

**SELECTION CRITERIA: A FACTOR ASSOCIATED WITH ACADEMIC  
PERFORMANCE OF STUDENT NURSES AT A PUBLIC NURSING COLLEGE**

by

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submitted in accordance with the requirements for

the degree of

**MASTER OF ARTS**

in the subject of

**HEALTH STUDIES**

at the

**UNIVERSITY OF SOUTH AFRICA**

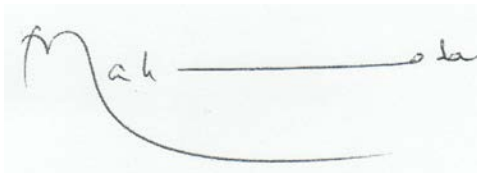
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### DECLARATION

I declare that **SELECTION CRITERIA: A FACTOR ASSOCIATED WITH ACADEMIC PERFORMANCE OF STUDENT NURSES AT A PUBLIC NURSING COLLEGE** is my own work and that all sources that I have used or quoted have been indicated and acknowledged by means of complete references and this work has not been submitted for any other degree at any other institution.

A handwritten signature in black ink on a light blue background. The signature consists of a large, stylized 'M' followed by 'akh' and a long horizontal line that ends in a small loop.

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**Nomacala Anna Makhoba**

11 January 2016

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**Date**

# **SELECTION CRITERIA: A FACTOR ASSOCIATED WITH ACADEMIC PERFORMANCE OF STUDENT NURSES AT A PUBLIC NURSING COLLEGE**

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## **ABSTRACT**

Nursing colleges face a high failure rate among first and second year nursing students. Appropriate selection criteria should help to recruit and select the best suitable candidates who will endure the requirements of the comprehensive four-year nursing diploma course and finally graduate. The input should be equal to the throughput.

The purpose of this study was to explore and describe the extent to which selection criteria were a determinant or predictive factor of nursing students' academic performance and success at a nursing colleges in Gauteng Province. A triangulated research design method was used for data collection, presentation, and analysis. The research population consisted of first and second year student nurses registered in public nursing college. Random sampling was opted for at the nursing college selected as research site. During the empirical phase in 2015, 280 questionnaires were distributed.

The findings of the study indicated that there is a weak linear relation between academic qualification and academic performance, yet further analysis showed that there is a significant relationship between Bachelor's degree holders and their academic achievement when admitted at nursing colleges.

### **Keywords**

Public nursing college; student nurse; student selection; selection criteria; student selection criteria.

## ACKNOWLEDGEMENTS

I sincerely wish to acknowledge the contributions made by the following individuals and organisations towards the completion of this study:

- My Comforter, Creator of everything; all praise and thanks be unto Him. When all else seemed insurmountable, He reminded me: “Be still and know that I am GOD”.
- My supervisor, Professor M Moleki; I am extremely thankful for the supportive role she played in ensuring that this project is completed successfully, and for sharing her experiences and intellectual wisdom throughout this study.
- To Ms Pienkie Mthethwa and Mr Phenease Thakhane; for their remarkable assistance with the search for relevant literature pertaining to this project.
- To my husband, Mr Tegedi Jacob Nkitseng, for his patience, support and understanding all the way through this project.
- My daughter, Dr Lebohang Makhoba; for her encouragement during the solitary days of this project.
- My grandson, Kutloano Mofokeng; my niece and nephew, Paballo and Omphile Nduna; they are a blessing and a bundle of joy without measure.
- To my dear friend Mrs Kholiwe Kunene; for her unconditional support and assistance throughout this project.
- To my editor, Dr TJ Mkhonto; for his motivation, editing contribution and support, and for assisting in the structuring and shaping of this manuscript. I thank him for the ability to envisage problems and efforts expended in resolving those challenges.
- To the statistician, Mrs Marelize de Villiers; for the detailed statistical data analysis, and her commitment to providing all required information.
- The Gauteng Department of Health; for granting the approval and permission to conduct the study and achieve the set goal of my life by completing my postgraduate studies.
- The Gauteng public nursing college management; for granting the permission and approval to conduct my study at the college. I thank them profusely.
- A special “Thank You” to the Gauteng public nursing college 1<sup>st</sup> and 2<sup>nd</sup> year nursing students; for their voluntary participation in this project. The empirical aspects of this study would not have come to fruition without their most appreciated participation.
- To the 4th year nursing students at the Gauteng public nursing college; their eagerness to participate in the pilot study was amazing. I thank them all beyond measure.
- Mrs Rina Coetzer, for her professional formatting of this dissertation and binding.

## *Dedication*

*I humbly and respectfully dedicate*

**SELECTION CRITERIA: A FACTOR ASSOCIATED WITH ACADEMIC  
PERFORMANCE OF STUDENT NURSES AT A PUBLIC NURSING COLLEGE**

*to*

*My mother, Maria Makhoba; for always believing in me with her  
tireless inculcation of the value of education to me. Her steadfast  
love and continuous support will forever be etched in my mind and  
spirit for the sake of posterity.*

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**LIST OF ACRONYMS/ABBREVIATIONS USED IN THE STUDY**

<b>BNS</b>	Biological and Natural Sciences
<b>CI</b>	Confidence Intervals
<b>DoE</b>	Department of Education
<b>DoH</b>	Department of Health
<b>DoL</b>	Department of Labour
<b>FASS</b>	Faculty of Arts and Social Sciences, University of Malaya
<b>FNS</b>	Fundamental Nursing Science
<b>GPA</b>	Graduate Point Average
<b>GPG</b>	Gauteng Provincial Government
<b>GPGDHSD</b>	Gauteng Provincial Government Department of Health and Social Development
<b>HDC</b>	Higher Degrees Committee
<b>HPAT</b>	Health Professionals Admissions Test
<b>GDHDS</b>	Gauteng Department of Health and Social Development
<b>MNS</b>	Midwifery Nursing Science
<b>NDoE</b>	National Department of Education
<b>NDoH</b>	National Department of Health
<b>NDP</b>	National Development Plan
<b>SANC</b>	South African Nursing Council
<b>UNISA</b>	University of South Africa
<b>UK</b>	United Kingdom
<b>USA</b>	United States of America

# CHAPTER 1

## OVERVIEW OF THE STUDY

### 1.1 INTRODUCTION

It is a globally acknowledged fact that nurses form a very vital core of a viable health care system. The extent to which a particular nursing education and training system produces quality nurses also ensures the extent to which patients will receive the high quality of care they deserve (Tanner 2012:244). Since many countries around the world have categorically declared themselves to be in dire need of a highly trained professional nursing workforce, it is therefore imperative for any viable health care system to educate, train, and deliver professional nurses who will provide innovative and creative nursing and general health care in order to reduce the current global health care challenges – such as the ageing nursing population; poverty; inadequate financial and human resources; HIV/AIDS; as well as a plethora of other communicable and non-communicable diseases (Hughes 2006:94; National Development Plan/NDP 2011:330-331).

In order to address the acute shortage of registered professional nurses effectively, the prevalence of adequate nursing students' intake mechanisms should be addressed. Furthermore, protracted intake remedial action should be developed and adhered to, especially in the realm of student nurses' performance and throughput rates, as well as in the quality of the nursing education and training (Reinhardt, Keller, Summers & Schultz 2012:306). The ultimate objective of such remedial approaches should be to increase the number of students who successfully complete quality nursing education and training programmes without compromising the quality of such programmes.

Many factors are associated with nursing student's academic performance as a factor or determinant of the quality of nurses, nursing and health care in general; as well as nursing education and training in particular. For instance, poor academic performance – as one of such factors that are inimical nursing students' academic performance – could be attributed to, amongst an array of other factors, a lack of the required commitment to nursing as a profession; a lack of theory and practice integration; a lack of critical thinking skills; as well as ineffective teaching methods (Waterson, Harms, Qupe, Maritz,

Manning, Makobe & Chabeli 2006:60). Ostentation, socio-economic status, and purely pecuniary motives are some of the factors that also account for a lack of the required commitment by prospective and practising nurses to nursing as a profession or career choice. It may also be that the pre-admission selection criteria used to admit aspiring students to the nursing profession do not contribute effectively to the correct identification of students who will successfully complete the professional nursing programme and eventually excel in the nursing profession. In the latter regard, and in the context of the current study, the notion of 'selection criteria' has been identified as a major predictive factor in respect of nursing students' academic performance. For purposes of this study, therefore, nursing pre-admission selection criteria, rather than nursing workforce shortages, is viewed as the most pivotal factor in the determination of the quality of nurse that will be produced by the nursing education and training system. That is to say, 'selection criteria' as a conceptual nuance is viewed in this study as superseding 'nursing workforce shortages' in terms of the identification of prospective nursing students who will eventually become productive and effective nursing practitioners in various fields of the profession.

## **1.2 BACKGROUND OF THE RESEARCH PROBLEM**

The health care worker shortage is a global issue, and has reached crisis levels in 57 (fifty-seven) mostly poor countries (WHO 2009:11). From the 57 mostly poor countries, the shortage is most acute in sub-Saharan Africa, where it is estimated that 1 (one) billion people are left destitute and with no access to adequate health care (WHO 2009:1). While a numerical (quantitative) increase of highly trained and skilled professional nurses is an almost indispensable response to the nursing human resources shortages, it is also equally imperative that quality nursing education and training programmes be instituted to ensure that success and completion rates of these programmes are achieved convincingly (Schimmel, Eschenfelder, Clark, Marco & Racic 2009:15). The latter authors further accentuate with large, the competitive nature of the market for both skilled students and workers thus:

To a large extent, it is irrefutable that varying country-specific contexts and circumstances do contribute to the extent to which the quality of nurses and nursing will be developed and institutionalised in each country. In this study, two international contexts are cited in order to exemplify the extent of idiosyncratic country-specific



contexts and circumstances in the shaping of nursing student selection criteria. The first example relates to the study undertaken by Subramaniam, Ariff and Idris (2012) with first year nursing undergraduate students at the University of Malaysia's Faculty of Arts and Social Sciences (FASS). In this specific context, pre-entry and post-entry selection criteria are identified as two stages according to which nursing students selected courses of their own choices based on the influenced of their teachers, family, and labour market considerations. The latter consideration posits the capital value or currency the individual course has on the labour market; that is, a financial benefit or worth is placed on the value or 'weight' of the curriculum or education obtained by the student (Van Damme 2002:23).

The FASS study referred to above identified that during the post-entry stage, the first year nursing undergraduate students at the University of Malaysia mentioned that peer group influences; orientation week; and limited choices affected their selection of courses after their admission to nursing. Comparatively speaking, and for purposes of the current study, the researcher contends that the Malaysian post-entry selection criteria would not be adequately relevant to the South African context, as the latter considers criteria only after the students have been selected into a nursing programme (Subramaniam et al 2012:246). Secondly, the Malaysian situation focuses on students' own selection of courses according to their own criteria; whereas the South African nursing student selection criteria (which focuses on criteria determined by a selection authority or panel) is premised on selection instrumentation that is independent of the qualities or variables which the particular student may, or may not have in relation to the requirements of the nursing profession as a labour or work environment with its own particularities and requirements. Notwithstanding the above variations, a high school or matriculation is still a 'non-negotiable' pre-admission requirement – similar to the University of Kentucky's College of Nursing context and the South African nursing education and training environment.

The University of Kentucky's College of Nursing provides the second international context of nursing selection criteria with its own commonalities and variations. Compared with the University of Malaysia's Nursing College and the South African contexts, the most common denominator in respect of nursing selection criteria is high school matriculation. However, the University of Kentucky's College of Nursing's pre-admission requirement is a high school grade-point average (GPA) of 2.5 or above on a

4.0 scale for the four-year B NS degree (University of Kentucky 2015:16). Furthermore, and similar to the South African context of nursing education and training environment, non-cognitive skills (such as communication, attitude, and personality) are a pre-requisite, in addition to cognitive skills (manifested in academic achievement).

Similar to most countries in the developing world, South Africa is also affected by the scourge of health care worker shortages. This escalating shortage of registered professional nurse's demands urgent attention, in order that the quality of health care provision and the public's confidence are redeemed (Jeffreys 2004:10). The following excerpt from the NDP (2011:330-332) succinctly captures the post-1994 nursing environment in the country:

In response to the nursing human resources shortages, the South African government has, amongst other initiatives, mandated the nursing colleges to increase their student intake by 25% (twenty-five percent) every year since 2011 (Gauteng Provincial Government 2009:1). This governmental mandate is executed in accordance with Regulation 425 (Regulation No. 22 of 1985, as amended); and implies that aspirant nursing students should be trained as General, Psychiatric, Community and Midwifery nurses. The above-mentioned Regulation further stipulates that prior to their actual practice as nurses; these trained nurses should be registered as professional nurses with the South African Nursing Council (SANC) in accordance with the Nursing Act, (South Africa 2005:34).

Consistent with the current research topic and its objectives, the Gauteng Department of Health and Social Development (GDHSD) is referred to as the provincial regulator under whose jurisdiction the selected public nursing college in the current study falls. In compliance with both the above-cited Nursing Act and Regulation of the South African Nursing Council, the selection of students for the four-year integrated Diploma in Nursing is managed by the National Department of Labour (NDoL), in collaboration with the Gauteng Department of Health and Social Development, which indicates the number of available posts to be filled to the NDoL. By applying the appropriate academic variables, the NDoL is responsible for the selection of eligible students into public nursing colleges for the four-year nursing diploma. Candidates should have passed their matric and be in possession of the National Senior Certificate, with an admission point score of 20 and M score of 15 points respectively. Qualifying students

then undergo psychometric testing, which is aimed at assessing behavioural patterns or attributes such as levels of motivation, emotional intelligence, and a range of other personality traits (Bergh & Theron 2006:490-491). Such a psychometric assessment regime should further explain, describe and predict occupational adjustment and performance (Kline 2000:420). Subsequent to their assessment and selection, it is then expected that the selected nursing candidates will be able to complete their four-year nursing diploma (Interview with the Department of Labour, 17 July 2012).

In the event that candidates comply with the selection criteria set by the Department of Labour in accordance with the number of available posts to be filled indicated by the GPGDSD, candidates are then allocated to the following Gauteng nursing colleges to fill the available student places. Prospective students sent to the colleges after the approval of the NDoL are interviewed at these colleges, where psychometric testing is also conducted. Students scoring the highest during the selection process are then selected for admission to the nursing college of their choice. However, successful students are obliged to register with the SANC prior to their actual commencement of the studies. Non-compliance with the latter requirements renders the student ineligible for admission to a nursing college despite high scores obtained during the nursing college selection processes.

Despite the availability of post-selection nursing education and training sites, the current rate of student attrition levels has contributed to the nursing colleges' unacceptably high nurse educator-to-student ratio, with negative implications for student learning and performance (Nieman & Monyai 2006:19). In the public nursing college selected for investigation in this study (which was conducted in from January to March 2015), the class sizes were visibly large, especially for the first and second year levels of study. Table 1.1 depicts the unacceptably high class sizes at the public nursing college under investigation, taking into consideration that the stipulated nurse educator-to-student class ratio by the Department of Basic Education (DoE) is between 1:35 and 1:40 (Department of Basic Education 2010:50; Department of Basic Education 2013:55).

**Table 1.1: Educator-to-student ratio at the Gauteng Public Nursing College under investigation: 2009-2011**

Level and field of study	Number of nurse educators	Number of nursing students	Ratio
Level 1: First year	18÷4 modules	580	1:116
Level 2: Second year	28÷4 modules	485	1:69
Level 3: Third year	21÷4 modules	230	1:46
Level 4: Fourth year	9÷2 modules	186	1:37
<b>TOTAL</b>		<b>1 481</b>	

**Source:** Chris Hani Baragwanath Nursing College (CHBNC) Draft, 2012b

Whereas the stipulated Department of Education nursing class ratio is 1:35 to 1:40, Table 1.1 indicates that the class sizes are the highest at the first year level of study (1:116), and lowest at the fourth year level of study (1:37). Such a state of affairs is reflective of an increasing nursing failure rate, which is succinctly captured for the period 2009 to 2011. Such increasing nursing attrition rates are inimical to the expected quality of nursing throughput rates and the contribution of the nursing profession to the broader labour market and socio-economic development. Table 1.2 below attests to the deleterious effects and high attrition rate for the period between 2009 and 2011. Such high failure rates have a direct bearing on the financial and human resources of nursing as a profession, and necessitate that both the selection criteria and the selection instrument be reviewed. The quality of the nursing curriculum (in terms of its relevance and efficacy) should also be subjected to best practice and quality assurance mechanisms (Cheng 2003:202).

**Table 1.2: Final-year nursing pass and attrition rates at the Gauteng Public Nursing College under investigation: 2009-2014**

YEAR OF STUDY	2014		2013		2012		2011		2010		2009	
FIELD OF STUDY	Main Exam Passed	Main Exam Failed	Main Exam Passed	Main Exam Failed	Main Exam Passed	Main Exam Failed	Main Exam Passed	Main Exam Failed	Main Exam Passed	Main Exam Failed	Main Exam Passed	Main Exam Failed
FNS 100 (1 <sup>st</sup> Year)r	76%	24%	89%	11%	38%	62%	60%	40%	74%	26%	40%	60%
SS 100 (1 <sup>st</sup> Year)	76%	24%	87%	13%	69%	31%	75%	25%	78%	22%	65%	35%
BNS 100 (1 <sup>st</sup> Year)	68%	32%	80%	20%	63%	37%	63%	37%	65%	35%	36%	62%
GNS100 (1 <sup>st</sup> Year)	79%	21%	75%	25%	80%	20%	61%	39%	80%	20%	83%	17%
CGNS 100 (1 <sup>st</sup> Year)	98%	2%	62%	38%	100%	0%	89%	11%	95%	5%	66%	34%
BNS 200 (2 <sup>nd</sup> Year)	43%	57%	48%	52%	49%	51%	37%	63%	43%	57%	59%	41%
SS 200 (2 <sup>nd</sup> Year)	76%	24%	75%	25%	77%	33%	89%	11%	68%	32%	64%	36%
MID 100 (2 <sup>nd</sup> Year)	82%	18%	78%	22%	70%	30%	54%	46%	57%	43%	69%	31%
GNS 200 (2 <sup>nd</sup> Year)	39%	61%	56%	44%	83%	17%	35%	65%	40%	60%	35%	65%
CGNS 200 (2 <sup>nd</sup> Year)	71%	29%	79%	21%	92%	8%	91%	9%	94%	6%	92%	8%

**Source:** The source has been withheld, since it concerns the very research site whose identity has to be kept anonymous

A deductive observation of Table 1.2 illuminates on a general emergent trend or pattern concerning the pass and failure/attrition rates of both first- and second-year nursing students during the six-year period from 2009 to 2015 at the Gauteng nursing college selected as the study's research site. Generally, the pass rate is decreasing, while the failure rate increases. This trend manifests in all the modules, but only a few will be cited here.

In terms of field of study/subject, the FNS 100 module had its worst performance in 2012 with a 62% failure rate. The same module had its comparatively better performance in 2013, with an 89% student pass rate. The GNS 200 module on the other hand, performed better in 2012 with 83% of the second-year students passing the module; whereas the same module's comparatively worst performance was in 2009 with a failure rate of 65%.

**Table 1.3: Comparative final-year nursing pass and attrition rates at another Gauteng Public Nursing College (not under investigation): 2009-2014**

First year modules						
Year of study	2009	2010	2011	2012	2013	2014
Field of study	Fail	Fail	Fail	Fail	Fail	Fail
Biological Nursing Science (BNS) 100	49%	49%	51%	37%	56%	48%
Fundamental Nursing Science (FNS) 100	23%	23%	52%	44%	59%	36%
Second year modules						
Biological Nursing Science (BNS) 200	51%	64%	50.11%	54%	60%	31%
Midwifery Nursing Science (MNS) 100	37.46%	72.14%	34.35%	61%	63%	25%

**Source:** CHBNC Senate Meetings (2010-2015)

The statistical information above (from a Gauteng public nursing college not under review in this study) has been included primarily for comparative purposes with the actual research site. Similar to the trend observed at the research site itself (Table 1.2); there is a general decline in the first- and second-year nursing students' achievement rates. Table 1.3 indicates that the first year FNS 100 module was atrociously failed at 23% by students in 2009 and 2010 respectively. Students in the BNS 100 first year module, on the other hand, fared slightly better, *albeit* at 49% in 2009 and 2010 respectively. In 2011, students in both the BNS 100 and FNS 100 modules performed better, at 51% and 52% respectively. For the second year, the performance of students in the MNS 100 module was most unsatisfactory in 2009 and 2011 at 37.46% and

34.35% respectively. Those students who failed in 2011 were not promoted to the third year of study, and were given the opportunity to repeat, provided they met the necessary requirements; while others were excluded from the course because they exhausted their chances to repeat their third year of study.

According to the South African Nursing Council's regulations, any nursing student failing any particular module twice should be discontinued from their nursing studies forthwith (SANC 2007:2-3). It is incumbent on the nursing college to apply this specific rule as endorsed by the SANC. Table 1.2 illustrates that the first and second year student nurses' failure rate in specific modules is more than 50%, resulting in a decrease in the number of students expected to eventually obtain the Diploma in Nursing at the end of the fourth year. Eventually, the high attrition rates have an adverse impact on the anticipated throughput rates of student nurses. Paradoxically, the gradually declining nursing educator-student ratios then become the reason for the class ratios in the third and fourth years becoming more manageable.

### **1.3 THE RESEARCH PROBLEM/PROBLEM STATEMENT**

The research problem was conceptualised and influenced by the researcher's own observations and experiences as a nursing educator at a Gauteng public nursing college. Furthermore, literature-based and empirically-generated information provided the theoretic background according to which the research problem was articulated by the researcher (Mouton 2001:114). The fundamental premise of the research problem is on the disjuncture between the applicable selection criteria of nursing students on the one hand, and the expected quality of care from nursing students in public health care institutions on the other.

Students who have been selected to study the four-year Diploma in Nursing are expected to perform academically and successfully complete their studies. The latter state of affairs is envisaged to augment to other meaningful efforts that are being expended to address the overwhelming nurse shortages in the country. The required quality of nurses is important, as these nurses should be able to effectively and innovatively add value to nursing, and not become mere valueless functionaries. The current generation of nurses should, amongst other attributes, possess the quality to assess the health needs of patients prior to making nursing decisions and judgements

in their delivery of quality health care (Taylor 2002:11). Therefore, the best possible nurse candidates should be recruited and selected.

Contrary to expectations, the observable trends indicate that selected nursing students gradually fail their modules, and do not complete their nursing studies. Tables 1.1 and 1.2 are indicative of this extant trend. It is in this particular context that the research problem was articulated by the researcher. *Ipsa facto*, the selection criteria used – as a predictive factor of nursing students' academic performance – needed to be investigated in order to locate and identify relevant aspects that could be improved and ultimately contribute to more qualified nurses who are adequately equipped to render meaningful quality of care to their patients (Mendis & Ponnampereuma 2011:2).

#### **1.4 PURPOSE AND OBJECTIVES OF THE STUDY**

In research, the aim or purpose of the study refers to the more general or broader intentions which the researcher envisages to achieve by undertaking the study in the first place (Henning 2005:1; Muller 2004:37). On the other hand, the objectives refer to the more specific intentions of a study.

In this particular study, the aim is to enhance the academic performance and success of nursing students admitted in Nursing Colleges in Gauteng Province. In order to reach this aim, the following objectives were set:

- To describe the Department of Labour's criterion in the pre-admission selection of students for the four-year Diploma in Nursing.
- To describe the predictive factors in the current pre-admission selection process in a Gauteng public nursing college.
- To examine the association between the predictive factors for pre admission with nursing students' academic performance in a Gauteng public nursing college.

#### **1.5 PERTINENT RESEARCH QUESTIONS**

The following questions are regarded as pertinent to the study, and have been formulated in close association with the purpose and objectives of the study (Babbie & Mouton 2001:563). In addition, these questions have been formulated to incorporate the



three essential stakeholder constituencies explored in the study; namely: the student nurses, the selected nursing facility as the learning and employment site, and the nursing education system as a whole. The following questions were thus developed in order to address all the three components mentioned above:

- What is the Department of Labour's criterion in the pre-admission selection of nursing students for the four-year Diploma in Nursing?
- What are the predictive factors in the current pre-admission selection process in a Gauteng public nursing college?
- What is the association between the predictive factors for readmission with nursing student's academic performance in a Gauteng public nursing college?

## **1.6 SIGNIFICANCE AND MOTIVATION OF THE STUDY**

The significance of a study is to explore, describe, and define the relevant elements in the pre-admission selection criteria process as variables that are associated with the determination of the academic performance of student nurses at a public nursing college, for the purpose of providing evidence to improve the selection criteria process for future nursing students. The envisaged improvement is therefore not the end in itself, but the means by which nursing student success rate, quality of patient care as well as an efficient and effective professional nursing workforce could be improved.

The significance of a study refers to the justification or motivation for the reasons associated with the study being undertaken in the first place. Such motivation provides the study's "truth value"; that is, the extent of the study's practical implications in respect of the conceptualisation and analysis of the complex relationship between the scientific environment (as a systematically designed plan or method intended to address the identified research problem(s) and the real-life concerns (Babbie & Mouton 2001:9). Examples of practical real-life concerns in this case would be: the nursing profession as a labour market dynamic (insofar as nursing becoming a labour or employment 'reservoir'); as well as the contribution of effective and efficient pre-admission instrumentation and criteria to quality nursing and health care.

It is specifically on the strengths or weaknesses of the reasons advanced that a study is regarded as relevant or irrelevant, practical or impractical, helpful or not helpful at all; or

even useful or not useful. In this regard, the study should necessarily be assessed by its contributions to the body or field of knowledge; its practical socio-economic implications; and/or its specific contributions or meaningfulness to institutions or organisations (Pretorius 2003:13-14). These three aspects of significance could apply collectively or individually to a study, depending on the nature and focus of that particular study.

Consistent with the intentions of the study, the resultant recommendations are envisaged to contribute towards policy development and implementation in respect of the revision of selection criteria by both the Gauteng Department of Health and the Department of Labour in the identification and selection of the best nursing candidates who certainly will complete and succeed in their four-year nursing diploma programme.

### **1.6.1 Discipline-related significance/relevance**

Discipline-related significance or relevance relates to the scientific value of the study, or the extent to which the study as a whole meaningfully or reasonably contributes to the corpus or body of knowledge in a particular discipline or field of study – which in this case relates to nursing in general; and in particular, the pre-entry selection criteria of nurses as a viable mechanism to improve quality of health care to patients. In addition, the study's meaningful contribution extends to selection criteria as a scientific phenomenon.

Recommendations from the study are envisaged to assist in, and contribute to the revision of the selection criteria that guided educators to identify and select students who would successfully complete the nursing programme. Research on local South African nursing pre-admission criteria has not been conducted on an expansive scale. On the merits of its findings and recommendations, the current study has the potential to add value in the examination and analysis of nursing pre-admission selection criteria, on the basis of identified strengths and weaknesses in the context of international trends, practices, and policies.

### **1.6.2 Institution-specific significance/relevance**

The institution-specific significance of the study as a whole relates to the extent to which the study has been relevant, helpful, useful (or otherwise) to the enhancement of the

particular organisation's or institution's performance or reputation. In this case, four institutions/organisations are of immediate mention-worthiness, namely: UNISA, the Department of Labour, the Gauteng Provincial Government's Department of Health and Social Development and SANC jointly, as well as the research site/selected public nursing college under investigation.

In the case of UNISA, the study's significance is premised on both its quantitative and qualitative contribution to the research profile and repertoire of the institution. UNISA's academic research throughput is highly acclaimed locally and internationally. It is the student's conviction that UNISA's Research Ethics Committee's granting of permission approval of the study to be undertaken is 'a vote of confidence' in the viability and efficacy of the study. The research profile of the Department of Health Studies, particularly the School of Nursing at UNISA, will benefit immensely from publishable evidence-based and credible information and knowledge in a field of study that is pertinent to its professional nursing curriculum offering. The institutional memory of UNISA's School of Nursing and the Department of Health Studies will be enhanced by the topicality and relevance of the study to nursing practice. Furthermore, the institution will benefit from a phalanx of well researched and evidence-based trajectories and paradigms on whose basis informed decisions could be made in respect of the type of students admitted; the nursing curriculum content of learning; student assessment; teaching and learning methods; as well as the development of innovative policies in relation to nursing student admissions.

In the case of the National Department of Labour, the identified areas of weakness in the selection criteria – together with the attendant recommendations – will strengthen the predictive instrumentation mechanisms utilised by the Department to select potential and quality candidates for the nursing profession. To the extent that the study seeks to identify and resolve areas of conflict – if any exist – between the NDoL's nursing selection criteria and those of the GDoH/SANC, and the selected public nursing college, the NDoL's nursing selection criteria and policies will derive a basis for comparison and/or improvement from the study's findings and recommendations in particular.

In the case of the National Department of Health and SANC jointly, the study is of critical value insofar as curriculum content, quality of nurses and nursing, as well as ethical conduct and expectations are concerned. The study's findings and recommendations

are envisaged to assist in the development and implementation of effective and efficient nursing admission and education and training policies in the context of the nursing profession as labour market dynamic (Basic Conditions of Employment Act, Act No. 75 of 1997).

In the case of the public nursing college under investigation, areas of improvement in teaching and learning are enhanced by this study. Since empirically generated information and knowledge are derived from this very public nursing college, the latter will have first-hand contact with evidence-based knowledge gathered on its own background. Cognisant of her role at the self-same nursing college, the researcher is also conscious of the extent to which 'deleterious' or adverse findings and recommendations may impact on the image of the institution as her place of employment. Nonetheless, objectivity throughout the entire research process stood the researcher in good stead (De Laine 2000:2).

### **1.6.3 Practical socio-economic significance/relevance**

The practical socio-economic significance or relevance of the study relates to the extent to which the study as a whole meaningfully and practically addresses, and contributes to social and economic development in the context of the selection criteria for nurses, the quality of nursing health care in Gauteng Province and the country as a whole. In this regard, people (human resources), systems and processes (e.g. selection criteria) are pivotal determinants of the study's socio-economic relevance or significance. In this study, the interrogation of nurses' selection criteria is intended to elevate the predictive standards of the DoL, the DoH/SANC and the selected public nursing college, according to which the choice of suitable nursing candidates will be enhanced.

Accordingly, the quality of the selection instrumentation and criteria (as objective predictive indicators), the nursing students, as well as the nursing education system will yield better employment opportunities for a generation of committed nurses who are imbued with efficient service delivery within vibrant working environments. The study's findings and recommendations will further contribute to the institutionalisation of effective and fair admission criteria and standards that would assist in minimising waste of human and material resources which occurs due to student failure and attrition (Ali 2008:128). Ultimately, quality health care and nurse educator-nursing student ratios are

conducive to quality nursing education and training on the one hand, and better health care and longevity on the other.

## **1.7 DEFINITION OF KEY CONCEPTS**

Mouton (2001:175), asserts that concepts are cognitive units of meaning, abstract ideas, or mental symbols defined as units of knowledge relevant to a phenomenon or phenomena under investigation. The key concepts then are those critical cognitive/abstract units, ideas, or symbols that are thematically pivotal to, and directly associated with the research topic. In this study, the key concepts are thematically linked to the fundamental nuance of “selection criteria” as a considered factor in the academic performance of potential nursing professionals.

The definition of the key concepts in this study has been occasioned by the need to prevent amorphous lexical or semantic ambiguity, in order to provide textual, factual, and technical clarity to the reader. Furthermore, the definition of key concepts in this study allocates contextually relevant meaning to those terms and concepts that are thematically linked to the research topic, its research problem, and the research process as a whole. Accordingly, the alphabetic sequencing of the conceptual and operational definitions below does not necessarily attach a sense of importance or priority to any particular concept or nuance being described; neither does the alphabetic arrangement diminish these concepts’ pivotal significance and contribution to the study as a whole.

### **1.7.1 Conceptual definitions**

Conceptual definitions refer to those key abstractly- or cognitively-constructed discipline-specific ideas or symbols that are more thematically and directly linked to the research topic, rather than to the researcher and the research process as a whole. In addition, conceptual definitions explain the prevalence of different aspects of a critical variable (Polit & Beck 2012:52; Grove, Burns & Gray 2013:116), such as the identification of “academic performance” as a critical variable and aspect of the notion of “selection criteria”. With the utilisation of conceptual definitions, the researcher is able to organise ideas that demonstrate the study as a logical extension of current knowledge by means of organising a theoretical framework, based on theories, conceptual paradigms, or

assumptions. (Brink, Van der Walt & Van Rensburg 2012:24). The following key terms have been identified in this study as critical conceptual variables.

## **1.7.2 Operational definitions**

Whereas the conceptual definitions are abstractly constructed, the operational definitions are more functionally oriented and describe the prevalence of practical characteristics and observable attributes or meanings given in the context of the study (Polit & Beck 2012: 52; De Vos & Strydom 2011:34). The following concepts below are defined operationally in the context of the study in its entirety.

### ***1.7.2.1 Academic performance***

The verifiable assessment based accomplishment of a formal education and training task by a learner/student at the acceptable or minimum passing level (Gilbert 1989:603). The performance is measured or determined in the context of predetermined organisational/institutional expectations, criteria, or standards. In this study, academic performance is measured or determined by the ability of the nurse student to pass a module. Students who obtained 50% or more in a particular module are regarded as having passed, and thus performed academically well or satisfactorily.

### ***1.7.2.2 Nursing education and training***

A system according to which the registration and prerequisites to practise as a nurse are provided by a recognised institution or authority. Such an institution should provide nursing education and training programmes in order to prepare persons for practice in any category contemplated in Section 37 of the Act. The persons being trained should be registered with the South African Nursing Council, in terms of Section 31(1) of the Nursing Act (South Africa 2005:77, 63).

### ***1.7.2.3 Pre-admission/pre-entry***

A pre-condition for admission to the nursing profession, as articulated by a competent regulatory body or institution.

#### **1.7.2.4 Public nursing college**

A publicly funded post-secondary educational institution offering professional nursing education at basic and post basic level approved in terms of Section 15(2) of the Nursing Act (Act No. 50 of 1978, as amended by Act No. 33 of 2005).

#### **1.7.2.5 Registered professional nurse**

A person “who is qualified and competent to independently practise comprehensive nursing in the manner and to the level prescribed, and who is capable of assuming responsibility and accountability for such practice” (Nursing Act, Act No. 33 of 2005) (South Africa 2005:25). Such a person should also have registered with the SANC.

#### **1.7.2.6 Student nurse**

A trainee who has not yet completed all the academic and professional requirements of the nursing profession. A student nurse is a person who has applied to the South African Nursing Council for registration in the basic four-year nursing diploma at an approved nursing college (Nursing Act, Act No. 33 of 2005) (South Africa 2005:5).

#### **1.7.2.7 Selection criteria**

The different elements or variables assessed according to the instrument/predictor used by the Department of Labour to select prospective students for training as professional nurses. The selection criteria include such variables as English language proficiency; Science and Mathematics aptitude; as well as personality traits such as emotional maturity.

A systematically conducted process for obtaining individuals' or applicants' comparable information in order to select them according to the specific needs or requirements of a particular job or work environment. In the latter instance, the work environment is located within a public health care facility or organisation. The purpose of applying the selection criteria is to compare or match individuals' applicable qualities using a predictor/instrument such as a test or interview, against the requirements and

expectations of a particular work environment (Jooste 2010:166-167). It is worth mentioning that the selection criterion is more of the means, rather than the end in itself. The focus on the selection criteria therefore, is concerned more with the prospective students' ability and potential, rather than with the means of instrument) by which such ability/potential is determined, measured, or assessed.

#### **1.7.2.8 Student selection tools/instrumentation**

The standardisation of acceptance or admission to the nursing college according to systematic procedures, including interviews and psychometric testing.

### **1.8 RESEARCH DESIGN AND METHODOLOGY**

Mouton (2001:55) contends that the two scientific nuances, “research design” and “research methodology” are interpreted differently and used interchangeably by researchers and scholars from various academic and intellectual persuasions. Others refer to the above two concepts as inter-related, but separate; while others maintain that the two nuances are synonymous and inter-related. Denscombe (2010:97) for instance, describes “research design” and “research methodology” interchangeably as a stage in the report writing of the study where the researcher “presents a rough indication of the design, plan or structure of the study and the methodology that would be followed in addressing the research problem”. The latter author states further that it is at this stage of the study wherein the researcher provides “details of the data collection process, including the sampling methods, sampling size, data collection techniques and definitions of relevant terminology used in the thesis” (Denscombe 2010:99-100).

In this study then, “research design” and “research methodology” are used as separate, but inter-related concepts. The research design refers to the broader or overall action plan of the manner in which the research was conducted and managed (Mouton 2001:55). Such a management plan addresses research variables such as the research problem; the research objectives and question(s); the relevance of the study; specifications for enhancing the study's integrity; as well as some of the difficulties encountered during the research process in its entirety (Polit & Beck 2008:764; Burns & Grove 2009:218). A combined qualitative and quantitative research approach (triangulation) was utilised in the data collection process of the study, with specific focus



on exploratory and descriptive designs – with the pilot study serving as the initial exploratory mechanism of the study. The triangulated approach demonstrated the extent to which all of the various parts of the research project functioned collectively in an attempt to address the research problem and research questions (Neuman 2011). The orientation towards triangulation further enabled the researcher to identify the appropriate research decisions intended to maximise the validity of the eventual research outcome (Polit & Beck 2012:610). On the other hand, the quantitative descriptive approach enhanced the presentation and analysis of the numeric variables associated with the collected data pertaining to the selection criteria.

### **1.8.1 Data collection**

Data collection is defined as the precise and systemic gathering of both theoretical and empirical information relevant to the research problem, the research purpose and the specific objectives, the study's significance, as well as the pertinent research questions (Burns & Grove 2005:40). In addition, the data collection process conforms to the research methodology of the study; in which case the research methodology then “focuses on the research process and the kind of tools and procedures to be used” (Mouton 2001:56). Since the study assumes the form of a qualitative, exploratory, descriptive, and contextual research design, the researcher's understanding of the participants' perspectives and experiences during the data collection phase was greatly enhanced

#### ***1.8.1.1 Questionnaire development and administration***

In this study, the questionnaire (see Appendix G) was used as the primary data gathering instrument and a form of self-reporting, intended to elicit relevant and usable information obtained by means of the written responses of selected respondents (Burns & Grove 2011:353). In addition to the qualitatively-oriented interviews, the development and administration of the questionnaire enhanced the more quantitatively-oriented aspect of the research design. The questionnaire was developed prior to the execution of the study, and the questions were pared with the benefit of insights obtained during the pilot study.

The questionnaire items were collectively derived from the recruitment and selection instrument used by the Department of Labour, as well as from the selected public nursing college's interview tool. Questions pertaining to the student nurses' performance in the different modules were included in the questionnaire. During the development and administration of the questionnaire, the following factors were borne in mind by the researcher:

- Respondents were informed that there were no correct or incorrect responses.
- Ethical issues were taken into serious consideration by not divulging respondents' identity (thus guaranteeing their privacy, anonymity, and confidentiality).
- Questionnaire items were sensitive to issues of race, gender, ethnicity, and cultural practices.
- Both close- and open-ended questions were included to respectively facilitate unrestricted, but direct responses.
- The questionnaires were administered during the respondents' lunch hour in pre-arranged lecture halls.
- All the critical questionnaire items were thematically linked to nursing students' selection criteria.
- The researcher personally collected the completed questionnaires for further analytic attention by the statistician.

### **1.8.2 The pilot study**

A pilot study is a small-scale version, or a trial-run designed to test the methods that are used in a larger, more rigorous study (Polit & Beck 2012:195-196; Grove, et al 2013:343- 344). The purpose of the pilot study was to assess whether the items on the research instrument (questionnaire) were clear, intelligible, and could be answered with ease. The pilot study greatly enhanced both the empirical aspect of the research and the researcher's better understanding of "the social reality" of the respondents; that is, the real-life experiences of the respondents in their familiar surroundings/habitat (Holosko 2001:265). In the latter context, the pilot study further assisted in the development of the relevant inclusion and exclusion criteria pertaining to the research

participants/respondents. The researcher conveniently sampled twenty two (22) volunteers with similar characteristics as the respondents of the actual study.

The pilot study was conducted in July 2014 with fourth year nursing students at a Johannesburg public nursing college. The Gauteng Department of Health (GDoH) selected that particular research site after due written requests were formally made by the researcher. Permission was also obtained from the nursing college's principal, the research coordinator, as well as the academic head of the course levels concerned.

The fourth year nursing students were requested to participate in the study based on their knowledgeable of, and experiences in the four-year diploma, as well as their sufficient exposure to nursing as a profession. The initial sample for the pilot study was supposed to be fifteen volunteers, but twenty two students volunteered to participate in the study. Since the number of volunteers exceeded the expectations during the pilot study, more questionnaires were reproduced before the actual study was conducted.

The volunteers were provided with an information leaflet that explained the research topic, the research purpose, as well as the ethical issues involved, so that they could make informed decisions regarding their participation in the study. The searcher then distributed questionnaires (see Appendix G) with the attached consent forms (see Appendix F) to be filled-in by the respondents. Although the time allocated for the completion of the questionnaire was thirty (30) minutes, the respondents took an average of twenty minutes to complete it.

### **1.8.3 The study population**

A study population is the entire aggregate of cases in which the researcher is interested (Polit & Beck 2012:273; Botma, Greeff, Mulaudzi & Wright 2010:124). A cogent study population possess similar characteristics or qualities that are categorically representative of the entire aggregated cases. Due to financial and logistical obstacles beyond the researcher's control, as well as the limited scope of this study, only one Gauteng public nursing college was selected for the actual/main study. The total population size at this selected nursing college was 1, 065 students in 2012; 580 of whom were first year nursing students, and 485 were in their second year nursing studies.

#### **1.8.4 Sampling and sampling procedures**

Of the three above-cited public nursing colleges in Gauteng, only one was selected for sampling. The rationale for its selection is premised on it being the one the approval to conduct research study was granted by the Gauteng Provincial Department of Health, and it optimally exhibited significant aspects of the research problem to be resolved. The combined number of sampled respondents was 213 (approximately 20% of the sample population/universe). Sixty-seven (67) more respondents volunteered to participate in the study. The systematic random sampling method was utilised, assisted by the availability of the class lists, which were utilised as the sample frame from which to select the respondents. All respondents had an equal opportunity to be selected for participation in the study.

##### ***1.8.4.1 Inclusion criteria***

Inclusion criteria refer to the specific characteristics or qualities that research participants should possess in relation to the sampled respondents or research population/universe. Polit and Beck (2012:306) illuminate further that inclusion criteria are a determinant of a person's suitability to membership of a particular sample population/universe. The following factors were considered in the selection of respondents for this study:

- Male and female first-year or second-year nursing students registered with both SANC and the public nursing college (research site) whose selection criteria were complied with for the specified year of study for the four-year professional nursing diploma.
- Their names should be appearing on the class registers of first year and second year students at the selected public nursing college.

##### ***1.8.4.2 Exclusion criteria***

Exclusion criteria specify the characteristics that participants or population lack in order to be included in the study, as outlined in the study protocol (Polit & Beck 2012:727). The following factors were considered in the exclusion of respondents:

- Male and female third-year and fourth year nursing students at the selected research site.
- Any nursing student registered at any of the other Gauteng public nursing colleges offering the four-year diploma course as the public nursing college being studied.
- Nursing students in private clinics/hospitals/colleges.
- All post-basic students.

## **1.9 DATA ANALYSIS**

The main purpose of data analysis is to organise, to provide structure, and to elicit meaning from the data that has been collected (Polit & Beck 2012:463). The efficacy of data analysis is influenced by the extent to which the data collection instruments were developed and applied in the study. Accordingly, Babbie and Mouton (2001:563) emphasise that “the worth of all scientific findings depends heavily on the manner in which the data was collected and analysed”. It is on the basis of the research instrument’s efficacy that the reliability, validity, and credibility of the study could be determined. Data analysis, therefore, provides a modicum of standardisation and monitoring, and quality assurance to the accumulated or collected data in the study.

### **1.9.1 Reliability/consistency**

Reliability refers to the consistency or stability with which the research instrument produces similar outcomes could be repeated elsewhere under the same circumstances as those that prevailed at the original research sites (Leedy & Ormrod 2010:28, Gibbs 2007:100). The repeatability or consistency of the study and its attendant research instrument constitute the basis for its generalisability.

In this study, the questionnaire was pre-tested during the pilot phase with the convenient sampling of fourth year student nurses. In order to enhance the study’s reliability, the questionnaire was also evaluated by a panel of research experts in quantitative research and questionnaire development.

### **1.9.2 Credibility**

Credibility refers to the researcher's confidence in the truth value of the collected data and its interpretation (Polit & Beck 2008:39). Credibility is also established by employing multiple sources of information and data (Polit & Beck 2008:39). In this study, literature review and the empirical aspects of interviewing and questionnaire administration ensured that the study established a credibility base for itself.

### **1.9.3 Validity**

Validity is the degree to which an instrument measures what it is supposed to measure (Maree 2012:147, 216). Validity could be internally or externally established. Internal validity "refers both to how well a study is conducted (research design, operational definitions used, how variables were measured, what was or was not measured, etc.), and how confidently one can conclude that the observed effect(s) were produced solely by the independent variable and not extraneous ones. In descriptive studies (correlation, etc.) internal validity refers only to the accuracy or the quality of the study (e.g., how well the study will be carried out)" (Polit & Beck 2012:236). On the other hand, external validity "represents the extent to which a study's results can be generalised or applied to other people or settings, without veering off all data collection processes from the objectives of the study" (Polit & Beck 2012:237, 250).

In this study, the questionnaire was developed after a thorough literature review as well as a review of the selection and recruitment documents used for selection and recruitment by the DoL. Both the supervisor and the panel of experts scrutinised the questionnaire, and offered suggestions for rewording and clarification; items were revised and added to incorporate all the recommendations made.

## **1.10 ETHICAL CONSIDERATIONS**

Ethical considerations and issues in this study enhanced the scientific value and worth of the investigation (Henning 2005:1). The research ethics guided the professional conduct of the researcher with the expectations of the respondents (Gibbs 2007:7). Accordingly, the scientific worth of the study has been categorised into researcher-based and research-based ethical protocols, which ensured that professional and legal

parameters and expectations were observed unequivocally; in tandem with acceptable norms within the professional community of research practice, as well as the legal domain as prescribed in the Constitution of the country.

Research-specific ethical considerations in the study were observed in the manner described below:

Ethics approval to conduct this research was firstly obtained from the Higher Degrees Committee (HDC) of the Department of Health Studies, University of South Africa (see Appendix A). The researcher then requested permission from the Department of Labour to use their recruitment and selection form as part of the information needed to develop the questionnaire (see Appendix G). Permission to administer questionnaires to student nurses and to use the class room facility was granted by the principal of the selected nursing college (see Appendix C). Permission was also obtained from the Gauteng Department of Health (see Appendix D).

Researcher-specific ethical considerations were observed by the general adherence to the participants' right to human dignity was observed throughout the study by ensuring that their right to privacy and un-coerced, informed consent is respected. In addition, their right to full disclosure and withdrawal from participation at any stage of the process was explained to them.

## **1.11 ORGANISATION OF CHAPTERS IN THE STUDY**

The research report consists of five chapters, all of which are thematically arranged and logically linked to the research topic. The rationale for such a thematic arrangement and logical concatenation is premised on the establishment of coherent, intelligible, and un-conflated reading to a variety of audiences.

### **Chapter 1: Introduction**

This chapter addresses the background and statement of the research problem; the aim and objectives of the study; the main research questions; the significance of the study; the definition of key concepts; as well as the data collection and analysis processes.

## **Chapter 2: Literature review**

The chapter derives its main focus from a variety of primary sources of data and information pertaining to the recruitment/selection criteria of student nurses for the nursing profession. The discussions in the chapter emanate from the consulted (existing) body of knowledge on nursing selection/recruitment criteria. Additionally, the discussions sought to identify gaps that exist on current knowledge, further reviewing relevant theories and their applicability to this study.

## **Chapter 3: Research design and methodology**

In this chapter, the researcher presented the manner in which the research project was conducted by describing the approach to the research design, as well as the relevant options pertaining to the research methodology. Furthermore, the chapter outlined the procedures utilised to collect data in conjunction with the research problem, the research purpose and objectives, as well as the research questions. This chapter is of particular significance, in that it provides the context and basis on which critical recommendations of the study were derived.

## **Chapter 4: Data analysis and presentation of results**

This chapter focuses on the visual/diagrammatic presentation (e.g. graphs, tables, and charts) and statistically/quantitatively generated interpretation and analysis of the collected data. The questionnaire constituted the critical research instrumentation that provided the quantitative/statistical context for the interpretation and analysis of the collected data.

Raw data collected from the pilot study and the subsequent questionnaires were analysed in order to justify and validate the findings of the study, which contributed to the meaningfulness and better understanding of the Department of Labour's selection criteria for students aspiring for recruitment to the diploma in nursing. The findings further focused on the description of elements in the selection criteria as factors associated with nursing students' academic performance.



## **Chapter 5: Conclusions and recommendations**

Subsequent to the visual presentation of the collected data in the previous chapter (chapter 4), the current chapter focused on the calculation, interpretation, and analysis of the collected data after the means, the standard deviation, the frequencies, and the percentages were identified.

This chapter presented the conclusions drawn from the various aspects of the entire research process, with particular emphasis on information-based recommendations from the study's findings. While the conclusions also outlined aspects of the research topic that required further exegetic investigation, the recommendations on the other hand, also addressed the research gaps that emerged from the findings of this study.

### **1.12 CONCLUSION**

The most profound focus of the current chapter was on the selection criteria used to admit students into the nursing profession. The chapter further interrogated selection criteria *per se* in its context as a predictive factor of nursing students' academic performance. The problem statement, the research aim and objectives, as well as the research questions were also presented as the pillars of this study. It is in this context that the salience and relevance of the research problem was accentuated.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 INTRODUCTION

The main purpose of the current chapter is essentially to present and describe the explored and reviewed relevant literature, in respect of the research topic. It is in the latter context that both international and local South African perspectives, practices, and trends constituted a central focus of the literature search and its consequent review. The researcher maintains that “literature search” and “literature review” are inter-related and complementary, but not synonymous; the former precedes the latter (Mouton 2001:6). On the other hand, both processes of “literature search” and “literature review” could occur simultaneously (Burns & Grove 2009:41). Whereas the literature search provided a context for the identification of relevant primary sources, the literature review on the other hand – in the broader context of research – provided a background to the study being undertaken (Babbie & Mouton 2001:218). In the context of this study, the literature review provided different local and international researchers’ and experts’ perspectives and views on selection criteria as a factor of the academic performance of nurses. In this regard, nursing selection criteria is a phenomenon that enhances the professional standards and character of nursing, while also configuring labour market considerations to nursing as a workforce dynamic or variable.

Other scholars, such as Mouton (2001:6) emphasise the transcendence of “scholarship review” over “literature search”. The latter author, for instance, argues that unlike the ordinary listing of consulted sources, “scholarship review” is more insightful since it is grounded on “... a review of the existing scholarship or available body of knowledge to see how other scholars have investigated the research problem that the researcher is interested in. The researcher’s interest is, therefore, not merely in literature (which sounds as if it refers merely to a collection of texts) [author’s parentheses], but in a body of accumulated scholarship. The researcher wants to learn from other scholars: how they have theorised and conceptualised on issues, what they have found empirically, and what instrumentation they have used and to what effect. In short, you are interested in the most recent, credible and relevant scholarship in your area of interest” (Mouton, 2001: 6).

The literature review could either form an indispensable part of the entire research process, or become the subject of research in itself (Babbie & Mouton 2001:218). Furthermore, the literature review forms a critical basis for the synthesis of previous research on a particular research topic. The evaluation of the reviewed literature logically leads the researcher to the research problem to be resolved, the research questions to be asked, as well as the research objectives to be achieved. In the context of this study, the review of literature **provided** an exegetic overview of relevant and significant sources of information on the research topic, and focused on critical and current knowledge obtained from academic books, scholarly conference papers, completed theses, as well as peer reviewed articles and journals. Furthermore, the literature review provided the effectiveness of evaluating selected documents on the research topic. In the context of this study, both the literature search and literature review were conducted and guided by sources of information available from the Unisa library – arguably one of the largest libraries in the country. Such sources included available peer reviewed and accredited journals (e.g. Nursing Education Today); academic books on nursing selection criteria; a number of completed doctoral studies between 2010 and 2014; as well as databases such as Google Scholar, Science Direct, and PubMed. Reviewed articles containing relevant information were supplemented by discussion documents from the South African Government website.

Babbie and Mouton (2001:218) mention further that the background to literature review could focus on one or more of the following research aspects, depending on the research problem to be resolved and the research questions being posed:

- theoretical background to the study – past, present and/or future
- clinical practice – past and/or present
- research design and/ or methodology/research methods
- rationale and/or relevance of the current study and previous findings on it
- differentiating between what has been done on the research topic from what still needs to be done
- discovering or identifying important variables relevant to the topic
- identifying relationships between ideas and their implementation/practice (relating ideas and theory to application), in order to synthesise such ideas for purposes of gaining new perspectives
- establishing the context of the research topic or research problem

- rationalising or demonstrating the significance of the research problem
- understanding the disciplinary structure of the subject
- identifying methodologies and techniques that have been used
- placing the research in a historical context in order to indicate familiarity with current developments in the particular field of study

It is worth mentioning that both the literature search (for the general identification of relevant sources of information and data) and the literature review (for the specific contextualisation of the research topic) guided the researcher in the process of determining the key words or concepts associated with the research topic. As stated in Chapter 1, the sequential listing of the key words or concepts below does not necessarily indicate any order of importance; rather, the key words are mainly identifiable by their thematic association with the research topic, and may include other terms or concepts not listed below. For purposes of this study, the following were viewed as recognisable and perennial key concepts, and were described in more detail in Section 1.5 of the previous chapter: *nursing college*; *student nurse*; *student selection*; *selection criteria*; *student selection criteria*; *selection instrument/tool*; *student selection tools*; *pre-admission*; *academic performance*; *registered professional nurse*; and *nursing shortage*.

## **2.2 LITERATURE SEARCH STRATEGY AND OUTCOMES**

A plethora of the consulted literature indicates that the nursing profession in South Africa is confronted with many challenges presently, including workforce shortages and its consequent unbalanced nurse-to-patient ratios. Both the National Department of Health (NDOH) and the South African Nursing Council (SANC) have indicated and confirmed the seriousness of this dire shortage, which had reached crisis proportions by 2011 (Littlejohn et al 2012:25). Of all the nursing categories affected by workforce challenges, the shortage is experienced mostly within the registered professional nursing category. It is clear that the shortage of registered professional nurses in the country is a continuation of challenges encountered in the nursing colleges, which experience disproportionately far less numbers of nursing graduates at the end of each academic year than that of students recruited at the beginning of that particular academic year (World Health Organization (WHO) 2000:9).

The shortage of registered professional nurses in the country is attributable to, amongst other factors, the inherent challenges of the current recruitment processes, which may generally also contribute to poor academic performance by the recruited nursing students. Many academic researchers, experts and scholars are in agreement that the diversity of nursing education and training contexts problematise the standardisation of selection criteria as a labour market and professional phenomenon (Taylor, Macduff & Stephen 2014:1157). In order to meet the major nursing workforce challenges convincingly, efforts should be increased to recruit and retain appropriately suited nursing students (Loftin, Newman, Dumas, Gilden & Bond 2012:1; Lara, Lori & Antonio 2011:137), whose ultimate intention is to become registered professional nurses – described as persons who are “qualified and competent to independently practise comprehensive nursing in the *manner* and to the *level* prescribed, and who is *capable* of assuming responsibility and accountability for such practice” (Nursing Act, Act No. 33 of 2005) (South Africa 2005:25).

### **2.3 STUDENT SELECTION POLICY AND REGULATIONS**

Nursing student selection policies function within the regulatory framework of nursing education and training. The regulatory framework itself derives its legitimacy from the legal instruments provided by the law(s) governing or regulating the nursing profession in general, and nursing students’ pre-admission requirements in particular. In the latter context, pre-admission requirements, or the selection criteria guiding the pre-admission process, necessarily become aspects of nursing student selection and admission policy and regulation (Nursing Act, Act No. 33 of 2005) (South Africa 2005:25).

Within the broader policy formulation and implementation domain, nursing student selection policy and regulations are the translation and manifestation of the legal imperative of nursing in general, and nursing education in particular, all of which are governed or regulated by – for purposes of this study – the Nursing Act (Act No. 50 of 1978 as amended) (South Africa 1978) and the applicable SANC regulations (Regulation R425, 1985, paragraph 45(1); Regulation R2598, 1984, paragraph 45(1)(q)).

The Nursing Act cited above prescribes that the duly authorised parties in the formulation/development and implementation of a comprehensive nursing student selection policy and regulations are the Minister of Health in consultation with the SANC

as a statutorily established body for the regulation of all categories of the nursing profession. Jafta (2013:163) recommends further that a selection policy for nursing students should consider input from tutors, counsellors and psychologists to ensure accurate selection of candidates and a broader perspective and input from professional nursing policy professionals, practitioners, and experts alike.

According to Fataar (2003:32), a policy could also be regarded as a mechanism intended to “restore the cohesiveness, order and functionality of society”. In the context of the research topic, it is the government’s responsibility to develop and implement such restorative mechanisms (policies) by regulating the functionality of nursing education and training institutions by legal means or instruments. While different types of policies exist (e.g. substantive, procedural, material, symbolic, regulatory, and redistributive), shared attributes are to be found in more than one of these policy typologies (Cloete & Maasen 2002:423). For instance, as a trustee of the public good, government has the substantive power to determine what it should do to rectify past educational imbalances. To the extent that it utilises legal instruments to assert its intentions and courses of action, the state (through the National Department of Health in this instance) equally demonstrates the regulatory and procedural aspects of nursing education and training policy initiation, formulation, implementation and evaluation in general, and nursing pre-entry selection criteria in particular.

The democratically elected post-1994 government’s *interventionist* orientation towards policy formulation and implementation was based on the need to change “... from an oligarchic racial state to an inclusive political democracy ...” (Fataar 2003:32), in order to establish a regulatory environment in tandem with the newly ushered democratic principles enshrined in the new Constitution of the Republic of South Africa (RSA) (Act 108 of 1996). This study makes a distinction between a regulated nursing education and training environment and the governance of nursing education and training institutions. Whereas the latter (governance) would refer to internally-driven (microcosmic) nursing education institutional administrative and operational systems deployed to sustain organisational missions, the former (regulation) strictly relates to externally-driven (macrocosmic) policy parameters in terms of which the state (through the National Department of Health) intends to actualise its fiduciary mandate within the education sector in general, and nursing education and training in particular. In this specific context – and to the extent that the past educational system was utterly

fragmented to even constitute a “system” – the post democratic state’s policy approach embraced a *hybrid* form of regulated intervention, which was the *modus operandi* for attenuating tensions between accountability and autonomy (Fataar 2003:32).

## **2.4 SELECTION INSTRUMENTATION AND SELECTION CRITERIA**

Mendis and Ponnampereuma (2011:2) illuminate that purposeful or standardised student selection procedures are not cast in stone, hence the diversity of selection modalities in different nursing, health care, or medical contexts throughout the world. Despite varying selection modalities, “the prime attribute of a selection process is its predictive validity; i.e. has the selection process been able to predict the future performance of the applicants accurately? Predictive validity has been evaluated by comparing two categories of variables: 'predictors' and 'predicted'. 'Predictors' are the tests that an applicant takes prior to selection. The 'predicted' are the subsequent tests that the selected applicants take ...” (Mendis & Ponnampereuma 2011:2).

Nursing institutions and educators have an obligation to utilise admission criteria and academic standards that are reasonable and fair, yet become effective indicators of student success as well. It is imperative for nursing programmes to be inclusive of efficient and reliable criteria that will ensure selection of candidates who will successfully complete the nursing programme in order to prevent human and financial resources wastage resulting from student failure and attrition (Shulruf, Wang, Zhao & Baker 2011:727).

In the context of this study, it is of critical importance to differentiate between selection instrumentation and selection criteria. Such differentiation separates the means from the end, and assists in justifying whether or not the means justify the end (Till, Myford & Dowell 2013: 216). Furthermore, the differentiation clearly assumes that selection instrumentation and selection criteria may be inter-related, but are not synonymous. Additionally, selection instrumentation and selection criteria are measures designed to ensure that wastage of both human and financial resources do not occur due to student failure and attrition (Shulruf et al 2011:727).

### **2.4.1 Selection instrumentation**

The selection of nursing students for various nursing programmes requires that appropriate and systematic processes and methods be developed and applied. The appropriate application of such systems and procedures ensures that the most suitably qualified nursing students are selected according to the highest standards possible (Andrade & George 2013:4). In order to achieve such standards and the best quality of nursing students possible, the selection instruments or tools opted for by the selection panel or committee have to be as flawless as possible (Babbie & Mouton 2001:563). These nursing student selection tools or instruments are therefore, not the selection criteria as such. By itself, the selection instrumentation facilitates the pre-admission or pre-entry process in the most scientific and methodical manner possible. The types of selection instruments used necessarily enhance the extent to which the admission of nursing students could be correspondingly undertaken in accordance with the actual requirements of the nursing profession as a labour market or professional workforce dynamic (Taylor et al 2014:1157).

The most commonly used pre-admission selection instruments are the written aptitude or achievement test or the interview (as a form of oral testing) (Al-Rukban, Munshi, Abdulghani & Al-Hoqail 2010:560), and are designed to assess the performance and abilities of candidates prior to these candidates' inclusion in any specific learning or workforce role (De Klerk 2011:60). As an oral selection instrument, the interview is also helpful in clarifying and expanding written information provided in an application by the prospective learner or worker/employee (Price & Grant-Mills 2010:S92). In the context of this study and its nursing students' selection processes, a panel is constituted by representatives of nursing lecturers, the community, and the hospital management.

Despite their reputable efficacy, interviews do also have their disadvantages, which impact adversely on their reliability and predictive validity as success predictors (Till et al 2013:216; Donaldson, McCallum & Lafferty 2010:658). The 'interview factor' varies as the interview process provides little insight on student performance (Bodger, Byrne, Phillip, Rees, Jones, Cowell, Gravenor & Williams 2011:8). In order to reduce the perceived interview shortcomings, structured interviewer training should be instituted (Wilson, Roberts, Flynn & Griffin 2012:357). Such training would provide pre-admission



interviewers with adequate skills to reduce the gap between possible interviewer subjectivity and the actual intentions of the interview.

The challenge of nursing student admission tests has been a problem since the 1970s, and over the past few years standardised admission tests became an important factor in undergraduate admissions worldwide (De Klerk 2011:51). Delpont (2002:166) adds further that the standardisation of selection instruments for pre-admission purposes enhances the quality of both the selection process and the selected nursing students; while at the same time, it (standardisation) also enhances consistency in the measurability or pre-determination of the quality and suitability of the desired nursing student as early as during the pre-admission stages.

Other scholars, such as Bilgiç and Acarlar (2010:208) and Schmidt & McWilliams (2011:172), illuminate further that nursing student selection tools such as interviews, science achievement and personality or psychometric tests are fair pre-entry tools, as they provide a range of academic and non-academic pre-admission variables to be determined prior to admission to the nursing education and training institution (GPGDHSD 2000:6). On the other hand, Mendis and Ponnampereuma (2011:2) state that no single selection instrument is adequate by itself, a combination of selection tools (e.g. for cognitive and non-cognitive skills) is even more efficacious and likely to offer more cogent predictive validity and reliability – the ability to accurately predict the future academic and clinical performance of an applicant. These combined measurement factors are consistent predictors of success (Till et al 2013:216), thus contributing to positive and qualitative throughput of nursing students as well as a professionally skilled and competent workforce (Poole, Shulruf, Rudland & Wilkinson 2012:223).

#### **2.4.2 Selection criteria**

The development of standardised and effective selection criteria is a problematic area, taking into consideration the diverse range of perspectives and selection tools available in different nursing education and training institutions worldwide (House 2013:2). Therefore, there is an urgent need for nursing colleges to work together in developing selection processes that are valid, reliable, effective and transparent (Taylor et al 2014:1157), in order to produce nursing candidates who will successfully complete their professional nursing programme. Even medical schools seek the best possible methods

to select candidates who will successfully complete their medical education and training programmes (Kuncel, Kochevar & Ones 2014:103).

As opposed to the pre-entry selection instrument (which is mainly an independently standardised instrument designed to measure or pre-determine the nursing student's potential or suitability for the nursing profession), the selection criteria refers to a set of pre-admission variables that are intended to guide the selection panel in its determination of suitable candidates for the nursing profession (Kuncel et al 2014:103). The student selection criteria should include both academic and non-academic variables in order to establish objective suitability of prospective students to the nursing profession (Al-Rukban et al 2010:560). In the case of selection criteria as a set of pre-admission variables, the prospective nurse student is central and pivotal to the determination of candidacy to the profession. Whereas the selection criteria are internally focused on the nursing candidate, the selection instrument is, contrarily, external to the nursing student as it is controlled by the selection panel or committee.

## **2.5 THE INTERNATIONAL CONTEXT OF NURSING STUDENT SELECTION**

The international context of nursing student selection afforded this study a perspective according to which practices and trends in other parts of the world could be compared with the local South African practices and trends in respect of the research topic. Such comparability is also useful as it offers opportunities for improvement locally in areas of common practices and trends; while also noting areas of weaknesses and differences where they may exist (Mendis & Ponnamparuma 2011:1). In spite of some areas of dissimilarity (e.g. pre-admission selection modalities), there exists areas of intersection between international selection standards, benchmarks, or criteria; such as predetermination based on nurse students' cognitive and non-cognitive ability or potential. In this study, two examples are cited for the international comparability of nursing student selection criteria as factors of nursing education and training.

The first example, the Malaysian context of nursing student selection rationalises that nursing student selection criteria are not isolated from external variables such as the family. The argument here is also that student selection is intended to address the imbalances between skills shortage and nursing labour market requirements. The second example, the University of Kentucky context of nursing student selection,

stipulates that nursing student selection criteria should, in addition to the range of cognitive and non-cognitive qualities, emphasise on the nursing candidates' physical fitness and preparedness to withstand the rigours and demands of nursing practice. Furthermore, aspiring nursing candidates should possess satisfactory social skills. The latter is in tandem with the South African variant of nursing ethics – which also emphasise on communication skills as an expression and example of social and interpersonal relational skills development (SANC 2013).

## **2.5.1 The University of Malaysia context of nursing student selection**

Citing factors considered by first year undergraduate students from the Faculty of Arts and Social Sciences (FASS) at the University of Malaya in course selection processes, Subramaniam et al (2012:243) illuminate that in the Malaysian context of nursing student pre-admission selection, two different stages are opted for, the pre-entry and post-entry levels.

### ***2.5.1.1 The University of Malaysia pre-entry selection criteria***

It emerged from the first year undergraduate students referred to above that 'teacher' and 'family' factors were major considerations in the pre-entry selection criteria, followed by 'labour market' factors (Subramaniam et al 2012:243). The latter authors cite further that the three factors above collectively constituted about 54 percent of the entire range of selection criteria. 'Teacher factors' include the impact of the teacher's advice in career selection (due to the teacher being regarded as a role model whose valuable advice is helpful in decision-making by learners/students), while 'family factors' include the influence the family has in the choice of career by the student; and 'labour market factors' "involves whether the course selected will enable the students to get a job in the labour market" (Subramaniam et al 2012:246). The increased emphasis on outcome criteria in nursing education gives added importance to the determination of success predictors in the completion of a nursing programme. Selection criteria for student nurses would increase the likelihood of nursing education and training institutions admitting the best students for each programme (Ali & Ali 2013:77; House 2013:151).

For purposes of the current study, all three factors cited above could also be relevant from a selection panel perspective if included in the selection criteria. The selection

panel would have prior knowledge or information regarding the extent to which the nursing student attaches values to the above-cited three variables – all of which may, or may not necessarily have a direct bearing or relevance to the suitability of the prospective student nurses to the nursing profession as a career of choice.

### ***2.5.1.2 The University of Malaysia post-entry selection criteria***

For the post-entry selection criteria, 'peers influence', 'orientation week', and 'limited choices' were considered as important factors by the first year undergraduate students referred to above. Collectively, these three factors formed approximately 49 percent of the variation in post-entry selection criteria. 'Labour market consideration' was regarded as the second last important factor of post-entry nursing selection criteria (Subramaniam et al 2012:246).

Whereas the Malaysian University first year undergraduate context is primarily focused on the students' decision-making processes and considerations in course/field of study selection, the South African variant of student selection criteria is student-centred, rather than course-specific, and focuses mainly on the potential student nurse's pre-admission qualities. That is to say, pre-entry/pre-admission student qualities would be more relevant than post-entry or post-admission considerations by the student after admission into the nursing institution, as the selection panel would have completed its selection task at that stage.

### ***2.5.1.3 The University of Kentucky context nursing student selection***

The College of Nursing of the University of Kentucky in the USA (United States of America) provides the second international context of nursing students' pre-admission criteria. The college's nursing curriculum is designed to cater for four-year registered professional students, associate degree nursing graduates, as well as diploma nursing school graduates.

For admission to the above-cited university's College of Nursing (which is strictly for Kentucky residents only), applicants should, amongst other criteria:

- possess aptitude, abilities, and skills in five areas, namely:
  - observation
  - communication
  - sensory and motor coordination and function
  - conceptualisation, integration, and quantification
  - behavioural and social skills, abilities, and aptitude

Further to the above, applicants to the University of Kentucky's Nursing College should be in a satisfactory state of health in order to execute all the functions of a registered professional nurse. Similar to many other contexts, high school grades form an important pre-admission criterion. In the case of the Nursing College of Kentucky University, applicants for the four-year B.S.N. degree should have obtained a high school grade-point average (GPA) of 2.5 or above on a 4.0 scale (University of Kentucky Admission Policies and Selection Colleges:online).

Taking the above-mentioned nursing college's pre-entry selection criteria into account, it is apparent that similarities do exist with diverse other nursing pre-admission contexts, where cognitive and non-cognitive skills form a significant part of selection criteria to be seriously considered by any duly constituted selection panel of a nursing education and training facility or institution (Schimmel et al 2009:11).

## **2.6 THE SOUTH AFRICAN CONTEXT OF NURSING STUDENT SELECTION**

At the macrocosmic level, the education and training of nurses in South Africa is regulated by legal means through the, (Nursing Act, Act No. 33 of 2005) (South Africa 2005) as amended in various government gazettes in conjunction with applicable regulations of the South African Nursing Council (South Africa 2005). In accordance with the country's federal system of governance, various provincial health departments then enforce relevant provisions of the Nursing Act and SANC regulations with regard to the selection of student nurses.

The education and training of nurses should take place at an approved nursing college or institution, which is defined as "a post-secondary education institution which offers professional nursing education at basic and post-basic level where such nursing education has been approved in terms of section 15(2) [of the Nursing Act No. 33 of

2005]” (SANC 2005:1). Accordingly, any nursing education and training institution that is not recognised by either the Department of Health or SANC cannot authenticate the legitimacy of both its existence and nursing students and the nursing curriculum offered. In the case of a registered and approved nursing education and training institution, the curriculum offered should necessarily be complementary to the code of ethics for nursing practitioners as articulated by SANC (2013:3-6). (The code of ethics for nursing practitioners is described briefly in sub-section 2.4.2.1 of the current chapter).

Since the research milieu in this study is located in the nursing college of a public Gauteng provincial health institution, the Gauteng Provincial Government’s Department of Health and Social Development (GPGDHSD) is the point of reference insofar as the enforcement of student selection criteria of registered professional nurses is concerned.

### **2.6.1 Programmatic/curriculum structure of the four-year professional nursing diploma**

The design/content, development/context, and the management of a programme/curriculum provide a context for the improvement of the quality and standards of academic delivery. Against the latter background, effective and efficient academic delivery then serves as a platform for qualifications compatibility/relevance and labour market competitiveness (CHE 2000:22). The view postulated above (of the value and role of programmatic competitiveness and its resource implications) is corroborated further by Schimmel et al (2009:10): “Many colleges and universities offer a variety of degree programs aimed at different audiences. These audiences may place different values on the attributes of colleges and universities leading them to focus on different institutional characteristics as they make selection decisions. An institution that understands its attributes and the role they play in the selection of the institution by students can communicate more effectively and build a more positive brand image. They may also use this information in the strategic planning of the institution to allocate the school’s resources in a manner that increases the return on investment through increased enrolment and tuition dollars”.

In the context of this study, specific reference to the programmatic/curriculum structure of the four-year professional nursing diploma is considered indispensable. It is the researcher’s well considered view that such reference forms an interstitial link between

the content of learning (that is, the ‘what’ of learning) and the context of the self-same learning (that is, the quality of the learning as ‘predicted’ by both the selection criteria and the selection instrumentation). For empirically congenial purposes of this study then, the selected research site’s programmatic/curriculum structure of the four-year professional nursing diploma is cited in order to provide a practical context against which the efficacy or otherwise of the institution’s nursing student selection processes and instrumentation –and the desired outcomes – could be determined. Table 2.1 provides the visual context of the afore-cited qualification for the four-year diploma in nursing (general, psychiatric and community) and midwifery. It is also worth mentioning that this particular nursing college’s curriculum design is in tandem with the curriculum design prescripts of the (Nursing Act, Act No. 33 of 2005) (South Africa 2005), which in turn serve as guide to the NDoH, the SANC, as well as the GPGDHSD.

**Table 2.1: The CHBNC four-year nursing diploma curriculum structure**

<b>Year/level of study</b>	<b>Course/field of study</b>				<b>Total</b>
First year	Fundamental Nursing Science (FNS) 100	General Nursing Science (GNS) 100	Biological Nursing Science (BNS) 100	Social Science (SS) 100	<b>4</b>
Second year	Midwifery Nursing Science (MNS) 100	General Nursing Science (GNS) 200	Biological Nursing Science (BNS) 200	Social Science (SS) 200	<b>4</b>
Third year	Midwifery Nursing Science (MNS) 200	General Nursing Science (GNS) 300	Community Nursing Science (CNS) 100	Psychiatric Nursing Science (PNS) 100	<b>4</b>
Fourth year			Community Nursing Science (CNS) 200	Psychiatric Nursing Science (PNS) 200	<b>2</b>
<b>TOTAL</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>14</b>

**Source:** CHBNC (2003:8, 9, 12). Regulations for the Diploma in Nursing (General, Psychiatric and Community) and Midwifery Curriculum. Reviewed May 2005 by College Senate Task Team

## **2.6.2 Nursing selection variables/criteria**

Nursing selection variables or criteria differ from country to country, and from context to context. In addition, the nursing selection variables or criteria enhance the predictive validity of the nursing selection process; that is, the extent to which attributes of the selection instrument and outcomes may serve as a determinant or predictor of the type or quality of nursing student to be produced after completion of the academic nursing programme. While entry examination test results are intended to measure academic success, variables associated with nursing selection criteria cannot necessarily predict success (Dobbie 2011:1). Furthermore, the choice of admission criteria may not be very important for widening access and increasing social diversity (O'Neill, Vonsild, Wallstedt & Dornan 2013:557), and without a source of increased nurses' production or graduates, the health care system will continue facing difficulties caring for the population (Piper 2012:2). In the context of this study – deriving from the selected research site's Gauteng Province Department of Health Social Development prescripts – the following considerations were regarded as major nursing selection variables.

### ***2.6.2.1 Matriculation/high school grades***

The Gauteng Province's Department of Health and Social Development requires that three phases be instituted in the selection of prospective nursing students:

#### **Phase 1: Matriculation compliance**

Puddey, Mercer, Carr and Loudon (2011:1) illuminate that between 1985 and 1998, nursing students' selection was based on previous academic performance only. The trend changed from 1999 onwards, when students in the health professions were selected in terms of a combination of criteria that included academic performance, interview scores, and in some instances "... together with the progressive introduction of a rural special entry pathway" (Puddey et al 2011:1).

In the case of the Gauteng Provincial Department of Health and Social Development, matriculation results have become a constant pre-entry requirement for the nursing profession. A total admission point score of 120 for matriculants, based on subject scores that include English, Biology, Physical Science, Physiology, and Mathematics,



should have been achieved by any student aspiring to become a registered professional nurse (Gauteng Provincial Government 2000:6). The table below (Table 2.1) illustrates the GPGDHS's matriculation screening and point allocation system as articulated in Circular Minute No. 22 of 19 July 2000 (Gauteng Provincial Government 2000:1), and is considered during Phase 2 of the selection for the four-year course leading to registration as nurse (general, psychiatric, and community) and midwife.

**Table 2.2: Revised nursing selection criteria: Gauteng Provincial Government, Department of Health and Social Development**

Matric symbol	Higher grade	Standard grade
A	6	5
B	5	4
C	4	3
D	3	2
E	2	1
F	1	0
<b>TOTAL</b>	<b>21</b>	<b>15</b>

**Source:** Gauteng Provincial Government (2000)

Authors such as Lambe and Bristow (2011:308), McNelis, Wellman, Kroth, Hrisomalos, McElveen and South (2010:38) and De Klerk (2011:50), contend that high marks in grade twelve (12), both in mathematics and science add value to the academic success of students. While mathematical and science aptitude are not the only factors that contribute to nursing student success (Lambe & Bristow 2011:311-312), it is considered useful to include them as a specific set of pre-admission requirements in the selection criteria of nursing students (Andrade & George 2013:5).

### **Phase 2: Assessment/testing**

Having successfully complied with the GPGDHSD's pre-entry matriculation requirements for nursing, an applicant is then invited for an assessment by means of an aptitude, achievement, or psychometric test, which are tests "designed to measure intellectual capabilities for thinking and reasoning, particularly logical and analytical reasoning abilities ... but also attitudes ... due to the apparent ineffectiveness of the end of secondary school national examinations ... to discriminate between candidates

and to assess attributes such as reasoning skills that are essential to study and practice ...” (Mendis & Ponnampereuma 2011:2).

### **Phase 3: The personal interview**

Having successfully complied with the two pre-entry phases mentioned above, the next phase is the interview stage by the selection panel, “which is the final phase of the selection process” (Gauteng Provincial Government 2000:1). Section 6.1.3 of the GPDHSD’s Circular Minute No 22 (dated 19 July 2000) stipulates that the interview is the final arbiter in the selection of professional registered nursing: “Candidates who do not meet all the criteria for admission to the four-year course, but have general mental ability and English proficiency scores of 5 or more and are found to be suitable on interview will be shortlisted in order of merit” (GPGDHSD 2000:6). The perceived problem here is that “general mental ability” is subjective, and could be subjected to a variety of interpretations. It would have been very helpful for “general mental ability” to be unequivocally explained in order to prevent ambiguity and misinterpretations. As a selection variable, the interview may be problematic insofar as validity, reliability, and fairness are concerned (Edwards, Johnson & Molidor 1990:1).

Notwithstanding some problems with the selection variables and processes, the candidate nursing student is chosen on the basis of the results of the psychometric test and the interview, as well as employment equity considerations (GPDHSD 2000:6). As stipulated in Section 32 (3) of the Nursing Act (Act No. 33 of 2005) (South Africa 2005:27), it is the responsibility of the approved nursing education and training institution to notify the SANC of the intake of all the qualifying nursing students for a particular academic year prior to the commencement of the nursing programme; whether it is the one-year Fundamental Nursing Science programme, the three-year General Nursing Science programme, or the four-year registered professional nurse programme.

#### ***2.6.2.2 English language proficiency***

In South Africa, English is the predominant medium of instruction of nursing courses. Accordingly, aspiring nursing students should be competent with regard to a written and spoken English language proficiency score of 5 or more, which should be reflected in

their matriculation examination results (GPGDHSD 2000:6). Furthermore, candidates should have obtained a D symbol in English higher grade, or a C symbol in the lower grade. Poor English language results do impact negatively on academic performance, particularly for those students whose medium of instruction in schools was not English (Gupta, Nagpal & Dhaliwal 2013:225).

### ***2.6.2.3 Previous academic skills and performance***

Academic performance is described as a determinant of students' grasp and understanding of their studies, including their coping mechanisms and accomplishment of different tasks allocated to them by their teachers (Belle 2011:online). In this study, academic performance refers to nursing students' performance in formal tests, examinations, and clinical competence examination. Notwithstanding the importance of both academic and clinical performance as aspects of selection criteria in this study, Poole et al (2012:164) argue that clinical competence by itself has not proved to be a better predictor of subsequent performance than prior academic achievement. For instance, in a study conducted by Ali and Naylor (2010:157), the academic success of students was significantly associated with previous academic performance, type of school attended, and academic performance in the first and second years.

Selection criteria based entirely on academic performance alone are poor predictors of success. Student selection processes should therefore be based on cognitive, non-cognitive attributes and learning abilities that are critical for graduates' skillful practice (Schimmel et al 2009:11; Gupta et al 2013:223).

It is irrefutable that previous academic performance should be a major determinant of theoretical knowledge achievement (Uragoda, Goonaratna, De Silva & Abevgunasekera 2011:3), and has remained the most consistent predictor of academic success (Till et al 2013:216). However, research conducted in the UK and the USA showed that previous academic performance predicted success in the future, but there was no definite proof to correlate previous academic performance with students' clinical skills and competence (De Klerk 2011:48). For medical students' pre-admission requirements in some of the developed countries, academic performance at the advanced matric level is an important criterion for selection. It is recommended that only students who had two

or less attempts at the advanced level should be selected, and the minimum performance required should be more than three passes (Uragoda et al 2011:3).

#### ***2.6.2.4 Personal traits/personality***

Wilson et al (2012:357) contend that personality traits should not be excluded from student selection criteria, since the candidate's personality is the best predictor of success, especially in the pre-clinical programme (De Klerk 2011:62; Pitt, Powis, Levett-Jones & Hunter 2014:906). The latter authors argue that traits may reveal helpful information that otherwise would not have been elicited by other cognitive means. However, assessment of personal characteristics during nursing student pre-admission selection stages may become disadvantageous in the event of students "faking good" (Wilson et al 2012:357); that is, students' pre-entry superficial excellence that is disproportional to the actual post-admission performance. For this reason, it is then also important to detect dysfunctional personalities. It is costly to select or enrol students who will fail to graduate within the specified period (De Klerk 2011:63).

Communication skills, empathy, and the ability to cope with stress are also considered as important selection variables. Other important selection variables associated with personality include honesty, passion for one's career, and willingness to work within a multidisciplinary team (O' Neill et al 2013:556; Wilson et al 2012:1-2; De Klerk 2011:42). Due to their intrinsic personality traits, students with higher emotional intelligence levels and stress tolerance are more likely to complete the nursing programme (Jones-Schenk & Harper 2014:417-418). The above-cited personal attributes could be assessed by means of personal statements or testimonials and emotional intelligence tests (Poole et al 2012:164). Such assessment complements, and validates the accuracy of other cognitive abilities of students undergoing selection procedures into the nursing profession. Freitas and Leonard (2011: 9) mention that in addition to being selected during pre-entry stages, the assessment of observed or desired physiological and psychological qualities of nursing students is also important for the improvement of academic success, though not always possible.

### ***2.6.2.5 Demographic representativity***

The provenance of nursing as a profession was gender-based and women dominated, as the history of Florence Nightingale attests. The demographic characteristics of selected applicants is a vital factor in the selection of student nurses, as these shape health care interactions and project the post-1994 population dynamics and experiences that affect health care (De Klerk 2011:44). For instance, the under-representation in medical or nursing education of students from lower socio-economic backgrounds is an important social issue (O'Neill et al 2013:557); and the demographic, academic, cognitive and personality/behavioural factors have the potential to impact on nursing students' academic performance and attrition (Pitt, Powis, Levett-Jones & Hunter 2012:903). From a selection panel perspective, demographic representativity is a selection policy requirement intended to inject gender, racial, ethnic, and socio-economic equity (as opposed to affirmative action) into the nursing education and training system. Notwithstanding the genesis of the nursing profession as steeped in gender dynamics, Wray, Barrett, Aspland and Gardiner (2010:2) mention that the increasing prevalence of men in the nursing profession is attested to by the fact that their completion of the nursing programs is increasing.

## **2.7 NURSING ETHICS**

It is the researcher's contention that nursing ethics are more of a nursing curriculum area than a pre-admission factor or selection criterion. For instance students, who applied for nursing soon after their matriculation, may be intrinsically motivated to become professional nurses. Other than their qualifying matriculation results, they may not necessarily be familiar with nursing ethics as a field of study incorporated to the nursing curriculum. For purposes of this study, nursing ethics may be more relevant at the post-entry stages when the nursing student is both internally and externally motivated to become a professional nurse.

The South African Nursing Council (2013) is the paramount architect of the Code of Ethics for Nursing Practitioners in South Africa. This Code of Ethics also serves as a declaration by nurses that they will always provide due care to the public and health care consumers to the best of their ability while supporting each other in the process. The Code of Ethics is premised on the notion that the nursing profession embraces

respect for life, human dignity and the rights of other persons. The Code of Ethics does not only provide guidance to nurses in the process of their ethical decision-making, but is a binding document the content of which must be complied with.

## **2.8 CONCLUSION**

Whereas the previous chapter (Chapter 1) focused on the overview of the entire study, the current chapter explored and described various international and local perspectives, trends, and practices regarding the selection of students for the nursing profession. Accordingly, it was necessary to include the international perspectives for purposes of local South African comparability. Furthermore, it was necessary to differentiate between the selection criteria and the selection instrumentation, in order to separate the means from the end itself. The next chapter (Chapter 3) focuses on the research design and research methodology of the study.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

The first two chapters of this study were more theoretically-/conceptually-oriented, the current chapter provides the most pragmatic and practical approach to the study, as it details the actualisation and construction of the study's relevant intentions as encapsulated collectively by the research problem; the research purpose and objectives; the research questions; the research design and methods; as well as the data collection processes

Mouton (2001:55) illuminates that the concepts 'research design' and 'research methodology' are construed differently by different social scientists and academic/professional researchers – depending on the particular intellectual paradigms or perspectives of a particular scholarly community of practice or “academic tribe” (Becher & Trowler 2001:4). This view is corroborated further by academic scholars such as Van der Walt and Van Rensburg (2010:22). Mouton (2001:55) states further that some researchers opt for the usage of 'research design' and 'research methodology' as two interrelated, but distinct research concepts; while others prefer to use the terms synonymously. In the latter instance then, the two concepts would be viewed as connotatively similar, but interchangeable. For purposes of procedural clarity in this study, 'research design' and 'research methodology' have been used complementarily as two interrelated but distinct research terms.

#### **3.2 RESEARCH DESIGN**

In this study, research design which has been used complementarily with research methodology as two interrelated but distinct research terms specifically relates to the more general action plan of the paradigmatic or theoretically-oriented strategies utilised to conduct the investigation (Mouton 2001:55, 114). The research design is further regarded as “the management plan of the study” (Henning 2005:142), since it provides an outline of action, processes, and procedures to be followed in the realisation of both

the study's aim and objectives, as well as the resolution of the stated research problem as articulated by the researcher (Mouton 2001:56, 114).

The study's most specific focus was on the exploration facilitated by means of the pilot study and description of the extent of the association between nursing selection criteria and the overall academic performance of student nurses (as 'predicted by the nursing selection tools) at a public nursing college in Johannesburg, Gauteng Province. That is to say, the study posits that there exists a relationship between the nursing pre-admission selection criteria and the academic performance of prospective student nurses in general, and at the selected public nursing college in particular.

### **3.2.1 Exploratory research design**

An exploratory research design is often used to explore aspects of the research topic in instances of limited knowledge and understanding concerning the subject being studied (Grove et al 2013:370). Exploratory-descriptive researchers consciously and objectively identify a specific gap, or a lack of knowledge in a particular field or discipline, and determine that such lacuna could be addressed cogently by seeking and obtaining the perspectives and input of the people most affected. In this study, the affected persons are the prospective nursing students, since they would be most affected by weaknesses identified in the pre-admission selection processes and selection instrumentation.

In accordance with the knowledge enhancement aspect of exploratory research design, an exploratory-descriptive researcher often indicates that a study is needed for a specific population, in order to understand the needs, the desired outcomes, or the views and appropriate interventions for the members of that particular group. The goal is to create a programme or an intervention to benefit the population (Grove et al 2013:370).

The exploratory research design in this study served the purpose of expanding the pilot phase into a more structured and coherent part of the larger research project; that is, highlighting the preliminary stages of the manner in which the entire study was expected to unfold. The preliminary exploration itself relates to the pre-investigation stage, in the event that the efficacy, consistency, and compatibility of the research instrument(s) with the research environment is to be determined (Grove et al 2013:343-344). Such



efficacy, consistency, and compatibility are usually not easy to pre-determine or pre-judge in advance, until the pre-testing phase itself occurs (Grove et al 2013:344).

In this study, the exploratory aspect of the investigation was achieved by means of a questionnaire-based pilot phase prior to the actual undertaking of the study. This approach enabled the researcher to gather new information and insight on the research topic, as well as to identify the appropriate research decisions intended to maximise the validity of the eventual research outcomes (Polit & Beck 2012:195; Grove et al 2013:46).

### **3.2.2 The descriptive research design**

Descriptive research design outlines the specific details of the research milieu (a situation, social setting, or relationship), and also focuses on the *how* and *why* questions of research (Kreuger & Neuman 2006:23). Such specific details may include the peculiar and idiosyncratic attributes of the participants and their natural habitat, as well as partial or whole aspects of the research problem itself. Descriptive research was suitable for this study as it also provided a detailed description (Denscombe 2010:10; Athanasou, Di Fabio, Elias, Ferreira, Gitchel, Jansen, Malindi, McMahon, Morgan, Nieuwenhuis, Perry, Panula, Pretorius, Seabi, Sklar, Theron & Watson 2012:113) of the elements of the nursing selection criteria that could be associated with the selection criteria and academic performance of aspiring nursing students. The descriptive research design further allowed the researcher the means to discover different perspectives on the research topic (Grove et al 2013:26).

Descriptive research design was mostly used in the narrative/prosaic presentation and analysis of quantitatively/statistically obtained information or data regarding variables associated with the nursing students' pre-entry selection criteria, selection instrumentation, and their most likely academic performance subsequent to their admission to a public nursing college (Athanasou et al 2012:113). In conducting this study the researcher triangulated at different stages of the study.

### **3.2.3 Triangulated research design: Qualitative and quantitative research approaches**

Triangulation is referred to as “the use of multiple methods to collect and interpret data, so as to converge on an accurate representation of reality” (Polit & Beck 2012:745). Additionally, the “multiple methods” of the triangulated data collection and interpretation processes were useful in distinguishing between relevant and irrelevant information. The study’s research design embraces aspects of triangulation in that literature-based data collection enhances the qualitative element, while the quantitative component was enhanced by means of the questionnaire as the most fundamental research instrument. Furthermore, the three-fold dimensions of triangulation enhanced and maximised its appropriateness to the study. The three-fold dimensions refer to data triangulation, method triangulation, and investigator triangulation.

Research in health care settings and medical education has relied heavily on quantitative methods (Goodson & Vassar 2011:4). The quantitative component of the study was achieved by means of the research questions, which were based on the fact that a measurable response on direct questions was possible (Goodson & Vassar 2011:1). The measurability of numerical data obtained from the elicited questionnaire responses was utilised to obtain information and translate it to lived experiences of the sampled respondents as representatives of the larger universe of the nursing student population (Neuman 2011), in order to reach reasonable and legitimate conclusions and the ability to generalise findings in similar contexts (Grove et al 2013:25). Therefore, the quantitative research paradigm was most suitable to the current study, due to its capacity to describe variables; examine relationships and also to determine cause-effect interactions between variables (Polit and Beck 2012: 54; De Vos, Strydom, Fouché & Delport 2011:63).

#### ***3.2.3.1 Data triangulation***

Polit and Beck (2006:187) assert that data triangulation relates to the use of multiple sources of data and information in the study in order to obtain various perspectives for the purpose of validating the study’s findings, conclusions, and recommendations. In this study, data triangulation was achieved by obtaining qualitatively-oriented information relating to nursing students’ selection criteria, instrumentation, and other

associated variables from primary, secondary and electronic sources. The pilot phase of the study, as well as the development of the questionnaire and its administration, enhanced both the empirical and quantitative aspects of the study.

### ***3.2.3.2 Method triangulation***

Method triangulation on the other hand, refers to the specific data collection instruments or tools employed in the realisation of the study's aim and objectives, as well as the concomitant resolution of the stated research problem (Polit & Beck 2012:590). The complexity of the subject matter under investigation necessitated that the qualitative literature- or reference-based aspects of the investigation be complemented by both empirical and other quantitative mechanisms such as the utilisation of the questionnaire as the primary data collection mechanism. To a greater or lesser degree (depending on the nature of the questionnaire's involvement or engagement of the respondents), the latter added more value and facilitated a participatory component of the study. In itself, the engagement of multiple perspectives and stakeholders reinforced researcher neutrality (Polit & Beck 2008:196).

In the macrocosmic context, the complexity of the association between nursing student pre-entry selection criteria, the attendant selection instrumentation and its variables – as well as the ultimate prediction-based academic performance of aspiring nursing students – necessitated that as many related aspects of the research topic as possible be addressed in a concerted manner by as many and diverse role players as possible. In this study, the reference-based data collection mechanism was augmented to by both the pilot phase of the study and the questionnaire development and administration processes.

### ***3.2.3.3 Investigator triangulation***

Investigator triangulation refers to the utilisation of two or more trained researchers in the analysis and interpretation pertinent collected data, in order to authenticate the study, as well as its consequent findings/results and recommendations (Polit & Beck 2008:196). For congenial purposes of this study, the questionnaire – prior to its finalisation – underwent a rigorous quality assurance process with the researcher's utilisation of the professional services of experts such as the academic supervisor of the

current study, a panel of research experts in quantitative research and questionnaire development, as well as the statistician (subsequent to the administration of the questionnaire to the respective respondents during the actual phase (as opposed to the pilot phase) of the study. All these consulted experts and professionals provided cogent advice on the improvement of the questionnaire (see Appendix G), such as re-wording of some questionnaire variables.

#### ***3.2.3.4 Rationale for the integration of mixed method of qualitative and quantitative research design***

For purposes of optimising the validity, credibility, and reliability of the study, both qualitative and quantitative research perspectives were utilised in order to enhance the complementarity of approaches, to establish efficiency in the research process, as well as to expand the study beyond its perceived or real conceptual limitations (Polit & Beck 2012:590). These triangulated (combined qualitative and quantitative) approaches were utilised due to the complexity of the subject matter necessitating that quantitatively derived evidence be complemented and supported with descriptive discussion relating to the multiple layers of variables prevalent on the research sites. Both the concurrence and complementarity of statistical information and descriptive discussions provided narrative coherence and logic, taking into account the range of stakeholders consulted in the study; the fourth year nursing students during the pilot phase, and the first-year and second-year nursing students during the actual implementation stages of the study's questionnaire. Furthermore, the dual/complementary approach (of the combined qualitative and quantitative) perspectives optimised the availability of data and information concerning topical or controversial issues which would perhaps remain 'hidden' or take long to be brought to open and systematic scrutiny.

Polit, Beck and Hungler (2001:217) accentuate the complementarity and rationale of the qualitative and quantitative research approaches thus: "Researchers address their problems with methods and measures that are invariably fallible. By integrating different methods and modes of analysis, the weakness of a single approach may be diminished or overcome".

### **3.3 RESEARCH METHODOLOGY**

The research methodology of this study describes the actual or specific research instruments or tools opted for by the researcher in order to achieve the research aim and objectives, as well as the attendant research problem and its consequent resolution (Mouton 2001:55, 114). Furthermore, research methodology is concerned with the research processes and procedures used in the selection of the sample, data collection, synthesis, and analysis of data (Polit & Beck 2012:12, 733). It is the research methodology of the study that provides the reader with cogent details on the manner in which the investigation was executed, as well as the actual course of action resorted to by the researcher in the resolution to the identified research problem (De Vos et al 2011:110; Brink et al 2012:199).

### **3.4 RESEARCH SETTING**

This research was conducted in naturalistic setting, namely one nursing college in the Gauteng province. The researcher was granted permission by the Gauteng Department of Health (see Appendix D), the principal of the nursing college, research coordinator and the lecturers concerned to conduct this research study in that particular nursing institution. At the actual research site – which was selected due to its proximity to the researcher, as well as its intense manifestation of the research problem.

#### **3.4.1 The research population**

A population is the entire aggregate of cases in which the researcher is interested (Polit & Beck 2012:273; Botma et al 2010:124). There are three major public nursing colleges in Gauteng that cater for the training of first-, second-, third- and fourth year student nurses registered for the four-year integrated nursing diploma (general, psychiatric, and community) and midwifery. The nursing student population was 1,065 students in 2012; with 580 first-year nursing students, and 485 second-year prospective student nurses in the nursing college that has been chosen by the researcher.

### **3.4.2 Sampling and sampling techniques**

In this study, systematic random sampling was utilised due to the availability of an ordered list of the population from which to select the sample frame (Burns & Grove 2011:303). Accordingly, the class lists served as a sample frame from which respondents were afforded an equal opportunity to be selected for participation in the study.

From the first year class list of 580 students, the number 9 (nine), was random was randomly selected as the integer between nought (0) and ten (10). In this regard, 9 was the sampling interval. Student number 9 on the class list was the first respondent from the sampling frame, and student number 19 (nineteen) became the second respondent. The process was conducted until 107 respondents were selected. The same process was repeated with the second-year nursing students' class list and the 106 respondents who were selected. The statistician recommended that the researcher should utilise a sample of 20% from the population of 1,065 first and second year student nurses of the nursing college under investigation. After completion of the random sampling process, a total of 213 possible respondents were selected, which includes the 20% suggested by the statistician; and 67 more respondents volunteered to participate in the study, leading to the total of 280 respondents.

#### ***3.4.2.1 Sampling criteria***

Of the three above-cited public nursing colleges in Gauteng, only one was selected for sampling. The rationale for its selection is premised on it being the most accessible to the researcher, and it optimally exhibited significant aspects of the research problem to be resolved. The total number of sampled respondents was 213 (approximately 20% of the sample population/universe). Sixty-seven (67) more respondents volunteered to participate in the study, which has brought the total number of respondents to 280. The systematic random sampling method was utilised, assisted by the availability of the class lists, which were utilised as the sample frame from which to select the respondents. All respondents had an equal opportunity to be selected for participation in the study.

### **3.4.2.2 Inclusion criteria**

Inclusion criteria refer to the specific characteristics or qualities that research respondents should possess in relation to the sampled respondents or research population/universe. Polit and Beck (2012:274) illuminate further that inclusion criteria are a determinant of a person's suitability to membership of a particular sample population/universe. The following factors were considered in the selection of respondents for this study:

- Male and female first-year or second-year nursing students registered with both SANC and the public nursing college (research site) whose selection criteria was complied with for the specified year of study for the four-year comprehensive nursing diploma.
- Their names should be appearing on the class registers of first year and second year students at the selected public nursing college.

### **3.4.2.3 Exclusion criteria**

Exclusion criteria specify the characteristics that participants or population lack in order to be included in the study, as outlined in the study protocol (Polit & Beck 2012:274, 727). The following factors were considered in the exclusion of respondents:

- Male and female third-year and fourth year nursing students at the selected research site.
- Any nursing student registered at any of the other Gauteng public nursing colleges offering the four-year diploma course as the public nursing college being studied.
- Nursing students in private clinics/hospitals/colleges.
- All post-basic students.

## **3.5 DATA COLLECTION AND DATA COLLECTION METHODS**

Babbie and Mouton (2001:563) contend that "the worth of all scientific findings depends heavily on the manner in which the data was collected and analysed". Therefore, the

availability of valid, reliable, and credible data constitutes a very critical aspect of the study. It is in this regard that data collection is viewed as an indispensable segment of the entire research process, and could legitimate or invalidate the purpose and significance of the study. Data collection itself is referred to as the precise, systematic gathering of information relevant to the general research purpose or the specific objectives and questions of a study (Burns & Grove 2011:52).

The data collection methods and the attendant findings/results of a study serve as the means by which the fulfilment or otherwise of the aim(s) or purpose(s) of the study could be determined or assessed (Strydom & Delport 2011:289). For purposes that are congruent with the objectives of the study and its research problem, the data collection mechanisms entailed information gathering from both theoretical and empirical perspectives. Theoretically generated data was obtained through the review of relevant literature on the research topic, while empirically generated data was derived from the pilot phase of the study and by means of questionnaire development and administration.

### **3.5.1 Quantitative data collection**

Whereas the qualitative aspects of the research (the descriptive, non-statistical elements that rely on the researcher's own interpretive and analytic proficiency) have informed both the course of action and the types of instruments to be used, the quantitative elements of the study maximised the accuracy of the study's findings and resultant recommendations in a logical manner (Mouton 2001:113). The questionnaire-based quantitative aspect of data collection in this study was largely applied by means of empirical augmentation to the study's theoretical perspectives. The fieldwork- and experientially based quantitative data collection technique served as the evidence on whose basis the findings/results of the study were derived, and thus provided the real-life "social reality" of the aspiring nursing students (De Laine 2000:11-12). According to the latter author, "social reality" relates to the context within which the respondents' lived experiences are being investigated. Accordingly, the "social reality" legitimates the findings of the study in a logical and coherent manner. Therefore, the findings could (individually or collectively) take the form of any of the following trajectories (Mouton 2001:113):

- empirical (based on observation)



- descriptive (based on explication of trends or patterns of phenomena)
- causal (based on illustrating a link between variables)
- theoretical (based on new evidence intended to account for an existing or a new theory)
- interpretive (based on the researcher's view of existing or new phenomena); or evaluative, based on the assessment "... of outcomes, benefits or impact of certain interventions" (Mouton 2001:113)

### **3.5.1.1 *The pilot study***

To the extent that the pilot study became the preliminary mechanism by which significant elements of the feasibility of the study could be evaluated, it therefore acted as a precursor or forerunner to the entire study's framework of empirically-based quantitative data collection and analysis (Polit & Beck 2012:195-196; Grove et al 2013:343-344). Most importantly, the pilot study actualised both the exploratory and participatory components of the research methodology simultaneously, although in varying degrees. The purpose of the pilot study was to assess whether the items on the research instrument (questionnaire) were clear, intelligible, and could be answered with ease. The pilot study greatly enhanced both the empirical aspect of the research and the researcher's better understanding of "the social reality" of the respondents; that is, the real-life experiences of the respondents in their familiar surroundings/habitat (Holosko 2001:265). In the latter context, the pilot study further assisted in the development of the relevant inclusion and exclusion criteria pertaining to the research participants/respondents. The researcher conveniently sampled twenty-two (22) volunteers with similar characteristics as the respondents of the actual study.

The pilot study was conducted in July 2014 with fourth-year nursing students at a Johannesburg public nursing college. The Gauteng Department of Health (GDoH) selected that particular research site after due written requests were formally made by the researcher (see Appendix D). Permission was also obtained from the nursing college's principal (see Appendix C), the research coordinator, as well as the academic head of the course levels concerned.

The fourth year nursing students were requested to participate in the study based on their knowledgeable of, and experiences in the four-year diploma, as well as their

sufficient exposure to nursing as a profession. The initial sample for the pilot study was supposed to be fifteen volunteers, but twenty two students volunteered to participate in the study. Since the number of volunteers exceeded the expectations during the pilot study, more questionnaires were reproduced before the actual study was conducted,

The volunteers were provided with an information leaflet (see Appendix E) that explained the research topic, the research purpose, as well as the ethical issues involved, so that they could make informed decisions regarding their participation in the study. The searcher then distributed questionnaires with the attached consent forms (see Appendix F) to be filled-in by the respondents. Although the time allocated for the completion of the questionnaire was thirty (30) minutes, the respondents took an average of twenty minutes to complete it.

### ***3.5.1.2 Questionnaire development and administration***

In this study, the questionnaire was opted for as the foremost data collection instrument. Prior to its actual administration/implementation, the final questionnaire was subjected to a pre-testing/pilot phase for refinement and early detection of any flaws which may have been undetected by the researcher during its development stages (Brink et al 2012:153). Should the researcher not have detected such flaws prior to the execution of the actual study, it is most likely that the larger population from which the sample was drawn would be misrepresented (Polit & Beck 2012:195). In order to pre-test the questionnaire, the researcher conveniently sampled twenty two fourth year nursing student volunteers with whom the pilot study was conducted. One of the three major public nursing colleges based in Johannesburg was selected for the pilot phase of the study after entry requirements were formally negotiated by means of written letters of requests to the college's and provincial authorities (see Appendix C and D respectively).

The development and utilisation of the questionnaire as a quantitative research instrument played a central role in the data collection process of this study. A well-designed questionnaire efficiently collects the required data with a minimum number of errors. It facilitates the coding and capture of data and it leads to an overall reduction in the cost and time associated with data collection and processing (Polit & Beck 2012:265). The questionnaire was developed by considering prior measurements corresponding to each variable in the reviewed literature. Each variable was measured

by multiple items in order to increase the reliability and validity of the measurements. The advantage of questionnaires was that they were simple and relatively inexpensive and could provide information from large numbers of subjects. The disadvantage was that they depended on personal reporting and therefore the inaccurate, usually ineligible information had to be corrected.

Subsequent to granting of ethical approval to conduct this study by the Gauteng Department of Health (see Appendix D), the principal of the selected nursing college also gave permission to conduct the study (see Appendix C). Selected lecturers arranged for voluntary classroom meetings with the selected nursing students. The dates and times for the classroom meetings were confirmed after a consensus was reached with the student nurses. The latter arrangement enabled the researcher to finalise one classroom meeting with each group of first and second year students for data collection process.

During the classroom meetings, the researcher explained the purpose of the study to the sampled student nurses, who were also ensured that they could withdraw from the study at any time and that they would not be harmed or disadvantaged in any way in the event that they chose not to participate in the study. Every respondent was then provided with an information letter (see Appendix E), a consent form (see Appendix F) as well as the questionnaire (see Appendix G).

The students then had the opportunity to read through the information letter and decide whether they wished to participate. The consent form was then signed, based on their voluntary and un-coerced participation, which culminated in the diligent completion of the questionnaire. Respondents were requested to desist from discussing their elicited responses with one another as every individual's opinion was important for this study. All sampled student nurses agreed to keep their information confidential. During the questionnaire administration sessions, the arrangement of the tables and chairs in the lecture hall resembled the one used during examinations; that is, the tables were one metre apart from each other in all four directions. This arrangement was helpful in that it minimised the unnecessary communication among the respondents.

The researcher requested the respondents to put their completed questionnaires into a prepared card box. The whole process of data collection in the classroom took

approximately 1 (one) hour. The card box was immediately sealed to prevent data contamination, and sent to the data analyst. This arrangement ensured a positive return of questionnaires, thus reducing the possibility of an increased number of spoilt questionnaires.

The compilation of the final questionnaire then became the product of the literature review on selection criteria and its associated factors, as well as the pre-testing phase on the investigation. Both the DoL's recruitment and selection application form and the selected nursing college's interview and students' pre-admission selection form were utilised and incorporated by the researcher in the development of the questionnaire (see Appendix G). In order to induce a protracted effect of the questionnaire, the researcher considered the following factors during the development and administration of the questionnaire:

- Respondents were informed that there were no correct or incorrect responses.
- Ethical issues were taken into serious consideration by not divulging respondents' identity (thus guaranteeing their privacy, anonymity, and confidentiality).
- Questionnaire items were sensitive to issues of race, gender, ethnicity, and cultural practices.
- Both close- and open-ended questions were included to respectively facilitate unrestricted, but direct responses from students' perspectives.
- The questionnaires were administered during the respondents' lunch hour in pre-arranged lecture halls.
- All the critical questionnaire items were thematically linked to nursing students' selection criteria.
- Questions pertaining to the performance of the student nurses in the different modules were included in the questionnaire.
- The researcher personally collected the completed questionnaires for further analytic attention by the statistician.

As a printed embodiment and self-reporting mechanism designed to elicit written information from the sampled respondents, the developed questionnaire was advantageous in that (Botma et al 2010:110):

- The closed- and open-ended questionnaire items (Leedy & Ormrod 2010:194) consistently focused on the critical aspects associated with nursing pre-admission selection criteria, selection instrumentation, and the academic performance of prospective nursing students.
- There was less opportunity for researcher bias (De Vos et al 2011:190), as the respondents completed the questionnaires on their own, without any interference from the researcher.
- The development and administration of the questionnaire was relatively inexpensive due to the fact that the researcher typed, printed, and reproduced the two hundred and twenty (220) copies of questionnaires which were distributed to the volunteering respondents during the actual study.

Notwithstanding the above-cited questionnaire advantages, Gary (2009:337-338) cites the following disadvantages:

- The standardised nature of the final questionnaires accommodates little space for any misinterpreted items. This could be partially solved by piloting the questions on a small group of students or at least friends and colleagues.
- Respondents may answer superficially, especially if the questionnaire takes long to complete.
- Superfluous questions should be avoided, as they may exhaust the respondents' patience or concentration.
- Respondents may not be willing to answer the questions or reveal detailed information they consider not useful to them.
- Questionnaires, like many other evaluation methods, occur after the event, so participants may forget important issues.
- In the event that respondents were not carefully selected, some questionnaire items may be above the literacy levels of the respondents.

### **3.5.2 *Validity of the research instrument***

Validity refers to the degree to which an instrument measures what it is supposed to measure (Maree 2012:139). The questionnaire was developed after a thorough literature review as well as a review of the selection and recruitment documents used for selection and recruitment. The questionnaire was subjected to thorough scrutiny by

the supervisor and the panel of experts whose professional input was sought by the researcher. The panel and supervisor offered suggestions such as: re-wording and clarification on some questionnaire variables; after which such questionnaire items were revised and incorporated as recommended.

The validity of this study then, is to be determined by the extent to which it incorporates nursing students' pre-admission criteria and other related dynamics such as selection instrumentation, as well as the predictability of nursing students' academic performance.

Content validity was thus enhanced with the incorporation of selection criteria, selection instrumentation, as well as the predictive effect of nursing students' future academic performance. It is in this context that the pilot study had an influence on the validity and reliability of the study's findings by enhancing the refining of questions prior to the questionnaire's full implementation (Polit & Beck 2012:195).

### ***3.5.3 Reliability of the research instrument***

Reliability or consistency of a study refers to the extent of stability and dependability of the evidence insofar as the research topic and objectives are concerned (Leedy & Ormrod 2010:28). For purposes of this study's reliability and consistency, the questionnaire was pre-tested with a convenient sample of fourth year student nurses. In this specific instance, the refined pilot questions were not at variance with the purpose and objectives of the study, as well as the initial purposes of the questionnaire. In that manner, the final version of the questions was not totally different from the original version. As was the case in the application of content validity, the main purpose for the facilitation of internal consistency was to ensure that nursing students' perspectives on the challenges of selection criteria were elicited throughout the administration of the questionnaires.

### ***3.5.4 Credibility of the research instrument***

Credibility refers to the researcher's confidence in the truth value of the collected data and its interpretation (Polit & Beck 2008:39). Credibility is also established by employing multiple sources of information and data (Polit & Beck 2008:39). In this study, literature

review and the empirical aspects of interviewing and questionnaire administration ensured that the study established a credibility base for itself.

### **3.6 DATA PRESENTATION AND ANALYSIS**

It is worth mentioning that the basis for the findings and analysis of statistical data was largely informed by the majority and minority responses (frequencies/rates of occurrence) to the questionnaire items. For purposes of objective analysis – and depending on the emphasis of the question and the value of its distractors – the other forms of responses (those that are neither in the majority nor in the minority) were also considered in an attempt to eliminate researcher bias/prejudice and accord meaningful to data by means of systematised organisation and reduction (Brink et al 2012:177).

The collected data from the questionnaires was submitted to a statistician for analysis using the Statistical Package for Social Sciences (SPSS) computer programme (Polit & Beck 2012:463).

Data was then analysed by means of a descriptive/prosaic approach which employed measures such as frequency distributions, measures of central tendencies, as well as data dispersion (Brink et al 2012:179). Categorical data was calculated, analysed and interpreted after the means, standard deviations or medians, percentiles, frequencies and percentages were identified (Burns & Grove 2011:383-388).

### **3.7 ETHICAL CONSIDERATIONS AND ISSUES**

Ethical considerations and issues in this study enhanced the scientific value and worth of the investigation (Henning 2005:1). The research ethics guided the professional conduct of the researcher with the expectations of the respondents (Gibbs 2007:7). Accordingly, the scientific worth of the study has been categorised into researcher-based and research-based ethical protocols, which ensured that professional and legal parameters and expectations were observed unequivocally; in tandem with acceptable norms within the professional community of research practice, as well as the legal domain as prescribed in the Constitution of the country.

### **3.7.1 Research-specific ethical considerations**

Research-specific ethical considerations relate primarily to the researcher's association with the relevant institutions or organisations responsible for the authorisation or granting of permission or approval to conduct the study.

In its fiduciary capacity, the Higher Degrees Committee of the Department of Health Studies at the University of South Africa gave approval for the study to be conducted, after the research proposal had been deemed to have satisfied all the requirements commensurate with a study of this nature.

The researcher was subsequently granted permission by the Department of Labour to use its recruitment and selection form as part of the information needed to develop the questionnaire. The principal of the investigated public nursing college granted permission (see Appendix C) to administer questionnaires to student nurses and to use the class room facilities of the nursing college for questionnaire administration purposes. Permission was also obtained from Gauteng Department of Health (see Appendix D), granting permission to conduct the study at one of the public nursing colleges under its regulatory fiat.

### **3.7.2 Researcher-specific ethical considerations**

Researcher-specific ethical considerations were observed by the general adherence to the participants' right to human dignity and self-determination was observed throughout the study by ensuring that their right to privacy and un-coerced, informed consent is respected (Polit & Beck 2012:154). In addition, their right to full disclosure and withdrawal from participation at any stage of the process was explained to them (Polit & Beck 2012:154). The prospective study respondents were given an information leaflet informing them that their participation in the study was voluntary, and that they had the right to withdraw without risking any penalty or prejudicial treatment.

The respondents' right to privacy determined the time, extent and general circumstances under which private information would be shared with, or withheld from others (Burns & Grove 2011:114). Furthermore, the study respondents had the right to anonymity and the right to assume that the data collected was kept confidential. The



student nurses were assured that data provided would be kept in the strictest confidentiality (Athanasou et al 2012:121), and that they should complete the questionnaire anonymously so that the data could not be traced to a specific individual (Burns & Grove 2011:114).

The respondents' right to protection from harm is based on the ethical principles of beneficence, which is the duty of the researcher to eliminate harm, while also maximising the benefits of participating in the study (De Vos et al 2011:128).

### **3.8 SCIENTIFIC INTEGRITY OF THE RESEARCH**

The scientific integrity of the current study was ensured by protecting the intellectual property of the authors of the consulted publications in the study. The proper citation and full biographic referencing was accorded to all sources on the list of references. Reports on data collected were compiled accurately. Data collection, analysis, and reporting were based on appropriate confidentiality procedures and scientific evidence (Polit & Beck 2012:742).

### **3.9 CONCLUSION**

This chapter presented an outline of both the research design and research methodology employed in this study. The research questions posed in chapter one of this study also contributed towards the research approach according to which questionnaire-based data collection and data analysis methods were employed to capture the subjective experiences of the study respondents regarding the selection criteria and academic performance of student nurses in a public nursing college selected for investigation in this study. In the following chapter, data collected is presented following the analysis of the respondents' elicited viewpoints.

## **CHAPTER 4**

### **DATA ANALYSIS AND INTERPRETATION OF RESULTS**

#### **4.1 INTRODUCTION**

Whereas the previous chapter described and discussed the research design and research methodology of this study, the current chapter focuses mainly on the presentation and description of the results accruing from the relevant collected data of the respondents. It is also worth mentioning that the purpose of this study is basically to describe, discuss, and explain elements in prospective nursing students' selection criteria as factors associated with the academic performance of nursing students at a selected public nursing college.

The objectives of this study were articulated as follows:

- To describe the Department of Labour's criterion in the pre-admission selection of students for the four-year diploma in nursing.
- To describe the predictive factors in the current pre-admission selection process in a Gauteng public nursing college.
- To examine the association between the predictive factors for pre admission with nursing students' academic performance in a Gauteng public nursing college.

#### **4.2 DATA MANAGEMENT**

Data were collected between January and March in 2015 from total sample of 280 student nurses in their first-year and second-year levels of study for the comprehensive four-year diploma in nursing course, in order to be trained as General, Psychiatric and Community nurses and Midwives. The collected data were edited, processed and analysed by means of the SPSS version IBM 22 computer programme. Frequencies and variations for each variable were calculated quantitatively and displayed in the form of graphs, charts, and tables, after which descriptive analysis was conducted in prosaic form.

Bivariate analysis was undertaken in order to compute the association between the independent and dependent variables. Correlation and T- test anova table was used to

determine odds ratio and 95% confidence intervals (C. I) for the different factors associated with the academic performance of the prospective nursing students.

Finally, the multivariate analysis model was applied by selecting only those variables that were statistically significant ( $P < 0.05$ ) in the bivariate analysis, and were reported as the finding of this study.

### **4.3 DATA COLLECTION**

Relevant data were collected by means of a structured questionnaire involving six open-ended variables. The questionnaire was designed in a manner that enhanced nursing students' perspectives with regard to the current selection criteria and its associated impact or influence on their academic performance. The questionnaire items were generated from the Department of Labour's recruitment and selection instrument, as well as from the interview tool utilised by the selected public nursing college. Questions pertaining to the student nurses' performance in the different modules were also included in the questionnaire. The questionnaire (see Appendix G) itself consisted of three (3) sections, categorised as follows:

Section A: The Demographic profile of the respondents.

Section B: The Educational background of the respondents.

Section C: The Academic performance of the respondents.

The population in this study comprised of nursing students registered for the four-year comprehensive nursing programme at the selected public nursing college in Gauteng Province. A total sample of 280 nursing students in their first and second academic year of study responded.

### **4.4 STUDY RESULTS**

A qualified statistician quantitatively analysed the captured data from the 280 completed questionnaires of the first- and second-year nursing students. For this purpose, the statistician used the SPSS computer programme. The quantitatively generated results were presented in the form of frequencies of occurrence, percentages, tables and graphs. Scatter-plot, mean, and standard deviation were used for the descriptive

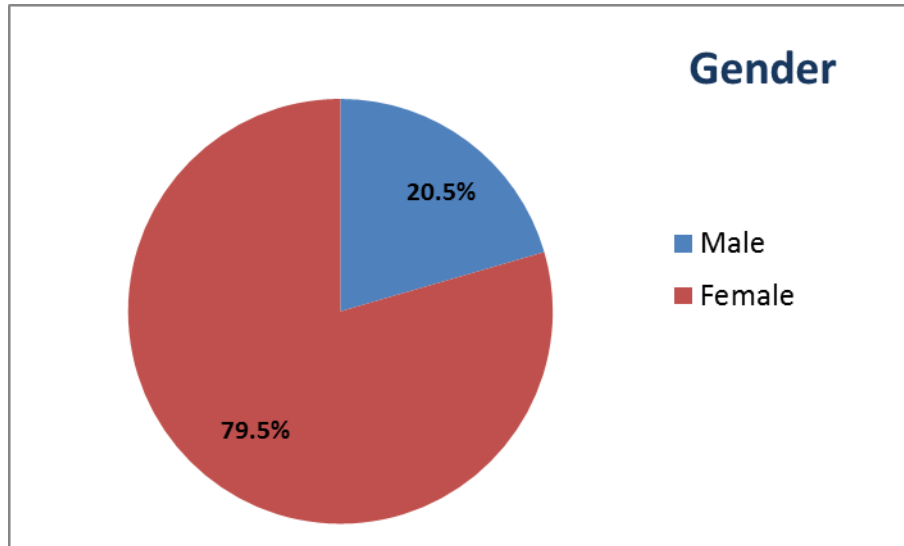
statistics. Univariate analysis of variance (ANOVA) and multiple regressions were used for the inferential statistics. The T-test technique was used to test the formulated null hypothesis. Additionally, the level of statistical significance was set at ( $P > 0.05$ ,  $P < 0.05$  ( $\alpha$ ) accept or reject null hypothesis respectively.

#### 4.4.1 Section A: Biographic information

In this section, the biographic information of the prospective nursing students was required. Such information included the gender, age, home language, and marital status of the 280 sampled nursing students. While the bibliographic variables in this section may not be directly relevant to the sampled respondents' future academic performance, these variables enabled the researcher to eclectically obtain a socially diverse profile and actual 'lived experiences' of the selected nursing students and the environment within which their social realities were constructed.

##### 4.4.1.1 Respondents' gender distributions

In this sub-section, the gender of the sampled nursing students was indicated.



**Figure 4.1: Respondents' gender distributions**

Figure 4.1 indicates that 20.5% ( $n=53$ ) of the nursing students were males, and 79.5% ( $n=216$ ) were females. Eleven ( $n=11$ ) respondents did not indicate their gender. The above figure further demonstrates that there are more females than males at the selected public nursing college training to become registered professional nurses. The latter state of affairs is congruent with the national trend. According to (SANC 2013), a

total of 20 956 nursing students in South Africa were registered for the four-year comprehensive nursing diploma, 16 001 of which were females and 4 955 were males. In Gauteng Province alone, 4 070 nursing students were females, compared to 978 males registered for the same course. Notwithstanding the researcher's own observation that females dominate the nursing profession, Ali, Haider, Munir, Khan and Ahmed (2013:289) on the other hand, contend that gender was insignificant in the academic performance of students. Meanwhile, Alon and Gelbgiser (2010: 2) report that males outnumber females in academic fields such as Mathematics, Physical Sciences Engineering, and Computer Science. Statistical evidence corroborates the latter fact that 18% males graduate in the above-cited fields of study compared to 3% females (Alon & Gelbgiser 2010:2).

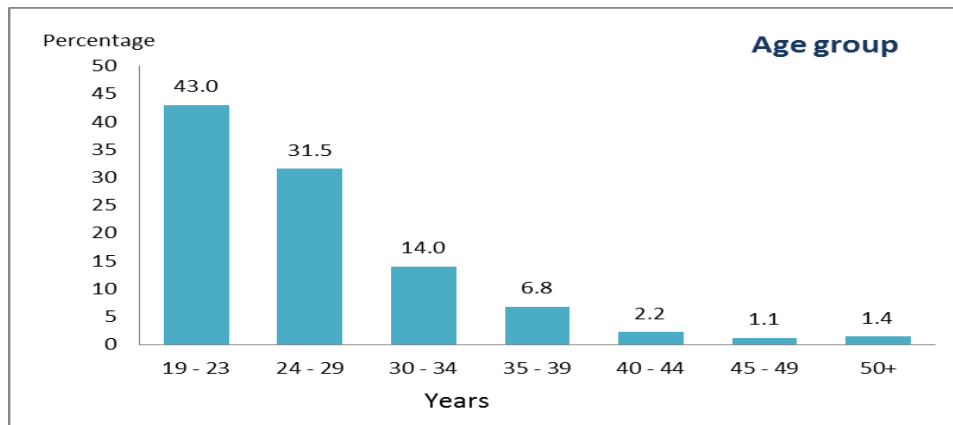
Given the nature of responses in Figure 4.1 above, the null hypothesis would be that there is no statistically significant gender-based difference in academic performance at the selected public nursing college. Accordingly, the null hypothesis would be  $\mu_1 = \mu_2$ .

Similarly, the alternative hypothesis in relation to Figure 4.1 above would be that there is a statistically significant gender-based difference in the academic performance of student nurses. Accordingly, the alternative hypothesis would be  $\mu_1 \neq \mu_2$ . It is then from the results of the test that the null hypothesis is either accepted or rejected. In the case of a variable with more than two options (for example gender as a factor of either the null or alternative hypothesis), different tests are used to formulate the hypothesis as follows:

For instance, the null hypothesis could be that there is no statistically significant difference in academic performance at the selected public nursing college between the different age groups; or null hypothesis:  $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \mu_6 = \mu_7$ . The alternative hypothesis could then be that there is a statistically significant difference in academic performance between the different age groups. The alternative hypothesis could be that not all means are equal.

#### ***4.4.1.2 Respondents' age groups***

In this sub-section, the age cohorts of the sampled respondents were indicated.



**Figure 4.2: Respondents' age groups**

In Figure 4.2, 43% (n=116) of the respondents were between the ages of 19 and 23 years; 31.5% (n=84) between 24 and 29 years; 14% (n=38) between 30 and 34 years; 6.8% (n=19) between 35 and 39 years; 2.2% (n=6) between 40 and 44 years; while 1.1% (n=3) were between 45 and 49 years; and 1.4% (n=4) were 50 years and above. Ten (n=10) respondents did not indicate their age.

Ali et al (2013:283) argue that age contributed significantly to graduate students' academic performance. It was important for the researcher to determine the age cohort of both the first-year and second-year nursing students, despite that the nursing student selection criteria does not discriminate on students based on their age. What is most important is a good pass mark in the matriculation examinations. An acceptable matriculation pass is therefore the foremost consideration in this regard.

The bar chart above indicates that the lowest percentage (1.4%) consists of the age cohort above fifty years of age (n=4) is an indication that the nursing profession is definitely not populated by an ageing workforce that would soon be lost to the profession due to factors such as natural attrition or retirement. The fact that the majority of nursing students (43%) is constituted by students in the 19-23 years age cohort (n=116), augurs well for the nursing profession as these are most likely to be retained in the nursing workforce for durable periods of time. The fact there is a vast numerical and percentile age variation between the oldest (50 years and above) and youngest (between 19 and 23 years) in the form of 1.4% and 43% respectively constitutes a convincing basis for an alternative hypothesis that there is a significant difference between the youngest and oldest age cohorts in the study.

#### 4.4.1.3 Respondents' home language

In this sub-section, the respondents' home language was indicated. The rationale for including the home language is premised on the determination of demographic representativity of students at the selected public nursing college in Gauteng Province. The researcher concedes that home language other than English as also medium of instruction does not necessarily attenuate or accentuate academic performance. The table below depicts the respondents' home languages.

**Table 4.1: Respondents' home language (in descending order)**

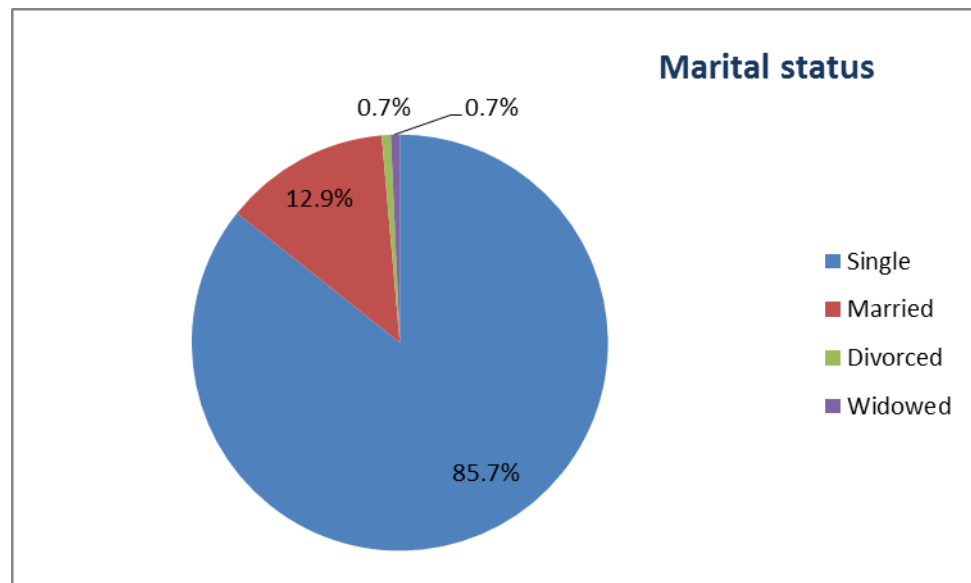
Home language	Frequency	Percent	Valid percent	Cumulative percent
Isizulu	83	29.6	29.6	29.6
Sesotho	53	18.9	18.9	48.5
Setswana	47	16.8	16.8	65.3
Sepedi	32	11.4	11.4	76.7
Isixhosa	24	8.6	8.6	85.3
Tshivenda	14	5.0	5.0	90.3
Xitsonga	12	4.3	4.3	94.6
English	6	2.1	2.1	96.7
Isiswati	5	1.8	1.8	98.5
Isindebele	3	1.1	1.1	99.6
Afrikaans	1	0.4	0.4	
<b>Total</b>	<b>280</b>	<b>100.0</b>	<b>100.0</b>	

From Table 4.1, it is apparent that respondents whose home language is Isizulu (n=83) constitute the largest percentage (29.6%), followed by those whose home language is Sesotho (n=53) at 18.9%. The lowest numbers comprise of Afrikaans (n=1) and Isindebele (n=3), at 0.4% and 1.1% respectively.

It is also worth indicating that a total of 7 (seven) respondents (6, English and 1, Afrikaans) – at 2.1% and 0.4% respectively – indicated a home language that is ethnically Black. This fact is highlighted mainly for demographic purposes. The study results indicated that there was no significant correlation between home language and students' academic performance. Home language did not necessarily reflect on students' academic performance. Contrastingly, English as a home language may have a positive influence on academic performance, since it is also the most dominant means of instruction and curriculum content.

#### 4.4.1.4 Respondents' marital status

The marital status of respondents was of interest to the researcher for purposes of establishing whether a point of correlation existed between the academic performance of nursing students and their domestic commitments, especially that they were studying full-time. Their ability to balance marital requirements and domestic obligations, as well as academic demands is necessarily placed on a litmus test.



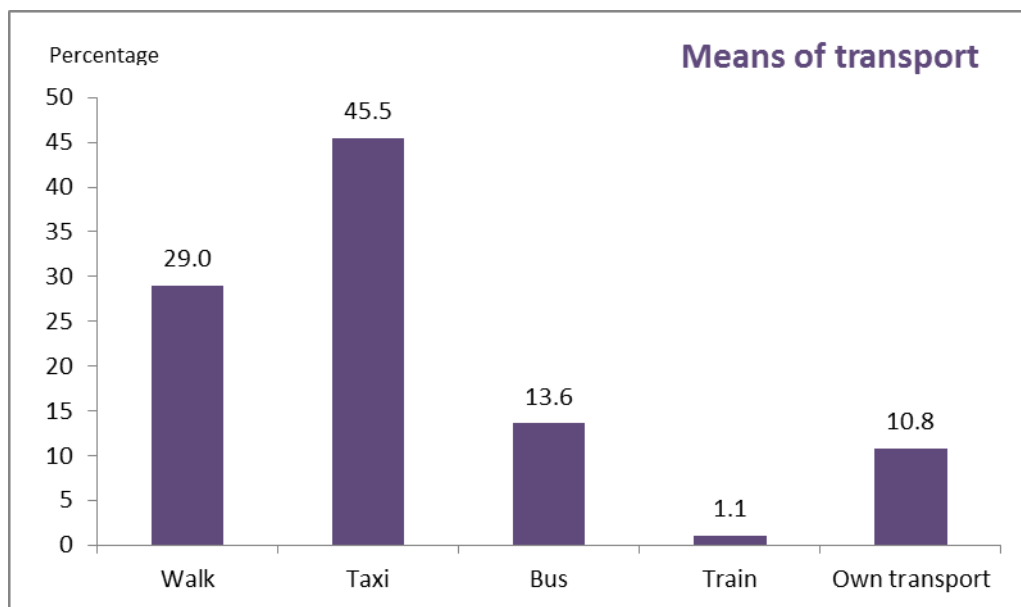
**Figure 4.3: Respondents' marital status**

Figure 4.3 illustrates that the majority of the nursing students ( $n=239$ ) at 85.7% were single; 12.9% ( $n=36$ ) were married; 0.7% ( $n=2$ ) were divorced; and 0.7% ( $n=2$ ) were widowed. One ( $n=1$ ) respondent did not indicate any designated marital status. The ANOVA test was used to determine any significant difference among the groups of nursing students with regard to their academic performance at the selected public nursing college. In this regard, the null hypothesis was accepted, indicating that there was no significance difference between marital status and academic performance of student nurses at the public nursing college. On the other hand, the acceptance of the alternative hypothesis (rejection of the null hypothesis) would imply that a significant correlation existed between marital status as a predictive factor of nursing students' academic performance. Overall, the findings indicate that the marital status of nursing students did not necessarily affect their academic performance.



#### 4.4.1.5 Respondents' most commonly used mode of transport to classes

The rationale for the inclusion of mode of transport to classes was based on the determination of whether or not the distance between classes (or travel time) and students' places of residence had any direct bearing on their academic performance. It is the researcher's contention that on-campus time allocated to study after classes is also affected by both the time one takes to reach home, as well as the mode of transport used. The quicker and the less time spent to reach home, the most probable it is that more time would be allocated for on-campus studying by the nursing students.



**Figure 4.4: Respondents' most commonly used mode of transport to classes**

The majority of respondents ( $n=127$ ) at 45.5% commute by taxi from their places of residence to the nursing college; while 29% ( $n=81$ ) walk to classes; 13.6% ( $n=38$ ) commute by bus; 10.8% ( $n=30$ ) use their own transport; and only 1.1% ( $n=3$ ) commute by train. One ( $n=1$ ) respondent did not indicate the mode of transport used to attend classes. Similar to the findings and outcomes of the study on the respondents' marital status, the respondents' academic performance was not affected by the mode of transport used to travel to classes.

#### **4.4.1.6 Respondents' time between the nursing college and place of residence**

The time used by respondents to travel from their places of residence to the nursing college ranged between 10 and minutes (one hour). The mean travel time for all the sampled nursing students is 41.92 minutes. The results showed that there was no correlation between the nursing students' travel time and their academic performance at the selected public nursing college.

#### **4.4.1.7 Respondents' medical condition**

The rationale for the determination of the respondents' medical condition was generally premised on finding out whether or not health status could serve as a reliable predictive factor of academic performance.

**Table 4.2: Respondents' medical condition**

Medical condition		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	242	86.4	86.7	86.7
	Yes	37	13.2	13.3	100.0
	Total	279	99.6	100.0	
Missing		1	0.4		
<b>Total</b>		<b>280</b>	<b>100.0</b>		

Table 4.2 indicates that 86.7% (n=242) of the respondents suffered no adverse medical condition, while 13.2% (n=37) respondents experienced one form of adverse medical condition or another. Only one (n=1) respondent did not respond to this questionnaire variable. The results of the study indicate that there is no significant variance between students with medical conditions and those without in terms of their academic performance.

#### **4.4.2 Section B: Respondents' educational background**

This section is entirely concerned with the establishment of the educational profile or background of the selected nursing students prior to their admission to the public nursing college selected for this study.

#### 4.4.2.1 Respondents' highest levels of education

Table 4.3 demonstrates the range of the educational background of the respondents.

**Table 4.3: Respondents' highest level of education**

Level of education		Frequency	Percent	Valid percent	Cumulative percent
Valid	Grade 12	189	67.5	67.5	67.5
	Certificate	55	19.6	19.6	87.1
	Diploma	27	9.6	9.6	96.8
	Bachelor's degree	9	3.2	3.2	100.0
	<b>Total</b>	<b>280</b>	<b>100.0</b>	<b>100.0</b>	

Table 4.3 indicates that 67.5% (n=189) respondents passed their grade 12; 19.6% (n=55) are in possession of the certificate; while 9.6% (n=27) have a diploma; and 3.2% (n=9) hold a Bachelor's degree. On a 99% level of confidence, the study results showed that there is a significant difference between the academic performance of a student nurse with a Bachelor's degree and the rest of the students. The latter category included those with grade 12, a certificate, and/or a diploma. The syllogistic implication in this regard is that there exists a point of correlation between academic qualification and academic performance. The higher the academic qualification, the better the academic performance is likely to become. Correspondingly, the lower the academic qualification, the lower the academic performance.

#### 4.4.2.2 Respondents' high school type attended

Table 4.4 indicates the various types of high schools attended by the respondents prior to their admission to the selected public nursing college. Ostensibly, the table below indicates that a vast majority of respondents were from public high schools. While there are arguably differences between the quality of teaching and learning between the two high school types, the researcher did not expand the study to the extent of determining the final academic performance of students at the nursing college from these high school types. That is, a point of correlation was not established between pre-admission high school type and final academic performance at the nursing college.

**Table 4.4: Respondents' high school type attended**

High school type attended		Frequency	Percent	Valid percent	Cumulative percent
Valid	Public school	241	86.1	88.6	88.6
	Private school	31	11.1	11.4	100.0
	Total	272	97.1	100.0	
Missing		8	2.9		
<b>Total</b>		<b>280</b>	<b>100.0</b>		

The results in Table 4.4 indicate that 88.6% (n=255) of the respondents attended public high schools, and 11.4% (n=31) were from private high schools. Ali et al (2013:286) argue that private schools are rich in resources and facilities. Hence, students who studied at the elite schools were expected to perform better than their public schools counterparts did. The above-cited authors further explain that the type of school in which students had studied greatly influence their educational performance and academic achievement. Contrarily, the study results showed there was no correlation between type of school attended and the academic performance of nursing students at the public nursing college.

It is worth mentioning that with regard to the level of education, the null hypothesis could not be accepted that there was no statistically significant variance between the various nursing student groups. Therefore such a null hypothesis is rejected and we have to reject the null hypothesis. Correspondingly, further tests would have to be undertaken in order to prove or accept the alternative hypothesis; that is, establishing or determining correlational association between type of high school attended and academic performance between all, or some of the groups at the public nursing college in respect of grade 12, diploma, or Bachelor status. Eight (n=8) respondents did not indicate the type of high school they attended.

#### ***4.4.2.3 Respondents' matriculation subjects passed***

The main purpose of the questionnaire variable above was to determine whether or not a direct or relevant association could be determined between selected prospective nursing students' academic performance and their matriculation subjects.

**Table 4.5: Respondents' matriculation subjects passed**

<b>Subject</b>	<b>Frequency</b>	<b>Percent</b>	<b>N/A or missing</b>
English	273	97.5	7
Life Sciences	212	75.7	68
Mathematics	190	67.9	90
Physical Science	172	61.4	108
Afrikaans	166	59.3	114
Life Orientation	151	53.9	129
Geography	113	40.4	167
Home/Other Language	106	37.9	174
Mathematical Literacy	51	18.2	229
Accounting	48	17.1	232
History	46	16.4	234
Economics	43	15.4	237
Business Studies	37	13.2	243
Information Technology	36	12.9	244
Tourism	20	7.1	260
Agricultural Science	17	6.1	263
Other	12	4.3	268
Home Economics/Hospitality Studies	15	5.4	265
Biblical Studies	9	3.2	271

The findings in Table 4.5 demonstrate that the top 9 (nine) subjects, other than Afrikaans and Geography, from a total of 19 (nineteen) subjects, constitute a meaningful base and pool for admission to the nursing profession due to their relevance. Such a state of affairs is an encouraging predictive factor, as it shows that student's chances of success are more realistic due to the relevant choice of subjects.

#### **4.4.3 Academic motivation and learning preferences**

A determination of prospective nursing students' academic motivation and learning preferences is a relevant pedagogic and didactic factor, as it establishes a continuum between the quality of the nursing curriculum (or lack thereof) and the type of learner. Type of learner in this regard is a valuable factor, as variables such as the level of motivation and educational background are tested vis-à-vis learning styles of the nursing students.

#### ***4.4.3.1 Respondents' passion for the nursing profession***

Individual students' passion for the nursing profession is a critical factor of intrinsic motivation, without which unintended barriers to effective learning could occur. Self-motivated learners – in spite of socio-economic and other bibliographic and demographic variables – are most likely to succeed academically as they do not necessarily depend on external factors for guidance and motivation.

**Table 4.6: Respondents' passion for the nursing profession**

Passion for nursing profession		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	76	27.1	27.1	27.1
	Yes	204	72.9	72.9	100.0
	<b>Total</b>	<b>280</b>	<b>100.0</b>	<b>100.0</b>	

The results in Table 4.6 indicate that 72.9% (n=204) of the respondents were passionate about becoming registered professional nurses, and 27.1% (n=76) had relatively less passion in this profession. It could be noted further that the former category of respondents (the majority with 72.9%) was most likely to perform better academically than the latter category (minority with 27.1%), based on the degree to which both intrinsic and extrinsic motivation become instrumental predictive factors.

#### ***4.4.3.2 Respondents' prior knowledge of the nursing profession***

The respondents' prior knowledge of the nursing profession is closely related to both the passion and motivation for choosing nursing as a career of choice. Students whose prior knowledge of the nursing profession is advanced, exhibit the characteristic that they are determined to succeed, hence their quest to obtain as much knowledge and information as possible pertaining to nursing as a field of study and preferred career choice. It could further be safely concluded that such students are not inspired by the social status commanded by the profession. Neither are they motivated by pecuniary and other material concerns to join the nursing profession as a calling to the advancement of patients' health needs.

The response rate in this regard was that 55.7% (n=156) of the respondents indicated that they had gathered some knowledge and information on the nursing profession prior

to applying for registration into the comprehensive four-year nursing diploma programme, while 44.3% (n=124) had obtained no prior knowledge and information pertaining to the profession.

#### **4.4.3.3 Respondents' actual academic performance**

The actual academic performance of the sampled nursing students at the time of conducting the study was very necessary, as it was instrumental in testing (proving or disproving) the continuum between their bibliographic data, their educational background, as well as the quality (or otherwise) of the curriculum and the lecturers at the selected public nursing college.

**Table 4.7: Summary of respondents' actual percentages obtained**

Field of study/modules	Number of respondents	Actual percentages obtained		
		0%-49%	50%-79%	80%-100%
General Nursing Science 100	266	1.5	91.7	6.8
Biological Nursing Science 100	265	1.5	92.8	5.7
Fundamental Nursing Science 100	263	0.8	95.1	4.2
Ethos and Professional Practice 100	160	0.6	94.4	5.0
Social Science 100	257	1.2	83.7	15.2
General Nursing Science 200	167	1.8	97.0	1.2
Midwife Nursing Science 100	172	1.2	92.4	6.4
Biological Nursing Science 200	166	1.8	94.0	4.2
Social Science 200	169	0.0	91.7	8.3

Table 4.7 shows that at the time of conducting the study at the selected public nursing college, GNS 200 was the module in which nursing students (n=167) has performed better than students in other modules; with 1.8 (of 167) obtaining between 0% and 49%, while 97.0 (of the 167) obtained a 50%-79% performance rate. At the first year level, SS 100 was the module in which there was the highest performance rate; with 15.2 (of 257 respondents) performing at the rate between 80% and 100%.

From the table above, it is apparent that SS 200 (n=169), EPP 100 (n=160), and FNS 100 (n=263), were respectively at the risk in the 0% and 49% performance range. However, GNS 200 students (n=167) were the lowest in the 80% and 100% performance category, with 1.2 (of 167).

#### **4.4.3.4 Respondents' level of module difficulty**

The level of module difficulty is particularly relevant for pedagogic module remedial purposes for both the learners and the public nursing college.

**Table 4.8: Respondents' level of module difficulty**

<b>Field of study/modules</b>	<b>Respondents replying 'Yes'</b>	<b>Percentage</b>
General Nursing Science 200	136	48.6
Biological Nursing Science 200	124	44.3
Biological Nursing Science 100	80	28.6
Fundamental Nursing Science 100	70	25.0
Midwife Nursing Science 100	39	13.9
General Nursing Science 100	33	11.8
Ethos & Professional Practice 100	12	4.3
Social Science 100	9	3.2
Social Science 200	2	0.7

The comparative response rate in Table 4.8 indicates that five modules in the first year of study (BNS 100, FNS 100, GNS 100, EPP 100, and SS 100) were perceived as difficult by the respondents, which contrasts with the findings in Table 4.6, which indicate a general satisfactory pass rate of the self-same modules. On the other hand, all four second-year modules (GNS 200, BNS 200, MNS 100 and SS 200) were viewed as being difficult by the respondents. Compared to the findings in Table 4.6, the self-same second-year modules regarded as most difficult in Table 4.7 were considered difficult by only a minority of about 3% obtained average marks obtaining 0%-49% in Table 4.6, and about 4.6% of the respondents in the 80%-100% average mark range. With regard to findings in Table 4.6 and Table 4.7, it is evident that perceptions and actual reality come into interaction, approximately in the same way as the null hypothesis posited with the a number of bibliographic details for instance distance from



the nursing college and educational background factors such as type of high school attended with no point of correlation with academic performance.

According to the Senate meeting reports of Chris Hani Baragwanath Nursing College (CHBNC) for 2010, 2011, and 2012, it was evident that the second year of study is the most failed by more than 50% of nursing students.

#### ***4.4.3.5 Possible reasons for module level of difficulty***

A student perspective was obtained of the reasons associated with the perceived levels of module difficulty. Seventy-three (n=73) of the respondents cited reasons such as:

- the BNS 100 workload was enormous to be completed within a short period of time in preparation for tests and the final examination
- poor background of Biology from high school

For BNS 200, the reasons (n=107) cited for the BNS 100 level of difficulty above were all cited. In addition:

- the content of BNS 200 was regarded as very difficult

For GNS 200, the respondents (n=128) cited that there was a lack of continuity between first- and second-year modules. Consequently, it was difficult for them to formulate a nursing diagnosis due to a lack of understanding the pathophysiology of the human body. Furthermore, these nursing students cited too much content within a relatively short period.

With a response rate of (n=61) to Fundamental Nursing Science 100, the following challenges were reported:

- the historical nature of nursing was difficult to understand
- the legal aspects (Acts and Regulations) were difficult to memorise and remember during assessments (tests and examinations)
- the module has detailed (expansive and elaborate) content and limited time

#### 4.4.3.6 *Grade 12 subjects regarded as pre-requisite for nursing studies*

The purpose of this questionnaire item was to obtain nursing students' perspectives on relevant subjects for nursing as a field of study. Table 4.9 indicates the responses elicited in this regard.

**Table 4.9: Grade 12 subjects regarded as pre-requisite subjects for nursing studies**

<b>Subject</b>	<b>Frequency</b>	<b>Percent</b>
Life Sciences	255	91.1
English	223	79.6
Physical Science	139	49.6
Life Orientation	121	43.2
Mathematics	117	41.8
Mathematical Literacy	28	10.0
History	20	7.1
Information Technology	19	6.8
Geography	10	3.6
Economics	10	3.6
Home/Other Language	10	3.6
Home Economics	7	2.5
Afrikaans	4	1.4
Biblical Studies	4	1.4
Tourism	4	1.4
Business Studies	4	1.4
Accounting	3	1.3

Emanating from the elicited responses in Table 4.9, it is axiomatic that the majority of respondents strongly believe that the following top five subjects should be regarded as a compulsory pre-requisite for entry to the nursing profession:

- Life Sciences (91.1%)
- English (79.6%)
- Physical Science (49, 6%)
- Life Orientation (43.2%)
- Mathematics (41.8%)

#### **4.4.3.7 Motivation for pre-requisite nursing subjects**

- Life Sciences was regarded by 222 respondents as the basic foundation of Biological Nursing Science, and provided the necessary prior knowledge for an understanding of the anatomy and the physiology of the human body.
- English was regarded by 159 respondents as vital since it was the medium of instruction in the nursing colleges or institutions, and thus enhanced understanding of the content in all the modules. Furthermore, English promotes communication needed for teaching or lecturing, learning and interaction with lecturers, fellow students and patients.
- Chemistry was regarded by 103 respondents as part of Biological Nursing Science and General Nursing Science. Therefore, Physical Science enhanced understanding of the Chemistry concepts which form part of the nursing modules.
- Mathematics and Mathematical Literacy was regarded by 89 respondents as providing a background for knowledge in the calculation of doses, measurement of medicines, as well as the facilitation of problem solving and logical decision making skills.
- Life Orientation was viewed by 87 of the respondents as providing the following skills and values: conflict resolution; leadership; improved communication; ethical and moral behavioural modification; and promotion of positive interaction and attitudes.

#### **4.4.3.8 Factors regarded as adversely contributing to nursing studies**

The following factors were cited by respondents (n=252) as challenges that have affected them at the nursing college: workload; time constraints; negative attitude of lecturers and registered professional nurses in the wards; distance between college and the nurses residence makes studying difficult; and some lecturers' limitations with regard to curriculum content.

#### **4.4.3.9 Factors regarded as positive influences on academic performance**

The majority of the respondents (n=252) cited the following aspects that had a positive influence on their academic performance at the nursing college:

- supportive lecturers
- exposure to practical settings in order to strengthened their understanding of theory
- rewarding practical experiences such as delivering a baby
- extra classes or sessions improved their academic performance
- registered professional nurses eager to assist and guide in the wards
- 

#### ***4.4.3.10 Other factors regarded as negative influences on academic performance***

In addition to reasons provided for unsatisfactory academic performance in variable 4.3.3.8, the respondents (n=106) added the following challenges they experienced at the public nursing college:

- workloads at the clinical facilities
- no teaching in the wards
- unprofessional treatment of students in the wards

## **4.5 CONCLUSION**

The chapter sought to report on the pertinent pre-admission factors associated with the academic performance of prospective nursing students. In this regard, a student-centred perspective was regarded as vital, since it is their lived experiences or social reality that would provide more of an information and knowledge base from which effective and efficient recommendations would be drawn. While the respondents' bibliographic data was necessary (for the compilation of a demographic and socio-economically relevant profile), it is the nursing students' educational background and the selected public nursing college's curriculum quality and offerings that constituted the thematic approach to this empirical phase of the study.

## **CHAPTER 5**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

This chapter mainly highlights the conclusions of the entire study, which are drawn from the scientific evidence obtained from the study and its data collection analysis frameworks (Strydom & Delport 2011:289). The conclusions have been further enhanced by comparisons with, and references from similar studies. In addition, the chapter includes recommendations for future research on the subject matter under investigation, as well as the limitations identified throughout the research process.

#### **5.2 THE RESEARCH OBJECTIVES AND EXTENT OF THEIR ACHIEVEMENT**

In order to establish cogent premises for the development of the conclusions and recommendations, it was necessary to evaluate the extent of the study objectives' value and appropriate articulation. Section 2.6 of Chapter 2 is the point of reference in relation to all the objectives cited below. In this regard, the objectives of the study were articulated as follows:

- To describe the Department of Labour's criterion in the pre-admission selection of students for the four-year diploma in nursing.
- To describe the predictive factors in the current pre-admission selection process in a Gauteng public nursing college.
- To examine the association between the predictive factors for pre admission with nursing students' academic performance in a Gauteng public nursing college.

With regard to Objective 5.2.1, a repertoire of the DoL's in selection criteria was established by means of mentioning the applicable selection criteria, and explained in conjunction with the SANC's and the DoH in order to provide a unified approach towards achieving this objective.

For Objective 5.2.2, the specific situation of the study site was mentioned in conjunction with the requirements of the (Nursing Act, Act No. 33 of 2005) (South Africa 2005).

For Objective 5.2.3, the major findings and conclusions of the study were scrutinised in order to respond to this objective's requirements.

### **5.3 SUMMARY AND INTERPRETATION OF THE RESEARCH FINDINGS**

The aim of the study was to explore and describe elements in the nursing selection criteria that are associated with nursing students' academic performance in the Gauteng public nursing college selected as the appropriate research site.

Method triangulation, data triangulation, and investigator triangulation assisted in the data collection and analysis processes – on whose basis the findings and resultant recommendations were arrived at. This three-fold approach has the advantage of maximising the findings without compromising or sacrificing the scientific integrity of the study on nursing students' pre-admission selection criteria.

Based on the *dominant* age cohort of the sampled nursing students (Figure 4.2) in the study (20-29 years, it does appear that there are positive prospects for the nursing profession, as the aging professionals will not leave a void through natural attrition or retirement. These prospects are enhanced further by the majority (85.7%) of single nursing students in Figure 4.3. Notwithstanding this positive development, the nursing profession still remains *gender-biased*; females still outnumber males in most professional categories. The demographic representativity of nursing nullifies the racial and ethnic dislocations of the past, as attested to by Table 4.1.

Most nurses join the profession/college with the required pre-admission academic credentials in terms of the matriculation subjects, and have a passion for the profession (72.9% in Table 4.5); and have taken the extra step to obtain prior knowledge of the profession (55.7% ).

The academic performance of most nurses reflects that they pass their modules with scores ranging between 50% and 79%). Notwithstanding the latter development, it was indicated by a majority of 48.6% of the sample in Table 4.7 that General Nursing Science 200 was the most difficult module.

## 5.4 CONCLUSION

The objectives of the study were aimed at identifying the relationship between selection criteria and academic performance of nursing students at a public nursing college in the Gauteng province.

Nursing colleges or institutions are concerned about student's success and are accountable to ensure that their pass rate improves. The nursing colleges need to carefully select candidates and actively manage their progress to decrease attrition rate. Nursing colleges need to look at their attrition rates, seek to understand their students' needs and determine the best strategies to increase throughput.

## 5.5 RECOMMENDATIONS

Recommendations for further research should conclude the present study by examining its implications and suggest future studies (Grove et al 2013:599).

Based on the findings of the study, the researcher has developed some recommendations, which might be useful to the management of nursing colleges, lecturers and the Gauteng Department of Health in conjunction with the Department of Labour.

- In order to prevent the current high attrition rate of nursing students, selection criteria must be revised, as nursing students' success is a concern for all nursing colleges (Harris, Rosenberg & O'Rourke 2014:31; Reinhardt, Keller, Summers & Schultz 2012:310). The revision must aim to predict candidates who will be able to endure the pressure of studying and comprehend new content. The selection criteria should be able to predict candidates who will succeed and complete their four-year comprehensive diploma course leading to registration in the South African Nursing Council (SANC) as professional nurses.
- Students who do not meet the selection criteria should not be accepted into the program. Selecting the best nursing students is crucial in producing high quality graduates (Bodger et al 2011:2). Students should not be included in the four-year nursing programme merely to reduce the shortage of candidates who applied for registration.

- Interview tools or forms need to be reviewed and changed accordingly, so that candidates are asked questions that are relevant to the current situations and problems. Nursing colleges may even benefit from solutions provided by candidates.
- Designing medical and surgical nursing term modules that will be incorporated into the curriculum so that nursing students could be taught terminology that will enable them to understand the module content.
- Lecturers should be given in-service training on the management of large classes, especially the first and second year nursing students. The physical environment could influence learning positively or negatively. In this case, learning will be affected negatively as the lecturer would not be able to identify students who are at risk due to their poor academic performance.
- The Gauteng Department of Health should follow-up the persons in charge of approval letters, so that researchers must be able to proceed with their studies after receipt of approval letters.
- The Risk Assessment Profile Strategies for Success (RAPSS), assesses students at risk of failure on the basis of a simple sum of risk factors, this is the strategy used in the United States of America (Breckenridge, Wolf & Roszkowski 2012:160-161). The nursing colleges can check this strategy and develop their own tool that meets the needs of their nursing students.
- Remedial or support programmes should be continuous and structured in such a way that high risk nursing students are included in the program, from the time the student is identified until the end of the year examination is written ( Peterson-Graziose, Bryer & Nikolaidou 2013:353; Alameida, Prive, Davis, Landry, Renwanz-Boyle & Dunham 2011:267).

## **5.6 CONTRIBUTIONS OF THE STUDY**

All the respondents in this study are in possession of the matriculation certificate. The Pearson Correlation test indicate that there is a weak linear relation between academic qualification and academic performance, but amongst the respondents there are those who hold other qualifications, such as Bachelor's degrees, Diplomas, and Certificates. Table 4.3 indicates that 3.2% (n=9) respondents are in possession of a Bachelor/s degree a further analysis showed that there is a significant relationship between



Bachelor's degree holder and academic success. These respondents are most likely to perform better academically than their counterparts who have lower qualifications.

## **5.7 LIMITATIONS OF THE STUDY**

This section assesses restrictions in the study that may decrease generalisability of the findings. These findings might be theoretical or methodological in nature, but they indicate how these challenges could have been avoided (Grove et al 2013:598). Theoretical limitations involve study results that are non-significant or unexpected. Methodological limitations are weaknesses in the study design that can limit the credibility of the findings and restrict generalisability to the larger population (Grove et al 2013:598).

The systematic random sampling method was utilised with the assistance of class lists, which were used as the sample frame from which to select the respondents. The study was conducted with a sample of 280 nursing students, which may limit generalisability of the study to other nursing colleges in the Gauteng Province.

Data collection was conducted over three months, from January to March 2015. The prolonged period was necessitated by the poor response rate – leading to the researcher visiting the site or the nursing college twice a week during that period of data collection.

The Gauteng Department of Health took a lengthy one year three months to grant the researcher permission to conduct the study. Every time the follow-up was made, the researcher would be referred to a new person who would need the same documents again.

## **5.8 CONCLUDING REMARKS**

The issue of nursing students' pre-admission requirements reflect on the broader issue of 'standards', which are interpreted differently by social scientists and academic researchers from various intellectual persuasions. Some view standards as an exclusionary tool designed to exclude the so-called 'previously disadvantaged communities' from accessing certain professional and educational opportunities. Others

view standards as a mechanism to improve qualifications and academic performance. From the researcher's perspective, this study is most relevant for making a contribution to such a very crucial national issue.

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## **APPENDIXES**

**APPENDIX A: UNISA ETHICAL CLEARANCE CERTIFICATE**



**UNIVERSITY OF SOUTH AFRICA  
Health Studies Higher Degrees Committee  
College of Human Sciences  
ETHICAL CLEARANCE CERTIFICATE**

**HS HDC/154/2013**

Date: 6 March 2013 Student No: 4910-662-7  
Project Title: Selection criteria: A factor associated with academic performance of student nurses at a public nursing college.  
Researcher: Makhoba Nomacala Anna  
Degree: MA in Nursing Science Code: MPCHS94  
Supervisor: Prof L Roets  
Qualification: PhD  
Joint Supervisor: -

**DECISION OF COMMITTEE**

**Approved**



**Conditionally Approved**



**Prof L Roets  
CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE**

**Prof MM Moleki**   
**ACTING ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES**

**PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES**



## **APPENDIX B: LETTER OF REQUEST TO CONDUCT RESEARCH**

886 Honeythorn Street  
Alveda Park  
Extension 4  
Johannesburg  
03 April 2013

The Nursing Service Manager  
Gauteng Department of Health  
Private Bag X 05  
JOHANNESBURG  
2000

Dear Sir/Madam

### **REQUEST FOR AUTHORISATION TO CONDUCT A RESEARCH STUDY**

I hereby apply to be for permission to conduct a research study at Chris Hani Baragwanath Nursing College. I am a registered student at the University of South Africa (UNISA), in the Master in Health Science Education programme. A research study is a requirement to complete my studies. The title of my intended study is SELECTION CRITERIA: A FACTOR ASSOCIATED WITH ACADEMIC PERFORMANCE OF LEARNER NURSES IN A PUBLIC NURSING COLLEGE.

The purpose of this study is to describe the selection criteria used as a factor that might be associated with the academic performance of student nurses. Nursing students will be asked to participate voluntarily, and will be able to withdraw at any stage of the study without any adverse consequences to them. All data will be kept confidential, and no information will be linked to a specific student.

Permission to conduct this study will also be obtained from the Higher Degree Committee of the Department of Health Studies at Unisa, in order to ensure that this study will be conducted in an ethical manner.

I hope to receive your approval to conduct this study.

Yours Sincerely

Researcher: Anna Makhoba

Tel: 0834004485/ 063 148 2870

[Makhobaanna@gauteng.gov.ac.za](mailto:Makhobaanna@gauteng.gov.ac.za)

Supervisor: Prof M. Moleki

Tel: 012 429-6524/6369

[Molekimm@unisa.ac.za](mailto:Molekimm@unisa.ac.za)

## APPENDIX C: LETTER OF APPROVAL FROM GAUTENG NURSING COLLEGE



**GAUTENG PROVINCE**  
HEALTH  
REPUBLIC OF SOUTH AFRICA

**FROM:** MRS. R.M. RAMAHLAFI  
PRINCIPAL – ANN LATSKY NURSING COLLEGE

**TO:** MS. A. MAKHOBA – LECTURER  
CHRIS HANI BARA NURSING COLLEGE

**SUBJECT:** REQUEST TO CONDUCT RESEARCH – SELECTION CRITERIA: A  
FACTOR ASSOCIATED WITH PERFORMANCE OF LEARNER NURSES IN A  
PUBLIC NURSING COLLEGE

**DATE:** 25 JULY 2014

Dear Madam

Permission is hereby granted for you to do research at Ann Latsky Nursing College.

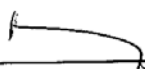
Thank you for the interest in doing research at Ann Latsky Nursing College.

Your request has been approved.

Please feel free to communicate with us the date/s on which you will be coming to the College, as follows:

**ENQUIRIES** : MRS. N. NTSELE  
**TELEPHONE NO.** : 011 644 8903  
**EMAIL ADDRESS** : Nompie.Ntsele@gauteng.gov.za

Regards

  
MRS. R.M. RAMAHLAFI  
PRINCIPAL

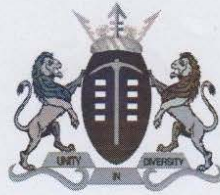


25.7.2014  
DATE

Ann Latsky Nursing College  
Private Bag 40, AUCKLANDPARK, 2006 ☎ (011) 644-8900 📠 (011) 726-2619



## APPENDIX D: GDOH LETTER OF APPROVAL TO CONDUCT RESEARCH



### GAUTENG PROVINCE

HEALTH  
REPUBLIC OF SOUTH AFRICA

#### OUTCOME OF PROVINCIAL PROTOCOL REVIEW COMMITTEE (PPRC)

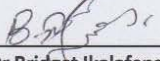
Researcher's Name (Principal investigator)	Anna Makhoba
Organization / Institution	University of South Africa
Research Title	Selection criteria: A factor associated with performance of learner nurses in a public nursing college
Protocol number	P200714
Date submitted	21 June 2014
Date reviewed	24 July 2014
Outcome	APPROVED
Date resubmitted	N/A
Date of second review	N/A
Final outcome	N/A

It is a pleasure to inform that the Gauteng Health Department Provincial Protocol Review Committee (PPRC) has approved your research on "Selection criteria: A factor associated with performance of learner nurses in a public nursing college".

Data should be collected at:

- Ann Latsky nursing college

We kindly requests that you to submit a report after completion of your study and present your findings to the Gauteng Health Department.

  
**Dr Bridget Ikalafeng**  
Research and Epidemiology Manager

Date 24 / 07 / 2014

## APPENDIX E: RESEARCH INFORMATION

Study title: Selection criteria: A factor associated with academic performance of student nurses in Gauteng at a public nursing college.

I, Makhoba Nomacala Anna, am a Master's student at the University of South Africa and a lecturer at Chris Hani Baragwanath Nursing College. Hereby request you to participate in the above mentioned research study. The purpose of this study is to identify factors associated with academic performance of student nurses at a public nursing college. Participation on this study is voluntary and you may terminate your participation at any given time. You will not be penalized or lose benefits if you refuse to participate from the study.

Participation will not be biased, and no compensation will be offered. This study has no risks involved. It will however take more or less 20 minutes of your time to complete the questionnaire. Results of the study will be published after completion of all information been depersonalized to ensure privacy and confidentiality and your name will not be linked to any of the information provided by you. If you agree to participate, you will receive a signed copy of this document as well as the consent form.

You may contact the secretariat of the Research Ethics Committee of the Department of Health Studies at UNISA, at telephone number (012) 429 2226 if you have questions about your rights as a research respondent.

For any further enquiries regarding the study, the researcher Anna Makhoba, can be contacted at 011) 983 3019 or 083 400 4485.

Best regards

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Researcher

Date: 07 January 2015

## APPENDIX F: INFORMED CONSENT TO PARTICIPATION IN RESEARCH

I .....hereby give consent to participate in the research study to identify factors associated with academic performance of student nurses at a public nursing college.

I am aware that my participation in this study is voluntary and that I may terminate my participation at any given time. I will not be penalized or lose benefits if I refuse to participate in the study.

Participation in this study will take approximately 20 minutes and I will receive no compensation. I have been informed about the purpose of the study and know the meaning of my involvement to this study.

I may contact the secretariat of the Ethics Committee of the Department of Health Studies at UNISA, at telephone number (012) 429 2226 if I have questions about my rights as a research respondent.

The research study including the above information has been verbally described to me by the researcher.

Signature of respondent:\_\_\_\_\_ Date:\_\_\_\_\_

## APPENDIX G: QUESTIONNAIRE

Please complete the questionnaire as honest as possible. Mark the option that you choose with an X in the appropriate box and write where applicable your answer in the spaces provided.

All information provided will remain anonymous and treated confidentially.

1. What is your gender?

Male	1	Female	2
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2. Indicate your age in the range provided.

<b>Age in years</b>		
19 – 23 years	1	
24 – 29 years	2	
30 – 34 years	3	
35 – 39 years	4	
40 - 44 years	5	
45 – 49 years	6	
50 years and above	7	

3. What is your marital status?

Single	1	
Married	2	
Divorced	3	
Widowed	4	

4. In which of the following ways do you travel to classes most of the time?

**Please choose only one.**

Walk	1	
Taxi	2	
Bus	3	
Train	4	
Own transport	5	

5. How long (in minutes) does it take you to reach the nursing college from where you stay?

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6. Are you suffering from any medical condition?

Yes		No	
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7. If yes, please name the condition(s).

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8. Please indicate your highest level of education?

Grade 12/ standard 10	1	
Certificate	2	
Diploma	3	
Bachelor's degree	4	
Honours degree	5	
Master's degree	6	
Doctors degree	7	

9. In which year did you attain the above qualification?

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10. What is the name of the diploma/certificate/degree did you attain?

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11. Please indicate your home language.

English	1	
Afrikaans	2	
Sesotho	3	
Sepedi	4	
Setswana	5	
Isizulu	6	
Isixhosa	7	
Isindebele	8	
Tshivenda	9	
Xitsonga	10	
Other *****	11	

\*\*\*\*\* If "Other", please specify:

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12. Please indicate from which type of school you matriculated?

Public school	1	
Private school	2	



13. Please indicate the subjects that are on your matriculation certificate as well as the symbols or grades obtained in each.

**For example:** A mark of 62% received for English.

Subjects	Symbol obtained					39-0%
	A 80-100%	B 70-79%	C 60-69%	D 50-59%	E 40-49%	
English			X			

Subjects	Symbol obtained					39-0%
	A 80-100%	B 70-79%	C 60-69%	D 50-59%	E 40-49%	
English						
Afrikaans						
Mathematical literacy						
Mathematics						
Life Orientation						
Physical Science						
Biology/Life Sciences						
Economics						
Home Economics/ Hospitality Studies						
Computer Studies/ Information Technology						
History						
Geography						
Biblical Studies						
Tourism						
Accounting						
Any other: (Please name them)						

14. Did you feel a strong passion to enter the nursing profession?

Yes		No	
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15. If no, why did you apply to study nursing?

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16. Did you have any knowledge of the nursing profession before you applied?

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
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17. What is the main reason(s) that you entered the nursing profession? Please answer this question as honest as possible.

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18. Which of the following school subjects do you think has assisted you to perform better in your nursing program?

English	1	<input type="checkbox"/>
Afrikaans	2	<input type="checkbox"/>
Mathematical literacy	3	<input type="checkbox"/>
Mathematics	4	<input type="checkbox"/>
Life Orientation	5	<input type="checkbox"/>
Physical Science	6	<input type="checkbox"/>
Biology/Life Sciences	7	<input type="checkbox"/>
Economics	8	<input type="checkbox"/>
Home Economics/ Hospitality Studies	9	<input type="checkbox"/>
Computer Studies/ Information Technology	10	<input type="checkbox"/>
History	11	<input type="checkbox"/>
Geography	12	<input type="checkbox"/>
Biblical Studies	13	<input type="checkbox"/>
Tourism	14	<input type="checkbox"/>
Accounting	15	<input type="checkbox"/>
Any other: Name them please	16	<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>

19. Which of the above school subjects do you think assisted you the most in your nursing studies? **(Only 1 please.)**

---

20. Do you think that the knowledge you obtained from your Grade 12 subjects were beneficial in passing each of the following modules?

<b>Subject / Module</b>				
General nursing science 100	Yes		No	
Biological nursing science 100	Yes		No	
Fundamental nursing science 100	Yes		No	
Ethos and professional practice100	Yes		No	
Social science 100	Yes		No	
Midwifery nursing science 100	Yes		No	
General nursing science 200	Yes		No	
Biological nursing science 200	Yes		No	
Social science 200	Yes		No	

21. Please indicate the mark or percentage that you have obtained for each of the following modules during this year.

<b>Subject / Module</b>	<b>0 - 49%</b>	<b>50 - 79%</b>	<b>80 - 100%</b>
General nursing science 100			
Biological nursing science 100			
Fundamental nursing science 100			
Ethos and professional practice100			
Social science 100			
General nursing science 200			
Midwifery nursing science 100			
Biological nursing science 200			
Social science 200			

22. Which of the following modules do you consider to be the **most** difficult ones?  
 You can choose more than one.

<b>Subject / Module</b>		
General nursing science 100	1	
Biological nursing science 100	2	
Fundamental nursing science 100	3	
Ethos and professional practice100	4	
Social science 100	5	
General nursing science 200	6	
Midwifery nursing science 100	7	
Biological nursing science 200	8	
Social science 200	9	

23. Please motivate why you find this module/modules to be so difficult.

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24. Please list the Grade 12 subjects that you think should be a pre- requisite for nursing studies.

1.
2.
3.
4.
5.
6.

25. Please motivate why you think that the subjects you have mentioned should be pre- requisites for entering the nursing program

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26. Please describe the challenges that you are experiencing with the nursing college that might influence you to stop studying nursing or that influences your studies in a negative way?

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27. Please describe any aspect that you experience as having a positive or negative influence on your performance in the nursing program.

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**THANK YOU FOR TAKING PART IN THIS STUDY**

## APPENDIX H: EDITOR'S LETTER

### EDITOR'S LETTER

Services rendered in respect of comprehensive editorial/ language control, proof-reading, technical compliance, and research methodology adherence for the Master's dissertation of:

**NAME OF STUDENT:** Anna Nomacala Makhoba

**NAME OF INSTITUTION:** University of South Africa

**STUDENT NUMBER:** 49106627

**RESEARCH TOPIC:** Selection Criteria: A Factor Associated With Academic Performance of Student Nurses at a Public Nursing College

**Level of Study:** Master of Arts in Nursing Science

**Field of Study:** Health Studies

**Services Rendered by:** Dr TJ Mkhonto


D Tech Ed: University of Johannesburg (2008)

M Ed: University of Massachusetts-at-Boston, USA (1987)

BA Ed: Northwest University, Mafikeng (1985)

**Contact Information:** Cell: 072 104 0738

Email: mkhonto9039@gmail.com

**Signed:**  \_\_\_\_\_ **Date:** 30 December 2015  
Dr TJ Mkhonto Date