

**EXPLORING CRITICAL CARE NURSES' PERCEPTIONS OF THEIR
EDUCATIONAL PREPAREDNESS IN MANAGING PEOPLE LIVING WITH
HIV/AIDS ADMITTED TO CRITICAL CARE UNITS IN KWAZULU-NATAL**

BY

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A dissertation submitted to the School of Nursing and Public Health, Faculty of Health
Sciences, University of KwaZulu-Natal

In fulfilment of the requirement for the degree of Master of Nursing, Trauma and Critical
Care Nursing

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2012

DECLARATION

I hereby declare the sole ownership of the dissertation: EXPLORING CRITICAL CARE NURSES' PERCEPTIONS OF THEIR EDUCATIONAL PREPAREDNESS IN MANAGING PEOPLE LIVING WITH HIV/AIDS ADMITTED TO CCU IN KWAZULU-NATAL.

This research project has been submitted for Masters in Nursing (Trauma And Critical Care Nursing) at the University of KwaZulu-Natal, Durban, South Africa, on merits of its originality, through observation of the scientific process of academic writing and tremendous input from my supervisor. It has never been submitted for any degree or examination in any institution. Work used and cited in this dissertation has been appropriately acknowledged both within the text and in the reference list.

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DEDICATION

This dissertation is dedicated to all the people who never stopped believing in me and who, along with God, have been my „footprints in the sand, my light in the dark, my shelter and my pillar in the storms“:

My wife: Mathuto Kutoane

My mother and father: Mamahlomola and Teboho Kutoane

My uncle: Hlahlobo Kutoane

ACKNOWLEDGEMENTS

God the eternal Father, the Saviour of human kind, I give sincere heartfelt thanks to Him for my life and the privilege blessed unto me to push through this master's journey and for protecting me in the land far from home.

SPECIAL THANKS AND APPRECIATION

Had it not been for the following people and some that I might not have mentioned here, this dissertation could not have been accomplished. I am obliged to express my appreciation and gratitude for the immeasurable support they offered in various ways including financial, physical, emotional and spiritual support, up to the successful accomplishment of this project work.

DR. JENNIFER DE BEER

Her unwavering and affable supervision she provided which developed my inner passion for academic writing and the value for research. You have been the rod of my triumph, your vitality and enthusiasm has steered me on even through very stressful circumstances. I highly appreciate the intellectual enriching supervision you provided to me. It has been tremendous, and is greatly cherished, without which this work would have been committed to nothing. This mission has been accomplished through you Dr. De Beer, God bless you and your family.

STUDY RESPONDENTS

To all of you who volunteered to take part in this study, I appreciate your usefulness in providing relevant information needed for this study.

I also appreciate all my friends who have been my source of energy in perilous times.

ABSTRACT

INTRODUCTION

The use of Highly Active Antiretroviral Therapy (HAART) has shown to reduce the morbidity and mortality and prolongs survival, improving quality of life restoring and preserving immunologic function, maximizing antiretroviral activity and durably suppressing viral load and further preventing vertical HIV transmission. However, their use in Critical Care Units CCU is still controversial as there are still no set standards for how HAART should be applied in these settings (Anderson, 2009). This study was aimed at exploring the perceptions of critical care nurses towards their educational preparedness in managing HIV/AIDS patients admitted to CCU in KwaZulu-Natal.

METHODOLOGY

Quantitative descriptive research design was used and data collection included a structured questionnaire and open ended questions.

RESULTS

The findings of this study indicate that of the critical care nurses who were sampled for this study and had undergone training in HIV/AIDS management, 45% and 25% respectively perceived that they were not educationally prepared to provide services for people living with HIV/AIDS admitted to CCUs. Almost all N=50 (94%) critical care nurses reported that HIV/AIDS management should be incorporated into the critical care nursing programme. Their universal perception N=42 (75%) is that this will improve the standards of nursing care in the critical care field. Over and above lack of training and updated information reported by the respondents, they are still challenged by factors such as advanced level of HIV disease, confidentiality about the disease, knowledge about a HIV/AIDS treatment regimen and emotional challenges. However, there are guiding policies within critical care settings for

nurses to utilise in the management of HIV/AIDS and in the care of people who have already been infected.

CONCLUSION AND RECOMMENDATIONS

In conclusion, more research with a larger scale sample is required to provide appropriate generalisation of the findings of the study. Alternatively a qualitative research study which may provide richer data on the lived experiences of the critical care nurses regarding care of people living with HIV/AIDS is suggested.

KEYWORDS

Critical care nursing, critical care units, education, HIV/AIDS intensive care unit, and perceptions

ACCRONYMS

ACCCN: Australian College of Critical Care Nurses

AFSA: AIDS Foundation South Africa

AIDS: Acquired Immunodeficiency Syndrome

ARV: Antiretroviral

CCU: Critical Care Unit

DoHSA: Department of Health South Africa

HAART: Highly Active Antiretroviral Therapy

HIV: Human Immunodeficiency Virus

IALCH: Inkosi Albert Luthuli Central Hospital

ICU: Intensive Care Unit

IRS: Inflammatory Response Syndrome

ART: Antiretroviral

MDGs: Millennium Development Goals

NASHSPS: National Antenatal Sentinel HIV and Syphilis Prevalence Survey

NNRTIs: Non-Nucleoside Reverse Transcriptase Inhibitors

NQF: The National Qualifications Framework

NRTIs: Nucleotide Reverse Transcriptase Inhibitors

PIs: Protease inhibitors

PJP: Pneumocystis Jirovecci Pneumonia

PLWHIV: People Living with HIV/AIDS

PMTCT: Prevention of Mother To Child Transmission

QAP: Quality Assurance Programme

RCN: Royal College of Nursing

RPL: Recognition of Prior Learning

SANC: South African Nursing Council

UNAIDS: United Nations Programme on HIV/AIDS

USAID: United States Agency for International Development

VCT: Voluntary Counselling and Testing

WFCCN: World Federation of Critical Care Nurses

WHO: World Health Organisation

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CHAPTER 1

1.1 BACKGROUND

Since the first testimony of Pneumocystis (Carinii) Jirovecipneumonia (PJP) and mucosal candidiasis in formerly healthy individuals in the USA in 1981, the pandemic of human immunodeficiency virus (HIV) infection and acquired immunodeficiency syndrome (AIDS) has reached startling magnitude (Prout and Agarwal, 2005). According to the 2010 global report by UNAIDS, the figure of people living with HIV/AIDS (PLWH) was approximated in late 2009 to 32,800,000 in the world as well as sub-Saharan Africa with 22.5 million or 68% of the world being infected. HIV/AIDS remains complex, incurable and devastating to individuals, professionals, cultures, communities and nations. Statistics South Africa (stats SA, 2011) indicates that overall HIV prevalence rate is still approximated at 10,6% in South Africa (SA) making it the third highest leading country with HIV/AIDS prevalence while remaining with the highest number of people infected with HIV worldwide. The burden of the disease is dispersedly distributed among the nine provinces of the country. The province of KwaZulu-Natal has the highest prevalence with a rate of 38.7% (Department of Health South Africa (DoHSA, 2009).

The negative impact of HIV/AIDS prevalence continues to dominate the various social sectors including health especially in the low resourced countries. The major global health challenge placed by HIV/AIDS in the health sector is the low health workforce, leading to excessive workload and burnout, high worker attrition rates with no replacement and limited entry into the workforce, since the national prevalence is directly proportional to health care workers (Tawfik and Kinoti, 2006). It further perpetuates the already fragile health systems in developing countries which are characterized by poor infrastructure, insufficient numbers of

service providers, lack of drugs and commodities and frequently poor management. Despite SA having a sophisticated health structure in some areas, the disease profile reflects that of a less developed world (De Beer, Brysiewicz and Bhengu, 2011). These effects include increased burden of disease coupled with its complications and treatment side effects, increased service needs associated with caring for these illnesses and for HIV/AIDS itself, and the inadequate and diminishing capacity to respond to these needs, central to which is the limited human resource capacity.

In spite of evident decline in AIDS related morbidity and mortality as a result of availability of antiretrovirals, its control remains challenging for health care providers (Timsit, 2005). Many HIV-infected patients are diagnosed with complex stages of the disease and with severe opportunistic events, which could require their admission to Critical Care Units (CCU). The doctrines of care in the CCUs are fixed to critically ill patients who are either HIV positive or not. Antiretroviral therapy and unanswered questions concerning its use in the CCU are other major challenges to the already intricate and complicated cases admitted to CCU. Huang, *et al* (2006) explain that these challenges include legal statutes concerning HIV testing and disclosure, the administration of antiretroviral medications, important potential drug interactions with medications commonly used in the CCU, and controversies surrounding the use of antiretroviral therapy in the CCU. Soni and Pozniak (2001) indicated that the risks and benefits of stopping or continuing antiretroviral therapy in patients admitted to the CCU are largely unmeasured. This was further affirmed by Wittenberg, *et al* (2010) as they declared that the timing of highly active antiretroviral therapy (HAART) remains controversial in critically ill patients. Factors which contribute more in making therapy difficult include the associated drug interactions, deficiency of intravenous drug formulation and known toxic side effects. In many cases therapy has to be stopped, since at the moment there is still one parenteral (zidovudine) preparation of the antiretroviral agents available.

Stopping treatment suddenly may be associated with increased risk of resistance because of the long half-life of some of the drugs and the risk of increased immunosuppression due to the viral load rebounding. Drugs given through the enteral route may be poorly absorbed, which may further interfere with the metabolism of many other compounds used in the CCU, thus increasing chances of drug resistance. Furthermore, the drugs themselves are occasionally associated with severe toxicity such as pancreatitis and lactic acidosis, which can have devastating consequences (Soni and Pozniak, 2001).

UNAIDS (2009) indicated that SA has the largest antiretroviral programme in the world. This might be related to the fact that it also has the highest incidence of infected patients. Nicolay (2008) pointed out that SA was experiencing the largest HIV and AIDS epidemic in the world with an estimated 5.6 million (12%) South Africans being HIV positive in 2008, the largest number of any country in the world, with the province of KwaZulu-Natal in the lead by 16%. Unfortunately, access to treatment is still low as it was estimated that at the end of 2009 only 37% of those infected with the virus in SA were receiving treatment for HIV, according to the latest WHO guidelines (UNAIDS, 2009).

The impact that HIV/AIDS has on the South African community has direct results on its health care system including CCUs. Nurses, being the largest single group of health care providers in this country, play an integral role in the management and delivery of health services including management of HIV/AIDS (Rispel, 2008). Therefore HIV/AIDS has a direct effect on their practice especially in CCUs where they are faced with complications of the disease progression, drug interaction and side effects of antiretroviral drugs. Perrie (2006) states that nursing today is faced with the challenge of providing high quality, cost-effective, evidence-based holistic care in a financially restricted climate, with effective protocols which basically introduce evidence-based practice into the CCUs, and have been shown to reduce morbidity and mortality and decrease the cost of critical illness.

HIV/AIDS/STD Strategic Plan for South Africa (2000-2005 and 2007-2011) in one of the priority areas focused on improving treatment, care and support for people living with and affected by HIV/AIDS. Capacity building of health professionals to provide comprehensive HIV/AIDS/STD/TB treatment, care and support was among the strategies to be utilized, and together the department of health and the training institutions were to carry this responsibility. With the increased admission rates of people living with HIV/AIDS in the critical care settings, the critical care nurses should be in a position to handle the complications arising from the progression the disease itself or side-effects of the antiretroviral treatment. However, there is no documented evidence indicating inclusion of HIV/AIDS management in the critical care nursing training programmes.

Quality of nursing care in CCU is further challenged by the HIV/AIDS pandemic and the introduction of Highly Active Antiretroviral Treatment (HAART), especially if critical care nurses are not educationally prepared to face such challenges. Scribante and Bhagwanjee (2006) declared that the responsibility for setting standards of quality with regard to critical care nursing falls on critical care nurses themselves and they are accountable in contributing to the body of critical care nursing practice by undertaking and implementing research. The understanding of HIV/AIDS management within their practice is the sole responsibility of critical care nurses. It is also their responsibility to develop educational programmes which equip them with necessary skills to deal with HIV/AIDS in critical care settings. HIV infection is now regarded as a chronic disease that may be controlled by HAART when and if it is available. Several studies have reported improved CCU outcomes for HIV-infected patients in the HAART era (Dickson *et al.*, 2007, Anderson, 2009 and Corona and Raimondi, 2009). Akgu'n *et al* (2011) also affirm that the introduction of highly active antiretroviral therapy has changed the landscape of HIV/AIDS to become a chronic disease. They further indicate that, 3 to 12% of all hospitalized HIV-infected patients require ICU admission while

25 to 40% of them has not known their HIV status or may not have been diagnosed with HIV infection. Moreover, up to 50% of HIV-infected patients are not on ART at the time of ICU admission although these patients have shown dramatic improvement since the introduction of ART (Akgu'n *et al*, 2011).

However, the ART contributes in development chronic non-HIV related diseases frequency such as pulmonary, cardiac, gastrointestinal and renal diseases, which may require admission in CCU, has increased (Huang *et al.*, 2006).

Alma-Ata declaration of 1978 states, "Primary health care is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination."

The divination as it states, focuses on various aspects of health which should be embraced by critical care nursing. These include education concerning prevailing health problems and the methods of preventing and controlling them, progressive improvement of comprehensive health care for all, and giving priority to those most in need. These concepts can well be applied to the description of critical care nursing which states that it has "evolved into a highly sophisticated and complex nursing environment, involving technical speciality that requires extensive theoretical knowledge and skills that are beyond the normal scope of nursing practice" (Charboyer, *et al.*, 2001). The application of this knowledge and skills developed from extensive learning is of fundamental value in the management of HIV/AIDS and thus the fulfilment of the millennium development goal number six which focuses on reduction of HIV infections and availability of antiretroviral drugs.

Despite high prevalence of HIV/AIDS in SA, when reviewing the annual prospectus of the ten universities which provide graduate and post graduate critical care training in the country, there is only one university which incorporates HIV/AIDS in the curriculum for critical care nursing. Based on these circumstances, the researcher is probed to explore the perceptions of critical care nurses of their educational preparedness in managing HIV/AIDS patients in KwaZulu-Natal. In spite of the extensive literature search, the researcher could not find evidence of previous relevant studies conducted specifically to assess the educational preparedness of the critical care nurses to deal with HIV positive patients admitted in CCU.

1.2 PROBLEM STATEMENT

Literature indicates that the ICU environment has various challenges to the health care personnel especially nurses assigned in these units due to its complexity, highest level of knowledge required and the nature of patients nursed in this area. Bucher and Melander (1999), Scribante and Bhagwanjee (2007) and De Beer, *et al.*, (2011) all come to an agreement that critical care unit environment is complex, unpredictable, requires in-depth knowledge of the pathophysiology of critically ill patients and skills and knowledge to use high technology equipment while care is provided in various acute life-threatening conditions.

In addition to these challenges, although the introduction of HAART has considerably reduced the morbidity and mortality associated with HIV infection, it has failed to end the HIV/AIDS pandemic (Vincent *et al*, 2004). This keeps the prevalence of HIV/AIDS constant or high and contributes to the development chronic non HIV related diseases which may complicate and eventually lead to increased ICU admissions (Coquet *et al*, 2010). Akgu'n *et al*, (2011) have indicated that up to 3-12% of all hospitalized HIV-infected patients require ICU admission. The use of HAART is aimed at reducing the morbidity and mortality and

lengthening survival, improving quality of life, restoring and preserving immunologic function, maximizing antiretroviral activity and durably suppressing viral load and further preventing vertical HIV transmission. However, their use in CCU is still controversial as there are still no set standards for how HAART should be applied in these settings (Anderson, 2009). Moreover, there are still numerous complications and challenges posed by these drugs including medication interactions, absorption, administration and adverse reactions including IRIS, which all tend to lead providers to reject the use of HAART especially in the ICU.

Review of the literature indicates that the environment of critical care units is highly technological and complex, requiring nurses of the same nature having a broad knowledge base and a high level of decision-making skills to care for patients and their families who are considered to be in vulnerable circumstances (De Beer *et al.*, 2011). In SA where the pandemic of HIV/AIDS is more rampant, there is a severe shortage of nurses working in CCU while on the other hand more HIV/AIDS patients continue to fill the critical care units (Scribante, Schmollgruber and Nel, 2004; Gillespie, 2006 and De beer *et al.*, 2011). This phenomenon raises the question as to whether nurses are educationally prepared to deal with the challenges of HIV/AIDS in the CCU settings. Especially in this period when nurses in CCU aspire to provide skilled individualised care to their patients. This requires an adequate knowledge base for suitability of care provided to patients in a given situation. Based on these facts, the researcher had an interest to investigate the educational preparedness of the critical care nurses in managing HIV/AIDS patients who are admitted to CCU in KwaZulu-Natal.

1.3 THE STUDY PURPOSE

The purpose of this study was to explore critical care nurses' perceptions of their educational preparedness in managing people living with HIV/AIDS admitted in the selected CCUs in

KwaZulu-Natal. The study further looked in to the current practice of the critical care nurses regarding care for people living with HIV/AIDS.

1.4 SIGNIFICANCE OF THE STUDY

Despite an exhaustive literature search, there were very few specific articles pertaining to the use of HAART in ICU patients or specific to management and nursing care of HIV/AIDS patients admitted to CCU and/or admissions of HIV positive patients South African ICUs. This is an indication that this area is understudied. Therefore, this study is significant in that it is the first study to explore critical care nurses' perceptions of their educational preparedness in managing HIV/AIDS patients admitted to CCU in SA. Furthermore, the knowledge generated may serve as baseline data or documentation for future reference by nursing educators, clinical practitioners and researchers as well as policy makers both locally and internationally.

In the high prevalence of HIV/AIDS which has changed the epidemiology of the diseases and complex management, this study has a potential to contribute to the existing body of knowledge of nursing practice. This is important because the critical care units may seek to improve their standards of care through incorporation of programmes like HIV/AIDS management in the critical care setup by using the findings of the study. This consequently is of benefit to the overall community as they are the consumers of nursing care services.

Finally, the researcher believes and assumes that the findings of this study may not only assist the South African context of curriculum development for critical care nursing programmes, but it will also be more significant to other developing countries where there are major challenges of HIV/AIDS prevalence. As Scribante and Bhagwanjee, (2007) suggested, critical care practices should be guided by local research, rather than making direct extrapolations from research performed elsewhere. Lessons from other countries can provide

helpful guidelines if adapted to the South African context. Developing countries with limited resources can make a valuable contribution in evidence-based critical care planning.

1.5 RESEARCH QUESTIONS

- What are the specific policies relating to admission and management of people living with HIV/AIDS in a CCU?
- What are the current practices of critical care nurses in the management of HIV/AIDS patients?
- What challenges do nurses in CCU encounter in caring for patients with HIV?
- What perceptions do nurses in CCU have about their educational preparedness in dealing HIV/AIDS positive patients?
- What is the content of the current curriculum of critical care nursing in regard to HIV/AIDS management?

1.6 STUDY OBJECTIVES

- To determine the availability of any policies for the management of people living with HIV/AIDS in the critical care settings.
- To describe the current practices of critical care nurses in dealing with people living with HIV/AIDS.
- To explore the challenges of critical care nurses in caring for a people living with HIV/AIDS.
- To explore the perceptions of critical care nurses in relation to the CCU training undergone and management of people living with HIV/AIDS.

- To describe the current curriculum of critical care nursing in relation to management of people living with HIV/AIDS admitted to CCU.

1.7 THEORETICAL/CONCEPTUAL FRAMEWORK

Conceptual framework is defined by Jabareen (2009) as a network or a thread of interlinked concepts that together provide a comprehensive understanding of a phenomenon or phenomena. The concepts that constitute a conceptual framework support one another, articulate their respective phenomena and establish a framework-specific philosophy. Guba and Lincoln (1994) give further explanation that conceptual frameworks possess ontological, epistemological and methodological assumptions, and each concept within a conceptual framework plays an ontological or epistemological role. According to them, the ontological assumptions relate to reality of knowledge about the nature and existence of the phenomenon. The epistemological assumptions relate to reality of relationship between the phenomenon and the researcher. The methodological assumptions relate to the process of building the conceptual framework and assessing what it can tell us about the real world, the processes followed to reach or obtain the reality.

Theoretical framework is the theory on which the study is based; the conceptual framework is the operationalization of the theory. Donabedian's theory of standards which measures quality assurance has been adopted as the conceptual framework for this study. This theoretical framework focuses on three elements which determine quality of service referred to as standards: structural, process and outcomes standards. These standards are important in measuring quality improvement standards, thus the first two standards will be applied in this study to measure the preparedness of the critical care nurses in caring for HIV/AIDS patients who are admitted to CCU, as is implied that preparedness is an essential element of quality service delivery especially in the case of critically ill patients. The third standard will not be used in this study since its objective is not to evaluate any programme, therefore it does not apply. A standard can be defined as an established criterion or model against which actual results can be compared (Flipppo, 1984). The table below gives a brief summary of these

standards as applied in critical care nursing educational preparedness towards patients with HIV/AIDS.

Table 1.1: CONCEPTUAL FRAMEWORK

STRUCTURAL STANDARDS	PROCESS STANDARDS	OUTCOMES STANDARDS
Philosophy and mission specific to patient care	Educational/curriculum design and implementation	The outcome standards will not be discussed in study.
Management in the CCU	Cooperation	
Policies and procedures	Determining needs	
	Development of programme	
	Facilitation of learning process	

1.7.1 STRUCTURAL STANDARDS

Donabedian (1980) refers to the providers of care, the tools and resources they have at their disposal and the physical and organisational settings in which they work as part of structural standards.

In this study, structure refers to the educational context for training of the critical care nurses in the management of people living with HIV/AIDS and the available resources that enhance their care in CCU. It also encompasses the philosophy and mission of both the critical care unit and the nurses training institution, management in the CCU, policies and procedures.

1.7.1.1 THE MISSION AND PHILOSOPHY

Incorporation of HIV/AIDS management in critical care training should comply with the mission and philosophy of the institutions involved, being the nursing school or the CCU

itself. These include ethical aspects related to nursing management such as ethical codes for the nursing profession and ethical standards which provide guidelines for what is right and reasonable (Naude, *et al.*, 2000; Puetz and Peters, 1981).

1.7.1.2 MANAGEMENT IN CCU

The focus here is on proper management and authority through clear organisational structures, where standards are set and monitored on continuous bases. Curriculum development is the major role of the clinical instructors and the school of nursing in coordination with the management in critical care settings. Coordination of governing bodies like the South African Nursing Council (SANC), the department of health of the government of South Africa and the training institutions, is of major importance for sustainability. Organisation of personnel development programmes should be considered by the management within the Intensive Care Unit (ICU) and the training institution.

17.1.3 POLICIES AND PROCEDURES

Policies for incorporation of HIV/AIDS in critical care training should be formulated within the framework of both training college and CCU philosophical statements regarding equipping critical care nurses with skills to meet challenges of caring for HIV positive patients. Policies should be applicable to different levels and should correlate with the standards of patient care in ICU. These policies should clearly state measures which should be taken when admitting HIV positive patients into ICU and the treatment they should receive. They function as a basis for decision-making and actions, identify accountability for policy implementation and clearly define the parameters of the programme, therefore, which should be included in which parts of the program (Alspach, 1995).

1.7.2 PROCESS STANDARDS

According to Donabedian, process standards are the activities carried out by educators and preceptors to meet the set standards and to facilitate the actions and procedures which are used in conducting the programme (Parsley and Corrigan, 1999). They can include leadership and managerial activities.

Process standards therefore may include some of the following actions and procedures: educational design and implementation, facilitation of learning, assessment of achievements and participation of, and cooperation between, different stakeholders. Further are needs analysis programs as well as the development and implementation of the program regarding content of HIV/AIDS management in CCU, strategies, the practice and challenges encountered by critical care nurses.

1.7.2.1 THE EDUCATIONAL/CURRICULUM DESIGN AND IMPLEMENTATION

The educational design of a personnel development program should be based on adult education principles regarding the fact that the learners to be involved are already professionally qualified individuals, registered nurses, and where necessary, the nurse educators and clinical preceptors who require to acquire new skills in the management of HIV/AIDS and maintain existing skills in order to enhance quality in the accompaniment of student nurses, and ultimately, quality of patient care. To enhance the effectiveness of the curriculum, principles of a comprehensive basic nursing programme which focus on rendering holistic and comprehensive health care, promoting critical thinking and independent learning as Gwele (1996) indicated, should be incorporated in the curriculum design. Moreover, critical care nurses, clinical supervisors and nurse educators should change their thinking orientation, integrate their knowledge and refocus their decision-making

process on perceptual awareness rather than process-orientated foundations as their clinical expertise are improved in order to meet challenges of HIV/AIDS in CCU.

1.7.2.2 PROCESS ASSESSMENT

The assessment of the process implies the gathering and interpretation of data to decide if the process of curriculum design is attaining its goal. The standards that govern the critical care nurses originate from the values and ethical principles that govern relationships between professional nurses (Donabedian, 1980). These standards contribute to the individual perceptions and understanding and thus to the entire ICU personnel, and ultimately, the effect on the patient care.

Process assessment provides information for the monitoring of the curriculum design program in order to eliminate weak points and promote strengths. Abruzzese (1992) suggests that aspects regarding the individual learner's experience be included in process assessment to determine if the principles of adult education have been used and if problems were experienced in the physical execution of the program. To enhance the assessment of process standards enlisted in Donabedian's framework, cooperation between the training college and the clinical area should be maintained to facilitate educational needs of both nurse educators, clinical supervisors, as well as the assessment of programme outcomes.

1.7.3 OUTCOME STANDARDS

Outcome standards are focused on programme performance in relation to the achievement of programme objectives and to evaluate the effectiveness of activities by assessing specific desirable changes in the actions of nurse educators and clinical supervisors in the management of HIV/AIDS patients in CCU. The evaluation of participation of the various stakeholders in the implementation of the curriculum includes the realism and feasibility of the programme in the educational context, improvement in the educational and clinical skills

of learners and changes in the quality of student nurses' academic and clinical performance. The type of patient care and patient satisfaction also needs to be evaluated. This study will not extend to the monitoring evaluation phase of the implemented standards, as its objective is merely to explore the educational preparedness of critical care nurses in the management of HIV/AIDS patients.

1.8 OPERATIONAL TERMS

1.8.1 Educational preparedness: For the purposes of this study this phrase will be defined based on the definition of the two words which have been used in its formulation, i.e. education and prepare.

1.8.1.1 Education: The process of receiving or giving systematic instruction, especially at a school or university (Oxford Dictionary, 2006).

1.8.1.2 Prepare: To make (someone) ready or able to do or deal with something (Oxford Dictionary, 2006).

It is therefore deduced that educational preparedness is the state of having been systematically instructed at a recognised institution for the purpose of such training and made ready or prepared for use or action.

1.8.2 Critical Care Nurse: A critical care nurse is a registered practitioner who enhances the delivery of comprehensive patient-centred care for acutely ill patients who require complex interventions in a highly technical environment, bringing to the patient care team a unique combination of knowledge and skills. The roles of critical care nurses are essential to the multi-disciplinary team who are needed to provide their expertise when caring for patients and their relatives (World Federation of Critical Care Nurses (WFCCN), (2005). This definition is adopted for the purpose of this study.

1.8.2.1 Critical Care Nursing: For the purpose of this study the following definition will be adopted: critical care nursing is a specialized area of nursing that involves caring for patients who are suffering from a life-threatening illness or injury or potentially life-threatening illness or injury (Bucher and Melander, 1999).

1.8.3 Critical Care Unit (CCU): This is a specifically designated area with specialised technology and personnel, where patients with unstable and life-threatening conditions are monitored and cared for (Mosby's Medical Dictionary, 2009). In this study Critical Care Unit includes all facilities where a type of specialised care can be provided including Intensive Care Unit and Trauma Care Unit.

1.8.4 ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS): This study will utilise the definition given by Merriam-Webster's Medical Dictionary (2007) which states: "AIDS is a disease of the human immune system that is characterized cytologically especially by a reduction in the numbers of CD4 helper T cells to 20 percent or less of normal, thereby rendering the subject highly vulnerable to life-threatening conditions (as Pneumocystis Carinii pneumonia) and to some that become life-threatening (as Kaposi's sarcoma) and that is caused by infection with HIV commonly transmitted in infected blood especially during illicit intravenous drug use and in bodily secretions (as semen) during sexual intercourse."

1.8.5 HUMAN IMMUNODEFICIENCY VIRUS (HIV): This refers to a virus which attacks infection fighting blood cells (CD4 cells) and other cells of the body's immune system, either of two retroviruses that infect and destroy helper T cells of the immune system causing the marked reduction in their numbers that is diagnostic of AIDS (Merriam-Webster's Medical Dictionary, 2007). This definition is assumed to be suitable for this study.

1.8.7 PERCEPTIONS: The process by which organisms interpret and organise sensation to produce a meaningful experience of the world, on the other hand, better describes one's ultimate experience of the world and typically involves further processing of sensory input (Lindsay and Norman, 1977). The definition is accepted in this study as it is.

1.8.8 HIV/AIDS patients: Since the researcher did not find the definition of HIV/AIDS patient in literature, it is assumed that HIV/AIDS patients refers to people who are HIV

positive or have AIDS and require nursing and/or medical care and/or treatment in the critical care unit either for HIV-related conditions or any other disease that the patient might be presenting.

1.9 CONCLUSION

In this chapter the overall background of the study was highlighted, the area to be researched, which includes the significance, purpose and objectives of the study, together with the research questions, were stated. The conceptual framework that guides this study was also explained.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The purpose of this review was to familiarise the researcher with the existing knowledge base about the topic, establish, gather and synthesize literature related to the training and practice of Critical Care Nurses, the factors that contribute to their existence and practice with major focus of the perceptions they have in relation to their educational preparedness in the management of HIV/AIDS patients. Related articles and books were used from the library and a computer-based literature search on EBSCO host databases was also consulted. The following databases were used for literature search: CINAHL, Medline, ERIC, Africa-wide and Health Source: Nursing/Academic Edition. Through Elsevier, The Free Library and Science Direct other articles were also accessed.

The search focused on papers published between 2006 and 2012 not excluding those of pre-2006 for relevant information which was not currently updated. Key terms and phrases used for the search were critical care, critical care nursing, critical care nurse, intensive care, intensive care nursing, intensive care nurse, AIDS, HIV, HIV/AIDS, HIV/AIDS and nursing, nurses shortages, impact of HIV/AIDS on health care workers, nurses and critical care nurses, HIV/AIDS training for professional nurses, HIV/AIDS clinical management, critical care nursing in South Africa, ICU incidences in South Africa, admission of HIV positive patients in South African ICUs, epidemiology of HIV in ICU, care of critically ill patients, trauma and intensive care nursing, perceptions of critical care nurses, admission of patients in critical care units, policies, education and training of critical care nurses, curriculum for critical care nurses and the duties and responsibilities of a critical care nurse. The reviewed literature

indicated a very limited recent literature related to this topic, and as a result this review includes articles beyond 2000 which have more relevant information.

2.2 THEORETICAL UNDERPINNING

The theoretical underpinning used in this study follows the principles of adult learning as presented by Knowles (1996). He identified six principles which facilitate and motivate learning for the adult learner in the learning process. This theory accentuates the value of experience and self-directedness in adult learning and implies that adult learners benefit most from experientially-based positivist learning environments. The application of these principles relates to the structure and process standards discussed under the conceptual framework in Chapter 1. They are influenced by the philosophy and mission of both the critical care unit and the nurses training institution, CCU management strategies, policies and standards of care. These principles are also linked to the process standards such as curriculum design and implementation, facilitation of learning, assessment of achievements and participation of, and cooperation between, different stakeholders.

2.2.1 Self-concept expresses adults that develop and mature and become more self-directed and independent. As a result, they have freedom of choice on what they want to learn, when they want to learn it and how they want to learn (Merriam, Caffarella and Baumgartner, 2007). This assumption implies that nurse educators should create an environment which will allow nurses to make decisions on their education process including participating in designing their training programme, theory and practical examinations.

2.2.2 Experience: Adult learners are equipped with various life experiences which provide a wider foundation of experience for new knowledge and skills. In the case of critical care nurses, they have gathered experience from their personal encounters and experience gained through basic training and development in the profession. Because of this, they are able to

contribute richness to class discussions and are considered valuable resources for learning from and with each other. Some of the experiences though, may cause misinformation or biases related to the new learning and must be clarified so as not to cause a barrier to the new learning. Knowles (1996) advises that it is now for the trainer to design training activities that reflect the actual work the learners perform and provide activities that permit learners to compare the theoretical aspects of the training with their experiences.

2.2.3 Readiness to learn depends on need. Whether or not an adult is ready to learn depends on what they need to know in order to deal with life situations (Merriam *et al.*, 2007). This concept warrants that the training programmes for critical care nurses should be in line with their clinical area needs. The training programme should be designed to improve areas where there are deficiencies which affect the daily practice of the critical care nurses (CNNs) such as management of people living with HIV/AIDS.

2.2.4 Problem centered focus. Adults need to see the immediate application of learning, and therefore, they seek learning opportunities that will enable them to solve problems. Adults, by virtue of life and work experiences, develop a task-centered or problem-centered orientation to learning. If training is developed around problem solving, then adults will learn content with the intention of using it (Knowles, 1996 and Merriam *et al.*, 2007).

2.2.5 Internal motivation. According to Merriam *et al.* (2007) the internal motives such as self-esteem, better quality of life and self-actualisation, are the major driving forces for the adult although the external motivators such as learning opportunities and peer pressure may also play a major role to motivate learning desire.

2.2.6 Adults need to know why they need to learn something. Adults need to know what's in it for them - how this new knowledge will solve a problem or be immediately applied.

2.3 THE SCOPE OF HIV/AIDS PANDEMIC

Reynolds and Quinn (2010) claimed that over the past 28 years, the HIV pandemic has spread to all areas of the world and it continues to be associated with high rates of morbidity and mortality, particularly in developing countries. This is inconsistent with the United Nations Joint Programme on HIV/AIDS (UNAIDS, 2011) statistics which estimated that there were 34 million people living with HIV infection and 2.7 million new infections. This indicates the constant large number of new HIV infections and a considerable development of access to antiretroviral therapy, which has helped reduce AIDS-related deaths, while the prevalence of the disease is also constant. Unfortunately, sub-Saharan Africa remains the region most heavily affected by HIV. About 68% of all people living with HIV resided in sub-Saharan Africa in 2010, a region with only 12% of the global population. Furthermore, 70% of new infections were counted in this region in 2010, even though this was a remarkable decline in the regional rate of new infections. South Africa continues to be the most affected country which was estimated to have 5.6 million people living with HIV/AIDS, more than any other country in the world (UNAIDS, 2011).

The pandemic has impacted in different ways in different countries and aspects of life with the health system being the most affected. Members of the health sector are affected by HIV/AIDS through being infected themselves as members of the community while on the other hand they have to care for people living HIV/AIDS. Smit (2005) declared health care workers, more than any other profession in society, are to an increasing extent becoming engaged in caring for people living with HIV/AIDS. Nurses in particular are the group of care givers who have regular and prolonged contact with such patients. The HIV/AIDS pandemic poses a great challenge on health care providers including the nurses, especially CCNs, who are faced with the complications of the disease and side effects of its treatment. The AIDS

epidemic is one of the most destructive health crises of modern times, ravaging families and communities throughout the world (Ashford, 2006).

Nonetheless, the world both in developed and developing countries, has implemented measures to curb the infection rates and providing necessary care for those who have already been infected or are sick with the disease. This is achieved through employing preventive measures and distribution of antiretroviral treatment. In 2009 alone, 1.2 million people received HIV antiretroviral therapy for the first time, an increase in the number of people receiving treatment of 30% in a single year. Overall, the number of people receiving therapy has grown 13-fold, more than five million people in low- and middle-income countries, since 2004. Expanding access to treatment has contributed to a 19% decline in deaths among people living with HIV between 2004 and 2009 (UNAIDS, 2010). The decreased mortality rate related to HIV/AIDS indicates a high prevalence rate thus many people may be admitted to hospitals and eventually to the CCU with HIV-related complications.

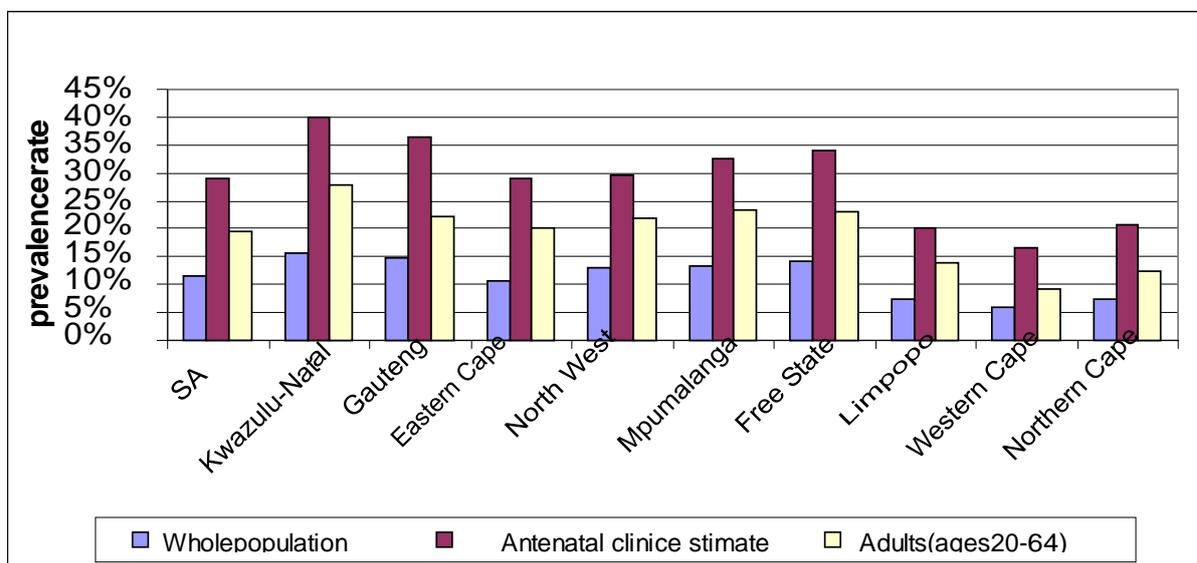
2.4 HIV/AIDS IN SOUTH AFRICA

The UNAIDS (2009) Global Report Epidemic Update estimated that in 2008, 310 000 people died from AIDS in South Africa. South Africa has been estimated to have the highest number of people infected with HIV worldwide, at approximately 5.3 million, together with 220 000 children under the age of 15 years, in 2008, and is consequently considered as having the most severe HIV epidemic in the world (UNAIDS, 2009).

The distribution of the disease is not experienced uniformly across the country's provinces and nations. The nationwide average of HIV positive women attending antenatal clinics in 2008 was 29.3%. The province of KwaZulu-Natal continues to have the highest prevalence at 38.7% and the lowest recorded prevalence of women attending antenatal clinics was in the Western Cape at 16.1% (DoHSA, 2009). According to a 2006 study by The South African

Department of Health, 13.3% of 9,950 Africans that were included in the poll had HIV. Out of 1,173 whites, 0.6% had HIV. These numbers are confirmed in a 2008 study by the Human Sciences Research Council that found a 13.6% infection rate among Africans, 1.7% among Coloureds, 0.3% among Indians and 0.3% among Whites. The infections remain high among mature age groups in South Africa, while new infections among teenagers seem to be on the decline (UNAIDS, 2008). The figure 2.1 below gives a clearer summary of the provincial distribution of HIV and AIDS statistics in South Africa prepared by Nicolay (2008).

Figure 2.1: Provincial distribution of HIV prevalence in South Africa, 2008



AIDS Foundation South Africa (2010) declared that South Africa features a considerable capacity challenge in intensifying the ART programme, especially during this climate of global economic recession. South Africa already has the world’s largest ART programme which must be expanded in a long-term, sustainable fashion. Once a patient has started on ART he/she must maintain their treatment regime without interruption or otherwise they are at risk of developing a drug-resistant type of HIV, a subject which has massive repercussions for local and global management programmes. Consequently, treatment accessibility and delivery must be sustainable. Further, discussions within the HIV and AIDS sector over suitable management regimens have slowed the development of South Africa’s treatment

programme, with cheaper ARV drugs which have better reported side effects in patients probably being phased out and replaced (AIDS Foundation South Africa, 2010). Sustainability of HIV programmes is very important in the nursing fraternity because nurses are continuously involved in the care of people living with HIV/AIDS in all social aspects including in their communities and while hospitalised. Therefore, their main challenge is to address the issues of training programmes which will cater for the care of such people.

2.5 HIV/AIDS IMPACT ON HEALTH CARE SYSTEM

One of the major global health challenges today, especially in the low resourced countries, is the influence of the HIV/AIDS epidemic on the health workforce, which leads to excessive workload and burnout, high worker attrition rates with no replacement and limited entry into the workforce (Tawfik and Kinoti, 2006). WHO (2008) confirmed more than 800 000 shortage of health care workers in sub-Saharan Africa which has severely hit the area. Tawfik and Kinoti (2006) argued that in order to achieve the Millennium Development Goals (MDGs) for reducing child mortality, improving maternal health and combating HIV/AIDS, malaria and other diseases, the human capacity requires new policies at the global, national, organisational and community levels. But impacts of HIV/AIDS on the health workforce and health systems are an added insult to the already fragile health systems in developing countries which are characterized by poor infrastructure, insufficient numbers of service providers, lack of drugs and commodities and frequently poor management. The high statistics of HIV prevalence in the South African community has reflected a direct impact on the health care workers as 16% of health care workers are HIV positive themselves, including nurses. Despite South Africa having a sophisticated health structure in some areas, the disease profile reflects that of a less developed world (De Beer *et al.*, 2011). The changed landscape of the disease causes the increased demand for preventive and curative services to respond to the epidemiological and clinical impacts of the pandemic. These effects include

increased burden of disease, increased service needs associated with caring for these illnesses and for HIV/AIDS itself, and the inadequate and diminishing capacity to respond to these needs, central to which is the limited human resource capacity.

The increased disease burden demands that health service providers are readily prepared to face such challenges, e.g. complications that arise from disease progress complications like meningitis, pneumocystis carinii pneumonia (PCP) together with treatment interactions and side effects. The burden of HIV/AIDS has led to the concept of task shifting being increasingly promoted as a way of rapidly expanding human resource capacity (Zachariah, *et al.*, 2009).

Admissions of PLWH to CCU in SA are presumed characteristic to the global arena as patients admitted to ICUs in SA are typically admitted for various reasons including HIV-related conditions. The long-term care needs for people living with HIV has brought challenges whereby nurses need to expand their roles beyond the direct provision of care. The expanded roles include prescribing of medicines and the overall management of HIV/AIDS programmes, traditional training and the supervision of less skilled health-care workers. Tawfik and Kinoti (2006) in their background report paper on world health, indicated that HIV/AIDS with its new programmes and campaigns such as voluntary counselling and testing (VCT), training family members and local support groups for home-based care, initiation of ART, prevention of mother to child transmission (PMTCT) treatment of opportunistic diseases, has also added to the already existing workload for health workers. These are the challenges which face nurses and other health care workers and thus threaten the ability of the communities especially in countries where there are low resources and a high prevalence rate of HIV/AIDS such as in Southern Africa, to respond to the epidemic (Tawfik and Kinoti, 2006).

The United Nations Department of Economic and Social Affairs (Population Division, 2011) devised a conceptual framework which gives a clear illustration of the impact of the HIV/AIDS epidemic on the health sector. This conceptual framework demonstrates that HIV/AIDS affects the health sector in many ways but most importantly the resultant is the decline or poor supply and quality of health care services. The increase in the number of people living with HIV/AIDS in the community, which directly indicates the prevalence in the health care personnel, together with more health care services being diverted to HIV/AIDS management and treatment, leads to increased demand for health care services and shortage of resources for other health care needs, especially more severe in the low income states where the health care services were already poor even before the impact of HIV/AIDS. Absenteeism due to illness, stress related to increased health care needs of people living with HIV/AIDS and death of the health care workers demoralise the remaining working group. Together all these factors contribute to the poor health care services in the affected countries.

Tawfik and Kinoti (2001) in their study on the impact of HIV/AIDS on the health sector in sub-Saharan Africa, which focused mainly on the issue of human resources, indicated that health care personnel just like the general society are subject to similar risks of HIV/AIDS with the main mechanism of disease transmission being sexual contact. They are subject to age-specific risks and the effects of income, education and social status on their sexual behaviour. The epidemic further impacts on human resources by tumbling the capacity of the health structure to respond to the instantaneous considerable shifting of demand for services both directly and indirectly. The direct costs incorporate permanent loss of labour, disability and death benefits and rising medical aid costs. Indirect costs include absenteeism and funeral attendance, reduced productivity, a demoralized and stressed workforce, additional staff recruitment, retraining and training of new personnel (Tawfik and Kinoti, 2001).

Critical care units are not an exception in this phenomenon as Williams, Schmollgruber and Alberto (2006) declared that the shortage of nurses in general and of critical care nurses particularly has been renowned in many countries around the world including South Africa. Research shows that a shortage of nurses contributes to deaths in hospitals that would otherwise have been avoidable. The shortage of nurses is therefore literally a matter of life and death (Report by Solidarity Research Institute, 2009). The CCU is also facing the challenge of nursing staff shortages as Scribante, *et al* (2004) and Gillespie, (2006) declared: “Currently in South Africa, there is a huge intensive care trained nurse crisis.”

2.6 NURSING EDUCATION AND TRAINING IN SOUTH AFRICA

South African Nursing Council (SANC) was vested with the responsibility of the promotion and maintenance of standards in nursing by the government of South Africa in 1978 and 2005 through the Nursing Act No. 50 of 1978 and No. 33 of 2005). This constitutional organisation is accordingly faced with the responsibility of monitoring the progression of nursing education and its effects in diverse structures, in different institutions, warranting that the public receives quality, safe and ethically sound nursing care within the scope of the Constitution, Act No. 108 of 1996 (Mekwa, 2000). Mekwa further indicated that since the introduction of formal education for nurses and the establishment of SANC, there has been involvement of numerous nursing programmes which have been introduced in response to the needs and challenges of the day. The programmes which have been introduced into nursing include critical care nursing which was described by RCN (2003 cited in Adams, 2009) as a registered nurse who has adequate knowledge, clinical skills and competence to meet the needs of the critically ill patients without direct supervision and working in an environment with patients who are suffering from life-threatening illnesses or injuries, while at the same time offering comfort and support to their family members (De Beer *et al.*, (2011). However, SANC has not produced scope of practice specific to critical care nurses. SANC regulation R.

2598 of the Nursing Act of 1978, under registered nurses regulation, briefly states: “The scope of practice of a registered nurse shall entail the acts or procedures which may be performed by scientifically based physical, chemical, psychological, social, educational and technological means applicable to health care practice.”

Since these acts and procedures described in this scope are not specialisation-specific and are not always well understood by the practising critical care nurses, Scribante, Muller and Lipman (1995) took an initiative to interpret these regulations in the context that can be clearly understood by critical care nurses. In this interpretation there is much elaboration and emphasis on critical care nurses being fully knowledgeable, skilful and understanding of the basic principles of a critical care unit and further, critical care nurses should be able to consult with the other registered person(s), such as a medical doctor or a registered critical care nurse for more options of patient management. The in-depth knowledge and understanding of the programme of treatment to be executed or the prescribed medication including the pharmacokinetics and pharmacodynamics of each drug administered based on the individualised patient needs are of fundamental value to the practice of critical care nurses. If the registered person who prescribed the treatment or medication makes a mistake, and the critical care nurses who executes the treatment or gives the prescribed medication does so without questioning the prescription, she and the registered person are both accountable for the wrong action. The regulations do not specify or limit any route of medication administration, however, the critical care nurses should have the ability (knowledge and skill) when medication is given via a specific route e.g. SANC views epidural analgesia as part of the registered nurse’s scope of practice. Safe use of monitoring devices, both invasively and non-invasively, comprises an important part of the critical care nurse’s direct patient care function. It is the critical care nurse’s responsibility to gain the necessary knowledge and skills to use new technology safely. Lastly and most importantly

these 20 responsibilities, including supervision and maintenance of bodily mechanics, oxygen supply, acid base status, fluids and electrolyte levels of patients are for better, improved and high quality care to the patients receiving services in the critical care unit and thus anything that is left out automatically falls outside this scope of practice (Scribante *et al.*, 1995).

SANC in its Draft Charter of Nursing Practice of September 2004 acknowledged that changes in both the health care system and the education system have created numerous challenges for nursing education and training. Some of the challenges spelled out in this draft are:

- Ensuring National Health Priorities are addressed in all nursing education programmes.
- Creation of a cadre of nurses who are lifelong learners and critical thinkers.
- Access to nursing education by learners is limited due to the slow implementation of the National Qualifications Framework (NQF) in the health sector.
 - Selection and recruitment criteria in many instances remain restrictive limiting access to nursing qualifications.
 - The distinct nursing qualifications for each category of nurse is not in keeping with the NQF principles and thereby limiting access to higher education training opportunities for existing enrolled and auxiliary nurses.
 - Recognition of Prior Learning (RPL) as a selection criterion is not widely applied because RPL assessment is complex, costly and there is a general lack of knowledge on how to give recognition to prior learning.

The draft further elaborates the concept of comprehensive training of nurses who will provide nursing care in various contexts (primary health care, institutional/hospitals, midwifery and mental health settings) and in both rural and urban settings. This concept does not imply or

focus on attaining separate qualifications but rather on the ability to integrate knowledge and skills for the provision of comprehensive nursing care. Nursing Strategy for South Africa (2008), implemented by the then minister of health Dr. Manto Tshabalala-Msimang, MP, with its main purpose of how to address the challenges faced by nursing in South Africa, focused on six identified areas, namely nursing practice, nursing education and training, nursing leadership, nursing regulation and resources for nursing.

The acknowledgement by SANC about the challenges facing nursing education and South African nursing strategy may contribute in the control of the HIV/AIDS pandemic. Tawfik and Kinoti (2006) affirm that HIV/AIDS has changed the landscape of disease in the developing world, especially in Africa, due to a resurgence of common conditions and therefore increased demand for preventive and curative services to respond to the epidemiological and clinical impacts of the pandemic. Comprehensive nursing education and training play an important role in the production of well-trained and properly groomed nurses especially with programmes which are of national priority such as HIV/AIDS management. There is no evidence of a HIV/AIDS management programme being currently incorporated into the critical care nursing curriculum.

2.7 CHALLENGES IN CCU

The universal definition of „critical care nurse“ provided by the World Federation of the Critical Care Nurses (WFCCN) (2005) states that, “a critical care nurse is a registered practitioner who enhances the delivery of comprehensive patient-centred care for acutely ill patients who require complex interventions in a highly technical environment; bringing to the patient care team a unique combination of knowledge and skills. The roles of critical care nurses are essential to the multidisciplinary team who are needed to provide their expertise when caring for patients and their relatives” (WFCCN 2005). This definition is assumed to be more elaborate and comprehensive for the anticipated activities of the critical care nurses in different settings. It is therefore found to be applicable to this study and to the critical care settings in South Africa. Ontario Critical Care Nurse Training Standards (OCCNTS) (2005) states that the skills and knowledge of a critical care nurse are applied across the domains of early recognition and intervention, risk management, recovery and rehabilitation in the care of critically ill patients. When survival is not possible it is the nurse who supports the patient and family through the process of dying and early bereavement (Department of Health, UK, 2001). Australian Council of Critical Care Nurses (ACCCN) (2005) and the Royal College of Nurses (RCN) (2003) both agree that a skilful and experienced critical care nurse utilises: advanced problem solving, decision making and communication skills to provide proactive, safe and effective care when undertaking continuous complex monitoring and assessment, administering, co-ordinating and evaluating high-intensity therapies, responding promptly to sudden changes in a patient’s condition and in providing information and emotional support to patients and relatives. These skills and experience are well attained and acquired through continuous learning and practice of patient care in the field of critical care nursing. This field is dynamic, complex and challenging especially in this era of HIV/AIDS and the use of antiretroviral drugs.

The existence of antiretroviral drugs has brought anticipation to the control of HIV/AIDS in individuals, communities and nations. The lives of the victims have been improved and sustained with the commencement of the therapy but challenges come to face out when complications and site effects emerge during management of these patients. Huang *et al.* (2006) declared: “Antiretroviral therapy has increased the life expectancy of patients who are infected with the human immunodeficiency virus (HIV) and has reduced the incidence of illnesses associated with the acquired immunodeficiency syndrome (AIDS). However, the frequency of pulmonary, cardiac, gastrointestinal, and renal diseases that are often not directly related to underlying HIV disease has increased.” They further demonstrate that the use of antiretroviral therapy in critically ill patients presents diverse challenges associated with delivery of drugs, their doses, interactions together with the toxic effects associated with the antiretroviral.

Currently, there are more than 20 antiretroviral medications on the market categorised into three major classes of medications, namely Nucleoside (and nucleotide reverse transcriptase inhibitors (NRTIs), Non-nucleoside reverse transcriptase inhibitors (NNRTIs) and Protease inhibitors (PIs). Their use is aimed at reducing morbidity and mortality and prolonging survival, improving quality of life, restoring and preserving immunologic function, maximizing antiretroviral activity and durably suppressing viral load and further preventing vertical HIV transmission. However, their use in CCU is still controversial as there are still no set standards for how HAART should be applied in these settings (Anderson, 2009). Anderson (2009) further elaborates: “The regimen is extremely difficult to maintain in ICU patients, who are typically unable to eat. Some of the medications require food for absorption, while others need to be taken on an empty stomach. This presents problems in the CCU for patients on continuous tube feedings. Medications such as saquinavir, a protease inhibitor, require high fat meals for absorption. This is in direct contrast to amprenavir, a

protease inhibitor, where high fat meals should be avoided. Administration of medications can also cause issues. Only Zidovudine and NRTI can be given intravenously. Some medications come in oral suspension, while others can be crushed and both can be given via a gastric tube. Still, others have to be taken whole for appropriate absorption due to their enteric coatings. Patients in ICU are also typically on proton pump inhibitors (PPI) for prophylaxis of stress ulcers. Many HAART medications need stomach acids for absorption, which conflicts with the PPI regimen, making continuing appropriate medication dosages difficult. Due to their side effects, HAART medications can also cause new problems in ICU patients. This can make it difficult for clinicians to distinguish between worsening of a patient's conditions due to progression in the presenting illnesses, or a compounding complication due to HAART.

The HIV/AIDS pandemic adds to the dynamic and complex nature of the CCU environment. It has increased the burden in CCU through its association with the advanced opportunistic infections such as PCP and pulmonary Kaposi's sarcoma together with the changing epidemiology which in most instances require treatment modifications. The highly specialised technology and the nature of patients admitted to the CCU make it more complex, unpredictable and further challenging. These require that critical care nurses are well trained with the necessary skills to utilise this specialized equipment and to determine the pathophysiological changes in a critically ill patient (Scribante and Bhagwanjee, 2007).

These challenges are further aggravated by shortages of staff and the clinical features of patients with a HIV infection who are presented to CCUs. Shortages of critical care nurses may be related to the mortality of nurses related to the disease and migration whereby clinical staff migrates to non-clinical health professions, and health professionals migrate to non-health careers. Geographically, migration patterns are both internal within the country and

external to other regions or continents for better pay and working conditions (Tawfik and Kinoti, 2006).

These challenges call for educationally prepared critical care nurses who will demonstrate such skills as those explained in the previous paragraphs. Akgu'n *et al* (2011) has indicated that, HIV-infected patients often benefit from aggressive ICU care, with survival approaching that of HIV uninfected ICU patients. However, complications such as drug interactions and toxicities of ART can occur in critically ill patients, therefore, ICU personnel require being familiar with ART use in the ICU. In the event of HIV positive patients being admitted to the CCU, critical care nurses need to be theoretically and clinically knowledgeable about the complex issues related to efficacy and toxicities of ART.

Despite the evidence that HAART tremendous improvement in the lives of PLWH, there are still complications directly related to their antiretroviral therapy. Anderson (2009) indicates that nucleotide reverse transcriptase inhibitors (NRTIs) are associated with potentially fatal liver toxicities such as lactic acidosis and hepatotoxicities. These are a result of mitochondrial toxicity which is secondary to altered synthesis of adenosine triphosphate-generating mitochondrial enzymes.

Hypersensitivity and high drug to drug interactions are common side effects of the Non-nucleoside reverse transcriptase inhibitors (NNRTIs). It is further evident that combination of NNRTIs and PIs can inhibit Cytochrome P34A isoenzyme of cytochrome P450, resulting in possible toxic accumulations of drugs that rely on cytochrome P450 metabolism for their termination of action. These accumulated toxins result in development of premature atherosclerotic diseases such as coronary syndrome which warrants ICU admission. These abnormalities include elevated triglycerides, hypercholesterolemia, decreased high density lipoprotein, glucose intolerance diabetes

Immune Restoration Inflammatory Syndrome (IRIS) may also develop after initiation of HAART resulting from improvement in the immune system and a renewed inflammatory response directed against infectious agents, particularly those of the opportunistic infections (Corona and Raimondi 2009).

Nurses in ICUs are faced with the understanding of the principles of HIV/AIDS management including drug interactions of the ARVs and other drugs that are commonly used in CCU, care of complications of the side effects of the drugs such as metabolic acidosis or care for HIV/AIDS patients with other conditions which are not related to HIV/AIDS. These challenges require that critical care nurses have to be adequately trained in the management of HIV/AIDS cases. It is currently difficult for the researcher to exclude or understand the current practises of nurses who care for HIV/AIDS patients admitted to CCUs. Literature reviewed so far clearly indicates that the management of HIV/AIDS patients is very complex in CCUs, but unfortunately there is limited literature specifically focused on this phenomenon.

The nursing profession in this era of HIV/AIDS is faced with the challenge of providing high quality of care, cost-effective, evidence-based holistic care while nations are faced with acute crises of severe shortages of qualified health personnel as a result of the pandemic. In the era of HAART, Curriculum development, education strategies and clear policies can help critical care nurses to meet challenges imposed by HIV/AIDS in critical care units.

1.9 CONCLUSION

This chapter focused on review of the literature related to the research topic. The theoretical framework underpinning the study was discussed. The review of literature focused on the discussion of the scope of the HIV/AIDS pandemic, HIV/AIDS in South Africa, HIV/AIDS impact on the health care system's CCUs, South African nursing education and training and challenges in CCUs.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

Ranjit, (2005) affirms that research is accepted within a background of traditions and philosophies and uses methods, approaches and techniques that have been verified for their validity and reliability. It is designed to be unbiased and objective. The selection of a research approach forms the base of a research design and is possibly the single most important decision the investigator has to make. Polit and Beck (2008) further confirm that research methods are the techniques researchers use to structure a study and to gather and analyse information relevant to the research question. Adherence to these principles enables the process to be called research. Research is armoured by a prototype or the researcher's own intellectual understanding of the phenomenon.

3.2 RESEARCH PARADIGM

Guba and Lincoln (1994) described a paradigm as a set of basic philosophies or metaphysics that deals with ultimates or first principles. Research represents a world view that defines for its holder the nature of the world, the individual's place in it and the range of possible relationships to that world and its parts, as for example, cosmologies and theologies do. These philosophies are basic logically because they must be accepted simply on principle of faith, nonetheless, there is no way to establish their ultimate truthfulness" (Guba and Lincoln, 1994). This was further confirmed by Creswell and Plano Clark (2007) who explain that a paradigm is the individual's view towards the world which ultimately influences the design and conduct of research. In short, paradigm is a world view, a whole framework (individual's mental representation of a subject) of beliefs, values and methods within which research takes

place. It is this world view within which researchers operate. It formulates a model for research processes. Brink (1996) emphasises that each researcher must decide what assumptions are acceptable and appropriate for the topic of interest and then use methods consistent with that paradigm.

The proposed study that aimed to explore critical care nurses' perceptions of their educational preparedness in managing HIV/AIDS patients in KwaZulu-Natal followed the positivist paradigm using the quantitative methodology. The choice of the positivist paradigm is based on the premise that real events can be observed empirically and explained with logical analysis. The criterion for evaluating the validity of a scientific theory is whether the theoretical predictions are consistent with the information obtained using our senses (Kaboub, 2008). According to positivism, science quantitatively measures independent facts about a single apprehensible reality (Healy and Perry, 2000). In other words, the data and its analysis are value-free and data does not change because they are being observed. That is, researchers view the world through a "one-way mirror" to have a full understanding of the phenomena under study (Healy and Perry, 2000). Positivist ontology is founded on the grounds of the empiricist traditions, on natural science, and discerns that social science has similar abilities as natural science. The positivist epistemology of objectivism described by Crotty (1998) emphasises that knowledge exists independently outside of the researcher's conscience. Marshall and Rossman (2006) dictate that the positivist learning outline undertakes that research can be value-free, with the researcher and researched unconnected in the research process. As a result, researchers seek to eliminate bias and produce objectivity in their studies. This study was also under the guidance of the positivist methodology which attempts to reduce truth to its smallest possible component and offers a presumed way of intervening to create a more desired outcome (Marshall and Rossman, 2006).

3.3 RESEARCH DESIGN

“Research design is a blueprint for conducting a study. It maximizes control over factors that could interfere with the validity of findings (Burns and Grove 2009).” It is the complete plan for answering research questions and achieving its objectives.

Quantitative descriptive research design attempts to describe systematically a situation, problem, phenomenon, service or programme, or provides information about, say, the living condition of a community, or describes attitudes towards an issue. These designs describe what actually exists, determine the frequency with which it occurs, and categorizes the information. Descriptive research is the exploration and description of phenomena in real life situations (Burns and Groves, 2011). Sousa, Driessnack and Mendes (2007) state that in descriptive studies the researcher observes, describes and documents various aspects of a phenomenon without manipulation of variables or search for cause and effect related to the phenomenon. The researcher utilized this approach because it describes that which can be empirically verified and what already exists, thereby providing a basis for future research. The current challenges in critical care nursing practice and standards of care in regard to HIV/AIDS management were determined and identified.

3.4 RESEARCH SETTING

The study was conducted in CCUs in two hospitals in KwaZulu-Natal. With a total area of 94 361 square kilometers, KwaZulu-Natal is roughly the size of Portugal. While it is the country’s third-smallest province, taking up 7.7% of South Africa’s land area, it has the second-largest population, estimated at 10.6-million people in 2010 (Statistics South Africa, 2011). One of the most urgent crises facing the province is the unparalleled prevalence of HIV infection among its citizens. South Africa as a whole has more HIV positive citizens than any other nation. Among South Africa’s provinces, KwaZulu-Natal has the highest rate of HIV infection at 39% (UNAIDS, 2009). Two hospitals, one private and one public, were

selected from eThekweni municipality which is a municipality in the province which is hit hard by HIV/AIDS.

Hospital A is a public private partnership central hospital, is a central and a tertiary care referral hospital. It is the first large-scale new hospital to be built in South Africa since 1994. As a central hospital, this hospital provides highly specialized care for the entire KwaZulu-Natal population. It has 846 beds, including 46 burns unit beds, 75 intensive care unit beds and 96 high-care beds. In addition, it has a capacity for 200 additional beds. The hospital has 16 operating theatres, two trauma operating theatres and a burns operating theatre.

Glenwood is a suburb near the Durban city centre and forms part of the eThekweni Metropolitan Municipality, which also includes Durban. The area is surrounded by public institutions such as schools, churches, shopping malls health centers and hospitals. Hospital B is one of the largest private hospital groups in South Africa situated in this area providing the vast majority of health services including critical care settings. The critical care settings in this hospital include 11 bed cardio-thoracic intensive care unit, 14 bed intensive care unit for patients recovering from major neuro, cardiac, orthopaedic and general surgery and a 24-hour trauma and emergency unit.

3.5 POPULATION

According to Bryman (2006), population is the universe of units from which the sample is selected. These units may be people, animals, towns, regions, red blood corpuscles, or any other form of subjects under study. Burns and Grove (2009) affirm by further denoting that the target population is the entire set of individuals or elements that meet the sampling criteria, or the complete set of persons or objects that possess some common characteristic that is of interest to the researcher (Brink, 1996). Target population in this study was the nurses working in CCUs of the two hospitals in KwaZulu-Natal.

Table 3.1: summary of the population size

HOSPITAL AND UNIT		POPULATION	
Hospital A	ICU 1	2	
	ICU 2	21	
	ICU 3	22	
	ICU 4	12	
	ICU 5	6	
	High care 1	2	
	High care 2	2	
	Trauma ICU	6	
	Burns adult ICU	6	79
Hospital B	SICU	12	
	CICU	5	
	GICU	4	21
Total			100

3.5.1 SAMPLE AND SAMPLING METHOD

A sample consists of a selected group of elements or units from a defined population. Sampling is a process of selecting a portion of the study population to represent the entire population (Burns and Grove, 2009). Strydom (2005) dictates that the rationale for sampling is to attempt to understand the population from which it is drawn thus providing clarification of certain characteristics of the population under study. The main reason for sampling is therefore feasibility, taking into consideration factors such as cost, effort and time. Likewise, it would be difficult to process, analyse and interpret the huge amount of data produced if the

population is too large, in which case it would be more feasible to study only a portion of the population (Strydom, 2005).

3.5.1.1 NON-PROBABILITY SAMPLING

Neill (2003) emphasises that non-probability sampling does not involve the use of randomization. Therefore, to be considered representative, non-probability sampling methods cannot rely on the theory of probability, rather purposive and or convenience sampling can be used to get a representative sample relying on techniques other than randomization. In this study, a purposive convenience sampling method was used based on the facts discussed below.

A purposive sampling method was used to select CCU nursing expert participants to assist the researcher with the information required for the purpose of this study. This guaranteed that those who are particularly knowledgeable regarding critical care nursing were selected as it is the assumption of the researcher that this sample was very appropriate for this study. Purposive sampling is predominantly applicable when the researcher is focusing on exploring the universe of the subjects. This means using common sense and the best judgment in choosing the right habitations and meeting the right number of people for the purpose of the study. In general, various writers strongly believe that in purposive sampling, the sample consists of participants who have the most typical or representative attributes and characteristics of the population based on the researcher's judgment (Cohen, Manion and Morrison, 2000; Neuman, 2006; Strydom, 2005; and Tashakkori and Teddlie, 1998).

In convenience sampling, the samples are selected because they are accessible to the researcher. Subjects are chosen simply because they are easy to recruit. This technique is considered easiest, cheapest and the least time consuming (Neill, 2003). Then any critical

care nurse who was available during the distribution of questionnaires was sampled for this study.

3.5.1.1.1 Inclusion/exclusion criteria: The researcher considered all registered nurses qualified in medical-surgical nursing critical care in the selected hospitals. Registered nurses who have experience in critical care but have not undergone any training in critical care were not selected for participation in the study since they have not been exposed to the training programme of critical care nursing and therefore they lack knowledge of the curriculum content.

3.5.2 SAMPLE SIZE

The sample size, in this case, refers to the number of critical care nurses who were included in this study in order to acquire results that reflect the target population as precisely as was required. This can be achieved through three criteria method explained by Israel (2009) namely: determining the level of precision, the level of confidence or risk and the degree of variability in the characteristics being measured. Onwuegbuzie and Collins (2007) also confirm that the sample size should be informed by the research objective, research question and research designs. From the population 100 critical care nurses 89 were sampled for this study. The details have been discussed in chapter four under data presentation.

3.5.2.1 The level of precision/sampling error

This is the range in which the true value of the population is estimated to be a measure of the possible difference between the sample estimate and the actual population value (Israel, 2009). It is the range in which the accurate representation of the population is estimated to be. It gives the amount of inaccuracy in estimating some element that is caused by only a portion of a population (i.e. a sample) rather than the entire population. This range is often expressed as a percentage e.g. ± 5 being the common percentage used. This means that if when

analysing data of this study 50% of the respondents demonstrated certain behaviours with this precision rate of $\pm 5\%$, then the conclusion would be that between 45% and 55% of the participants have demonstrated such behaviour.

3.5.2.2 The level of confidence

This is a risk level based on concepts included within the principal boundaries of the proposition with its main idea that when a population is repeatedly sampled, the average value of the feature obtained by those samples is equivalent to the actual population value. Furthermore, the values obtained by these samples are distributed normally about the true value, with some samples having a higher value and some attaining a lower score than the true population value (Israel, 2009). Ngulube (2005) suggests 95% confidence level so that the results are accurate to within $\pm 3\%$. A sampling error of 3% and a 95% confidence level means that one can be 95% confident that the population would resemble the sample, $\pm 3\%$ sampling error. However, when there is a defined sample size, to increase accuracy without increasing the sample size, a lower confidence level can be accepted. On the contrary, to increase confidence level and keep the same sample size, some accuracy must be sacrificed (O'Sullivan, Rassel and Berner, 2008).

3.5.2.3 The degree of variability

The degree of variability in the qualities being measured refers to the dissemination of characteristics in the population. The more diverse a population, the larger the sample size required to obtain a given level of precision (Israel, 2009).

The risks associated with these criteria methods discussed above were minimized by the use of a purposive convenience sampling method in this study. To the best knowledge of the researcher, the target population was best knowledgeable on the subject being investigated and was therefore sampled at the convenience of the researcher.

3.5.2.3 Strategies for determining sample size

A total of 100 participants (79 from hospital A and 21 from hospital B) were the total population and 89 of them were sampled for the study as they were the only trained group of critical care nurses in these hospitals. The details of the circumstances leading to this sample size are discussed in chapter four in data analysis. Among different strategies that can be used to determine the sample size, Israel (2009) suggests using a census approach. In this method, the entire population is sampled especially in smaller populations less than 200 participants. Its main advantage is to eliminate the sampling error and provide data on all the individuals in the population thus achieving an appropriate level of precision. Finally, some costs such as questionnaire design and developing the sampling frame are fixed (Israel, 2009).

3.5.3 DATA COLLECTION INSTRUMENT

The researcher collected data through the use of a questionnaire modified from questionnaires extracted from USAID health policy initiative (2010), Quality Assurance Project Tanzania HIV Stigma Study Team (2007) and Shipanga (2011). The USAID health initiative questionnaire was used in a study aimed at measuring the degree of HIV-related stigma and discrimination in health facilities and providers. The Quality Assurance Project Tanzania questionnaire was an evaluation instrument for knowledge, attitudes and practices of health care providers toward HIV positive patients in Tanzania. The questionnaire from Shipanga was used to measure the perception of care and support services for nurses caring for patients with HIV/AIDS in the intermediate hospital Oshikati. The three questionnaires were studied and relevant questions were extracted, modified and rephrased to suit this study.

The questionnaire was divided into three sections: section one concentrates on biographical data, section two focuses on HIV/AIDS training/education, while section three focuses on practices and experiences of the participants. In sections two and three, the questionnaire

contained both structured and open-ended questions. The open-ended questions were asked as a follow up from the structured questions with the aim of clarifying some concepts which needed more explanation by the respondents. The structured questions in section three focused on determining the availability of any policies for the management of people living with HIV/AIDS in the critical care settings, the open-ended questions concentrated on describing their experiences, exploring their challenges and perceptions towards the training they underwent and management of people living with HIV/AIDS.

3.6 DATA COLLECTION

The researcher visited each of the two hospitals from 11 to 31 May 2012. Information sessions were held with the nursing staff in each critical care department at each of these hospitals on each visit and both day and night shifts were visited. At these sessions the details of this study were discussed, and then personnel were invited to participate. The researcher discussed the questionnaire and explained how it should be completed. The participants were given three weeks in which to complete the questionnaire after which they handed over the completed questionnaire to the unit manager, and the researcher collected them from his or her office. Some of the questionnaires were completed in the presence of the researcher and directly handed to him.

These questionnaires for all groups of subjects were hand delivered and administered only by the researcher to avoid data collector bias. In the process of answering the questions on the questionnaires, the researcher took initiative to explain to the respondents the areas which they did not understand. This assisted to provide more reliable data.

3.7 VALIDITY AND RELIABILITY

The value of these principles was well observed in this study as are the ways in which to exhibit and communicate the integrity of the research processes and the credibility of

research findings. This is based on Davis (2005), who dictates that validity and reliability are the most important and fundamental characteristics of any measurement procedure. Roberts, Priest and Traynor (2006) assert this statement by indicating that science is not just a set of procedures, but it is an application of a full mind approach with fundamental pursuit of truth and limitation of errors.

3.7.1 Validity

Winter (2000) dictates that the traditional principles for validity obtain their heritages in a positivist ideology of which positivism itself derives its definition from validity theories. Validity is entailed within the positivist terminology and is a conclusion of other practical conceptions: universal laws, evidence, objectivity, truth, actuality, deduction, reason, fact and mathematical data. Validity of an instrument is the degree to which an instrument measures what it is intended to measure (Polit and Hungler, 1997). Gay (1996) also confirms that validity is the degree to which a test measures that which it is supposed to measure and, consequently, permits appropriate interpretation of scores. Subsequently investigations are designed for a range of purposes, and since validity can be evaluated only in terms of purpose, the validity is categorized and assessed in several different types. Literature indicates three primary types of validity namely; content, predictive and construct validity. Construct validity is currently considered a single broad method of measurement evaluation (Berk, 1990; Rew, Stuppy and Becker, 1988; cited in Burns and Grove, 2009). Salmond (2008) also confirms that validity is a complex phenomenon, and there are many approaches to measuring validity, all of which fall under the term of construct validity. Construct validity, which is the degree to which a test measures an intended hypothetical construct, was achieved in study through the use of correlation of the data collection instrument, the objectives and the theoretical framework of the study as illustrated in Table 3.1 BELOW. This was based on the suggestions of Nachmais and Nachmais (1996) who indicated that in

order to achieve constructive validity correlation or relationship between a measuring instrument and the theoretical framework is established to determine whether the instrument is tied to the concepts and theoretical assumptions they are employing.

Table 3.2: Illustration of construct validity

OBJECTIVES OF THE STUDY	CONCEPTUAL FRAMEWORK	QUESTIONS FROM QUESTIONNAIRE
Availability of policies	Structure standards	Question 3.4
The current practice of the critical care nurses	Process standards	Questions: 2.1, 2.3, 3.1, 3.2 and 3.4
Challenges encountered	Process standards	Questions: 3.5 and 3.6
Perceptions of the nurses	Process standards	Question 2.4, 2.5 and 3.5
Curriculum	Process standards	Question 2.2, and 2.3

3.7.2 Reliability

This is the degree of consistency with which an instrument measures the attribute it is designed to measure (Polit and Hungler, 1997). Reliability is expressed numerically, usually as a coefficient, and a high coefficient indicates high reliability. High reliability indicates minimum error variance. If a test has high reliability, then the effect of errors of measurement has been reduced. The consistency, stability and repeatability of a data-collection instrument are not dependent on chance factors or even environmental conditions (Salmond, 2008). This provides confidence of interpretation of the results.

Kirk and Miller (1986) identify three types of reliability referred to in quantitative research, which relate to: (1) the degree to which a measurement, given repeatedly, remains the same (2) the stability of a measurement over time; and (3) the similarity of measurements within a

given time period. Consistency with which questionnaire items are answered or individual's scores remain relatively the same can be determined through the test-retest method at two different times (Charles, 1995).

To maintain reliability of the instrument, three questionnaires from USAID health initiative (2010), Quality Assurance Project Tanzania HIV Stigma Study Team (2007) and Shipanga (2011) were utilised. The questionnaire from the USAID health initiative had been tested for validity and reliability in the study in which it was used. Tanzania HIV stigma study team and Shipanga's questionnaires had never been tested for validity and reliability but the researcher found their content more relevant to this study.

3.7.2.1 PILOT STUDY

A pilot study prior to data collection was conducted to measure and maintain the reliability of the modified questionnaire. Through the results obtained from this pilot, questions which would possibly be misinterpreted during the actual study and those which were not clear were clarified. The pilot study further assisted to estimate the actual time each respondent would take filling in a questionnaire.

Two weeks prior to data collection, four of the critical care nurses working in the selected hospitals were randomly selected and given the questionnaires. The same procedure that was followed during the actual data collection was followed. These critical care nurses were identified and were not included in the main data collection population. The changes made on the data collection as a result of the pilot study included change of wording and the sequence of the questions.

3.8 DATA ANALYSIS

Levine (1997) described data analysis as the body of methods that help to describe facts, detect patterns, develop explanations, test hypotheses and is used in all of the sciences.

Quantitative inquiries use numerical and statistical processes to answer specific questions, and descriptive statistics are numbers used to describe a group of items. This is the result of counting or measuring attributes of a population (Dean and Illowsk, 2010). With assistance from the statistician, data generated was organised and analysed using computer programmes called SPSS version 19 and excel, for the purposes of analysing and representing the findings as graphs, bar and pie charts. Data from the open-ended questions was analysed by identifying common responses from the data and categorising and then quantifying them to produce more numerical data which gives an understanding of the results.

3.9 ETHICAL CONSIDERATIONS

Brink (1996) indicates that a nurse researcher has the responsibility of conducting research in an ethical manner. Failure to meet this responsibility undermines the whole scientific process and may lead to many unfortunate and problematic consequences. Frankel and Siang (1999) declared the current ethical and legal framework for protecting human subjects rests on the principles of autonomy, beneficence, non-maleficence and justice.

3.9.1 Anonymity: Refers to the protection of the participants in such a manner that even the researcher cannot be able to link the participant with the information provided (Polit and Beck, 2008). Respondents were not required to sign any consent form to participate in this study as it was assumed that anonymity will be achieved by not mentioning names of the participants or those of the institutions at which they are working. Not signing any form further ensures the anonymity as there were no signatures or names provided by the participants or any link whatsoever to the participants. All questionnaires were provided with the study generated identification numbers which were solely utilized for this study to aid in the data analysis process.

3.9.2 Beneficence and non-malificence: The fundamental principles of research ethics include beneficence and non-malificence principles which obligate researchers to maximise possible benefits from the research and minimise harms and risks to their subjects. Benefits can be defined as gain to society or science through contribution to the knowledge base, gain to the individual through improved well-being, or empowerment of the individual by giving him or her voice. Harms may include death and injury, psychological abuse, loss of privacy and public exposure and this may not only affect individuals, but specific population subgroups as well (Frankel and Siang, 1999). As explained earlier under the significance of the study, this will contribute to the current practice of critical care nursing practice and education and thus improved quality of care to the patients. Moreover, the study will serve as a knowledge base for more research. There are no anticipated harms to this study. Anonymity and privacy of the research subjects will be maintained as explained under the principle of anonymity. The only aspect that can be attributed to inconvenience in this regard would be their time sacrificed for this study.

3.9.3 Justice: Frankel and Siang (1999) further emphasise that, of the basic principles governing human subjects" research, justice is perhaps the most elusive in terms of application and understanding. Justice can be interpreted as "fair, equitable and appropriate treatment in light of what is due to or owed by persons". With respect to human subjects" research, application of the principle of justice is inextricably linked to fair distribution of the burdens and rewards of research. There were no incentives attached or provided to the research subjects during the entire contact of this study.

3.9.4 Informed consent: A vital component of the ethical discourse on human subjects" research is the process of informed consent, which recognises the autonomy of research subjects by sharing with them the power of decision making (Childress and Asamen, 1998). In obtaining consent from the participants the researcher explained the rights of the

participants, the purpose of the study, the extent of their participation in this study including the potential risks and benefits of participation. Principles of voluntary participation were thoroughly explained to the participants. After these explanations the participants had freedom of choice to participate in the study or not. By agreeing to complete the questionnaire, participants were considered to have given an informed consent to participate in the study. Further, explanations were made to all involved parties that participation was voluntary, free and participants could withdraw at any level of the study if they felt they no longer needed to participate. Lastly, all participants were provided with a copy of the document which provides all details of their participation in the study (information sheet) as explained above and the original of each copy was retained by the researcher.

It is in the full understanding of these principles that the researcher had presented this proposal before the academic staff at the School of Nursing, after which it was submitted to the Ethics Committee of the University of KwaZulu-Natal for approval prior to data collection and all other activities explained above.

3.10 Data management and safety

Data will be kept and used solely for the purpose of this investigation. This data has been in the possession and control of the researcher during analysis and processing of report, after which the research supervisor at the University of KwaZulu-Natal will safeguard it under lock and key at the School of Nursing for a period of 5 years. Thereafter, it will be destroyed through shredding and deleted from computer hard disc. Analysed data has been saved in computer files protected by a password only known by the researcher.

3.11 Conclusion

This chapter focused on elaborating the nature of the positivist paradigm using the quantitative research design that was employed and was utilised in this study. Sampling

strategies, target population and data collection procedures for quantitative approaches were discussed. Data analysis, validity and reliability processes were also discussed not excluding the discussion of ethical issues and guidelines.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.1. INTRODUCTION

The research methodology described in the preceding chapter presented a foundation for data collection as well as elaborating on the processes which were followed to analyse the data. In this chapter, the data which was collected from two particular hospitals in South Africa's KwaZulu-Natal province is presented.

4.2. DATA ANALYSIS AND PRESENTATION OF FINDINGS

The term analysis refers to the computation of certain measures along with searching for patterns of relationship that exist among data groups. The analysis and interpretation of data involve the objective material in possession of the researcher and his subjective reactions and desire to derive from the data inherent meanings in relation to the problem (Basavanthappa, 2003). Levine (1997) described data analysis as being used in all forms of sciences, in business, in administration, in policies and in research studies. Data analysis produces numerical results which give the description of the typical value and differences among the phenomena in both quantitative and qualitative studies. However, data analysis is not about numbers but it uses them to describe the reality (Levine, 1997).

4.2.1 RESPONSE RATE

The total population was 100 but only 89 were sampled because four were sampled for a pilot study and the remaining 7 could not be accessed since they were not available during the distribution of the questionnaires, since some were on sick leave and annual leave. Of the 89 participants, 70.2% (N=63) were able to return the questionnaires but 7.9% (N=7) of the

questionnaires were destroyed since many of their questions were not answered. As a result only 62.9% (N=56) questionnaires were completed and utilised for the analysis of the results.

4.3 SECTION ONE: STRUCTURED QUESTIONS

This section is further divided into parts I, II and III which are all focused on quantitative data. Part I of section one includes demographic data, part II focuses on the training of critical care nurses on HIV/AIDS, while part III focuses on practical experiences of critical care nurses with regard to the care of people living with HIV/AIDS. The Statistical Package for Social Sciences 19 version software and an excel program were used to analyse the quantitative data collected and presented following the various steps of data analysis.

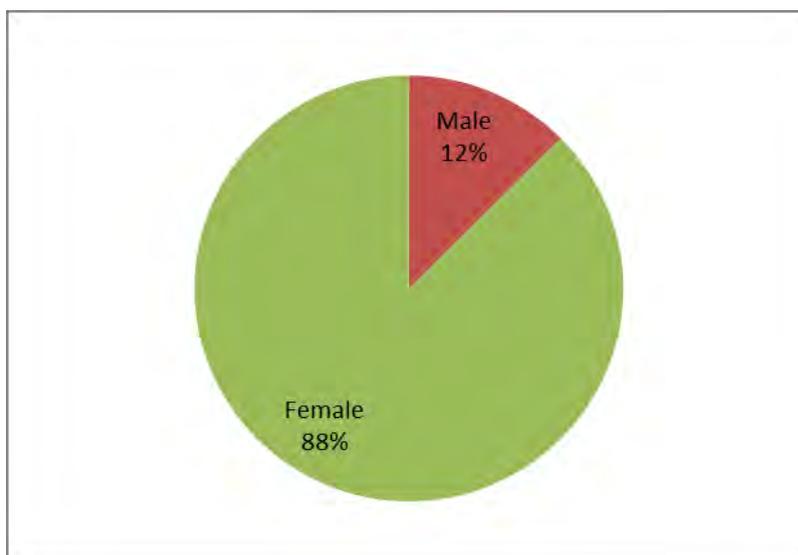
4.3.1 PART ONE: DEMOGRAPHIC DATA

This part of the analysis consisted of five areas which included gender, age, level of education, nursing speciality and duration of service of the respondents in a critical care unit.

4.3.1.1 Gender

Figure 4.1 below gives an illustration of the gender of the respondents. This indicates that the majority of the respondents were females at 88% (N=49) and males were only 12% (N=7).

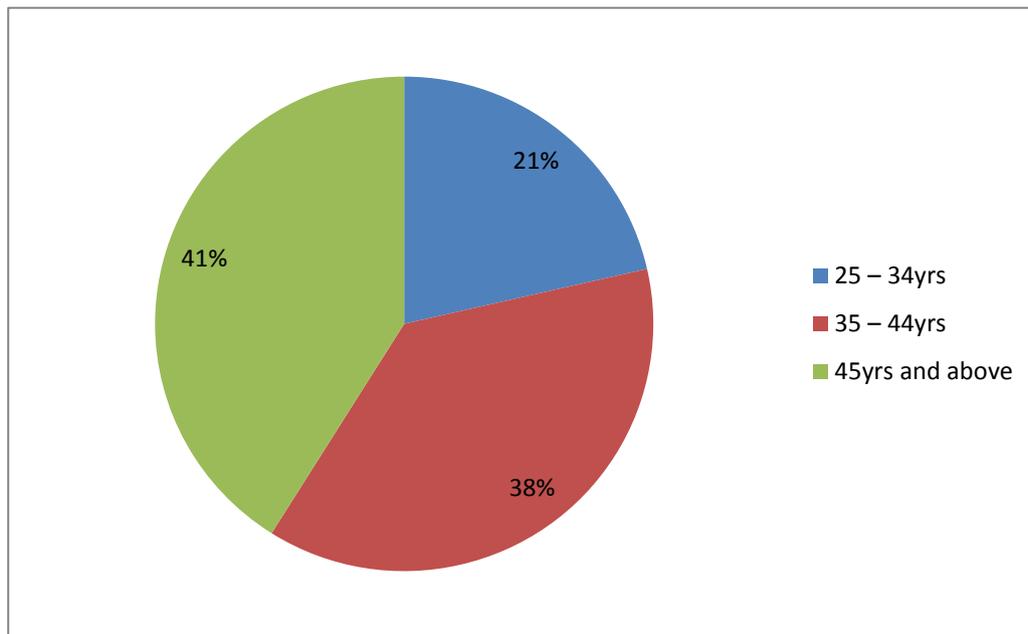
Figure 4.1 Gender



4.3.1.2 Age

Figure 4.2 explains the age distribution of the respondents, 21% (N=12) of the respondents were aged between 25 and 34, 38% (N=21) were aged between 35 and 44 while those aged above 45 years were leading at 41% (N=23).

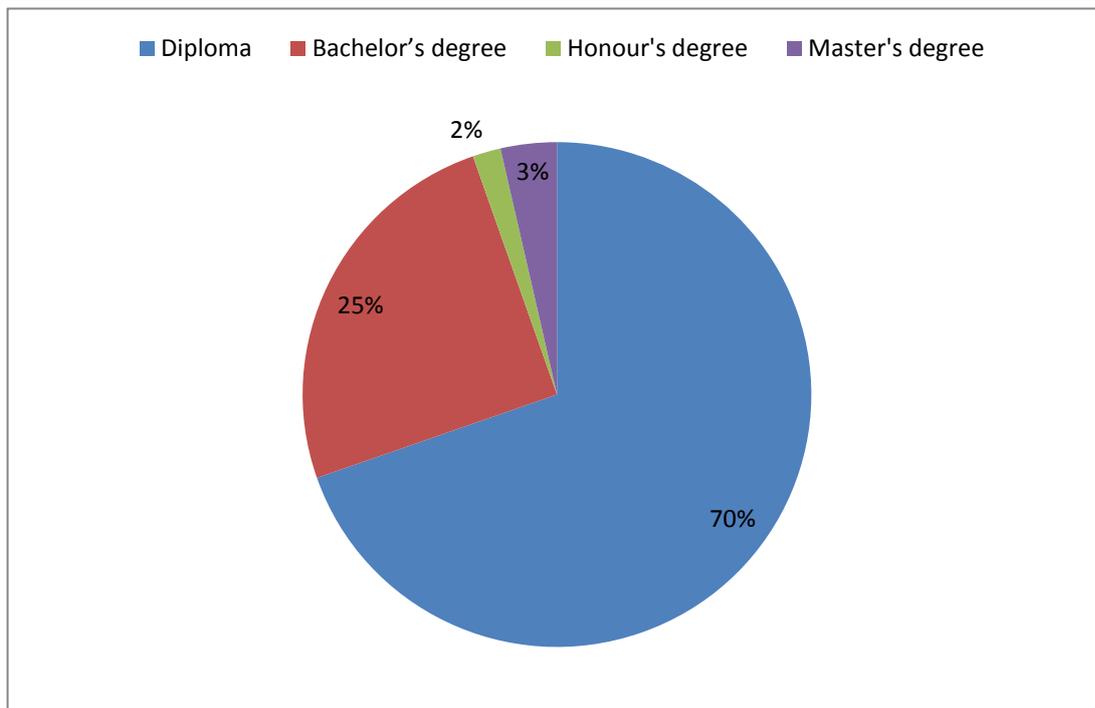
Figure 4.2 Age



4.3.1.3 Level of education

Level of education of the respondents is explained by Figure 4.3 below. The most number of the respondents 70% (N=39) held a diploma in nursing, followed by 25% (N=14) of those who had bachelor's degrees, 3% (N=2) had obtained master's degrees while 2% (N=1) had obtained honour's degree.

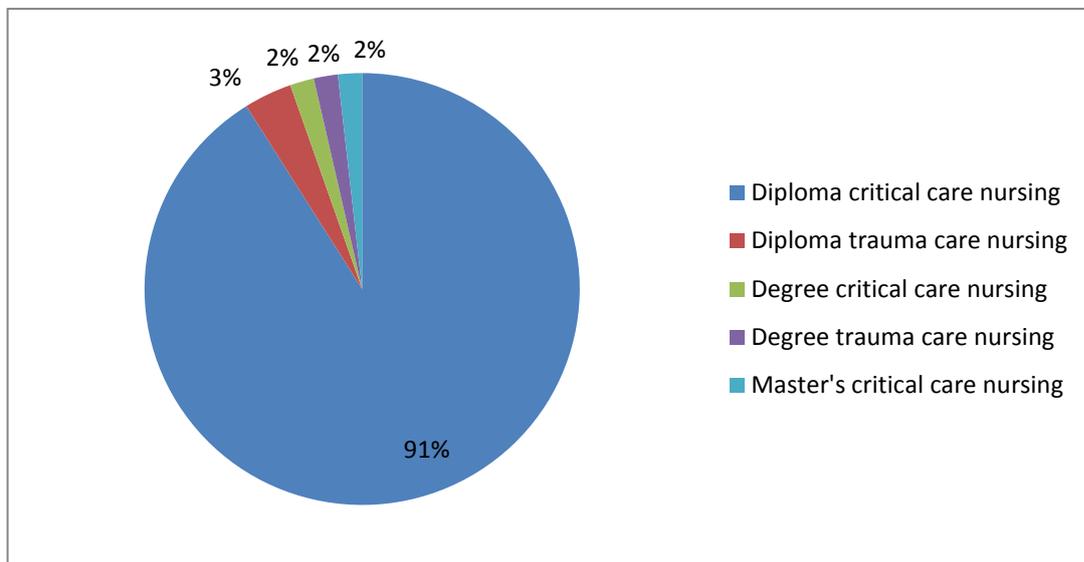
Figure 4.3: Level of education



4.3.1.4 Nursing speciality

Respondents were asked to indicate which nursing speciality they had. This is demonstrated by Figure 4.4 which demonstrates that 91% (N=51) of the respondents were qualified with a post basic diploma in medical-surgical nursing critical care general, 3% (N=2) in trauma care, whereas a degree in medical surgical nursing (critical care nursing general), trauma care and master's in critical care general each had 2% (N=1) of the respondents.

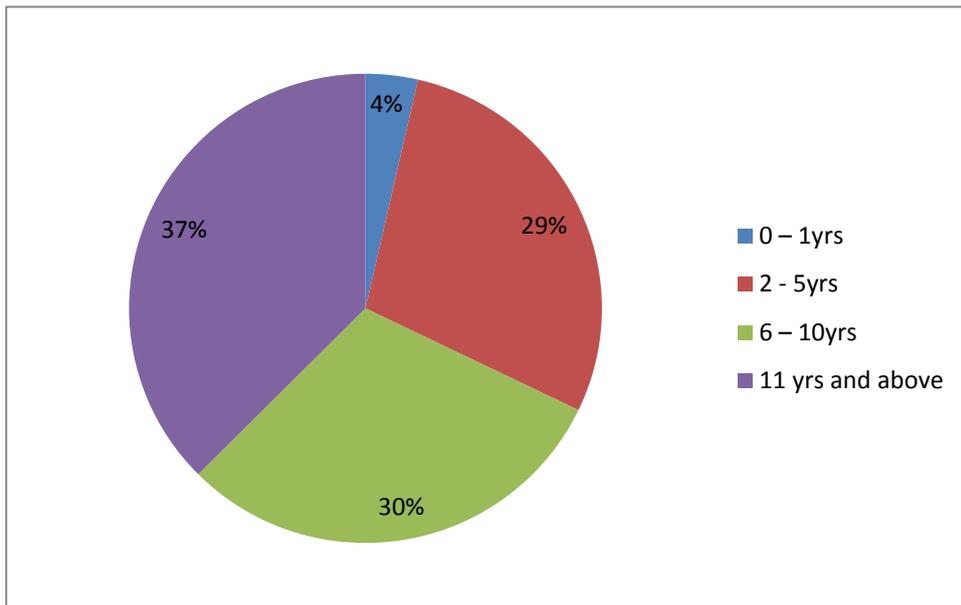
Figure 4.4: Nursing speciality



4.3.1.5 Critical care experience

Figure 4.5 indicates that 4% (N=2) of the respondents had been in the unit for at least up to one year, 29% (N=16) for 2 to 5 years, 30% (N=17) had been there between 6 and 10 years and 37% (N=21) had the longest service of 11 years and above.

Figure 4.5: Critical care experience



4.3.2 PART TWO: TRAINING ON HIV/AIDS

For the purposes of investigating the content of the current critical care nursing curriculum, part II of this analysis focused on the training of critical care nurses on HIV/AIDS management and the content covered. This gives the basis of the number of the respondents who had undergone the training and the areas where such training was obtained. It was assumed that the training obtained from the university or college was formal and therefore was part of the curriculum while other training was assumed informal. The respondents were expected to indicate the amount of training by choosing options as follows: no training, inadequate, adequate or extensive enough to provide services for people living with HIV/AIDS. Furthermore, this part was looking at the perception of critical care nurses in regard to their preparedness to provide services for people living with HIV/AIDS on their routine work.

4.3.2.1 Training in HIV/AIDS management

The respondents in Figure 4.6 indicate that only 36% (N=20) of them had undergone training in HIV/AIDS management while 64% (N=36) of them did not have training.

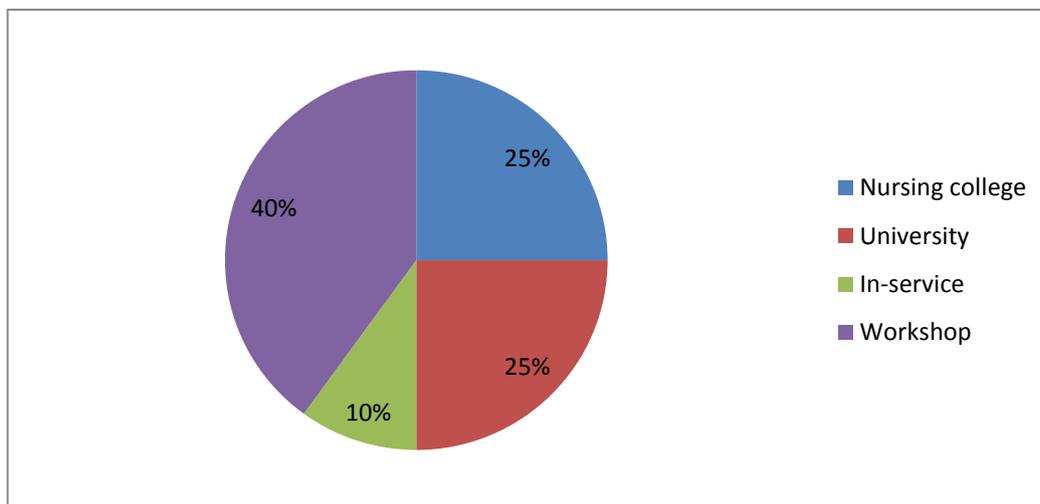
Figure 4.6: Training in HIV/AIDS management



4.3.2.2 Place of training

Of the twenty who had undergone the training, 10% (N=2) had undergone in-service training, 25% (N=5) got their training in a nursing college as a module, another 25% (N=5) were trained at a university, while 40% (N=8) got their training in workshops as illustrated in Figure 4.7. Both those who trained at a university and those who were trained at a college were 50% (N=10). Also those who got their training in workshops and from in-service training were cumulatively 50% (N=10).

Figure 4.7: Place of training



4.3.2.3 TOPICS AND AMOUNT OF INFORMATION COVERED

Table 4.1 indicates the topics which were covered during training and the amount of information given on each topic.

Table 4.1: Topics covered and amount of information

TOPIC	No training	Inadequate	Adequate	Extensive
Epidemiology of HIV/AIDS	0	2	17	1
HIV transmission	0	1	18	1
Pathogenesis of HIV infections	0	1	18	1
Clinical features of HIV/AIDS	0	0	19	1
Diagnosis of HIV/AIDS	0	2	17	1
Voluntary Counseling and Testing (VCT)	1	7	11	1
Prevention of HIV infections	0	1	18	1
Anti-retroviral management of HIV/AIDS	1	9	9	1
Recognition and management of opportunistic infections	0	8	11	1
Monitoring of HIV/AIDS: CD4, cell count, viral load	0	4	13	1
Recognition and management of stress prevention of burnout in HIV/AIDS care	3	8	9	0
Caring of the care givers	2	4	14	0
Legal and ethical issues in HIV/AIDS	0	9	11	0
Emotional care of dying HIV/AIDS patient	2	2	16	0

4.3.2.3.1 Epidemiology of HIV/AIDS

Of the 36% (N=20) critical care nurses who had undergone the training, 0% (N=0) respondents indicated they had no training on epidemiology of HIV/AIDS, 5% (N=1) reported they had extensive training, 10% (N=2) had inadequate training while 85% (N=17) had adequate training.

4.3.2.3.2. HIV transmission

On HIV transmission 90% (N=18) reported that they had adequate training, 5% (N=1) reported extensive training and another 5% (N=1) also reported inadequate training. No one reported any training.

4.3.2.3.3 Pathogenesis of HIV infections

On pathogenesis of HIV infection, 90% (N=18) reported that they had adequate training, 5% (N=1) reported extensive and another 5% (N=1) also reported inadequate training. No one reported any training.

4.3.2.3.4 Clinical features of HIV/AIDS

On clinical features of HIV/AIDS, 5% (N=1) reported they had extensive training 95% (N=19) reported they had adequate training while none of them reported no training and inadequate training.

4.3.2.3.5 Diagnosis of HIV/AIDS

On diagnosis, 0% (N=0) reported no training, 5% (N=1) extensive training, 10% (N=2) inadequate and 85% (N=17) reported adequate training.

4.3.2.3.6 Voluntary Counseling and Testing (VCT)

On voluntary counselling and testing, 5% (N=1) reported no training, 5% (N=1) reported extensive training, 35% (N=7) inadequate and 55% (N=11) adequate training.

4.3.2.3.7 Prevention of HIV infections

No respondent indicated to have no training, 5% (N=1) inadequate, 5% (N=1) extensive and 90% (N=18) reported adequate training.

4.3.2.3.8 Antiretroviral management of HIV/AIDS

On responding to antiretroviral management of HIV/AIDS, no training 5% (N=1), extensive training 5% (N=1), inadequate 45% (N=9) and adequate training 45% (N=9).

4.3.2.3.9 Recognition and management of opportunistic infections

No training was reported by 0% (N=0), extensive 5% (N=1), 40% (N=8) inadequate and 55% (N=11) adequate.

4.3.2.3.10 Monitoring of HIV/AIDS: CD4, cell count, viral load

No training was reported by 0% (N=0), extensive 5% (N=1), inadequate 20% (N=4) while 65% (N=13) had adequate training.

4.3.2.3.11 Recognition and management of stress and prevention of burnout in HIV/AIDS care

Extensive training was reported by 0% (N=0), 15% (N=3) no training, 40% (N=8) inadequate and 45% (N=9) adequate training.

4.3.2.3.12 Caring of the care givers

On care of the care givers 0% (N=0) extensive training, 10% (N=2) no training, 20% (N=4) inadequate and 70% (N=14) adequate training.

4.3.2.3.13 Legal and ethical issues in HIV/AIDS

On legal and ethical issues in HIV/AIDS, 0% (N=0) no training, 0% (N=0) extensive training, 45% (N=9) inadequate and 55% (N=11) adequate training.

4.3.2.3.14 Emotional care of dying HIV/AIDS patient

On emotional care of dying HIV/AIDS patient, 0% (N=0) reported extensive training, 10% (N=2) no training, 10% (N=2) inadequate and 80% (N=16) adequate training.

4.3.3 PART THREE: PRACTICE REGARDING CARE OF PEOPLE LIVING WITH HIV/AIDS

This part looks into the current practice and experience of the critical care nurses in the management of people living with HIV/AIDS admitted to critical care units, also including

the availability of the policies governing such practice. The respondents were asked to indicate whether they discuss nursing/medical issues related to patients with HIV/AIDS or prescribed HIV medications in ICU with other staff members. Furthermore, they were asked to indicate the available policies in their units.

4.3.3.1 DISCUSSION ON HIV/AIDS MANAGEMENT

Table 4.2: Discussions on HIV/AIDS management

Topic	Always	Frequently	Sometimes	Almost never	Never
Adherence with antiretroviral regimen	15	13	11	6	7
Adherence with post exposure prophylaxis protocols	11	11	18	5	5
Administration of oral antiretroviral medicines in ICU	18	12	12	4	6
Antiretroviral treatment-related side effects	6	10	18	10	6
Drug-Drug interactions in management of HIV/AIDS	5	9	16	7	11
Risk reduction regarding HIV transmission	16	11	11	6	5
Policies regarding admission and management of HIV/AIDS patients	15	7	15	2	12

4.3.3.1.1 Adherence with antiretroviral regimen

On adherence with antiretroviral regimen, 11% (N=6) of the respondents indicated that they almost never discussed adherence with antiretroviral regimen, 12% (N=7) never discussed, 19% (N=11) sometimes, 23% (N=13) frequently and 28% (N=15) always discussed adherence with antiretroviral regimen.

4.3.3.1.2 Adherence with post exposure prophylaxis protocols

It was only 9% (N=5) of the respondents who indicated they never discussed adherence with post exposure prophylaxis protocols, 9% (N=5) almost never, 19% (N=11) always, 19% (N=11) frequently and 32% (N=18) sometimes have discussions.

4.3.3.1.3 Administration of oral antiretroviral medicines in ICU

In discussion on administration of oral antiretroviral drugs in ICU, N=4 (7%) almost never, N=6 (11%) never, N=12 (21%) sometimes, N=12 (21%) frequently and N=18 (32%) always had discussions on administration of antiretroviral drugs.

4.3.3.1.4 Antiretroviral treatment-related side effects managing

Eleven percent (N=6) reported they always discussed antiretroviral treatment-related side effects, 11% (N=6) never had discussions, 18% (N=10), almost never, 18% (N=10) frequently and 32% (N=18) sometimes had discussions.

4.3.3.1.5 Drug-Drug interactions in management of HIV/AIDS

On drug to drug interactions in the management of HIV/AIDS, 9% (N=5) reported they always had discussions, 12% (N=7) almost never, 16% (N=9) frequently and 28% (N=16) sometimes had these discussions.

4.3.3.1.6 Risk reduction regarding HIV transmission

Five (9%) respondents reported that they never had discussions on risk reduction regarding HIV transmission, 11% (N=6) almost never, 19% (N=11) sometimes, 19% (N=11) frequently and 28% (N=16) always had discussions.

4.3.3.1.7 Policies regarding admission and management of HIV/AIDS patients in ICU

Three percent (N=2) of the respondents almost never discussed policies regarding admission and management of HIV/AIDS patients in ICU, 12% (N=7) frequently, 21% (N=12) never, 28% (N=15) sometimes and 28% (N=15) always had discussions.

4.3.3.2 AVAILABILITY OF POLICIES/GUIDELINES IN THE UNITS

Table 4.3 Availability of the policies

Policy	Yes	No	Don't know
National HIV Policy	40	8	6
HIV counselling and testing	45	2	5
HIV testing procedure	49	0	5
Confidentiality	46	0	6
Informed consent	47	1	5
Post-exposure prophylaxis	40	5	9
National clinical HIV management guidelines	28	11	14
Treatment of opportunistic infections	28	10	15
Safety against blood products	48	2	5
Universal precautions	51	1	2
Ventilation with opportunistic respiratory infections e.g. PJP (PCP)	19	8	27

4.3.3.2.1 National HIV Policy

When asked about availability of policies, 11% (N=6) of the respondents said they do not know, 14% (N=8) reported no, 71% (N=40) reported yes, the national HIV policy is available in their unit.

4.3.3.2.2 HIV counselling and testing

On HIV counselling and testing, 3% (N=2) said no, the policy was not available, 9% (N=5) did not know, and 80% (N=45) reported that the policy was available in their units.

4.3.3.2.3 HIV testing procedure

None (0%) of the respondents said there was no policy on HIV testing procedure, 9% (N=5) said they did not know while 87% (N=49) reported yes the policy was available.

4.3.3.2.4 Confidentiality

On confidentiality 0% (N=0) said there is no policy on confidentiality, 11% (N=6) reported that they did not know and 82% (N=46) reported yes, such a policy was available.

4.3.3.2.5 Informed consent

On informed consent, 2% (N=1) reported there was no policy, 9% (N=5) reported they did not know and 84% (N=47) reported yes, the policy was available.

4.3.3.2.6 Post-exposure prophylaxis

On post-exposure prophylaxis 9% (N=5) reported that the policy was not available, 16% (N=9) reported they did not know and 71% (N= 40) reported the policy was available.

4.3.3.2.7 National clinical HIV management guidelines

On national clinical HIV management guidelines, 19% (N=11) reported that there was no policy 25% (N=14) reported they did not know and 50% (N=28) reported that the policy was available.

4.3.3.2.8 Treatment of opportunistic infections in ICU

On treatment of opportunistic infections in ICU, 8% (N=10) of the respondents reported that there was no policy 27% (N=15) reported they did not know, 50% (N=28) reported yes, the policy was available.

4.3.3.2.9 Safety against blood products

On blood safety, 3% (N=2) reported there was no policy, 9% (N=5) reported they did not know while 86% (N=48) reported that yes, the policy was available.

4.3.3.2.10 Universal precautions

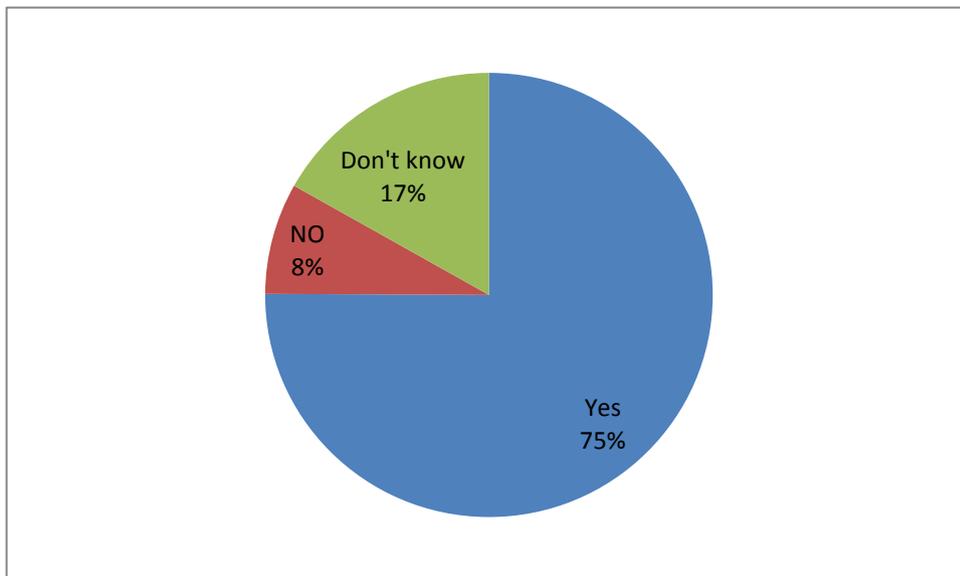
On universal precautions, 2% (N=1) reported there was no policy 3% (N=2) reported they did not know, 91% (N=51) reported that the policy was available.

4.3.3.2.11 Ventilation with opportunistic respiratory infections e.g. PJP (PCP)

On ventilation with opportunistic respiratory infections such as PCP, 14% (N=8) of the respondents reported that there was no policy 34% (N=19) reported yes, there was a policy, while 48% (N=27) reported they did not know whether the policy was available or not.

In order to determine the descriptive percentage of the availability of the policies and guidelines, the frequencies of the results from each response were further computed and cumulatively displayed in Figure 4.8 below.

Figure 4.8: Availability of the policies



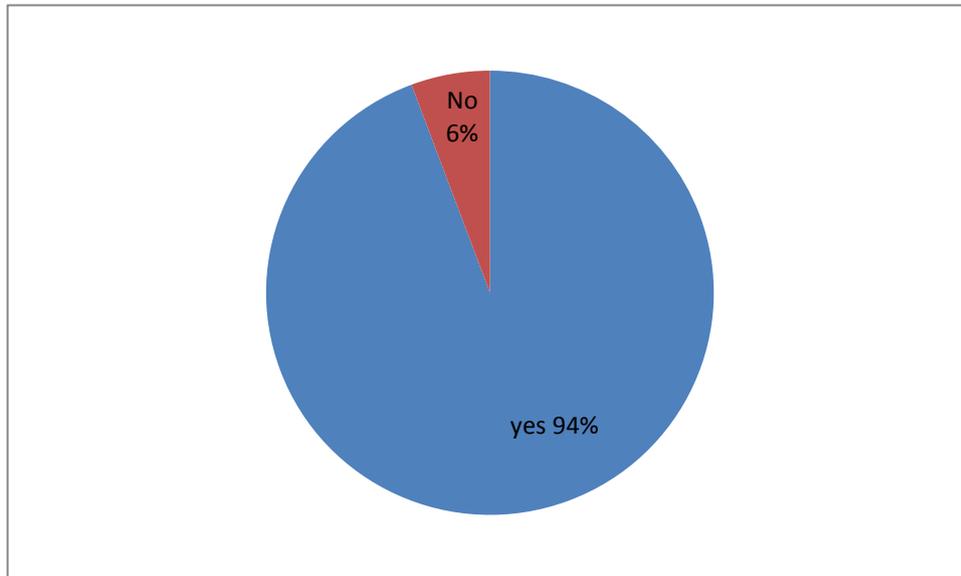
Together Table 4.3 and Figure 4.8 above indicate that various policies/guidelines are readily available within the critical care settings as 75% of the respondents indicated, 17% reported they did not know whether these policies were available or not, while 8% declared that such policies were not available.

4.3.4 INCORPORATION OF HIV/AIDS MANAGEMENT IN CRITICAL CARE NURSING PROGRAMME

Subjects were asked if in their opinion, HIV/AIDS management should be included in the curriculum for critical care nursing programmes. Figure 4.11 indicates that 94% (N=50) of

them confirmed that it should be included whereas only 6% (N=3) indicated that it should not be included.

Figure 4.9: Incorporation of HIV/AIDS management in critical care nursing programme



4.4 SECTION TWO: DATA FROM OPEN-ENDED QUESTIONS

Many researchers strongly believe that data from open-ended questions in a quantitative study can be quantified after following the same data analysis processes utilised in a qualitative study. Tashakkori and Teddlie (1998) affirm that quantizing is the process of transforming coded qualitative data into quantitative data while qualitzing is to describe the process of converting quantitative data to qualitative data.

Some of the several strategies by which qualitative data can be quantized to create a single comprehensive data set include counting the number of times a qualitative code occurs (Driscoll, Appiah-Yeboah, Salib and Rupert, 2007). This strategy was utilised in this analysis as indicated in the paragraphs to follow.

This section focuses on the analysis of data collected by means of open-ended questions which generated data consisting of words, phrases and paragraphs. A content analysis process was utilised since it can be used to make numerical comparisons among and within documents. Furthermore, it is especially useful for tabulating the results of open-ended survey questions and multiple interviews (Texas State Auditor's office, 1995).

4.4.1 DATA TABULATING, ORGANISATION AND GROUPING

Qualitative analysis is best described by Polit and Beck (2004) who affirm that it is a process of fitting data together, of making the invisible obvious and of connecting and characterising consequences to antecedents. The fundamental subjects and co-subjects that emerged from an analysis of the data contained in the answers provided by the nurses are outlined in the tables below. In analysis and re-analysing this data, the researcher realised similarities in words and or phrases which were used by the different participants expressing their views or same ideas. Similar connotations were grouped and categorised to form themes. These themes were further quantified to produce numeric analysis of data.

The main co-subjects and subjects that emerged from analysis of this data contained in the responses presented by the critical care nurses are summarized in table 4.4 below. The consultations of the results that follow below are also guided by the structure of the themes and sub-themes and the inter-relationships that exist among the themes.

Table 4.4: Key co-subjects and subjects that emerged from the open-ended questions

Objective	Co-subject	Subject
Reasons for not being prepared enough	Lack of training	Lack of updates on HIV/AIDS management
		Inadequate training
		No response
How knowledge of HIV status influences feelings	Attitude/perception	No effects
		Compassionate
		Maintain precautionary measures
		No discrimination
		Equal distribution of patient care
Challenges in work place	Confidentiality/disclosure	Unknown HIV/AIDS status
		Lack of support system
	Knowledge of treatment regimen	Lack of knowledge of ARV treatment regimen
	Negative emotional challenges	Fear
Programme content	Training on HIV/AIDS management	Drug interactions
		HIV/AIDS regimen
		Adherence and complications
		Entire HIV/AIDS management course
Contribution to critical care nursing	Quality nursing care	Improved standards of care
		Reduced stigma
		No specific contribution

The critical care nurses indicated lack of training and regular updating as the main reasons for not being prepared enough to provide services for people living with HIV/AIDS. Most them are not affected by the knowledge of the HIV status of the patient even though they have certain attitudes such as being compassionate, and feel that they need to maintain universal precautionary measures in their daily care of the patients regardless of the patients' HIV status.

Some of the challenges encountered by the critical care nurses include the unknown HIV status of the patient on admission and lack of support systems from family members due to confidentiality, leading to patient unintentionally defaulting ARV treatment since sometimes such family members are not aware of the patient's status. Knowledge of HIV/AIDS treatment regimen also poses challenges to the critical care nurses while they are further challenged by negative emotions evidenced by fear of blood spats and needle pricks.

Nurses indicate that they need more training on HIV/AIDS, its management and treatment strategies used. They believe this will improve the standard of care in the critical care settings and the stigma associated with HIV/AIDS may be reduced.

4.4.2 QUANTIFICATION OF THE DATA FROM THE OPEN-ENDED QUESTIONS

In order to gain more understanding of the data, the subthemes were grouped into frequencies and an excel computer programme was used to give illustrations in pie charts which are displayed in the following paragraphs.

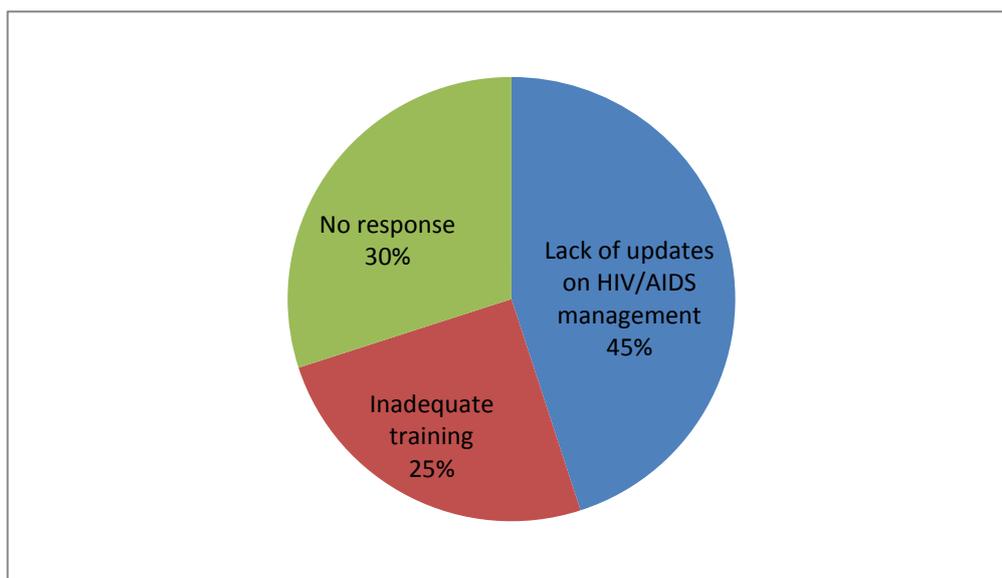
4.4.2.1 Reasons for not being prepared enough

Table 4.5: Reasons for not being prepared enough

Reasons for not being prepared	Frequency	Percentage
Lack of updates on HIV/AIDS management	9	45
Inadequate training	5	25
No response	6	30

Among the 20 respondents who reported they had training in HIV/AIDS management, 45% (N=9) of them indicated that they were not prepared enough to provide services for people living with HIV/AIDS because they lacked updated information on the subject, 30% (N=6) did not respond to the question while 25% (N=5) claimed they had inadequate training.

Figure 4.12: Reasons for not being prepared enough



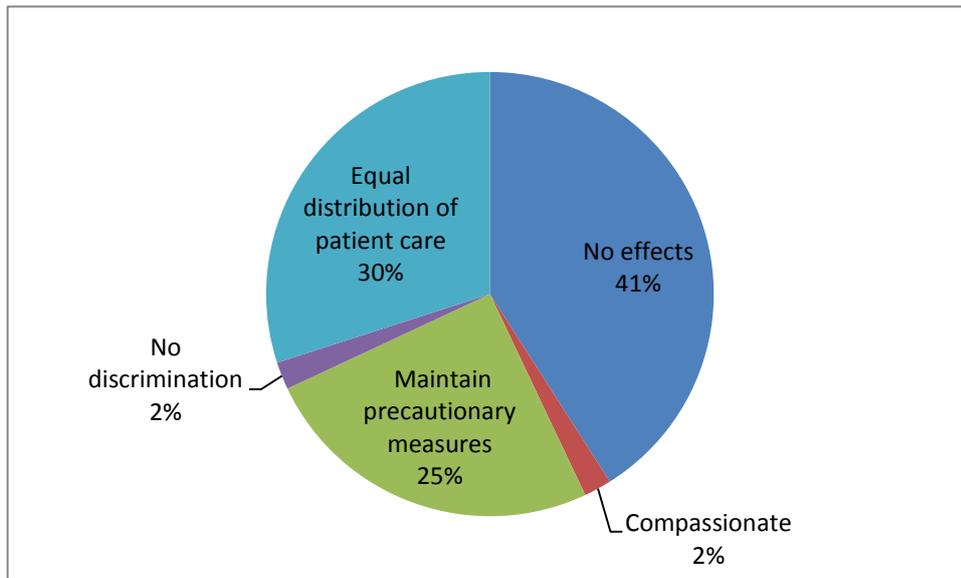
4.4.2.2 Influence of the knowledge of HIV/AIDS status

Table 4.6: Influence of the knowledge of HIV/AIDS status

Influence of the knowledge of HIV/AIDS status	Frequency	Percentage
No effects	23	41
Compassionate	1	2
Maintain precautionary measures	14	25
No discrimination	1	2
Equal distribution of patient care	17	30

The total of 41% (N=23) of the respondents reported that knowledge of HIV/AIDS status of the patient does not have any effect on their practice, 30% (N=17) said people living with HIV/AIDS should not be discriminated against because of their disease status, 25% (N=14) reported to be maintaining precautionary measures, 2% (N=1) indicated that they feel more compassionate about patients diagnosed with HIV/AIDS while another 2% (N=1) demonstrated that these patients deserve equal distribution of services as with other patients.

Figure 4.13: Influence of the knowledge of HIV/AIDS status



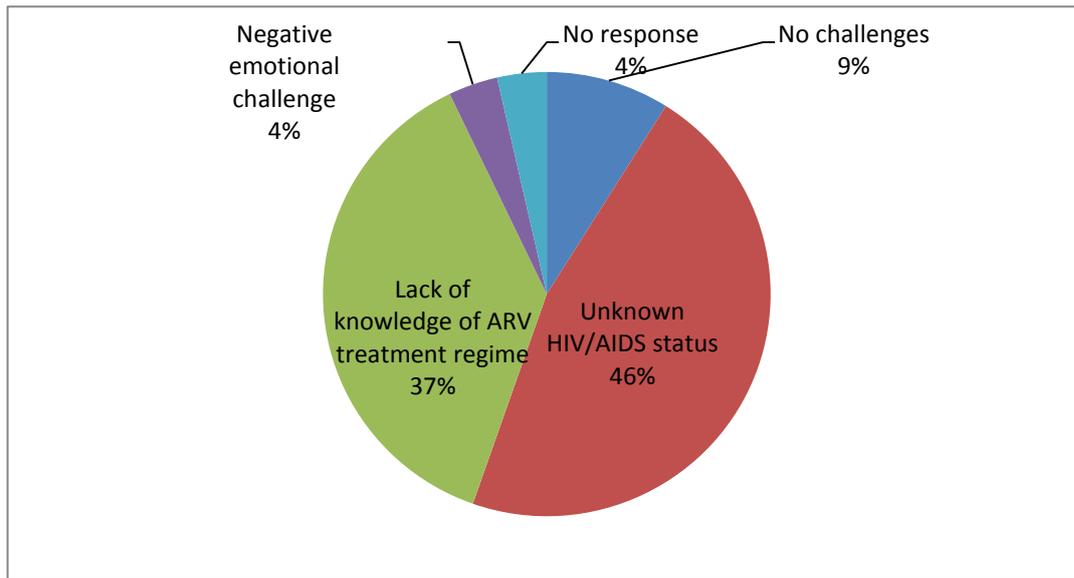
4.4.2.3 Challenges at work place

Table 4.7: Challenges at work place

Challenging factors	Frequency	Percentage
No challenges	5	9
Unknown HIV/AIDS status	26	46
Lack of knowledge of ARV treatment regime	21	37
Negative emotional challenge	2	4
No response	2	4

The challenges of the critical care nurses include the unknown HIV/AIDS status of the patient which accounted 46% (N=26) of the respondents, 37% (N=21) showed lack of knowledge of antiretroviral treatment, N=5 (9%) felt there was no challenge, 4% (N=2) demonstrated negative emotional challenges such as fear of needle pricks and blood spurts and the other 4% (N=2) did not respond to the question at all.

Figure 4.14: Challenges at workplace



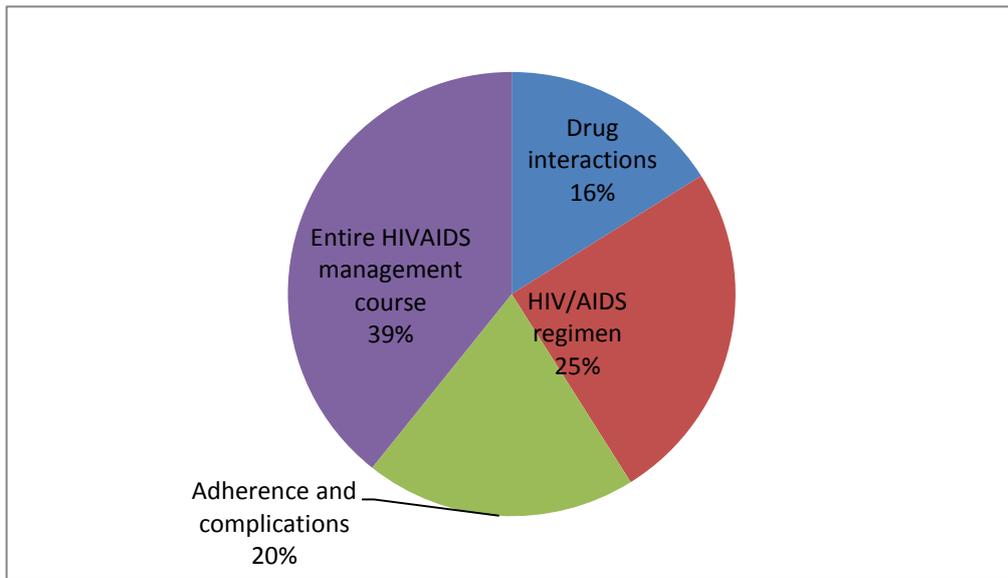
4.4.2.4 Content of the programme

Table 4.8: Content of the programme

Content of the programme	Frequency	Percentage
Drug interactions	9	16
HIV/AIDS regimen	14	25
Adherence and complications	11	20
Entire HIV/AIDS management course	22	39

Of all the respondents 39% (N=22) indicated that the entire HIV/AIDS management programme is required in the critical care nursing programme, 25% (N=14) believe HIV/AIDS treatment regimen will be enough, 20% (N=11) suggested adherence and complications of ARVs and 16% (N=9) believe only drug interaction is adequate for critical care nurses.

Figure 4.15: Content of the programme



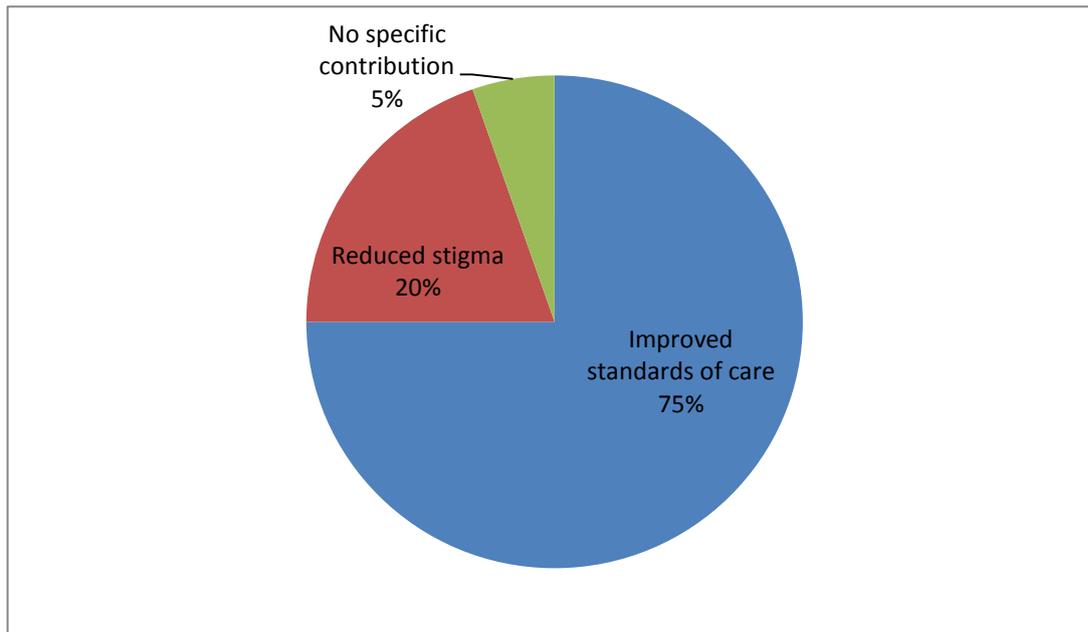
4.4.2.5 Contribution to critical care nursing

Table 4.9: Contribution to critical care nursing

Contribution to nursing care	Frequency	Percentage
Improved standards of care	42	75
Reduced stigma	11	20
No specific contribution	3	5

It is 75% (N=42) of the respondents who believe that the inclusion of a HIV/AIDS management programme into critical care nursing can improve the standards of care, 20% (N=11) said it may reduce stigma attached to HIV/AIDS and only 5% (N=3) argued that it will make no contribution

Figure 4.16: Contribution to critical care nursing programme



4.5 SUMMARY

The descriptive analysis of these results indicates that N=49 (88%) of the entire population were females, 41% (N=23) were aged 45 years, 70% (N=39) had a diploma as their highest level of education, 91% (N=51) were specialised in medical surgical nursing science critical care general and most of them 37% (N=21) had an experience of 11 years and above working in a critical care setting. Only 36% (N=20) of the respondents had undergone the training in HIV/AIDS management while 64% (N=36) had no training in this area. Of the twenty who had undergone the training, they obtained their training from different areas: 10% (N=2) in service training, 25% (N=5) in nursing college as a module, 25% (N=5) at a university and 40% (N=8) got their training in workshops. The training entailed various topics in HIV/AIDS including supportive care to the care givers, ethical issues in HIV/AIDS and emotional care of dying HIV/AIDS patients.

The analysis further indicates that the clinical practice of respondents included discussions on various nursing/medical issues pertaining to management of people living with HIV/AIDS

including treatment modalities admitted to CCU settings. Their practice is guided by policies/guidelines regarding HIV/AIDS as respondents indicated. Of the respondents who reported to have undergone the training 45% (N=9) perceive that lack of updated information made them unprepared to provide services for people living with HIV/AIDS while 94% (N=50) indicated that HIV/AIDS management should be incorporated into the critical care nursing programme. Thirty nine percent (N=22) felt that the content of training should include the entire HIV/AIDS management course. They also believed that this would improve the critical care nursing standards of care 75% (N=42). However, the respondents reported challenges such as unknown HIV/AIDS status of the patient 46% (N=26), while they were not affected by the knowledge of the HIV status of the patient 41% (N=23).

4.6 CONCLUSION

In this chapter data generated by the use of questionnaires entailing both structured and open-ended questions was analyzed and presented in bar charts and pie charts. This analysis was based much on the research questions and objectives as explained in the chapter. This will be followed by the discussion and conclusions drawn by the researcher based on relevant literature and the results of this study.

CHAPTER FIVE

DISCUSSION, LIMITATIONS, RECOMMENDATIONS AND CONCLUSIONS

5.1 INTRODUCTION

In the previous chapters the purpose and objectives, research methodology and layout of the study were discussed in detail. The previous chapter focused on analysis and presentation of the data, and in this chapter, a discussion of the research results, conclusions reached, limitations and the recommendations are given.

5.2 DISCUSSION

The discussion of these results is based upon consideration of the purpose of the study, which was to explore critical care nurses' perceptions of their educational preparedness in managing people living with HIV/AIDS admitted to critical care units (CCUs) in KwaZulu-Natal, thus informing the education and training of the critical care nurses. The results of the study are interpreted within the context of relevant literature reviewed, the research objectives, the conceptual framework and the theoretical underpinning used in this study. The data collection tool used was composed of both closed-ended and open-ended questions which yielded both numeric and categorical data which will be discussed in the following paragraphs.

This discussion has been guided by the objectives of the study and therefore did not follow the chronological order presented in chapter four, nor the sequence in the questionnaire.

- Determine the availability of any policies for the management of people living with HIV/AIDS in the critical care settings.
- Describe the current practice of the critical care nurses in dealing with people living with HIV/AIDS.

- Explore the challenges of critical care nurses in caring for a people living with HIV/AIDS.
- Exploring the perceptions of critical care nurses in relation to the CCU training undergone and management of people living with HIV/AIDS.
- Describe the current curriculum of critical care nursing in relation to management of people living with HIV/AIDS admitted to CCUs.

5.3 SUMMARY OF FINDINGS

5.3.1 DEMOGRAPHIC DATA

Even though demographic information was directly concerned with purpose and objectives of the study, it was merely gathered and analysed to substantiate the characteristics of the respondents under study. This data yielded results which indicated that 87.5% of the entire population were females aged 45 years and above. Their majority (69.6%) had a diploma as their highest level of education with most (91.1%) of them qualified in post basic diploma in medical surgical nursing science, critical care general. Moreover, they have worked in a critical care setting for 11 years and above with 37.5%. Figure 4.1 through to Figure 4.5 are elaborate more on these statistics. Male representation in this population was very low as there were only 12.5% of males. There were also few nurses (21.4%) of younger ages and very few (3.6%) of the participants had reached a master's level of education. These findings are clearly in conjunction with the findings by Ozdemir, Akansel and Tunk (2008) that nursing continues to be seen as a fitting position for females and not males.

5.3.1 AVAILABILITY OF THE GUIDING POLICIES AND PROCEDURES

The planning unit of the University of the Orange Free State (2005) describes policies as written statements or sets of statements that describe principles, requirements and limitations and are characterised by indicating what needs to be done rather than how to do it. Such statements have the force of establishing rights, requirements and responsibilities. The policies are there to facilitate consistent efficient organisational operations, ensure uniformity and consistency in decision making and operational procedures, assist in assessing performance and establishing accountability. They further clarify functions and responsibilities for the employees (New South Wales Government, 2009). From the understanding of these definitions it can be deduced that HIV/AIDS policies are such statements or sets of statements as they relate to HIV/AIDS. These statements form the base for action to HIV/AIDS prevention and treatment strategies including guidelines and standards of care.

The results of this study indicate that guiding policies are available within the CCUs of the hospitals. In Table 4.3 and Figure 4.10 in the previous chapter we learn that 75% of the respondents indicated that policies that govern HIV/AIDS are readily available, 17% reported they did not know whether these policies were available or not. It was only 8% of the respondents who claimed that such policies were not available. These results are in line with the South African HIV/AIDS and STI strategic plan (2007- 2012) which has some of its priority areas as prevention of HIV infection, treatment, care and support through strengthening the health and other systems so as to create the conditions for universal access to a comprehensive package of treatment for HIV, including antiretroviral therapy, and the integration of HIV and TB care.

5.3.2. THE CURRENT PRACTICE OF THE CRITICAL CARE NURSES IN CARING FOR PEOPLE LIVING WITH HIV/AIDS

This section focused on determining whether people living with HIV/AIDS are ever admitted to CCUs and if admitted how their HIV status is reached, and it also determined if critical care nurses discussed medical issues pertaining to HIV/AIDS management in the critical care settings.

Table 4.2 and Figure 4.9 of chapter four indicate that 28% indicated that they sometimes discussed medical issues related to the care of patients with HIV/AIDS. Those who never had discussions contributed 15% followed by those who almost never had discussions at 12%. It is only 24% and 21% of the participants who respectively frequently and always discussed the issues around the care of people living with HIV/AIDS who were admitted to CCUs. These results indicate that critical care nurses have less interest in discussing the very same issues which are of more importance for their daily practice, especially because many of them indicated they had no training on HIV/AIDS management. Unfortunately there is no evidence of literature to support this finding in regard to interest of nurses towards knowledge of HIV/AIDS management.

5.3.3 THE CURRENT CURRICULUM OF CRITICAL CARE NURSING IN RELATION TO MANAGEMENT OF PEOPLE LIVING WITH HIV/AIDS

In order to determine the content of the current critical care nursing curriculum in regard to management of HIV/AIDS and the care of people living with HIV/AIDS, the respondents were expected to indicate whether they had undergone any training. For those who reported to have undergone the training, the Likert scale was utilised to determine the adequacy of such training. Furthermore, it was expected from these respondents who had training to indicate how prepared they were to care for people living HIV/AIDS.

The majority of the critical care nurses in the selected hospitals did not have any training in HIV/AIDS management and care of people living HIV/AIDS. A total of 64% of the respondents were not trained in the management of HIV/AIDS while 36% of them had undergone training. As illustrated in Figure 4.7, of the 36% who had undergone training, it was only 25% who got their training in a nursing college as a module and another 25% at a university, while 40% got their training in workshops and 10% through in-service training. This brings an understanding that the current training of critical care nurses does not include HIV/AIDS management, thus limiting the knowledge and skills of the critical care nurses in providing care for people living with HIV/AIDS.

5.3.4 DATA FROM OPEN-ENDED QUESTIONS

In order to fully understand the critical care nurses' perceptions of their educational preparedness, data from open-ended questions was tabulated and grouped to generate co-subjects and subjects. There are eight co-subjects which emerged as the respondents replied to the open-ended questions.

5.3.4.1 THE CHALLENGES OF CRITICAL CARE NURSES IN CARING FOR PEOPLE LIVING WITH HIV/AIDS

The main challenges stated by the participants were the unknown HIV/AIDS status of the patient, lack of knowledge of antiretroviral treatment and emotional challenges.

5.3.4.1.1 UNKNOWN HIV/AIDS STATUS OF THE PATIENT

Confidentiality accompanied by the disclosure of HIV status was reported as the major cause of the unknown HIV/AIDS status of the patients, which negatively contributed to the care of patients. The negative results of confidentiality became more apparent when family members, including the spouse, were not able to help the patient because they did not know his/her HIV status. Their main concern was that this leads to the condition whereby the patient's treatment

may be interrupted or delayed thus causing the patient to be a defaulter. They mutually articulate that if the HIV status of the patient is not known to any of the relatives (the next of kin), it places the patient in danger of defaulting his/her ARV treatment, and therefore resulting in poor recovery. They were of the strong belief that the spouse or next of kin must know the status so that they can get the necessary medical support in case they are not able to converse themselves.

Although the disclosure of HIV status to partners or anybody else is the choice and right of the patient, people who are diagnosed with an HIV infection are usually encouraged to disclose their status to people of their own choice who will be able to provide necessary help and support. Deribe *et al.*, (2008) admit that self-disclosure of sensitive information is usually considered to have favourable effects on an individual's health including lowering stress, leading to better psychological health, better adherence to ART treatments and allowing partners to engage in preventive behaviours as well as the access of necessary support for coping with serostatus or illness.

5.3.4.1.2 LACK OF KNOWLEDGE OF ANTIRETROVIRAL TREATMENT

Some of the participants (37%) reported they lacked knowledge of ARV treatment, which may adversely hinder the proper care of patients diagnosed with HIV who are admitted into critical care settings. Hall and Sutton (2002), in her study on non-HIV nurses' knowledge of HIV therapy at the University of Central England, indicated that non-HIV nurses including critical care nurses did not have basic knowledge of HIV therapy. Basic knowledge of ARV treatment by critical care nurses is essential providing skilled treatment and care, and support of patients' adherence to minimise the risk of drug resistance as it has been indicated by some of the participants.

5.3.4.1.3 EMOTIONAL CHALLENGES

In a fraction of the participants (4%) negative emotional challenge was noted as they expressed their fears towards blood spurts, needle pricks, including post exposure prophylaxis treatment and its side effects, while some worried about patients who may be restless, confused and uncontrolled especially when activities such as removal of chest drains was performed and blood was involved.

5.3.5 THE PERCEPTIONS OF CRITICAL CARE NURSES IN RELATION TO THE CCU TRAINING UNDERGONE AND MANAGEMENT OF PEOPLE LIVING WITH HIV/AIDS

In order to determine their perceptions, the data collection tool entailed open-ended questions which came as a follow on from closed-ended questions. These were questions that emerged from all parts of the tool. The results from these questions demonstrated the following:

5.3.5.1 REASONS FOR NOT BEING PREPARED ENOUGH

A fraction 36% (N=20) of the respondents had undergone the training in HIV/AIDS management from various places including workshops and in-service training, 45% (N=9) of them indicated that they were not prepared enough to provide services for people living with HIV/AIDS because they lacked updated information on the subject and 25% (N=5) claimed they had inadequate training. According to these results there were no critical care nurses who reported to be feeling prepared enough to care for this group of patients, instead, 30% (N=6) did not respond to this question. This indicates that critical care nurses in these two hospitals perceive that they are not educationally prepared to provide services for people living with HIV/AIDS admitted to CCUs. This finding is inconsistent with the findings of the study conducted by Hall and Sutton (2002) who indicated that non-HIV nurses' lack of knowledge of HIV therapy therefore needs a sound basic knowledge of HIV therapy to

deliver safe, effective care to patients. Nurses need access to HIV awareness updates at trust level and HIV awareness courses at university level (Hall and Sutton, 2002). This is further evidenced by the majority 94% (N=50) who reported that HIV/AIDS management should be incorporated into the critical care nursing programme. Their mutual perception 75% (N=42) is that this will improve the standards of nursing care in the critical care field.

5.3.5.2 HOW KNOWLEDGE OF HIV STATUS INFLUENCES FEELINGS

The knowledge of a patient's HIV status does not affect or influence the care provided by the critical care nurses. The respondents (41%) indicated that discovery or knowledge of a patient's HIV status did not affect/influence their routine care of such patients while still maintaining the precautionary measures. These are the positive attitudes which demonstrate what was declared by WHO in 2003 when launching its major campaign on scaling up treatment for HIV/AIDS in developing countries. The declaration was based on the assumptions that as HIV/AIDS becomes a preventable and treatable disease, attitudes will change and denial, stigma and discrimination will rapidly be reduced.

The attitudes demonstrated by the respondents are assumed to be the driving force behind them to keep the universal standards of occupational safety. The majority of them (25%) were very keen about maintaining universal precautionary measures as they performed their daily nursing activities. While on the other hand, such attitudes display an understanding towards HIV/AIDS disease since 30% of them also indicated that they provided equitable distribution of care to patients regardless of HIV status.

Compassion was expressed by 2% of the participants upon the discovery of the HIV status of their patients. Being compassionate is a demonstration of the philosophical attributes of nursing care, its concepts and principles, knowledge and skills, and the attitudes, values, and

beliefs that underlie it. These concepts are central to the process of professional education (Fox, Aiken and Messikomer, 1990).

5.3.5.3 PROGRAMME CONTENT

The respondents had collaboratively agreed that they need HIV/AIDS management to be included in the programme for critical care nursing although they have shown different topics they believe should be included in the programme. A total of 39% indicated that the entire HIV/AIDS management programme was required in the critical care nursing programme, 25% believed HIV/AIDS treatment regimen would be enough, 20% suggested adherence and complications of ARVs and 16% believed only drug interaction was adequate for critical care nurses.

5.3.5.4 CONTRIBUTION TO QUALITY OF CRITICAL CARE NURSING

Most of the respondents (75%) indicated the inclusion of HIV/AIDS management in the curriculum of critical care nursing would bring a great improvement to the quality of service provided by the critical care nurses for patients diagnosed with HIV. They further believed that the standards of care in the CCUs would be improved and maintained as holistic care can be provided by well-informed nurses. They (20%) further believed that training in HIV/AIDS management would continue to reduce the stigma that is still attached to the diseases. However some of the participants (5%) felt that HIV training would not change the way they had been taking care of the patients diagnosed with an HIV infection and thus understand that there was no need for training in HIV/AIDS management.

5.4 RELATING THE DATA ANALYSIS TO THE CONCEPTUAL FRAMEWORK

The conceptual framework discussed in chapter 1 of this study stated that structure standards refer to the educational context of the critical care nurses and the availability of resources for both training and patient care in CCUs. Among the structure, standards, policies and

procedures were also discussed. The findings of this study indicate that policies and procedures have been drawn and available in each CCU of the hospitals where the study was conducted. The assumption is that these policies have been drawn from the national HIV/AIDS policy and they are based on the philosophies of the concerned institutions. The presence of policies will probably influence the management style in the CCUs and training of personnel in the management of HIV/AIDS.

According to Donabedian (1980), process standards are determined by the structure standards. When structure standards are in place, then process standards can be implemented. For example, the availability of the policies and the procedures which have been shown by the results of this study facilitates the formulation of curriculum design for a critical care nursing programme and learning processes. Furthermore, these standards help in the assessment of achievements of the programme, assists in the needs analysis programmes as well as the development and implementation of the programme regarding content of HIV/AIDS management in CCUs, strategies, assessment procedures and co-ordination and control.

5.5 LIMITATIONS

The limitations of a research study include such factors which affect the characteristics of design or methodology and therefore establish constraints on the presentation and interpretation of the results of the study. Mitchell, Wirt and Marshall (1986) indicated that the most obvious limitation would relate to the ability to draw descriptive or inferential conclusions from sample data about a larger group.

This study was entirely designed quantitatively and guided by quantitative philosophical methodology, paradigm, designs and data collection strategies (although qualitative methodology was used to a limited extent) and is therefore restrictive. The in-depth interview

may have provided richer data on the lived experiences of the critical care nurses regarding care of people living with HIV/AIDS. A self-reporting method of data collection which was utilized also had disadvantages which may be evident in this study as indicated by Barker, Pistrang and Elliott (2002). However, self-reporting allows the respondents to directly give their perceptions and therefore there is reception to phenomenological data because such processes are the most effective at measuring perceptions. It is therefore an unavoidable criticism of this study.

The data collection was confined to only two hospitals in the relatively large KwaZulu-Natal province, therefore, the findings may be not generalized to suit other districts within the province nor apply to other provinces in South Africa. Additionally, the sample for this study comprised of only 89 critical care nurses. This sample is also a relatively very small proportion to represent the entire population of the critical care nurses in the country. This further minimizes the likelihoods of generalization as compared to a larger sample size. The perceptions of individual critical care nurses in these two hospitals may not be applied to other critical care nurses in other hospital settings. Although the instrument used was scientifically tested for validity and reliability, it was used in the same setting where a pilot study was conducted and was therefore liable to produce similar results which may be confined to the area.

5.6 RECOMMENDATIONS

The literature reviewed and the results of this study indicated that critical care nurses are faced with several challenges including lack of knowledge towards management of HIV/AIDS. The recommendations made here are therefore influenced by the literature review and the findings of this study and are focused on the clinical setting and nursing management, nursing education and nursing research.

5.6.1 RECOMMENDATIONS FOR CLINICAL SETTING AND NURSING

MANAGEMENT

The HIV/AIDS pandemic places major challenges on critical care nursing which requires that nurses working in this environment are highly knowledgeable, competent and skilful towards the management of HIV/AIDS. Therefore the following recommendations are made:

- Nursing management should implement such policies and procedures which are placed to help and guide in the management of HIV/AIDS in these settings. This should be based on the needs of the units they are running and the patients served.
- It is important that nursing managers and administrators embark on in-service training for critical care nurses so as to hasten and improve the knowledge of HIV/AIDS management in their units.

5.6.2 RECOMMENDATIONS MADE FOR NURSING RESEARCH

- More research and needs analysis projects should be conducted in order to determine the need for inclusion of HIV/AIDS management in the critical care nursing programme. Further, it is important to conduct studies which may determine the interest of critical care nurses in the discussion of factors relating to their routine activities in the care of patients.
- A large scale study is recommended which will provide appropriate generalization of the findings of the study.

5.6.3 RECOMMENDATIONS MADE FOR NURSING EDUCATION

- The curriculum for critical care nursing should be reviewed based on the findings of research and needs analysis projects conducted in order to cater for HIV/AIDS management. This should include all stake holders being the policy makers, training

institutions, the learners and consumers of nursing care namely the patients and the hospital managers.

5.7 CONCLUSION

The literature review indicates that South Africa, which is hit hard by the HIV/AIDS pandemic, is facing an acute shortage of nurses working in CCUs, while on the other hand more HIV/AIDS patients continue to fill the CCUs. The use of antiretroviral drugs in CCUs remains controversial due to a lack of standards and policies of how this treatment can be administered in these settings (Anderson, 2009). Apart from that, there are still numerous complications and challenges posed by these drugs including medication interactions, absorption, administration and adverse reactions including IRIS, which all tend to affect the care of people living with HIV/AIDS especially in the CCUs.

This study which was guided by the quantitative descriptive design of positivist paradigm and yielded the results which indicate that of critical care nurses who were sampled for this study and had undergone training in HIV/AIDS management, 45% and 25% respectively perceive that they are not educationally prepared to provide services for people living with HIV/AIDS admitted to CCUs. This is further evidenced by the majority 94% (N=50) who reported that HIV/AIDS management should be incorporated into the critical care nursing programme. Their mutual perception 75% (N=42) is that this would improve the standards of nursing care in the critical care field. In addition to lack of training and updated information reported by the respondents, they were still challenged by factors such as an advanced level of HIV disease, confidentiality about the disease, knowledge about an HIV/AIDS treatment regimen and emotional challenges. The issue of confidentiality brings more concerns especially when the patient's treatment is delayed or defaults because of lack of knowledge of their HIV status by their care givers (be it family members or health personnel) and there is a lack of support

from family members. However, there are guiding policies within critical care settings for nurses to utilise in the management of HIV/AIDS and in the care of people who have already been infected. Together with their positive attitudes demonstrated by not being widely affected by the knowledge of the HIV status of the patient and adherence to the universal precautions, critical care nurses have demonstrated a sense of the current practices towards management of HIV/AIDS.

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APPENDICES

APPENDIX A: THE QUESTIONNAIRE

EXPLORING CRITICAL CARE NURSES' PERCEPTIONS OF THEIR EDUCATIONAL PREPAREDNESS IN MANAGING PEOPLE LIVING WITH HIV/AIDS ADMITTED TO CCUs IN KWAZULU-NATAL

You are expected to spend less than 45 minutes to complete this questionnaire.

Please answer all questions by marking on the opposite box e.g. X or √ and give an explanation where necessary.

SECTION 1: BIOGRAPHICAL DATA

1.1 Gender: Male Female

1.2 Age: 25- 34 years

35 - 44 years

45 years and above

1.3 Highest level of nursing education:

Diploma Bachelor's degree Honours degree

Master's degree Doctorate degree

1.4 What nursing speciality do you have?

- Post-basic diploma in medical surgical nursing science: Critical care general.
- Post-basic diploma in medical surgical nursing science: Trauma care.
- Degree in medical and surgical nursing science: Critical care general.
- Degree in medical and surgical nursing science: Trauma care.
- Masters in medical and surgical nursing science: Critical care general.
- Masters in medical and surgical nursing science: Trauma care.

1.5 Years of service in critical care unit:

- 0 – 1 year
- 1- 5 years
- 5 – 10 years
- Over 15 years

SECTION 2: TRAINING IN HIV/AIDS

2.1. Do have any training in HIV/AIDS management? *(If no, please go to 3.1)*

Yes

No

2.2 Where did you get the training?

- a) Nursing college – module
- b) University – module
- c) In-service training
- d) Workshop

2.3. If you have any training, indicate by a tick which topics were covered and amount of information given on each topic?

TOPIC	No training	Inadequate	Adequate	Extensive
Epidemiology of HIV/AIDS				
HIV transmissions				
Pathogenesis of HIV infections				
Clinical features of HIV/AIDS				
Diagnosis of HIV/AIDS				
Voluntary Counselling and Testing (VCT)				
Prevention of HIV infections				
Antiretroviral management of HIV/AIDS				
Recognition and management of opportunistic infections				
Monitoring of HIV/AIDS: CD4, cell count, viral load				
Recognition and management of stress prevention of burnout in HIV/AIDS care				
Caring of the care givers				
Legal and ethical issues in HIV/AIDS				
Emotional care of dying HIV/AIDS patients				

2.4 How well prepared do you feel to provide HIV/AIDS care services as part of your routine work? Would you say that you feel:

- a) Well prepared
- b) Somewhat prepared
- c) Not prepared enough

2.5 If not prepared enough, why? Please provide at least two reasons.

.....

.....

SECTION 3: PRACTICE REGARDING CARING OF HIV/AIDS PATIENTS

3.1 How often do you admit or care for HIV positive patients in your unit?

- Not at all
- Infrequently
- frequently
- Most frequently

3.2 How do you know if the patient is HIV positive?

- From signs and symptoms
- By a blood test
- Both

3.3 Please indicate whether you discuss each of the following nursing/medical related issues with patients with HIV/AIDS or prescribed HIV medications in ICUs with your other staff members.

	Always	Frequently	Sometimes	Almost never	Never
Adherence with antiretroviral regimen					
Adherence with post-exposure prophylaxis protocols					
Administration of oral antiretroviral medicines in ICU					
Medical-related side effects					
Drug-Drug interactions					
Risk reduction regarding HIV transmission					
Policies regarding admission and management of HIV/AIDS patients					

3.4 Are the following policies/guidelines/protocols readily available in your unit?

	Yes	No	Don't know
National HIV Policy			
HIV counselling and testing			
HIV testing procedure			
Confidentiality			
Informed consent			
Post-exposure prophylaxis			
National clinical HIV management guidelines			
Treatment of opportunistic infections			
Blood safety			
Universal precautions			
Ventilation with opportunistic respiratory infections e.g. PJP (PCP)			

3.5 How does your discovery of a patient's status regarding HIV infections influence your feelings regarding nursing that patient? Please explain.

.....

.....

.....

3.6 What challenges have you encountered in caring for HIV positive patients?

.....

.....

.....

3.7 In your opinion, do you think HIV/AIDS management should be included in the critical care nursing programme?

- a) Yes b) No

3.8 What content would like to see added to this programme?

.....

.....

.....

3.9 How do you think this can contribute to the quality of care provided by critical care nurses?

.....
.....
.....

Thank you for participating in this study, your participation is highly appreciated by the researcher.

APPENDIX B: REQUEST TO PARTICIPATE IN A RESEARCH STUDY



**HOWARD COLLEGE Faculty of Health Sciences
SCHOOL OF NURSING 5th Floor, Desmond Clarence Building**

REQUEST TO PARTICIPATE IN A RESEARCH STUDY

I am a masters nursing student at the University of KwaZulu-Natal, conducting a study with the purpose of exploring critical care nurses' perceptions of their educational preparedness in the management of people living with HIV/AIDS admitted to CCUs, assuming that the study will inform the education, training and practice of critical care nurses.

You have been approached by the researcher as a critical care nurse to participate in this study. Your participation will require that you complete a four page questionnaire which will take less than 45 minutes of your time. The data collected through use of this questionnaire will be grouped, categorised and analysed by the researcher.

Please find the attached information sheet for contact details and details pertaining to this study.

Your participation will be highly appreciated.

I thank you

Mahlomola Kutoane

RE: INFORMATION SHEET FOR THE STUDY

STUDY TITLE: EXPLORING CRITICAL CARE NURSES' PERCEPTIONS OF THEIR EDUCATIONAL PREPAREDNESS IN MANAGING PEOPLE LIVING WITH HIV/AIDS ADMITTED TO CCUS IN KWAZULU-NATAL.

Research is conducted with regards to care of people living with HIV/AIDS in the critical care units of your hospital. The aim of this research is to describe the experiences and challenges of critical care nurses in caring for people living with HIV/AIDS in CCUs in KZN, with the assumption that the study will inform the education, training and practice of the critical care nurses. I am therefore interested in knowing your personal experiences and challenges in caring for these patients.

Your participation will require that you complete a four page questionnaire which will take less than 45 minutes of your time. The data collected through use of this questionnaire will be grouped, categorised and analysed by the researcher. The information will only be available to my research supervisor and myself and will be kept under lock and key by my supervisor for a period of five years after which the data collected will be destroyed by being shredded.

Please be aware that confidentiality of the information will be highly maintained by ensuring anonymity in the reporting of the findings. Your name, signature or anything that can link the information you provided back to you, is not required. There are no anticipated risks attached to your participation. Admitting to answer questions on the questionnaires and to participate in this study is considered a free and voluntary choice. You are further free to withdraw at any level of the study without any penalty or any disadvantages involved. Please feel free to

ask questions you may wish to ask. My contact details are: cell 076 474 8706, or kutoanes@gmail.com.

There are no individual benefits or costs to you but I hope that information from the study may identify opportunities for improvement in support and care of family members in the critical care environment. Should you need any further clarification about the study, please do not hesitate to contact me, my supervisor or the ethics committee at UKZN. Contact details are provided below.

<u>Researcher's contact details</u>	<u>Supervisor's contact details</u>	<u>Chairperson:</u>	<u>Ethics</u>
<u>Department</u>			
Mr. Mahlomola Kutoane	Dr. Jennifer de Beer	Faculty of Health Sciences	
Howard College Campus Committee	Howard College Campus	Research	Ethics Review
School of Nursing	School of Nursing	Westville Campus: UKZN	
D. Clarence Building	Desmond Clarence Building	Durban	
4041 Durban, South Africa	4041 Durban, South Africa	+27(031) 260 9441/260 7792	
+2776 474 8706	+27(031) 260 1541		

APPENDIX C: ETHICAL CLEARANCE CERTIFICATE FROM UKZN



Research Office, Govan Mbeki Centre
Westville Campus
Private Bag x54001
DURBAN, 4000
Tel No: +27 31 260 8350
Fax No: +27 31 260 4609
snymanm@ukzn.ac.za

01 November 2011

Mr M Kutoane (210509025)
School of Nursing

Dear Mr Kutoane

PROTOCOL REFERENCE NUMBER: HSS/1110/011M
PROJECT TITLE: Exploring the perceptions of the critical care nurses' of their educational preparedness in managing people living with HIV/AIDS patients in KwaZulu-Natal

In response to your application dated 04 August 2011, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

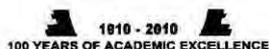
Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.
PLEASE NOTE: Research data should be securely stored in the school/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully


.....
Professor Steven Collings (Chair)
HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE

cc. Supervisor – Mrs Jennifer de Beer
cc. Mr Sugan Reddy



Founding Campuses: ■ Edgewood ■ Howard College ■ Medical School ■ Pietermaritzburg ■ Westville

**APPENDIX D: APPLICATION TO KZN PROVINCIAL HEALTH RESEARCH
COMMITTEE**



**UNIVERSITY OF
KWAZULU-NATAL**

HOWARD COLLEGE

Faculty of Health Sciences

SCHOOL OF NURSING

5th Floor, Desmond Clarence Building

The Chairperson

Provincial Health Research Committee

Private Bag X9051

Pietermaritzburg

3200

Dear sir/madam

PERMISSION TO CONDUCT RESEARCH

The above bears reference.

I am a student at the University of KwaZulu-Natal studying a Master's Degree in nursing. One of the requirements is to conduct a study as partial fulfilment of the degree. I am undertaking a study to explore critical care nurses' perceptions of their educational preparedness in managing people living with HIV/AIDS admitted to CCUs in KwaZulu-Natal.

Attached hereto is my research proposal and certificate of clearance from the Research Ethics Committee of the University of KwaZulu-Natal. For further details my contacts are as follows: 071 874 2706 and kutoanes@gmail.com

I hope my request will reach your utmost consideration.

Yours faithfully

.....

Mahlomola Kutoane

APPENDIX F: APPLICATION LETTER TO ENTABENI LIFE HOSPITAL



**HOWARD COLLEGE
Faculty of Health Sciences
SCHOOL OF NURSING 5th
Floor, Desmond Clarence Building.
05 December 2011**

The Nursing Service Manger

Life Entabeni Hospital

**P.O. Box 2230
Durban**

4001

Dear sir/madam

PERMISSION TO CONDUCT RESEARCH

The above bears reference.

I am a student at the University of KwaZulu-Natal studying a Master's Degree in nursing with specialisation in trauma and intensive care nursing. One of the requirements is to conduct a study as partial fulfilment of the degree. I am undertaking a study to explore

critical care nurses’ perceptions of their educational preparedness in managing people living with HIV/AIDS admitted to CCUs in KwaZulu-Natal. The study will be conducted within the critical care units (intensive care, trauma/emergency care and or high care) of the hospital and the participants will only be the registered nurses qualified in critical care nursing.

Attached hereto is my research proposal and certificate of clearance from the Research Ethics Committee of the University of KwaZulu-Natal.

I hope my request will reach your utmost consideration.

Yours faithfully

.....

Mahlomola Kutoane (mahlomolakutoane@yahoo.com)

Researchers contact details Supervisor’s contact details Chairperson: _____ Ethics

Department

Mr. Mahlomola Kutoane	Dr. Jennifer de Beer	Faculty of Health Sciences
Howard College Campus Committee	Howard College Campus	Research Ethics Review
School of Nursing	School of Nursing	Westville Campus: UKZN
D. Clarence Building	Desmond Clarence Building	Durban
4041 Durban, South Africa	4041 Durban, South Africa	+27(031) 260 9441/260 7792
076 474 8706	+27(031) 260 1541	

APPENDIX G: APPROVAL FROM ENTABENI LIFE HOSPITAL



Life Healthcare Head Office
Oxford Manor, 21 Chaplin Road, Illovo 2196
Private Bag X13, Northlands 2116, South Africa
Telephone: +27 11 219 9000
Telefax: +27 11 219 9001
www.lifehealthcare.co.za

31 January 2012

Attention: Mahlomola Kutoane

Dear Mr Kutoane

APPROVAL FOR RESEARCH STUDY

Our previous correspondence refers.

The Research Committee of the Life Healthcare College of Learning has granted permission for your study entitled:
'Exploring the perceptions of critical care nurses of their educational preparedness in managing people living with HIV/AIDS admitted to CCUs in KwaZulu-Natal.

We look forward to seeing the results of your research once it is completed.

Yours sincerely

Anne Roodt
Nursing Education Specialist

APPENDIX H: APPLICATION LETTER TO THE NURSING SERVICE MANAGER

IALCH



**UNIVERSITY OF
KWAZULU-NATAL**

HOWARD COLLEGE

Faculty of Health Sciences

SCHOOL OF NURSING 5th

Floor, Desmond Clarence Building.

05 December 2011

Nursing service manager

Inkosi Albert Luthuli Central Hospital

800 Bellair Road, Mayville, 4091

Private Bag X03,

Mayville, 4058

Dear sir/madam

PERMISSION TO CONDUCT RESEARCH

The above bears reference.

I am a student at the University of KwaZulu-Natal studying a Master's Degree in nursing with specialisation in trauma and intensive care nursing. One of the requirements is to conduct a study as partial fulfilment of the degree. I am undertaking a study to explore

critical care nurses’ perceptions of their educational preparedness in managing people living with HIV/AIDS admitted to CCUs in KwaZulu-Natal. The study will be conducted within the critical care units (intensive care, trauma/emergency care and or high care) of the hospital and the participants will only be the registered nurses qualified in critical care nursing.

Attached hereto is my research proposal and certificate of clearance from the Research Ethics Committee of the University of KwaZulu-Natal.

I hope my request will reach your utmost consideration.

Yours faithfully

.....

Mahlomola Kutoane (mahlomolakutoane@yahoo.com)

**Researchers contact details Supervisor’s contact details Chairperson: Ethics
Department**

Mr. Mahlomola Kutoane	Dr. Jennifer de Beer	Faculty of Health Sciences
Howard College Campus	Howard College Campus	Research Ethics Review
School of Nursing	School of Nursing	Westville Campus: UKZN
D. Clarence Building	Desmond Clarence Building	Durban
4041 Durban, South Africa	4041 Durban, South Africa	+27(031) 260 9441/260 7792
076 474 8706	+27(031) 260 1541	

APPENDIX I (1): APPROVAL FROM IALCH



health

Department:
Health
PROVINCE OF KWAZULU-NATAL

Inkosi Albert Luthuli Central Hospital
Ethekewini Health District
Office of the Medical Manager
Private Bag X 03, Mayville, 4058
800 Bellair Road, Mayville, 4058
Tel.: 031 240 1059,
Fax.: 031 240 1050
Email.: ursulanun@ialch.co.za
www.kznhealth.gov.za

20 January 2012

Mr M Kutoane
UKZN
Durban

Dear Dr Kutoane

Re: Ref No: HSS/1110/011M: Exploring the perceptions of the critical care nurses of their educational preparedness in managing people living with HIV/AIDS patients in KwaZulu - Natal

As per the policy of the Provincial Health Research Committee (PHRC), you are hereby granted permission to conduct the above mentioned research once all relevant documentation has been submitted to PHRC inclusive of Full Ethical Approval.

Kindly note the following.

1. The research should adhere to all policies, procedures, protocols and guidelines of the KwaZulu-Natal Department of Health.
2. Research will only commence once the PHRC has granted approval to the researcher.
3. The researcher must ensure that the Medical Manager is informed before the commencement of the research by means of the approval letter by the chairperson of the PHRC.
4. The Medical Manager expects to be provided feedback on the findings of the research.
5. Kindly submit your research to:

The Secretariat
Health Research & Knowledge Management
330 Langaliballe Street, Pietermaritzburg, 3200
Private Bag X9501, Pietermaritzburg, 3201
Tel: 033395-3123, Fax 033394-3782

Yours faithfully

Dr M E L Joshua
Medical Manager

uMnyango Wezempilo . Department van Gesondheid

Fighting Disease, Fighting Poverty, Giving Hope

APPENDIX I (2)



health

Department:
Health
PROVINCE OF KWAZULU-NATAL

Inkosi Albert Luthuli Central Hospital
Ethekekwini Health District
Office of the Medical Manager
Private Bag X 03, Mayville, 4058
800 Bellair Road, Mayville, 4058
Tel.: 031 240 1059,
Fax.: 031 240 1050
Email.: ursulanun@ialch.co.za
www.kznhealth.gov.za

Reference: HSS/1110/011M
Enquiries: Dr M E L Joshua

20 January 2012

Mr M Kutoane
UKZN
Durban

Dear Dr Kutoane

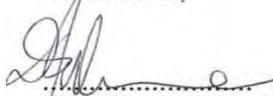
RE: PERMISSION TO CONDUCT RESEARCH AT IALCH

I have pleasure in informing you that permission has been granted to you by the Medical Manager to conduct research on: **Exploring the perceptions of the critical care nurses of their educational preparedness in managing people living with HIV/ AIDS patients in KwaZulu-Natal**

Kindly take note of the following information before you continue:

1. Please ensure that you adhere to all the policies, procedures, protocols and guidelines of the Department of Health with regards to this research.
2. This research will only commence once this office has received confirmation from the Provincial Health Research Committee in the KZN Department of Health.
3. Kindly ensure that this office is informed before you commence your research.
4. The hospital will not provide any resources for this research.
5. You will be expected to provide feedback once your research is complete to the Medical Manager.

Yours faithfully



Dr M E L Joshua
Medical Manager

uMnyango Wezempilo . Department van Gesondheid

Fighting Disease, Fighting Poverty, Giving Hope

APPENDIX I (3):



health

Department:
Health
PROVINCE OF KWAZULU-NATAL

Inkosi Albert Luthuli Central Hospital
Ethekwini Health District
Office of the Medical Manager
Private Bag X 03, Mayville, 4058
800 Bellair Road, Mayville, 4058
Tel.: 031 240 1059,
Fax.: 031 240 1050
Email.: ursulanun@ialch.co.za
www.kznhealth.gov.za

20 December 2011

Mrs P Zungu
Nursing Manager
IALCH

Dear Mrs Zungu

RE: Research Application Approval: Ref:HSS/1110/011M – Mr M Kutoane

Please find attached the following study: Protocol: **Exploring the perceptions of the critical care nurses of their educational preparedness in managing people living with HIV/AIDS patients in KwaZulu- Natal**

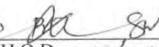
Yours faithfully



Dr M E L Joshua
Medical Manager

RECOMMENDATION

Recommended.

Approved:  H.O.D. 05/01/2012 Non-Approved: _____ H.O.D

APPENDIX J: APPROVAL FROM KZN RESEARCH COMMITTEE



health

Department:
Health
PROVINCE OF KWAZULU-NATAL

Health Research & Knowledge Management sub-component
10 – 103 Natalia Building, 330 Langalibalele Street
Private Bag x9051
Pietermaritzburg
3200
Tel.: 033 – 3953189
Fax.: 033 – 394 3782
Email.: hrkm@kznhealth.gov.za
www.kznhealth.gov.za

Reference : HRKM16/12
Enquiries : Mrs G Khumalo
Telephone : 033 – 3953189

07 February 2012

Dear M Kutoane

Subject: Approval of a Research Proposal

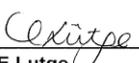
1. The research proposal titled '**Exploring the perceptions of the critical care nurses of their educational preparedness in managing people living with HIV/AIDS admitted to CCU in KwaZulu-Natal**' was reviewed by the KwaZulu-Natal Department of Health.

The proposal is hereby **approved** for research to be undertaken at Inkosi Albert Luthuli Central Hospital.

2. You are requested to take note of the following:
 - a. Make the necessary arrangement with the identified facility before commencing with your research project.
 - b. Provide an interim progress report and final report (electronic and hard copies) when your research is complete.
3. Your final report must be posted to **HEALTH RESEARCH AND KNOWLEDGE MANAGEMENT, 10-102, PRIVATE BAG X9051, PIETERMARITZBURG, 3200** and e-mail an electronic copy to hrkm@kznhealth.gov.za

For any additional information please contact Mrs G Khumalo on 033-3953189.

Yours Sincerely


Dr E Lutge
Chairperson, Health Research Committee
KwaZulu-Natal Department of Health
Date: 13/02/2012

uMnyango Wezempilo. Departement van Gesondheid
Fighting Disease, Fighting Poverty, Giving Hope

APPENDIX K: CERTIFICATE OF PROOF READING BY THE EDITOR

10 December 2012

To whom it may concern

This is to certify that I have proof read Mahlomola Kutoane's document and made any corrections to grammar and spelling, and made any suggestions regarding changes to content for him to consider.

Lauren Walford

084 240 9326

laurenb@dbn.caxton.co.zas