institutions or the Universities. Keeping a data base up to date is important for determining trends of attrition and to identify the factors influencing undergraduate nursing students to discontinue the nursing programmes.

A final limitation experienced was that the information that was available, was inconsistently kept by the Higher Educational Nursing Institutions or Universities. This resulted in inconclusive results and prevented the researcher from making generalisations with the results of the study.

Although there are limitations to this study, a key strength was also identified that adds value to the efforts of the study.

5.6 VALUE OF THE STUDY

The value of the research lies in the fact that two of the participating universities now have a calculated attrition rate for the intake years of 2007 to 2009. This information includes data from the year 2012, as the final output year for the 2009 intake. This time range makes the collected data recent and therefore relevant. Furthermore, the factors that influenced the former nursing students to discontinue their undergraduate studies have been identified, which is information that can assist the universities in identifying and assisting at-risk students.

Further research would be required to determine why undergraduate nursing students do not make use of the placements offered to them, as well as the support structures that are available at the universities, and whether the support would ultimately increase the throughput rate. It will furthermore be beneficial to determine whether the implementation of personality type testing and the tracking of the general wellness and health of undergraduate nursing students would have an influence on the universities' reported attrition rates.

5.7 REFLECTION BY THE RESEARCHER

While I expected that attrition would occur among undergraduate nursing students, I never expected that the rate of attrition was as high as it proved to be. Furthermore, I had expected that undergraduate students would be challenged by various academic and non-academic factors which could lead to attrition. However, the number of students claiming poor wellness and health as a reason to discontinue the undergraduate nursing programme, was not expected and has been perceived as a matter of great concern to me. Being a registered nurse myself, I know the essential importance of wellness and good health to someone in the nursing profession.

In conclusion, I have experienced the research process in a very positive and informative manner. I have gained new skills in accessing and using the available information on subjects relevant to my current occupational position, as well as acquiring numerous new computer skills. These skills have proved to be really valuable in my current position as a nurse educator.

I was, however, disappointed by the lack of interest shown by the staff members from some of the Nursing Educational Institutions contacted in assisting a novice researcher in obtaining data.

5.8 CONCLUSION

The findings of the study confirmed the theories on attrition and retention of undergraduate students described by Astin, Tinto, Bean and Eaton (Tinto, 1975:96; Astin, 1993:6; Astin, 1999:522; Bean & Eaton, 2001:74). Nursing students are in fact challenged by their own lack of persistence, inability to adjust to the academic demands of higher education, escalating costs of higher education and the lack of integration into the social life offered at the higher educational institution. Finally there is a terminal failure to cope with the demands of the clinical environment, as well as poor wellness and health problems.

Attrition may not occur immediately after a nursing student is first challenged, as the student might investigate and even exploit various types of support on offer at the universities. Although some nursing students do find a solution when accessing and using the available support, a surprisingly large number of nursing students do finally discontinue the undergraduate nursing programme despite their best efforts.

Various retention strategies in the form of support programmes are available at the educational institutions for the at-risk nursing student. Unfortunately, despite efforts to retain nursing students in undergraduate nursing programmes, attrition still occurs at a high rate and would likely continue in future unless measures are improved to increase throughput rate.

The high attrition rates can be seen as a failure by the nursing educational institutions to meet the quality measure as set by the Department of Higher Education, and should give serious attention to this phenomenon as part of their risk management. The identification and implementation of retention strategies could be a key factor to determine success, as well as providing the much needed degree qualified registered nurses.

REFERENCES

- AIREY, J. 2012. Attrition rates: the student perspective. *British Journal of Nursing*, 21(5):310.
- AL-HUSSAMI, M., SALEH, M.Y.N., HAYAJNEH, H F., ABDALKADER, R.H. & MAHADEEN, A.I. 2011. The effects of undergraduate nursing student-faculty interaction outside classroom on college grade point average. *Nurse Education in Practice*. 11(5):320-326.
- ALLEN, D. 2012. Fees – the impact on the sector. *Perspectives: Policy and Practice in Higher Education*, 16(2):46-50.
- AMERICAN ASSOCIATION OF COLLEGES OF NURSING. n.d. [Online]. [Accessed 5 May 2012]. Available from: <http://www.aacn.nche.edu/media-relations/NrsgShortageFS.pdf>
- ANDERSEN, E.A., STRUMPEL, C., FENSOM, I. & ANDREWS, W. 2011. Implementing team-based learning in large classes: Nurse educators experiences. *International Journal of Education Scholarship*, 8(1):1-15.
- ANGELINO, L.M., WILLIAMS, F.K. & NATVIG, D. 2007. Strategies to engage online students and reduce attrition rate. *The Journal of Educators Online*, 4(2):1-14.
- ASCEND LEARNING, LLC. 2012. *Student attrition: Consequences, contributing factors and remedies*. [Online]. [Accessed 2013]. Available from: http://www.atitesting.com/Libraries/pdf/Attrition_whitepaper_ATI_2.sflb.ashx.
- ASTIN, A.W. 1993. What matters in college? *Liberal Education*, 79(4):4-15.
- ASTIN, A.W. 1999. Student involvement: A developmental theory for Higher Education. *Journal of College Student Development*. 40(5):518-529.

- AYA HEALTHCARE. n.d. *The evolving nursing shortage*. [Online]. [Accessed 6 May 2012]. Available from: [http://www.ayatravelnursingjobs.com/nursing shortage/](http://www.ayatravelnursingjobs.com/nursing%20shortage/).
- BADAT, M.S., BOTMAN, H.R., JANSEN, J.D., MOKGALONG, N.M., NONGXA, L.G. & PRICE, M. 2009. Pathways to a diverse and effective South African higher education system. *Insigh*, 5-27.
- BAKER, B.H. 2010. Faculty ratings of retention strategies for minority nursing students. *Nursing Education Perspective*, 31(4):216-220.
- BAKER, M.L. 2012. *Nursing student stress and demographic factors*. Thesis (Master's Degree). San Marcos: California State University.
- BALDACCHINO, D.R. & GALEA, P. 2012. Student nurses' personality traits and the nursing profession: part 1. *British Journal of Nursing*, 27(7):419-425.
- BBC News. 2008. *Student nurse drop out rate high*. [Online]. [Accessed 16 February 2012]. Available from: <http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7337259.stm>
- BEAN, J.P. n.d. *College student retention – defining student retention, a profile of successful institutions and students, theories on student departure*. [Online]. [Accessed 23 July 2012]. Available from: <http://education.stateuniversity.com/pages/1863/College-Student-Retention.html>>College Student Retention - Defining Student Retention, A Profile of Successful Institutions and Students, Theories of Student Departure.
- BEAN, J. & EATON, S.B. 2001-2002. The Psychology underlying successful retention practices. *Journal of College Student Retention*, 3(1):73-89.
- BLEGAN, M.A., GOODE, C.J., SETZ, J., VAUGH, T. & HYE PARK, S. 2011. Nurse staffing on patient outcomes. *Medical Care*, 49(4):406-414.

- BOTMA, Y., GREEFF, M., MULAUDZI, F.M., WRIGHT, S.C.D. 2010. *Research in Health Science*. 1st ed. Cape Town: Heinemann.
- BOWDEN, J, 2008. Why do nursing students who consider leaving stay on their courses? *Nurse Researcher*, 15(3):45-58.
- BRADLEY, P. 2011. A graduating crisis. *Community College Week*, 6-8.
- BREIER, M., WILDSCHUT, A. & MGQOLOZANA, T. 2007. Nursing in a new era. *Human Sciences Research Council*.
- BREIER, M., WILDSCHUT, A. & MGQOLOZANA, T. 2009. *Nursing in a new era: the profession and education of nurses in South Africa*. Cape Town: HSRC Press.
- BRINK, H., VAN DER WALT, C. & VAN RENSBURG, G. 2012. *Fundamentals of research methodology for health care professionals*. Cape Town: Juta.
- BRYER, J.B., CHERKINS, F. & RAMAN, J. 2013. Health-promotion behaviours of undergraduate nursing students: An survey analysis. *Nursing Education Perspective*, 34(5):410-415.
- BUCHAN, J. & AIKEN, L. 2008. Solving nursing shortages: A common priority. *Journal of Clinical Nursing*, 17:3262-3268.
- BUCHAN, J. & CALMAN, L. 2005. *The global shortage of registered nurses: An overview of issues and actions*. [Online]. [Accessed 17 April 2012]. Available from: <http://www.icn.ch/publications/the-global-shortage-of-registered-nurses-an-overview-of-issues-and-actions/>.
- BUDIN, W.C., BREWER, C.S., CHAO, Y.Y. & KOVNER, C. 2013. Verbal abuse from nurse colleagues and work environment of early career Registered Nurses. *Journal of Nursing Scholarship*, 45(3):308-316.

- BUERHAUS, P.I. 2005. Six-part series on the state of the RN workforce in the United States. *Nursing Economics*, 23(2):58-60.
- BUNTING, I. 2004. Student retention: A macro perspective from South Africa. In: Yorke, M. & Longden, B. (Eds). *Retention and Student success in Higher Education*. Berkshire: Open University Press.
- CAMERON, J., ROXBURGH, M., TAYLOR, J. & LAUDER, W. 2010. An integrative literature review of student retention programmes for nursing and midwifery education: Why do students stay? *Journal of Clinical Nursing*, 20:1372-1382.
- CHEA, T. 2011. California college students brace for more state budget cuts. *Community College Week*, 7-8.
- CLOVER, B. 2011. *Huge fall in nursing dropping out of nursing courses*. [Online]. [Accessed 16 February 2012]. Available from: <http://www.nursingtimes.net/whats-new-in-nursing/news-topics/nursing>
- CONNELLY, D., VERIAVA, Y., ROBERTS, S., TSOTETSI, J., JORDAN, A., DeSILVA, E., ROSEN, S. & BACHMAN DeSILVA, M. 2007. Prevalence of HIV infection and median CD4 counts among health care workers in South Africa. *South African Medical Journal*, 97(2):115-120.
- COOK, L. 2010. *Toward a grounded theory of nursing student attrition. Dissertation (Master's Degree)*. Colorado.
- COUGHLAN, M., CRONIN, P. & RYAN, F. 2007. Step-by-step guide to critiquing research. Part 1: Quantitative research. *British Journal of Nursing*, 16(11):658-663.
- COUNCIL OF HIGHER EDUCATION (CHE). 2007. *Higher Education Monitor: A case for improving teaching and learning in South African Higher Education*. [Online]. [Accessed 03 February 2013]. Available from: <http://www.che.ac.za/documents/dooo155>.

- COUNCIL OF HIGHER EDUCATION (CHE). 2010. *Access and throughput in South African Higher Education: Three case studies*. [Online]. [Accessed 10 April 2014]. Available from: <http://www.che.ac.za>.
- DEARY, I.J., WATSON, R. & HOGSTON, R. 2003. A longitudinal cohort study of burnout and attrition in nursing students. *Journal of Advanced Nursing*, 43(1):71-81.
- DEARNLEY, C. & MATTHEW, B. 2007. Factors that contribute to undergraduate student success. *Teaching in Higher Education*, 12(3):377-391.
- DELOBELLE, P., RAWLINSON, J.L., NTULI, S., MALATSI, I., DECOCK, R. & DEPOORTER, A.M. 2010. Job satisfaction and turnover intent of primary healthcare nurses in rural South Africa: A questionnaire survey. *Journal of Advanced Nursing*, 67(2):371-383.
- DELOITTE. 2011. Make the grade 2011. *A study of the top 10 issues facing higher education*. [Online]. [Accessed 4 February 2013]. Available from: http://www.deloitte.com/assets/Dcom-Canada/Local%20Assets/Documents/ca_en_ps_making-the-grade-2011_041811.pdf
- DE VILLIERS, P. & NIEUWOUDT, L. 2010. *Shifting trends in Higher Education*. [Online]. [Accessed 17 February 2013]. Available from: <http://www.ekon.sun.ac.za/wpapers/2010/wp122010>.
- DOVLO, D. 2007. Migration of nurses from Sub-Saharan Africa: A review of issues and challenges. *Health Services Research*, 42(3):1373-1388.
- DYCK, J.M., OLIFFE, J., PHINNEY, A. & GARRETT, B. 2009. Nursing instructors and male nursing students perceptions of undergraduate, classroom nursing education.. *Nurse Education Today*, 29:649-653.

- ECONEX. 2010(a). *The human resource supply constraint: The case of nurses*. [Online]. [Accessed 6 September 2012]. Available from: <http://www.mediclinic.co.za/about/documents/econex-health%20reform%20note-9.pdf>.
- ECONEX. 2010(b). *The human resource supply constraint: The case of doctors*. [Online]. [Accessed 16 September 2012]. Available from: http://www.mediclinic.co.za/about/documents/econex-health%20reform%20note_8.pdf.
- EGER, B.J. & RUDRA, A. 2013. Educational activities and a competency framework for meeting new challenges in higher education. *Journal of Systematics, Cybernetics & Informatics*, 11(1):28-32.
- ELEY, D., ELEY, R., BERTELLO, M. & ROGERS-CLARK, C.C. 2012. Why did I become a nurse? Personality traits and reasons for entering nursing. *Journal of Advanced Nursing*, 1546-1554.
- ENGELBRECHT, N. 2010. *The magnitude of intra-professional violence that South African undergraduate nursing students are exposed to in the clinical learning environment*. [Online]. [Accessed 10 June 2012]. Available from: <http://upetd.up.ac.za/thesis/available/etd-12142011-153044/>.
- FERGY, S.F., MARKS-MARAN, M.D., OOMS, A., SHAPCOTT, J. & BURKE, L. 2011. Promoting social and academic integration into higher education by first-year student nurses: The APPL project. *Journal of Further and Higher Education*, 35(1):107-130.
- FORUM OF UNIVERSITY DEANS IN SOUTH AFRICA. 2012. [Online]. [Accessed 2 August 2012]. Available from: <http://nursing.nmmu.ac.za/News/2012>.
- FOWLER, J. & NORRIE, P. 2009. Development of an attrition risk prediction tool. *British Journal of Nursing*, 19(19):1194-1200.

- FRAZER, K., CONNOLLY, M., NAUGHTON, C. & KOW, V. 2014. Identifying clinical learning needs using structured group feedback: First year evaluation of pre-registration nursing and midwifery degree programmes. *Nurse Education Today*, 34:1104-1108.
- GEORGE, G., QUINLAN, T. & REARDON, C. 2009. *Human resources for health: A needs and gaps analysis of HRH in South Africa*. [Online]. [Accessed 20 March 2012]. Available from: http://www.google.co.za/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CBsQFjAA&url=http%3A%2F%2Fwww.heard.org.za%2Fdownloads%2Fhuman-resources-for-health--a-needs-and-gaps-analysis-of-hrh-in-south-africa.pdf&ei=KTOtU9_aF4qQ0QXKmlCADQ&usg=AFQjCNHLbgZZ6Y2lhqciqP1u84gxadfTSw&bvm=bv.69837884,d.bGQ.
- GLOSSOP, C. 2002. Student nurse attrition: Use of an exit interview procedure to determine students' leaving reasons. *Nurse Education Today*, 22:375-386.
- GRAY, J. 2008. Adequate funding is crucial. *Nursing Standard*, 22(49):1.
- GROVE, S.K., BURNS, N. & GRAY, J.R. 2013. *The practice of nursing research: appraisal, synthesis and generation of evidence*. St. Louis: Elsevier.
- HALD, B. n.d. *Theories on student attrition*. [Online]. [Accessed 10 July 2012]. Available from: <http://www.colorado.edu/pwr/occasions/articles/Hald>.
- HARRIS, R.C., ROSENBERG, L. & O'ROURKE, M.E.G. 2014. Addressing the challenges of nursing student attrition. *Journal of Nursing Education*, 53(1):31-37.
- HAYES, L.J. 2007. Recruitment strategies for Baccalaureate Nursing Students in Ontario. *Journal of Nursing Education*, 46(6):261-268.

- HUYBRECHT, S., LOECKX, W., QUAHEYHAEGENS, Y., DE TOEBEL, T.D. & MISTIAEN, W. 2011. Mentoring in nursing education: Perceived characteristics of mentors and the consequences of mentorship. *Nurse Education Today*, 31:274-278.
- IGBO, I.N., STRAKER, K.C., LANDSON, M.J., SYMES, L., BERNARD, L.F., HUGHES, L.A. & CARROLL, T.L. 2011. An innovative multidisciplinary strategy to improve retention of nursing students from disadvantaged backgrounds. *Nursing Education Perspectives*, 32(6):375-379.
- INSTITUTE OF MEDICINE. 1999. *To err is human: Building a safer health system*. [Online]. [Accessed 17 March 2011]. Available from: <http://www.iom.edu/~media/Files/Report%20Files/1999/To-Err-is->.
- JEFFREYS, M.R. 2004. *Nursing student retention, understanding the process and making a difference*. 1st ed. New York: Springer Publishing Company.
- JEPHTHA, I.D. 2008. *Throughput rate of nursing students in the Faculty of Health and Wellness Science at a university of technology*. [Online]. [Accessed 20 March 2012]. Available from: <http://dk.cput.ac.za/td-cput/210>.
- JOKELAINEN, M., TURUNEN, H., TOSSAVAINEN, K., JAMOOKEEAH, D. & COCO, K. 2011. A systematic review of mentoring nursing students in clinical placements. *Journal of Clinical Nursing*, 20:2854-2867.
- JURASCHEK, S.P., ZHANG, X., RANGANATHAN, V.K. & LIN, V.W. 2011. United States registered nurse workforce report card and shortage forecast. *American Journal of Medical Quality*, 1-9.
- KANE, R.L., SHAMILIYAN, I., MUELLER, C., DUVAL, S. & WILT, I.J. 2007. *Nurse staffing and quality of patient care*. [Online]. [Accessed 7 June 2012]. Available from: <http://www.ahrq.gov/downloads/pub/evidence/pdf/nursestaff/nursestaff.pdf>.

- KARSTADT, L. 2010. A new government - a new start? *British Journal of Nursing*, 19(10):663.
- KEELING, S. 2009. How to pick the best. *Nursing Standard*, 23(21):61.
- KELLER, P, McCARTHY, K., MOSENDANE, T., TELLIE, M., VENTER, F., NOBLE, L., SCOTT, L., STEVENS, W. & VAN RIE, A. 2009. HIV prevalence among medical students in Johannesburg, South Africa. *South African Medical Journal*, 99(2):72.
- KLOPPER, H.C. & UYS, L.R. 2013. *The state of nursing and nursing education in Africa: A country-by-country review*. Indianapolis: Sigma Theta Tau International.
- LATEGAN, O. K., LUES, L. FRIEDRICH-NEL, H. 2011. *Doing Research Revised Edition*. Bloemfontein: Sun Press.
- LEHMANN, U. 2008. Strengthening human resources for primary health care. *South African Health Review*, 163-177.
- LETSEKA, M. & MAILE, S. 2008. High university drop-out rates: A treat to South Africa's future. *Human Science Research Council*.
- LEWIS, L. 2010. Mississippi addresses the nursing shortage. *American Journal of Nursing*, 110(7):58-61.
- LLOYD, B., SANDERS, D. & LEHMANN, U. 2010. Human resource requirements for National Health Insurance. *South African Health Research*, 171-178.
- MALTBY, J., DAY, L. & WILLIAMS, G. 2007. *Introduction to statistics for nurses*. Essex: Pearson Education Limited.

- MASHABA, G. & MHLONGO, T. 1995. Student nurse wastage: A case study of the profile and perceptions of students of an institution. *Journal of Advanced Nursing*, 22:364-373.
- MAYERS, P.M. 2010. *Nurses' experience of guideline implementation in primary healthcare settings*. [Online]. [Accessed 10 September 2012]. Available from: https://scholar.sun.ac.za/bitstream/handle/.../mayers_nurses_2010.pdf.
- MCKENDRY, S., WRIGHT, M. & STEVENSON, K. 2014. Why here and why stay? Students' voices on retention strategies of a widening participation university. *Nurse Education Today*, 34:872-877.
- Mc LACHLAN, M.E. 2010. *Experiences influencing the academic performance of 1st year nursing students at the Western Cape College of Nursing, South Africa during 2008*. [Online]. [Accessed 16 October 2012]. Available from: <http://sanursesconference.co.za/images/pres-lachlan.pdf>.
- McLAUGHLIN, K., MOUTRAY, M. & MULDOON, O. 2007. The role of personality and self efficiency in the selection and retention of successful nursing students. *Journal of Advanced Nursing*, 61(2):211-221.
- McMENAMIN, P. 2014. *Tsunami warning: Massive RN retirement coming*. [Online]. [Accessed 16 April 2014]. Available from: <http://www.medscape.com/viewarticle/823183>.
- MDEPA, W. & TSHIWULA, L. 2012. Student diversity in South African higher education. *Widening Participation and Lifelong Learning*, 13:19-33.
- MEYER, S., NAUDE, M. & VAN NIEKERK, S. 2004. *The nursing unit manager - a comprehensive guide*. 2nd ed. Sandton: Heinemann Higher and Further Education (Pty) Ltd.
- MOSELEY, L.G. & MEAD, D.M. 2008. Predicting who will drop out of nursing courses: A machine learning exercise. *Nurse Education Today*, 28:469-475.

- MOTSOALEDI, M.P. 2011. *Keynote address at World Health Organization FIC Conference*. [Online]. [Accessed 5 March 2012]. Available from: <http://www.doh.gov.za/show.php?id=3158>.
- MULHOLLAND, J., ANIONWU, E.N., ATKINS, R., TAPPERN, M. & FRANKS, P.J. 2008. Diversity, attrition and transition into nursing. *Journal of Advanced Nursing*, 64(1): 49-59.
- NATIONAL BENCHMARK TESTS. n.d. [Online]. [Accessed 30 May 2014]. Available from: <http://www.nbt.ac.za/>.
- NEEDLEMAN, J., BUERHAUS, P., PANKRATZ, V.S., LEIBSON, C.L., STEVENS, S.R. & HARRIS, M. 2011. Nurse staffing and inpatient mortality. *The New England Journal of Medicine*, 364:1037-1045.
- NEWTON, S.E. & MOORE, G. 2009. Use of aptitude to understand Bachelor of Science in nursing student attrition and readiness for National Council Licensure examination-registered nurse. *Journal of Professional Nursing*, 25(5):273-278.
- NORTH, N. 2010. Can New Zealand achieve self-sufficiency in its nursing workforce? *Journal of Clinical Nursing*, 20:40-49.
- ODOM-FORREN, J. 2010. Patient safety - 10 years later. *Journal of PeriAnesthesia Nursing*, 25(4):209-211.
- O'DONNELL, H. 2009. The emotional impact of nursing student attrition rates. *British Journal of Nursing*, 18(12):745-754.
- O'DONNELL, H. 2011. Expectations and voluntary attrition in nursing students. *Nurse Education in Practice*, 11:54-63.

- O'HOLLORAN, S. 2009. *Attrition from undergraduate nursing education programmes in Ireland*. [Online]. [Accessed 30 March 2012]. Available from: <http://lenus.ie/hse/bitstream/10147/99132/1/NurseUndergradAttritioninIre2006-2008.pdf>.
- O'REGAN, P. 2005. Students under pressure. *World of Irish Nursing and Midwifery*, 13(9):16-18.
- OULTON, J.A. 2006. The global nursing shortage: An overview of issues and actions. *Policy, Politics and Nursing Practice*, 7(3):34S-39S.
- PARK, C.L., PERRY, B. & EDWARDS, M. 2011. Minimising attrition: Strategies for students who are at risk of withdrawal. *Innovations in Higher Education and Teaching International*, 48(1):37-47.
- PASCARELLA, E.T. 2006. How college affect students: Ten directions for future research. *Journal of College Student Development*, 47(5):508-520.
- PEACE, M. 2012. Enquiry-based learning in midwifery: The lecturer's experience. *Brithish Journal of Midwifery*, 20(5):361-346.
- PETERSON, V.M. 2009. Predictors of academic success in first semester baccalaureate nursing students. *Social Behaviour and Personality*, 37(3): 411-418.
- PILLAY, A.L. & NGCOBO, H.S.B. 2010. Source of stress and support among rural-based first year university students: An exploratory study. *South African Journal of Psychology*, 40(3):234-240.
- PILLAY, R. 2009. Work satisfaction of professional nurses in South Africa: A comparative analysis of the public and private sector. *Human Research for Health*, 7:15.

- PITT, V., POWIS, D., LEVETT-JONES, J.T. & HUNTER, S. 2012. Factors influencing nursing students' academic and clinical performance and attrition: An integrative literature review. *Nurse Education Today*, 32:903-913.
- PLICHTA, S.B. & GARZON, L.S. 2009. *Statistics for Nursing and Allied health*. Philadelphia: Wolters Kluwer Health / Lippincott Williams & Wilkins.
- POCOCK, J. 2012. Leaving rates and reasons for leaving in an Engineering faculty in South Africa: A case study. *South African Journal of Science*, 108(3/4).
- POLIT, D.F. & BECK, C.T. 2012. *Nursing Research: Generating and Assessing evidence for nursing practice*. 9th ed. Philadelphia: Wolters Kluwer Health / Lippincott Williams & Wilkins.
- PRYJMACHUK, S., EASTON, K. & LITTLEWOOD, A. 2008. Nurse education: Factors associated with attrition. *Journal of Advanced Nursing*, 65(1):149-156.
- PULIDO-MARTOS, M., AUGUSTO-LANDA, J.M. & LOPEZ-ZAFRA, E. 2011. Sources of stress in nursing students: A systematic review of quantitative research. *International Nursing Review*, 59:15-25.
- ROBERTS, S. 2011. Traditional practice for non-traditional students? Examining the role of pedagogy in higher education. *Journal of Further and Higher Education*, 35(2):183-199.
- ROBINSON, E. & NIEMER, L. 2012. A peer mentoring program for academic success in nursing. *Nursing Education Perspective*, 31(5):286-289.
- RURAL EDUCATION ACCESS PROGRAMME (REAP). 2008. *Factors that facilitate success for disadvantaged higher education students*. [Online] [Accessed 28 April 2014] Available from: http://www.reap.org.za/pieces/reports/pdf/tracking_reports/2008_June_factors_that_facilitate_success.pdf.

SCHAAY, N., SANDERS, D. & KRUGER, V. 2011. *Overview of Health Sector reforms in South Africa*. [Online]. [Accessed 30 March 2012]. Available from: <http://www.sarrahsouthafrica.org/LinkClick.aspx?fileticket=XB382SI2kmw%3D&tabid=2321>.

SCHMIDT, B. & MacWILLIAMS, B. 2011. Admission criteria for undergraduate nursing programmes: A systematic review. *Nurse Educator*, 36(4):171-174.

SCOTT, G. 2009. The truth about attrition. *Nursing Standard*, 23(39):1.

SHEPHERD, J. 2009. *The Guardian*. [Online]. [Accessed 16 March 2012]. Available from: <http://www.guardian.co.uk/education/2009/nov/24/nurses-degree-diploma-carer-clinician/print>.

SOLIDARITY RESEARCH INSTITUTE. 2009. *Nursing shortage in South Africa*. [Online]. [Accessed 30 March 2012]. Available from: www.solidarity.co.za.

SORRENTINO, S. & REMMERT, L. 2012. *Mosby's textbook for nursing assistants*. 8th ed. St. Louis: Elsevier.

SOUTH AFRICA. 2005. *Nursing Act 33 of 2005*. Pretoria: Government Printer.

SOUTH AFRICA. DEPARTMENT OF EDUCATION (DoE). 2008. *Minimum admission requirements for Higher Certificate, Diploma and Bachelor's Degree Programmes requiring a National Senior Certificate*. [Online]. [Accessed 05 June 2014]. Available from: http://he-enrol.ac.za/sites/heenrol.ac.za/files/nsc_he_admission_requirements.pdf.

SOUTH AFRICA. DEPARTMENT OF HEALTH (DoH). 2010(a). *Department of health Strategic Plan 2010/11-2012/13*. [Online]. [Accessed 15 February 2012]. Available from: <http://www.doh.gov.sa>.

SOUTH AFRICA. DEPARTMENT OF HEALTH (DoH). 2010(b). *Millennium Development Goals, country report 2010*. [Online]. [Accessed 15 February 2012]. Available from: <http://www.doh.gov.sa>.

SOUTH AFRICA. DEPARTMENT OF HEALTH (DoH). 2010(c). *National Health Insurance, healthcare for all South Africans*. [Online]. [Accessed 15 February 2012]. Available from: <http://www.doh.gov.sa>.

SOUTH AFRICA. DEPARTMENT OF HEALTH (DoH). 2011. *Human Resources for Health South Africa: HRH strategy for the health sector: 2012/13-2016/17*. [Online]. [Accessed 2012 February 2012]. Available from: <http://www.doh.gov.sa>.

SOUTH AFRICA. DEPARTMENT OF HEALTH (DoH). 2014. *Strategic plan for Nursing Education, Training and Practice 2012/3-2016/7*.

SOUTH AFRICA. DEPARTMENT OF HIGHER EDUCATION (DoHE). n.d. *Current and future minimum admission requirements for higher education study*. [Online]. [Accessed 18 April 2014]. Available from: www.hesa-enrol.ac.za/nishe

SOUTH AFRICAN NURSING COUNCIL (SANC). 2008. *Nursing strategy for South Africa*. [Online]. [Accessed 10 April 2012]. Available from: <http://www.sanc.co.za/pdf/nursing-strategy.pdf>.

SOUTH AFRICAN NURSING COUNCIL (SANC). 2011(a). *Growth in students/pupils*. [Online]. [Accessed 5 March 2012]. Available from: http://www.sanc.co.za/stats/stat_ts/Growth/Growth%202004-2013_files/frame.htm.

SOUTH AFRICAN NURSING COUNCIL (SANC). 2011(b). *Output 4-year programme*. [Online]. [Accessed 5 March 2012]. Available from: http://www.sanc.co.za/stats/stat_ts/Output/Output%202004-2013%204YP_files/frame.htm.

SOUTH AFRICAN NURSING COUNCIL (SANC). 2011(c). *Geographical distribution of the population of South Africa vs nursing manpower*. [Online]. [Accessed 12 March 2012]. Available from: <http://www.sanc.co.za/stats/stat2013/Distribution%202013.htm>.

SOUTH AFRICAN NURSING COUNCIL (SANC). 2011(d). *Age distribution: Registered nurses/ midwives*. [Online]. [Accessed 5 March 2012]. Available from: http://www.sanc.co.za/stats/stat2011/Age%202011-files/slide_0025.htm.

SOUTH AFRICAN NURSING COUNCIL (SANC). 2011(e). *Growth in Registers*. [Online]. [Accessed 5 March 2012]. Available from: http://www.sanc.co.za/stats/stat_ts/Growth/Growth%202002-2011_files/frame.htm.

SOUTH AFRICAN NURSING COUNCIL (SANC). 2011(f). *Output bridging Programme*. [Online]. [Accessed 5 March 2012]. Available from: http://www.sanc.co.za/stats/stat_ts/Output/Output%202002-2011%20BP_files/frame.htm.

SOUTH AFRICAN NURSING COUNCIL (SANC). n.d. *Public Nursing Education Institutions*. [Online]. [Accessed 16 June 2014]. Available from: www.sanc.co.za/pdf/Public%20NEI%20Details.pdf.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA). n.d. *Registered qualification: Bachelor in Nursing*. [Online]. [Accessed 5 March 2012]. Available from: <http://www.sanc.co.za>.

STEVENSON, J. 2014. Exclusive: Quality and quantity of student placements at risk from staff shortages. *NursingTimes Net*, 12 February.

STOTT, A. 2007. Exploring factors affecting attrition of male students from an undergraduate nursing course: A qualitative study. *Nurse Education Today*, 27:325-332.

- STRYDOM, J.F., MENTZ, M. & KUH, G.D. 2010. *Enhancing success in higher education by measuring students engagement in South Africa*. [Online]. [Accessed 24 February 2013]. Available from: http://sasse.ufs.ac.za/dl/userfiles/documents/SASSEinpresspaper_1.pdf.
- SUBEDAR, H. 2005. The nursing profession: Production of nurses and proposed scope of practice. *South African Health Review*, 88-101.
- TAYLOR, R. 2005. Creating a connection: Tackling student attrition through curriculum development. *Journal of Further and Higher Education*, 29(4):367-374.
- THE ATLANTIC PHILANTHROPIES n.d. [Online]. [Accessed 10 June 2012]. Available from: <http://www.atlanticphilanthropies.org/region/south-africa>.
- THELIN, J.R. 2010. *The attrition tradition in American Higher Education: Connecting past and present*. [Online]. [Accessed 15 March 2014]. Available from: <http://www.aei.org/papers/education/higher-education/the-attrition-tradition-in-american-higher-education/>.
- TINTO, V. 1975. Drop-out from Higher Education: A theoretical synthesis of recent research. *Review of Educational Research*, 45(1):89-125.
- TINTO, V. 2006. Research and practice of student retention: What next?. *Journal of College Student Retention*, 8(1):1-15.
- TREMBLAY, K., LALANCETTE, D. & ROSEVEARE, D. 2012. *Assessment of higher education learning outcomes, AHELO*.
- UNIVERSITY OF FORT HARE. n.d. *Admission minimum requirements*. [Online]. [Accessed 30 May 2014]. Available from: <http://www.nmmu.ac.za/Apply/Admission/Minimum-entry-requirements>.

UNIVERSITY-BASED NURSING EDUCATION OF SOUTH AFRICA (UNEDSA). n.d.
[Online]. [Accessed 22 April 2014]. Available from: <http://www.unedsa.co.za>.

VAN DEN BERG, H, BESTER, C., JANSE VAN RENSBURG-BONTHUYZEN, E.,
ENGELBRECHT, M., HLOPHE, H., SUMMERTON, J., SMIT, J., DU PLOOY,
S. & VAN RENSBURG, D. 2006. Burnout and compassion fatigue in
professional nurses: A study in PHC facilities in the Free State, with special
reference to the antiretroviral programme.

VAN LINGEN, J.M., DOUWMAN, D.L. & WANNENBERG, I. 2011. A cross-sectional
exploration of relationship between undergraduate nursing student wellness
and academic outcomes at a South African higher education institution. *South
African Journal of Psychology*, 41(3):396-408.

VAN TEIJLINGEN, E.R. & HUNDLEY, V. 2001. The importance of pilot studies.
Social Research Update, 35.

WANGENGE-OUMA, G. 2012. Tuition fees and the challenge of making higher
education a popular commodity in South Africa. *Higher Education*, 64:831-
844.

WATERS, A. 2008. Nursing student attrition is costing taxpayers 99 million a year.
Nursing Standard, 22(31):12-15.

WATERS, A. 2010. Nursing student exodus is too big a burden for the UK taxpayers.
Nursing Standard, 24(24):5.

WHELAN, J.C. 2012. *Where did all the nurses go?: Mid-twentieth century nurse
shortage, causes, solutions and continuing problems*. [Online]. [Accessed 20
August 2012]. Available from: [http://www.nursing.upenn.edu/nhhc/Pages/
WhereDoAlltheNurseGoMid-TwentiethCenturyNurseShortagesCauses
SolutionsandContinuingProblems.aspx](http://www.nursing.upenn.edu/nhhc/Pages/WhereDoAlltheNurseGoMid-TwentiethCenturyNurseShortagesCausesSolutionsandContinuingProblems.aspx).

- WILDSCHUT, A. & MGQOLOZANA, T. 2008. Shortage of nurses in South Africa: Relative or absolute. *Human Sciences Research Council*.
- WILLIAMS, M.G. 2010. Attrition and retention in nursing major: Understanding persistence in beginning nursing students. *Nursing Education Perspective*, 31(6):362-367.
- WILMER, E. 2009. The influence of learning communities on the interaction level of developing English students. *Inquiry*, 14(1):55-67.
- WILSON, N. 2010. *50% nursing students drop outs - report*. [Online]. [Accessed 16 February 2012]. Available from: <http://www.jamaicaobserver.com/pfversion/Nursing-students-not-graduating-7469022>.
- WORLD HEALTH ORGANIZATION (WHO). 2006. *The world health report 2006: Working together for health*. [Online]. [Accessed 6 May 2012]. Available from: <http://www.who.int/whr/2006/en/>.
- WRIGHT, S.C.D. & MAREE, J.E. 2007. First year Baccalaureate Nursing students: Reasons for drop-out? *South African Journal of Higher Education*, 21(5):596-609.

ADDENDUM 1

***Approval from Evaluation Committee,
University of the Free State***

Dr. L. van Rhyn
Head: Research Portfolio/Chair: Research Committee
School of Nursing

Dear Dr. L. van Rhyn

REPORT: EVALUATION COMMITTEE

Ph.D. (VRT 900) Dissertation (VRT 700)

Research Report (RES 792)

TITLE:

Candidate:	E Roos (1983782317)
Supervisor:	Dr A Fichardt
Co-Supervisor:	Mrs J MacKenzie

Members of the Evaluation Committee:

Please indicate in the blocks one of the options: *Present (P) Absent (A) Not applicable (NA)*

Dr. L. van Rhyn	Head: Research Portfolio	<input type="checkbox"/>
Dr. M. Reid	Research mentee	<input type="checkbox"/>
	Applicable lead researcher and mentee	
Prof. Y. Botma	Niche area: Innovative tools in health teaching	<input type="checkbox"/>
Or		
Dr. M. Reid	Niche area: Health Communication	<input type="checkbox"/>
Dr. D. Botha	Only for proposal on child and maternal health	<input type="checkbox"/>

Dr J Bezuidenhout	Two experts from outside SoN (Research expert and Field expert) Biostatistician Member of SoN Staff Study leader (Agenda) Student
Me L Ziady	
Dr J Raubenheimer	
Prof A Joubert	
Dr A Fichardt	
Mrs E Roos	

Recommendations from Evaluation Committee:

Apply recommendations of evaluation committee
Continue with submission of proposal for ethics approval

Best regards

Supervisor Dr A Fichardt

A Fichardt
Mrs. M.J. MacKenzie w/ MacKenzie

ADDENDUM 2

***Approval Ethical Committee, University of the
Free State***

Research Division
Internal Post Box G40
☎(051) 4052812
Fax (051) 4444359

E-mail address: StraussHS@ufs.ac.za

Ms H Strauss/hv

2012-11-28

REC Reference nr 230408-011
IRB nr 00006240

MS E ROOS
c/o DR A FICHARDT
SCHOOL OF NURSING
FACULTY OF HEALTH SCIENCES
UFS

Dear Ms Roos

ECUFS NR 210/2012

MS E ROOS

SCHOOL OF NURSING

PROJECT TITLE: ATTRITION OF UNDERGRADUATE NURSING STUDENTS AT SOUTH AFRICAN UNIVERSITIES.

- You are hereby kindly informed that the Ethics Committee approved the above project at the meeting held on 27 November 2012.
- Committee guidance documents: Declaration of Helsinki, ICH, GCP and MRC Guidelines on Bio Medical Research. Clinical Trial Guidelines 2000 Department of Health RSA; Ethics in Health Research: Principles Structure and Processes Department of Health RSA 2004; Guidelines for Good Practice in the Conduct of Clinical Trials with Human Participants in South Africa, Second Edition (2006); the Constitution of the Ethics Committee of the Faculty of Health Sciences and the Guidelines of the SA Medicines Control Council as well as Laws and Regulations with regard to the Control of Medicines.
- Any amendment, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.
- The Committee must be informed of any serious adverse event and/or termination of the study.
- A progress report should be submitted within one year of approval of long term studies and a final report at completion of both short term and long term studies.
- Kindly refer to the ETOVS/ECUFS reference number in correspondence to the Ethics Committee secretariat.

Yours faithfully



DR SM LE GRANGE
ACTING CHAIR: ETHICS COMMITTEE

Cc Dr A Fichardt

ADDENDUM 3

***Approval Ethical Committee, University of
Pretoria***

The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.

- FWA 00002567, Approved dd 22 May 2002 and Expires 20 Oct 2016.
- IRB 0000 2235 IORG0001762 Approved dd 13/04/2011 and Expires 13/04/2014.



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences Research Ethics Committee

20/08/2013

**Approval Certificate
New Application**

Ethics Reference No.: 306/2013

Title: Attrition of undergraduate nursing students at South African universities

Dear Ms Erna Roos

The **New Application** as supported by documents specified in your cover letter for your research received in July 2013, was approved by the Faculty of Health Sciences Research Ethics Committee on the 20/08/2013.

Please note the following about your ethics approval:

- Ethics Approval is valid for 2 years.
- Please remember to use your protocol number (306/2013) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, or monitor the conduct of your research.

Ethics approval is subject to the following:

- The ethics approval is conditional on the receipt of 6 monthly written Progress Reports, and
- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

Professor Werdie (CW) Van Staden
MBChB MMed(Psych) MD FCPsych FTCL UPLM
Chairperson: Faculty of Health Sciences Research Ethics Committee

The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health).

☎ 012 354 1677 ☎ 0866516047 ✉ deepeka.behari@up.ac.za 🌐 <http://www.healthethics-up.co.za>
✉ Private Bag X323, Arcadia, 0007 - 31 Bophelo Road, HW Snyman South Building, Level 2, Room 2.33, Gezina, Pretoria

ADDENDUM 4

***Approval Ethical Committee, Tshwane
University of Technology***



Research Ethics Committee

The TUT Research Ethics Committee is a registered Institutional Review Board (IRB 00005968) with the US Office for Human Research Protections (IORG# 0004997) (Expires 19 Jan 2014). Also, it has Federal Wide Assurance for the Protection of Human Subjects for International Institutions (FWA 00011501) (Expires 31 Jan 2014). In South Africa it is registered with the National Health Research Ethics Council (REC-160509-21).

May 29, 2013

Ref #: REC2013/05/005
Name: Roos E
Student #: University of the Free State

Ms E Roos
School of Nursing
Faculty of Health Sciences
University of the Free State

Dear Ms Roos,

Decision: Approval

Name: Roos E

Proposal: Attrition of undergraduate nursing students at South African universities

Qualification: Masters Degree, University of the Free State

Supervisor: Dr A Fichardt

Co-supervisor: Mrs MJ MacKenzie

Thank you for submitting an application for ethics clearance by the TUT Research Ethics Committee (REC) to include the TUT Adelaide Tambo School of Nursing Science and former TUT student nurses in a cross-sectional survey study. In reviewing the application, the comments/notes below are tabled for your consideration / attention / notification:

- **UFS Ethics Approval:**
 - Ethics approval granted by the UFS Ethics Committee (Ref #: ECUFS NR 210/2012) is duly noted.
- **Permission, TUT gatekeeper:**
 - The indication of willingness to participate in the project (E-mail dated 24 May 2013) by Prof SCD Wright (Head: Adelaide Tambo School of Nursing Science) is duly noted.
- **Institutional Requirement:**
 - A copy of the final research report needs to be submitted to Prof SCD Wright (Head: Adelaide Tambo School of Nursing Science) for notification and potential implementation in the TUT context.



We empower people

Tel. 0861 102 422, Tel. (012) 382-5154, Fax (012) 382-4409, www.tut.ac.za - The Registrar, Private Bag X680, Pretoria 0001

An Expedited Review Panel of the Research Ethics Committee of Tshwane University of Technology reviewed the application. The application is **approved**. The decision will be tabled at the next REC meeting on July 22, 2013 for ratification.

The proposed research project may now continue with the proviso that:

- 1) The researcher/s will conduct the study according to the procedures and methods indicated in the approved proposal, particularly in terms of any undertakings and/or assurances made regarding informed consent and the confidentiality of the collected data.
- 2) The proposal (inclusive of the applicable information leaflet/s, informed consent document/s, interview guide/s and/or questionnaire/s) will again be submitted to the Committee for prospective ethical clearance if there are any substantial changes from the existing proposal, particularly if those changes affect any of the study-related risks for the research participants.
- 3) The researcher will act within the parameters of any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.

Note:

The reference number [top right corner of this communiqué] should be clearly indicated on all forms of communication [e.g. Webmail, E-mail messages, letters] with the intended research participants.

Yours sincerely,



WA HOFFMANN (Dr)
Chairperson: Research Ethics Committee
[Ref#2013=05=005=RoosE]



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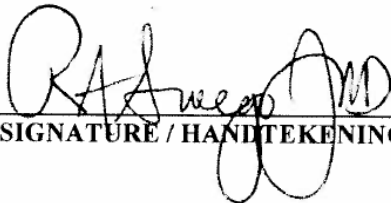
ADDENDUM 5

***Approval from Faculty of Health Science,
University of the Free State***

A.

Approved / Goedgekeur	Rejected / Afgekeur
--------------------------	------------------------

HEAD OF SCHOOL /
HOOF VAN DIE SKOOL


SIGNATURE / HANDTEKENING

07-11-12

DATE / DATUM

COMMENTS / KOMMENTAAR:

B.

Approved / Goedgekeur	Rejected / Afgekeur
--------------------------------------	------------------------

DEAN OF THE FACULTY /
DEKAAN VAN DIE FAKULTEIT


SIGNATURE / HANDTEKENING

9/11/12

DATE / DATUM

COMMENTS / KOMMENTAAR:

C.

Approved / Goedgekeur	Rejected / Afgekeur
--------------------------	------------------------

VICE-RECTOR: ACADEMIC
VISE-REKTOR: AKADEMIES /

PROF. HR HAY
VICE-RECTOR: ACADEMIC
TEL: 051-4013773


SIGNATURE / HANDTEKENING

2012-11-07

DATE / DATUM

COMMENTS / KOMMENTAAR:

D.

If research will include students on campus and if questionnaires will be distributed in hostels on campus the Dean: Student Affairs has to be notified. /

Wanneer studente op kampus by navorsing ingesluit gaan word en wanneer vraelyste versprei gaan word by koshuise moet die Dekaan: Studente Aangeleentehede in kennis gestel word.

ADDENDUM 6

***Approval from Head of Nursing Educational
Institution: Fort Hare***

SCHOOL OF HEALTH SCIENCES

P.O. Box 1054
East London 5200
Tel: +27 (043) 7047475 | Fax: 0866282026



Erna Roos
32 Gilles van der Wall Street
Hillsboro
Bloemfontein
9330
Phone: 082 492 4795
Email: ernaroos12@gmail.com

Dear Ms Roos

**QUESTIONNAIRE: INTAKE, COMPLETION AND ATTRITION RATES OF
UNDER GRADUATE STUDENTS AT SOUTH AFRICAN UNIVERSITIES.**

Our recent e-mail discussions have reference.

We will be in a position to receive and distribute the above-mentioned questionnaires. Kindly be advised that this will not need further approval with our ethics committee.

We look forward to receiving the information from you. Please liaise with my PA Belinda Webber regarding the delivery of the questionnaires.

Thank you

Yours faithfully



Dr E Seekoe
HoD: School of Health Sciences

ADDENDUM 7

***Approval from Head of Nursing Educational
Institution: University of the Western Cape***



15 April 2013

Ms E Roos

PO Box 43642

Heuwelsig

9330

Phone: 082 492 4795

Email: ernaroos12@gmail.com

Re: Ethical Clearance Postgraduate studies

You are hereby granted ethical clearance to conduct your study relating to the attrition of undergraduate nursing students at South African universities.

Prof Karien Jooste

Acting Director

School of Nursing

University of the Western Cape

kjooste@uwc.ac.za

0219592274

ADDENDUM 8

***Approval from Head of Nursing Educational
Institution: University of Pretoria***



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Denkleiers • Leading Minds • Dikgopolo tša Dihlalefi

Navrae / Enquiries:

☎ : (012) 354-2125
☎ : (012) 354-1490
✉ : nursing@medic.up.ac.za

Private Bag X323 ARCADIA 0007 Pretoria – Republic of South Africa
Web: <https://www.up.ac.za> Tel: (012) 354-2125 Fax: (012) 354-1490

27 May 2013

Annali Fichardt
University of Orange Free State

Dear Annali

APPROVAL OF STUDY AT THE UNIVERSITY OF PRETORIA,
DEPARTMENT OF NURSING SCIENCE

Prof FM Mulaudzi support that student Erna Roos conduct a study on Attrition of undergraduate nursing students at South African universities at the University of Pretoria, Department of Nursing Science.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'FM Mulaudzi'.

Prof FM Mulaudzi
DoH: Nursing Science

ADDENDUM 9

***Approval Head of Nursing Educational
Institution: University of the Free State***

From: "Roos, Erna" <erna.roos@mediclinic.co.za>
To: "nursingfhs@ufs.ac.za" <nursingfhs@ufs.ac.za>
CC: "gnvkmm@ufs.ac.za" <gnvkmm@ufs.ac.za>
Date: 2013/01/11 12:43 PM
Subject: FW: consent for a research study
Attachments: Participant information leafletto participate in a research study.docx; Questionnaire to obtaininformation from the School of Nursing.docx

Goeie middag professor Mulder, dr Annali Fichardt en mev Julie MacKanzie het aanbeveel dat ek solank die nodige toestemming van u verkry om met 'n navorsing studie voort te gaan. Ek sou graag die loods studie so gou moontlik wou begin. Ek wag nog vir die amptelike toestemmings brief vanaf die etiese komitee, alhoewel 'n nommer aan my verskaf is. Die nommer is: Ecufs nr 210/2012.

Aangeheg is die inligtings stuk en die vraelys wat voltooi moet word. Die verteenwoordigende persoon wat aangese gaan word om die inligting te dokumenteer is welkom om my te skakel, sou daar enige onduidelikheid wees. Baie dankie by voorbaat,

Erna Roos
Nurse Educator
MEDICLINIC SOUTHERN AFRICA

Bloemfontein Mediclinic Learning Centre
Quantum Building 2nd Floor, Suite 152
Cnr Nelson Mandela and Third Avenue
Westdene, Bloemfontein
Private Bag X01
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F +27 86 6830 895
www.mediclinic.co.za

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*Verkeers hiermee toestemming
tot data*
MMH



ADDENDUM 10

***Approval Head of Nursing Educational
Institution: Tshwane University of Technology***

>>> Susan Wright <WrightSCD@tut.ac.za> 2013/05/24 11:20 AM >>>
Hi Anneli wat is dit wat ek moet doen? Ek sal dit doen.

Regards

Prof SCD Wright
Head of School and Associate Professor
Adelaide Tambo School of Nursing Science
Building 5-308
Tshwane University of Technology
Cell: 0828211186
Work: 012 3825470
Fax: 012 3825033
email: wrightscd@tut.ac.za

Cognito ergo sum

Tshwane University of Technology

This email is sent and received in terms of the Electronic Communications Policy of Tshwane University of Technology. In line with this policy, this email is private, privileged and confidential. The full text of the Electronic Mail Disclaimer can be seen on the TUT web site at <http://www.tut.ac.za/Other/disclaimer/Pages/default.aspx> or obtained by phoning (012) 382-5911

>>> Annali Fichardt 2013-05-10 12:08 PM >>>
Beste Susan

n Magisterstudent van my wil asb toestemming van jou he om data by TUT se verpleegkunde departement en studente in te samel. Ek sluit haar versoek aan jou in.

Kan jy asb help?

Lekker naweek en groete
Annali

Dr Annali Fichardt
Programme director
School of Nursing
Skool vir Vepleegkunde
Nelson Mandela Avenue/Ryalaan | 339 | Bloemfontein | 9300 | RSA
t: +27 (0)51 401 9169
f: +27 (0)51 401 9140
e: fichardtae@ufs.ac.za

ADDENDUM 11

***Participant information leaflet to participate in
a research: Study Population One: Universities***

ATTRITION OF UNDERGRADUATE NURSING STUDENTS FROM SOUTH AFRICAN UNIVERSITIES

Dear (Dean of the School of Nursing)

My name is Erna Roos. I am a Master's Degree student at the School of Nursing of the University of the Free State. I am conducting a research to determine the current attrition rate of nursing students from undergraduate nursing programmes and the reasons why they did not complete their nursing studies. As you know, the continued existence of the nursing profession depends on newly qualified nurses entering the field. With the current need for comprehensively trained professional nurses to deliver healthcare to the population of South Africa, it is worth determining the prevalence and reasons for attrition amongst undergraduate nursing students.

I would hereby like to invite your university to participate in this research. You have been selected to participate because the Nursing Educational Institution you represent is accredited by the South African Nursing Council to provide education and training to student nurses, and is a UNEDSA grant holder funded by Atlantic Philanthropies and ELMA Group of Foundations.

If you agree to participate, you will be requested to complete all the items on a questionnaire in order to provide information regarding the selection criteria for intake of students in the nursing programme offered at your nursing educational institution. Information regarding the intake, drop-out and through-put rates of student nurses between 2007 and 2012 will also be needed. It is necessary for me to obtain information from the former student nurses themselves. In order to do so it would be appreciated if you could assist me in contacting them telephonically, by providing telephone numbers of the former student nurses. The completion of the questionnaire will take approximately 45 minutes, should you have all the information at hand.

Your decision to take part in this study is voluntary and you will be allowed to withdraw at any time during the execution of the study, without providing any reason for this decision. If you agree to take part, the information provided will be handled confidentially. There is no cost involved in participating and you will not receive any remuneration for taking part in this study.

As a nursing educational institution, you will not personally benefit for participating in this research. However, the information you provide would be valuable in determining the reasons for the current attrition rate of student nurses and factors leading to the discontinuation of nursing studies. From the results of this study, retention strategies can be identified to assist future student nurses planning their nursing studies.

The outcome of this research can be made available to you by the (date), should you require the information. The research report will be e-mailed to you at the same e-mail address used in this e-mail. The results obtained in this study may be used for publication or presentation at a later stage.

The ethical principles applied to health research will be followed during this research process. Approval has been obtained from the appropriate authorities as per international standard and guidelines for health research in South Africa. If at any time during this research, you feel that you were treated with disrespect or unfairly, please feel free to contact my two supervisors: Dr. A.E. Fichardt and Mrs. M.J. MacKenzie at the Free State School of Nursing, University of the Free State. The contact numbers are:

Dr. A.E. Fichardt	051 401 9169
Mrs. M.J. MacKenzie	051 401 9165

You can also contact the Secretariat of the Ethics Committee, at the following contact number: 051 405 2812.

Informed consent is implied by the answering and returning this questionnaire.

If you have any questions regarding the completion of the questionnaire, please feel free to contact me during office hours at: 051 411 2507 or e-mail me at: ernaroos12@gmail.com

ADDENDUM 12

***Participant information leaflet to participate in
a research: Study Population Two: Former
student nurses***

ATTRITION OF UNDERGRADUATE NURSING STUDENTS AT SOUTH AFRICAN UNIVERSITIES

Introduction:

My name is(name of interviewer). I am contacting you on behalf of a Master's Degree student from the School of Nursing at the University of the Free State. This student is conducting a research to determine the current rate of nursing students who discontinued a degree nursing programme and the reasons why they did not complete their nursing studies.

I would like to invite you to take part in this research, because you were enrolled at the School of Nursing of one of the universities that received grant money from the Atlantic Philanthropies and ELMA Group of Foundations. You have also discontinued the nursing programme during any of the four years of study between 2007 and 2012.

If you agree to participate, you will have to answer all the questions that I will ask you, guided by a structured interview guide. You can take part voluntary in this research and you may withdraw at any time during the process, without providing any reason for this decision. If you agree to take part, the information provided will be handled confidentially and your identity will not be linked to the structured interview guide that I will complete. Taking part in this study will not have cost implications for you and you will not receive any remuneration for taking part.

The interview will take 20 minutes to conduct.

The outcome of this research can be made available to you by the (date?), should you want this information. The research report can be e-mailed to you at the address you provide. You should know the results from this study may be used for publication or presentation.

The ethical principles guiding health research will be followed during this research and the appropriate approval has been obtained from authorities for health research in South Africa. If at any time during this research you feel that you were treated with disrespect or unfairly, please feel free to contact the master's degree supervisors: Dr. A.E. Fichardt and Mrs. M.J. MacKenzie at the School of Nursing, University of the Free State. The contact numbers are:

Dr. A.E. Fichardt 051 401 9169

Mrs. M.J. MacKenzie 051 401 9165

You can also contact the Secretariat of the Ethics Committee at the following contact number: 051 405 2812.

Informed consent is implied by you agreeing to answer the questions that I will ask. I will write down your answers in order for the research student to analyze the information provided.

ADDENDUM 13

***Amended - Participant information leaflet to
participate in a research: Study Population
Two: Former student nurses***

INTRODUCTION:

Good evening, are you (name as on received list)?

I am Erna Roos. I am a master's degree student at the School of Nursing at the University of the Free State. I am conducting a research to determine the reason why undergraduate nursing students discontinued their nursing programme.

Were you enrolled as a nursing student at the University of (name of University)?

Did you discontinue the nursing programme before you complete?

I am inviting you to participate in the research.

If you agree to participate, you will have to answer all the questions that I will ask you. You can take part voluntary in this research and you may withdraw at any time during the process, without providing any reason for this decision. If you agree to take part, the information provided will be handled confidentially and your identity will not be linked to the structured interview guide that I will complete. Taking part in this study will not have cost implications for you and you will not receive any remuneration for taking part.

Informed consent is implied by you agreeing to answer the questions that I will ask. I will write down your answers in order to analyze the information provided.

The interview will take 20 minutes to conduct.

ADDENDUM 14

***Questionnaire for the Head of the Nursing
Educational Institution***

Instructions:

Mark the applicable box with an X or write the answer in the space provided.

School of Nursing

Code number:

- 1 Do you agree to provide the information requested after reading the information leaflet that accompanied this questionnaire?

Yes	
No	

- 2 Date of completing the form:

- 3 Does the School of Nursing you represent make use of selection criteria to select candidates for the nursing programme:

Yes	
No	

- 4 State the selection criteria used to register students in the nursing programme at the University:

4.1 _____

4.2 _____

4.3 _____

4.4 _____

4.5 _____

4.6 _____

4.7 _____

4.8 _____

- 5 Please provide the number of applications received for the nursing programme offered at your School of Nursing during the following years:

2007	
2008	
2009	
2010	
2011	
2012	

6 Please provide the number of student nurses finally selected for intake during the following years:

2007	
2008	
2009	
2010	
2011	
2012	

7 Please provide the number of student nurses who actually registered for the nursing programme during the following years:

2007	
2008	
2009	
2010	
2011	
2012	

8 Please provide the number of students who started in 2007 and completed the nursing programme in 2010:
(this excludes student nurses who repeated a previous year)

--

9 Provide the number of student nurses who started in 2007 and discontinued during the following years of studies:

2007	
2008	
2009	
2010	

10 Provide the number of students who started in 2008 and completed the nursing programme in 2011:
(this excludes the student nurses who repeated from a previous year)

--

11 Please provide the number of student nurses who started in 2008 and discontinued during the following years of studies:

2008	
2009	
2010	
2011	

12 Provide the number of students who started in 2009 and completed the nursing programme in 2012:
(this excludes student nurses who repeated from a previous year)

--

13 Please provide the number of student nurses who started in 2009 and discontinued during the following years of studies:

2009	
2010	
2011	
2012	

14 Please provide the number of student nurses who discontinued for academic reasons in the following year:
(academic reasons are seen as a student nurse not reaching the minimum theoretical or clinical competencies)

2007	
2008	
2009	
2010	
2011	
2012	

15 Please provide the number of student nurses who discontinued their studies due to non-academic reasons during the following year:
 (non-academic reasons are seen as any personal reason e.g. pregnancy, financial difficulty)

2007	
2008	
2009	
2010	
2011	
2012	

16 Please attach a list of the student nurses who discontinued due to academic or non-academic reasons during any of the four years of study between the years 2007 to 2012. Kindly include a contact number of the student as well.
 (A table is provided at the end of the questionnaire for use.)

17 Would you like to receive the results of this research?

Yes	
No	

Thank you for participating in this research. Kindly e-mail the completed questionnaire, list of student nurse names and contact numbers back to the following e-mail address:

E-mail address of researcher:

ADDENDUM 15

***Amended questionnaire for the Head of the
Nursing Educational Institution***

Instructions:

Mark the applicable box with an X or write the answer in the space provided.

School of Nursing

Code number:

- 1 Do you agree to provide the information requested after reading the information leaflet that accompanied this questionnaire?

Yes	
No	

- 2 Date of completing the form:

- 3 Does the School of Nursing you represent make use of selection criteria to select candidates for the nursing programme:

Yes	
No	

- 4 State the selection criteria used to register students in the nursing programme at the University:

4.1 _____

4.2 _____

4.3 _____

4.4 _____

4.5 _____

4.6 _____

4.7 _____

4.8 _____

- 5 Please provide the number of applications received for the nursing programme offered at your School of Nursing during the following years:

2007	
2008	
2009	
2010	
2011	
2012	

6 Please provide the number of student nurses finally selected for intake during the following years:

2007	
2008	
2009	
2010	
2011	
2012	

7 Please provide the number of student nurses who actually registered for the nursing programme during the following years:

2007	
2008	
2009	
2010	
2011	
2012	

8 Please provide the number of students who started in 2007 and completed the nursing programme in 2010:
(this excludes student nurses who repeated a previous year)

--

9 Provide the number of student nurses who started in 2007 and discontinued during the following years of studies:

2007	
2008	
2009	
2010	

10 Provide the number of students who started in 2008 and completed the nursing programme in 2011:
(this excludes the student nurses who repeated from a previous year)

--

11 Please provide the number of student nurses who started in 2008 and discontinued during the following years of studies:

2008	
2009	
2010	
2011	

12 Provide the number of students who started in 2009 and completed the nursing programme in 2012:
(this excludes student nurses who repeated from a previous year)

--

13 Please provide the number of student nurses who started in 2009 and discontinued during the following years of studies:

2009	
2010	
2011	
2012	

14 Please attach a list of the student nurses who discontinued due to academic or non-academic reasons during any of the four years of study between the years 2007 to 2012. Kindly include a contact number of the student as well.
(A table is provided at the end of the questionnaire for use.)

15 Would you like to receive the results of this research?

Yes	
No	

Thank you for participating in this research. Kindly e-mail the completed questionnaire, list of student nurse names and contact numbers back to the following e-mail address:

E-mail address of researcher:

ADDENDUM 16

***Structured interview guide for the participating
former nursing student***

Instructions to interviewer:

Mark the applicable box with an X or write the answer in the space provided.

Form: _____

Code number: _____

Date of completion of the form: _____

Name and signature of interviewer:

Name: _____

Signature: _____

1 Read out the information leaflet to the participant.

Does the participant consent to answering the questions and that the answers be recorded for use in this particular research:

Yes	
No	

2 Gender:

Male	
Female	

3 Age:

17	
18	
19	
20	
21	
22	
23	
24	
25	
Older than 26	

4 Ethnic group:

Black	
White	
Coloured	
Indian	
Other	

Please continue next page.....

5	Marital status:	Married	<input type="checkbox"/>
		Single	<input type="checkbox"/>
		Lifelong partner	<input type="checkbox"/>
6	Dependants:	Yes	<input type="checkbox"/>
		No	<input type="checkbox"/>
7	Number of children:	1	<input type="checkbox"/>
		2	<input type="checkbox"/>
		3	<input type="checkbox"/>
		4	<input type="checkbox"/>
		5	<input type="checkbox"/>
		More than 5	<input type="checkbox"/>
8	Residential arrangements:	Living on campus	<input type="checkbox"/>
		Living off campus	<input type="checkbox"/>
9	Distance living from campus:	10-20 km	<input type="checkbox"/>
		21-30 km	<input type="checkbox"/>
		31-40 km	<input type="checkbox"/>
		41-50 km	<input type="checkbox"/>
		More than 50 km	<input type="checkbox"/>
10	Travel arrangements:	Own transport	<input type="checkbox"/>
		Public transport	<input type="checkbox"/>
11	Secondary school attended:	_____	
12	Year matriculated:	<input type="text"/>	
Please continue next page.....			

13 Please provide your University admission count (TP count):

--

14 Explain what motivated you to study nursing?

14.1 _____

14.2 _____

14.3 _____

15 During what year did you start the nursing programme at the School of Nursing you attended:

2007	
2008	
2009	
2010	
2011	
2012	

16 During what year did you discontinue the nursing programme:

2007	
2008	
2009	
2010	
2011	
2012	

17 Did you receive a bursary to study nursing?

Yes	
No	

18 Did you participate in any the social events arranged by the Higher Educational Institution you attended (e.g. student rag):

Yes	
No	

Please continue on the next page.....

19 State reasons why you decided to discontinue the nursing programme:

19.1 _____

19.2 _____

19.3 _____

19.4 _____

19.5 _____

19.6 _____

19.7 _____

19.8 _____

19.9 _____

19.10 _____

20 State any intervention or factor that could have assisted you in staying in the nursing programme:

20.1 _____

20.2 _____

20.3 _____

20.4 _____

20.5 _____

20.6 _____

Would you be interested to receive the results of this research?

Yes	
No	

Contact details:
 E-mail address: _____

Thank you very much for participating in this research. Best of luck for any future undertakings.