

**EFFECTS OF NURSING WORKLOADS ON PATIENT SAFETY IN THE
SELECTED PUBLIC HOSPITALS IN VHEMBE DISTRICT OF LIMPOPO
PROVINCE, SOUTH AFRICA**

By

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DECLARATION

I declare that, **THE EFFECTS OF NURSING WORKLOADS ON PATIENT SAFETY IN SELECTED HOSPITALS IN VHEMBE DISTRICT OF LIMPOPO PROVINCE, IN SOUTH AFRICA**, is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete reference and that this work has not been submitted before for any other degree at any other institution.

.....
Signature (A.G. Mphephu)

.....
Date

DEDICATION

I especially dedicate this study to my children, Dr Dembe, Gundo, Mukundi and Rokunda, my husband, Dr Mphephu D.M., with your encouragements and love I was able to carry out this study. You are the best.

My late sister, Netshiozwi N.J., you have been a great part of this study. May your soul rest in peace.

Above everything, I would like to thank the Almighty God for giving me strength, wisdom and passion to continue until the completion this study.

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EFFECTS OF NURSING WORKLOAD ON PATIENT SAFETY IN THE SELECTED PUBLIC HOSPITALS IN VHEMBE DISTRICT OF LIMPOPO PROVINCE, SOUTH AFRICA.

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ABSTRACT

Background: The heavy workload of hospital nurses is a major problem globally. Nurses are experiencing higher workloads than ever before due to four main reasons, increased demand for nurses, inadequate appointment of new nurses, reduced staffing and increased overtime and reduction in patient length of stay. It is necessary for South Africa to find ways to reduce nursing workload and improve patient safety particularly in rural areas, to understand these effects of nursing workload on patient safety, the study was conducted with professional nurses from selected hospitals in Vhembe district, Limpopo Province.

Purpose: The purpose of this study was to determine and to assess the effects of nurses' workloads on patient safety in the selected public hospitals, Vhembe District, Limpopo Province, South Africa.

Methodology: Quantitative, exploratory descriptive design was adopted. Self-administered questionnaires were used for data collection from the sampled hospitals in Vhembe district. Hospitals were sampled based on the statistics of admitted patients in medical and surgical wards. Target population were professional nurses with at least two years working in the sampled wards. Ethical considerations were maintained.

Results: There are several important consequences of high nursing workload. Findings show that a heavy nursing workload adversely affects patient safety. The study also shows that majority 80 (79.0%) of the respondents were overloaded by nursing responsibilities and this negatively affects nursing job satisfaction. As many as 55 (54.4%) indicated that such

workload contributes to high turnover and the nursing shortage. In addition to the higher patient acuity, work system factors and expectations also contribute to the nurses' workload: nurses are expected to perform non-professional tasks such as delivering and retrieving food trays; housekeeping duties; transporting patients; and ordering, coordinating, or performing ancillary services

Conclusion: Nursing workload is affected by staffing levels and the patients' conditions, but also by the design of the nurses' work system. The study showed that a work situation above the assumed optimal level increases the risk for adverse events and patient mortality. However, the resources for nursing staff are limited in all public hospitals where the study focused. Professional nurses, therefore, must use available resources in the most optimal way. The study also recommended that there should be a creation of the nursing posts and the filling of all vacant positions in South Africa. Continuity of in-service training to empower professional nurses on patient safety was emphasised.

Key Concepts: Nursing workload, patient safety, staffing levels

LIST OF ABBREVIATIONS

Act 33 of 2005	:	Nursing Act no. 33 of 2005
AHRQ	:	Agency for Healthcare Research and Quality
AIDS	:	Acquired Immune Deficiency Syndrome
ANA	:	American Nurses Association
CEO	:	Chief Executive Officer
CFNU	:	Canadian Federation of Nurses Unions
HAPU	:	Hospital-Acquired Pressure Ulcers
DQF	:	Donabedian, conceptual Framework
DoH	:	Department of Health
HIV	:	Human immuno virus
Fig	:	Figure
NAHQ	:	National Association for Healthcare Quality
ICU	:	Intensive Care Unit
IOM	:	Institute of Medicine
NDoH	:	National Department of Health
S. A.	:	South Africa
SANC	:	South African Nursing Council
SPSS	:	Statistic Package for Social Science
UK	:	United Kingdom
UNIVEN	:	University of Venda
WHO	:	World Health Organisation

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CHAPTER 1

ORIENTATION OF THE STUDY

1.1 INTRODUCTION

There is no common definition for nurses' workload. Workload is often associated with the volume of nurses' work, and there have been many attempts to quantify nurses' work in relation to health human resource management. We were interested in identifying key predictors that can be used to identify worrisome trends and avert serious outcomes, such as patient mortality and morbidity.

American Nurses Association (ANA) (2014:3) defined nursing as a protective, promotion profession which optimizes health of patients and has abilities to prevent illness and injury;, also alleviates suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, communities, and populations.

Based on these expectations, nurses clearly have responsibilities for promoting patient safety in delivering quality nursing care. The culture of the nursing profession is built upon patient advocacy, in which nurses may promote continuous improvement of patient safety through adverse event identification and reporting followed by innovative systematic approaches toward enhancing the safety of health care systems. Understanding patient safety culture and its relationship with reporting practices and safety perceptions among nurses is one way to identify potential areas for improvement in patient safety. However, South African nurses always show the effect of stress and burnout because of the nurses' workloads. The nurse-to-patient ratio in the South African public hospitals was never taken into consideration. Due to the shortage of nurses, medico-legal hazards occur to various patients. Litigations are reported in which the National Department of Health (NDoH) as well as the provinces are law-suits by the communities, millions are paid to patients/clients.

It is important to recognize patient safety culture as “a complex phenomenon that is not clearly understood by hospital leaders, thus making it difficult to operationalize” (Sammer, Lykens, Singh, Mains & Lackan, 2010:156). It is in this light that the researcher embarked on this important study. The purpose of this dissertation was to determine the effects of nursing workloads on patient safety in the selected public hospitals in Vhembe District, Limpopo Province in South Africa.

1.2 BACKGROUND OF THE STUDY

The United States, Australia, and the United Kingdom (UK) are facing major challenges in the health care industry due to the alarming number of adverse medical events and the associated costs involved (World Health Organisation (WHO), 2008:3; Department of Health (DoH), 2000; Australian Institute of Health and Welfare, 2006 :2). Another major challenge is the injuries and illnesses to hospital staff which becomes significant due to the shrinking work. As a result, immense importance has been directed toward the safety and health of both patients and medical personnel in the hospitals (IOM, 2004:2). Additionally, the federal government encourages researchers by funding studies to help determine causes of errors, publish information about patient safety, improve and development new technology for the health care industry (IOM, 2004:4).

Nursing workloads and patient safety are global challenges. The study which was done in America by Gurses and Carayon (2011:1) supported this background. They stated that heavy nurses’ workload is a major problem which compromises the patient safety. They added that nurses are always working long hours per day; looking after many patients in the ward. Most of the nurses are often complaining of heavy workloads in their work environment. Gurses and Carayon (2011:1) added that nurses are experiencing heavy workloads, due to some of the following issues such as increased demand for nurses, inadequate supply of nurses, reduced staffing, increased overtime, and decreased patients’ length of stay.

Ball, Murrells, Rafferty, Morrow and Griffiths and Qual (2014:1) reported that higher patient-to-nurse ratios have regularly been associated with adverse effects of patient safety and high mortality rates. There is also an increased length of stay of patients in the wards who have been admitted. It was further reported by Ball et al. (2014: 8) that nurses who are overloaded with work often left work uncompleted and left patients unattended. Patients often suffer poor nursing care due to increased nurses' workloads. As a result of that, Ball et al. (2014:10) added that most nurses develop fatigue and burnout syndrome hence decreased quality of care to patients. Aiken, Sermeus, Van den heede, Sloane, Busse, Mckee, Bruyneel, I., rafferty, Griffiths, and Moreno-Casbas (2012: 1) supported this background when they further studied patient safety and pointed out that nurses' job satisfaction and patient staffing levels contribute to fatigue, stress and burnout which in turn compromises patient safety.

Ball et al. (2014: 6) indicated that nurses are the ones who spend most of the time by the patient's bedside although doctors are often observed as the leaders of every team of health care workers. It is of great importance that the productivity of the nurses' duties is up to standard because they are responsible for caring and monitoring patients in order to improve the patient's quality of care. Ball et al. (2014:12) added that when few nurses are on duty, patients' safety is compromised due to increased nurses' workloads. Reports, according to WHO (2008:1) show that there is a relationship between positive health outcomes and the density of professional health care workers. Globally, the media shows that there is shortage of nurses which leads to increased nurses' workloads (WHO, 2008:2).

Gurses and Carayon (2011:1) added that the demands for nurses were increasing as a result of population ageing. The study which was done again by Gurses and Carayon (2011:1) also showed that by the year 2000 and 2020, the United States population were expected to grow by 18 percent (31 million), but over-65 population, with more health care needs were expected to grow by 54 percent (19

million). Gurses and Carayon (2011:1) continued to predict that the supply of nurses was not adequate to meet the demands by then. Recently, considerable attention has been focused on the shortage of health workers in countries with the poorest health indicators, and the potential impact of the shortage on countries' ability to fight diseases and provide essential, life serving interventions.

According to WHO estimates, the current workforce in some of the most affected countries in Sub-Saharan Africa would need to be scaled up by as much as 140% to attain international health development targets (Kinfu, Dal Poz, Mercer & Evans, 2014:225). Health worker shortage in Sub-Saharan Africa derives from many causes, including past investment shortfalls in pre-service training, international migration, and career changes among health workers, premature retirement, morbidity, and mortality. Yet the dynamics on entry into and exit from the health workforce in many countries remains poorly understood (Kinfu et al., 2014:225). The migration of health care workers from developing countries to developed ones is a well-recognized contributor to weaken health systems in low income countries and is considered a primary threat to achieving the health-related millennium development goals.

In 2010, the WHO assembly unanimously adopted the first code practice on international recruitment of health personnel, which recognizes problems related to global shortage of health staff and calls wealthy countries to provide financial assistance to source countries affected by losses of health workers (Mill, Kanters, Hagopian, Bansback, Nachega & Alberton, 2011:11). Drug shortages pose a serious challenge for health care institutions, often interfering with patient care. A common practice during a drug shortage is to select an alternate therapeutic medication; however, these agents often present challenges and may create safety concerns, and harm to patients, including adverse events and medication errors may occur. Patients may file complaints because of drug shortages (McLaughlin, Kotis, Thomson, Harrison, Fennessy, Postelnick & Scheetz, 2013:783).

According to Menees, Vargo, Bonta, Mayo and Jacobson (2013:641) drug shortage has become an unexpected reality for hospitals and physicians in the United States. Between 2005 and 2011, the number of drugs in short supply has quadrupled from 52 to 219, reaching crisis mode in 2010. In a nationwide survey, Menees et al. (2013:641) found that a large percentage of gastroenterology practices have experienced significant shortages in drugs used for sedation during endoscopic procedures and to manage gastrointestinal bleeding, hence patients' safety was compromised.

Globally, about 33,000 nurses demonstrated that, regardless of country, when nurses had heavy workloads, they left essential tasks undone, and they displayed negative attitudes which leads to bad patient outcomes (Aiken, Sermeus, Van den Heede, Sloane, Busse, Mckee, Bruyneel, Rafferty, Griffiths & Moreno-Casbas, 2012). Understanding workload and its impact, particularly from nurses' perspectives, is an urgent undertaking, given global nurses' shortages and the associations between workload and nurse retention (Aiken, Sloane, Bruvneel, Van den Heede & Sermeus, 2013).

The International Council of Nurses (2015) released the results of a survey conducted in collaboration with Pfizer which revealed that 46% of nurses indicated their workload was worse due to staff shortages as compared to five years ago. In the US, nurse turnover has reached 16.5% due to increased workload (Mazurenko, Gupte & Shan, 2015:2). The shortage of nurses was projected to grow more severely. Nursing schools were unable to keep up with the increasing educational demands (Carayon & Gurses, 2008:1). The increasing cost pressure forced health care organisations to reduce patient length of stay. As a result, hospital nurses nowadays take care of patients who were sicker than in the past; therefore, their work efforts were more demanding.

Gurses and Carayon (2011:1)) indicated that several adverse events happened which led to several penalties due to high nurses' workload. The study according to Gurses and Carayon (2011:1) showed that a hefty nurse's workload affects patient safety in an undesirable way. Furthermore, it negatively affected nurses' job satisfaction and as a result, contributed to high turnover, hence nursing shortage occurs. Nurses were expected to perform non professional tasks such as delivering and retrieving food trays; housekeeping duties; transporting patients and ordering medication, coordinating other duties which are not nursing related (Gurses & Carayon, 2011:1). South Africa is not immune to this problem. There is also an increased nurse's workload within the health care systems. Unfortunately, a lot of studies have not been done concerning nurses' workload and patient safety. For example, in Limpopo Province a few studies have researched about the effect of nurses' workload and patient safety; however, little attention has been given to those issues. Hence this study determined the effects of nurses' workload on patients' safety in the selected public hospitals, Vhembe District, and Limpopo Province.

1.3 PROBLEM STATEMENT

Health care services require the coordination of changing information and processes across many operational climates and practices. Despite many calls and efforts to promote quality improvement in health care, research indicates that significant risks to patient safety remain. It should be noted that nursing is a caring profession and therefore, the government and the society expect quality service from the profession, to name just a few: protection, promotion optimization of the health of patients, the ability to prevent illness and injury. Based on these expectations, nurses clearly have responsibilities for promoting patient safety through the delivery of quality nursing care. However, the researcher is a professional nurse who accompanies nursing students to clinical areas within Limpopo training hospitals. She observed that there is a great shortage of nursing workforce which exposes patients to medico legal hazards. The alarming number of adverse medical events and associated costs have placed immense importance on

the safety and health of patients and have created a situation detrimental to both patients and nursing personnel. Long working hours, multiple delegations, low staffing ratios, high patient acuity, minimal social support, low experience level as well as varying workloads are some factors that may have a negative impact on the quality of patient care provided by nursing personnel. These factors lead to exhaustion of the nursing personnel. It is in this light that the researcher thought to pursue the effects of nurses' workloads on patients' safety since the ratio of nursing personnel is limited.

1.4 RATIONALE OF THE STUDY

The researcher was inspired to conduct the study because studies that determined effects of nurses' workload have been conducted globally in many countries including South Africa. However, there is no trace of studies conducted in the Limpopo Province. Hence incidences are occurring on several occasions and repeatedly litigations to the Department of Health are increasing. Shortage of nurses also is a concern to the whole South Africa. This study is of importance because the focus is to find a solution on how to promote patients' safety and improving nurses' workloads.

1.5 THE PURPOSE OF THE STUDY

According to Burns and Grove (2017:78), the research purpose is generated from the problem and it clearly and concisely states the aim of the study. It also establishes the general direction of the enquiry as well as capturing the essence of the study.

The purpose of this study was to determine the effects of nursing workloads on patient safety in the selected public hospitals in Vhembe District, Limpopo Province in South Africa.

1.6 OBJECTIVES OF THE STUDY

Burns and Grove (2017:138) define research objectives as the clear, concise, declarative statements expressed in the present tense that usually are presented following the study purpose to specify the study focus.

The objectives of this study are to:

- Identify effects affecting nurses' workloads in the selected public hospitals
- Identify effects affecting patients' safety in the selected public hospitals
- Describe the relationship between nurses' workloads and patients' safety
- Assess the level of knowledge of nurses in relation to patient safety.

1.7 RESEARCH QUESTIONS

A research question is an interrogative statement and used for the same purposes as objectives (Brink et al., 2017:86). In order to attain the purpose of this study the following research questions were posed:

- What are the effects of nursing workload in the selected public hospital?
- What are the effects of patients' safety in the selected public hospital?
- What are the relationships between nursing workloads and patient safety?
- What are the relationships between the levels of nursing knowledge in relation to patient safety?

1.8 SIGNIFICANCE OF THE STUDY

Significance of the study is part of the research problem that indicates the importance of the problem to nursing personnel and to the health of individuals, families and communities (Burns & Grove, 2013:709). The research findings may assist the hospital management to identify gaps that exist at the selected public hospitals concerning nursing workloads and thereby improve patient safety. The research findings may assist the managers to come up with strategies to maintain the safety of the patients in the hospital and reduce lawsuits.

The research findings of this study may be used to guide and enhance the image of the nursing profession and alert nurses to start caring for the patient holistically, hence promoting patient safety. Findings and recommendations from this study may assist the policy makers to devise policy guidelines which may assist hospital management to develop protocols in the wards such as delegation protocols, staffing allocation protocols, and nurse-patient ratio protocols, to reduce nurses' workloads and promote patient safety.

The study findings may add to existing knowledge about effects of nurses' workload on patient safety. Findings may also be used by the Department of Health to identify the impact of nurses' workload on patient safety and improve nurses' working conditions to improve patient safety. The findings may help the researcher to gain more knowledge about effects of nurses' workload on patients' safety. This study may open new doors for further research in the nursing practice.

1.9 THEORETICAL FRAMEWORK

The researcher utilised Donabedia as the theoretical Conceptual framework in guiding the study. Donabedian's Quality Conceptual Framework is based on the Structure, Processes and Outcome (DQF).

The interrelationships between three basic dimensions: structures, processes, and outcomes, are the focus of Donabedian's framework. The physical and organisational aspects of health care settings are considered the "structures." The structures provide resources for individuals to participate in patient care activities, which are necessary for the next concept processes to occur. For instance, professional nurses are provided with an adequate space in which they can provide quality nursing care. In these activities, medico legal hazards are prevented from occurring.

Processes are implemented to progress patient health "in terms of promoting recovery, functional restoration, survival, and even patient satisfaction" (McDonald et al., 2007:113). Donabedian's framework illustrates that "outcomes" are the results of structures and processes. Quality systems were applied to Donabedian's framework in a study by Kunkel, Rosenqvist and Westerling (2007), and strong indications of a relationship between structure, process, and outcomes were found. When describing quality systems, structures were described as resources and administration, processes were culture and professional cooperation, and outcomes as competence development and goal achievement. Figure 1.1 illustrates the major principles underlying the Donabedian's Quality Framework (DCF) (see Figure 1.1). The (DQF) was identified as the ideal framework for the study since the impact of nurses' workload on patient safety and improved nurses' working conditions to improve patient safety is of importance in the health system. This dissertation focused on patient safety as a quality system to examine the relationship between nurses' perceptions of patient safety culture with outcome measures of event reporting practices and overall safety perception.

Professional nurses comprise a large human resource of health care facility structures and, for the purpose of this dissertation, nurses can be described as a "structure" of the hospital. However, the major focus of this dissertation was to

determine the effects of nurses' workloads on patient safety in the selected public hospitals in Vhembe, S.A. The "process" of patient safety as stipulated by DQF was measured in terms of safety culture dimensions according to the AHRQ's Hospital Survey on Patient Safety Culture. "Outcomes" of event reporting practices and overall safety perceptions were measured by using the AHRQ's survey outcome measures. Figure 1.1 represents a conceptual theoretical framework diagram to identify the relationship between these concepts and how the concepts were measured. Full details of the DCF was discussed in chapter 2 of this study.

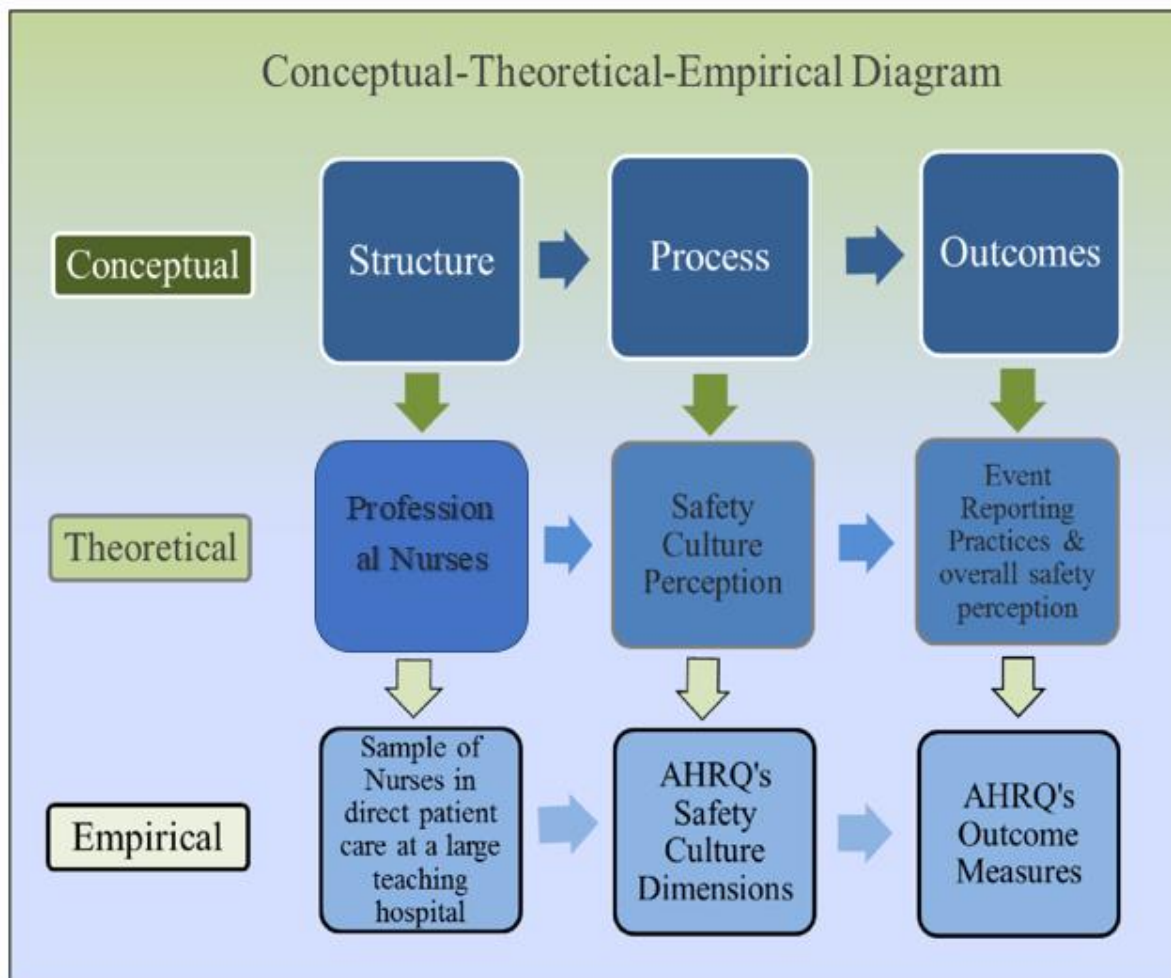


Figure 1.1: Source: Adopted from: Donabedian model

1.10 RESEARCH METHODOLOGY

A research methodology can be defined as the process that consists of the design, setting, sample, methodological limitations, and the data collection and analysis techniques in a study (Burns & Grove, 2013:488). A research study can be successfully conducted using an appropriate research methodology.

1.10.1 Research design

Research design is the plan, receipt or blueprint for the investigation and provides a guideline according to which a selection can be made of which the data methods will be the most appropriate to the researcher's goal (De Vos, Fouché & Delpont, 2012:110). The researcher used a quantitative, descriptive, exploratory and cross-sectional design to determine the effects of nursing workloads on patient safety in the selected public hospitals in Vhembe District, Limpopo Province in South Africa, described in Chapter 3.

1.10.2 Population

A population is the entire group of persons or objects that is of interest to the researcher or that meet the criteria that the researcher is interested in studying (Brink, Van der Walt & Van Rensburg, G., 2012-2013:131). In this study, population comprised of all professional nurses who had been working in medical and surgical wards for a period of two years or more at selected public hospitals.

1.10.3 Sample and sampling

A sample comprises elements or a sub-set of the population considered for actual inclusion in the study, or it can be viewed as a sub-set of measurements drawn from a population in which we are interested (De Vos et al., 2011:223). In this study, sample comprised of all professional nurses working in medical and surgical wards with two years of working experience or more at selected public hospitals.

Sampling means selecting a given number of subjects from a defined population as representative of that population, however, De Vos et al. (2011:223) refer to sampling as means of taking a portion or a smaller number of units of a population as representative or having particular characteristics of that total population. In this study, non-probability convenient sampling for the professional nurses was done, details are given in Chapter 3.

1.10.4 Study setting

Vhembe is one of the five districts of Limpopo Province in South Africa and it covers an area of 25,597.42 km². It is located on the northern side of the country and shares its northern border with Beitbridge District in Matabeleland South, Zimbabwe and on the east with Gaza Province in Mozambique.

The study was conducted in Vhembe District of Limpopo Province in South Africa owing to its trend of serving a large number of people.

1.10.5 Data collection

Data collection is the process of gathering raw information to address a research problem (Polit & Beck, 2017:725). The actual steps of collecting the data are precise to each investigation and they depend on the research design and measurement techniques. Data may be collected by witnessing, examining, measuring, questioning or recording, or any combination of these procedures, and the researcher is actively involved in this procedure either by collecting data or supervising data collectors.

In this study data was collected using self-administered questionnaires to meet the objectives of the study. Details are given in Chapter 3.

1.10.6 Ethical consideration

Ethics is a system of moral values that is concerned with the degree to which research procedures adhere to professional, legal, and social obligations to study participants (Polit & Beck, 2017:727).

The researcher confirmed compliance with ethical principles, relevant to protect the rights of the participants, institutions where data was collected, and scientific integrity were upheld throughout the study. Authorisation was sought and obtained from the Department of Health, concerned health institutions and University of Venda before data collection was initiated.

Details on ethical consideration are presented in Chapter 3 of this dissertation.

1.10.7 Data analysis

Data analysis refers to the technique by which researchers convert data to a numerical form and subject it to statistical analysis (De Vos et al., 2011:249). The analysis of this quantitative data was captured and managed by Microsoft Excel 2013, making it possible to be imported into SPSS (Statistical Package for Social Sciences 25.0) for analysis purposes, data analysed presented by figures, percentage, frequency, pie charts, bar graphs and tables with the assistance of the statistician to analyse data. The concept of data analysis is discussed in detail in Chapter 3 of this dissertation.

1.11 RELIABILITY AND VALIDITY

Reliability refers to the stability or consistency of the measurement. If the same variable yield reliable numerical results each time it is applied (De Vos et al., 2011:162). Burns and Grove (2013:389) point out that reliability is concerned with the stability of the measurement method. To ensure reliability, a pilot study was carried out by administering the questionnaire to 10 participants, who were excluded from the actual study. is measured under the same circumstances, a dependable measurement procedure produces identical measurements and a measuring instrument is able to At a subsequent meeting of these 10 persons, their responses were discussed and compared, and no marked differences were identified. No items were found to be awkward in the instrument during the pretesting phase.

Validity refers to the ability of an instrument to measure the variable that it is intended to measure (Brink et al 2012:218). There are four common types of instrument validity namely: content, face, criterion, and predictive validity (Brink et al 2012:166). Content validity and face validity are relevant to this study.

Content validity gauges the degree to which the content of a test or survey matches the content it is intended to measure (Vogt 2007:118). This was substantiated by the review of literature. Before the data was collected, the researcher submitted the questionnaire to the statistician, the supervisor and the co-supervisor, helped in improving the data collection instrument.

Face validity: Face validity refers to an aspect of validity that examines whether the item on the scale, on the face of it, reads as if it indeed measures what it is supposed to measure (Sekaran & Bougie 2013:396). Face validity also refers to a subjective determination that an instrument is adequate for obtaining the desired information. On the surface, or on the “face” of it, does the instrument appear to be an adequate means of obtaining the desired data? (Brink et al 2012:212). In this study face validity was established by giving the data collection instrument to the experts who evaluated content validity to assess whether the data collection instrument appears to be measuring the appropriate constructs (Polit & Beck 2008:458).

1.12 DEFINITION OF KEY CONCEPTS

An operational definition indicates how a variable will be measured or manipulated in a study (Burns & Grove, 2013:43). This assists the researcher to describe what is to be studied and how it will be investigated. Burns and Grove (2013:43) further define a concept as a term that describes and names the object, thereby giving it a separate identity or meaning. The following terms are used within the contents described in this section of the study.

Effect - is a change that causes results (Hornby, Hey & Hancock, 2015:478). In this study, effect shall mean all negative impact which can be caused by increased nurses' workloads.

Workload - refers to the amount of work that has to be done by a particular person or organisation. (Morris, MacNeela, Treacy & Hyde., 2007:1). In this study workloads shall mean a lot of work which the nurses are being allocated which is too much to carry due to lack of skills, shortage of staff, inadequate knowledge, and inadequate equipment as compared to the number of nurses allocated.

Patient safety - The simplest definition of patient safety is the prevention of errors and adverse effects to patients associated with health care (WHO, 2008:1). In this study, patient safety shall mean the processes that protect the patients from injuries that may be caused by nursing mismanagement and medical errors, which can be due to heavy workload of nurses, stress related work situations, lack of knowledge and lack of experience, being incompetent, ignorant, negative attitudes and poor handover of patients during changeover of shifts in the morning and during the evening.

Nursing- According to the Nursing Act No 33 of 2005, as amended, nursing means a caring profession practised by a person registered under section 31 (South Africa 2005:s6).

Nursing refers to the job or skill of looking after people who are ill, injured or old(Longman Dictionary of Contemporary English for Advanced Learners 2009:554). In this study, nursing means a caring profession practised by a person registered under section 31 of the Nursing Act No 33 of 2005 (South Africa 2005:s6).

1.13 SCOPE OF THE STUDY

The study was conducted in three selected public hospitals and assessments done on professional nurses with two or more years of working experience. Professional

nurses with less than two years of working experience were excluded from the study.

1.14 LIMITATION OF THE STUDY

Study findings cannot be generalised to hospitals excluded from the study as it is the description of the population from the selected hospitals.

1.15 OUTLINE OF THE STUDY

The layout of the study report will be divided into five chapters as follows:

Chapter 1

The chapter contains the introduction, background of the study and the statement of the research problem, significance of the study, the purpose, research objectives and definitions of key concepts that have been used in the study. The introduction of the research design and methods, validity, reliability and ethical considerations were included in this chapter.

Chapter 2

The chapter discusses the literature review assumed for the study including the conceptual framework.

Chapter 3

The chapter outlines the research methodology used in the study, it includes the design, population, sample and sampling techniques. Methods of data collection and analysis as well as measures used to ensure validity and reliability.

Chapter 4

The chapter presents research findings, data analysis, presentation of figures, tables, and interpretation of the results.

Chapter 5

Summary of the study, conclusion and recommendations are presented as well as certain limitations of the study.

1.16 SUMMARY

This chapter gave an overview to the study. The introduction and background of the research problem, problem statement, aims, objectives, significance and research questions, theoretical framework and introduction of research methodology were covered. The following chapter discussed literature review.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The previous chapter addressed the research problem, aim and significance of the study, definition of key concepts, foundations of the study, research design, measures ensuring reliability and validity of the study, ethical considerations and the scope and limitations of the study. This chapter focuses on the review of relevant literature on effects of nurses' workloads and patient safety in the selected public hospitals. A literature review is a procedure used in finding, reading, understanding and forming conclusions about published research data, methodology and theory by influential scholars on a particular topic (De Vos, Strydom, Fouche & Delport, 2005:117). Brink et al. (2017:70) argues that, "A review of the literature should be structured around the key concepts of the research problem and questions asked."

The purpose of a literature review is to present an overview of what is already known about nurses' workloads, specifically patients' safety, and relationship between nurses' workloads and patient safety. Also addressed in this chapter is a

description of the knowledge which professional nurses have concerning patients' safety. Research instruments for data collection were also based on the literature review. The researcher chose the topics and subjects of the literature study based on the research questions and objectives. The literature search included recent available literature in the University of Venda library.

The researcher went through journals and other publications and identified and used articles which were related to effects of nurses' workloads on patient safety. The assistance of the subject librarian was also sought. The following databases were searched by both the researcher and the subject librarian:

- OASIS for books in library
- MAGNET for references in South Africa libraries
- NEXUS for research projects current and completed 65
- CINAHL (R) Databases 1999 – 2007/19
- Healthnet for health research
- Internet – various sites
- MEDLINE The keywords used for the search were; workloads, attrition, retention, professional nurses, generations, baby boomers, generation X, millennials, Vogt, corktop and bottle neck, Maslow, Lewin, patients' safety, change and nurse retention. In the search the keywords were used singularly and in various combinations.

The first section provides an overview of the definition of a theoretical framework, and indicates the value of a theoretical framework in a research study. Burns and Grove (2012:810) describe a literature review as, "an analysis and synthesis of research sources to generate a picture of what is known about a particular situation and knowledge gaps that exist in that situation". It is therefore apparent that through literature study, knowledge about the research topic and about studies already conducted on similar topics expands.

Findings from researches which were done before, assisted researchers in refining parts of their studies, especially about the problem statement, design and data analysis process. The literature review can also assist by providing a basis for

comparison when interpreting findings of the current study with those of the study at hand (Brink et al., 2012:71).

According to Brink et al. (2012:71), the researcher conducts literature review for various reasons:

- To conduct a critical analytical appraisal of recent scholarly works on the topic. By determining what is already known about the topic, the researcher can obtain a comprehensive picture of the state of knowledge.
- To identify the research problem and refine the research questions.
- To place the study in the context of the general body of knowledge, this minimises the possibility of unintentional duplication and increases the probability that the study makes a valuable contribution.
- To obtain clues to the methodology and instruments. This aspect provides the researcher with information on what has and has not been attempted with regard to approaches and methods, and on what types of data-collecting instruments exist and work or do not work.
- To refine certain parts of the study, specifically the problem statement, hypothesis, conceptual framework, design and data-analysis process.
- To compare the findings of existing studies with those of the study at hand. This process shows the relevance of the latter findings to the existing body of knowledge.
- To inform or support a qualitative study, especially in conjunction with the collection and analysis of data (Brink et al., 2012:71).

During the literature review process, the researcher focused on the global, Sub-Saharan, Africa and South Africa. Literature review will also help during suggestive recommendation writing. The purpose of literature review in this study was to obtain information relevant to the study in order to determine the effects leading to nursing workload on patient safety in the selected public hospital in Vhembe District, Limpopo Province, South Africa.

2.2 THEORETICAL FRAMEWORK

2.2.1 Introduction

According to Grove, Burns and Gray (2013:41), framework is the abstract logical structure of meaning that guides the development of the study and enables the researcher to link the findings to the body of knowledge that constitutes health science. In research, a theoretical framework is necessary since it provides a framework on which reasoning in view of the purpose of a proposed study can be based (Basavanthappa, 2007:107). Kunkel et al. (2007) were the first known researchers to apply Donabedian's model to quality systems in a large quantitative study. Donabedian's "structure, process, and outcome" were used as a framework for the study's objectives: to develop a new model of quality systems; to investigate whether these components can be used to describe quality systems; to analyze the relationship between these components; and discuss implications. The new quality systems model describes structure as resources and administration, process as culture and professional cooperation, and outcome as competence development and goal achievement. A random sample of hospital departments in Sweden received questionnaires that were developed by the researchers. Although questionnaires were sent to 600 hospital departments, 82 were either shut down or connected with larger departments, in which a maximum of 518 responses were expected. With a total of 386 valid responses, the adjusted response rate was 75%. Confirmatory factor analysis and structural equation modeling in LISREL were used to analyze data.

Results showed that structure, process, and outcome reasonably represented hospital department quality systems, in which the relationship between structure with process (0.72) and outcome (0.60) was found to be strong. Additionally, in the presence of structure, there was also a relationship between process and outcome (0.20). Based on the research findings, there were strong indications of a relationship between structure, process, and outcomes when examining and describing quality systems. "The model states, for instance, that the more time and

money for working with quality improvement (structure), the more positive attitude towards such work (process), and the more regular evaluation of quality related goal accomplishment (outcome)” (Kunkel et al., 2007, p. 2).

With reference to reporting mistakes, the researchers suggested that rewarding positive examples and avoiding punishment may enhance the process of culture and cooperation. This dissertation examined the “quality system” of patient safety culture, which is parallel to the concepts examined in the research by Kunkel et al. (2007). Specifically, a major focus of this dissertation was to determine the effects of nurses’ workloads on the process of patient safety culture. However, it is necessary to note the importance of structure as well.

In theory, the structure of quality systems affects process and outcome. Since this is a cross-sectional study it is important to be careful when discussing causal relationships. However, structure is strongly related to the other two aspects, which may suggest that it is more important (Kunkel et al., 2007:6).

In addition to describing the study, it is necessary to point out the strengths and limitations. Although one of the strengths in this study was a high response rate (75%) and non-responders only represented 25%, non-responders must be considered as a limitation that may have created potential bias and/or affected the robustness of the model. Despite these potential limitations, statistical findings indicated stable results. Further research was recommended to investigate quality systems in relation to departmental processes and hospital organisational structures, as well as to evaluate quality goal achievement.

The Donabedian model of Structure, Process, and Outcome was used in a study by Gardner, Gardner and O’Connell (2013:3) to evaluate quality and safety of nurse practitioner service. In this study, a mixed-methods design was used in which data was collected through stakeholder survey, in-depth interviews of patients and nurse practitioners and by review of health records on service processes. In-depth preparation of Structure and Process was found to be imperative for effective

implementation of a service innovation. The addition of nurse practitioner service was accepted by the multidisciplinary team and perceived as safe, effective and satisfactory by clinician stakeholders and patients. Donabedian's framework was found to be a valuable and validated approach for evaluating service innovation safety and quality. In addition, the interdependence of the Structure, Process, and Outcome components of the Donabedian model were further validated in this study in which specific structure components were found to impact the quality of service processes. The researchers described that when establishing nursing service innovation, comprehension of Structure and Process requirements lays the foundation for safe, effective, and patient-centred clinical care. Donabedian Quality of Care Conceptual Framework was used in a study among US nursing homes to determine barriers as well as health information technology(HIT)-related facilitators to incident reporting. The survey was developed after a comprehensive literature review along with focus groups with eight nursing home administrators using Donabedian theoretical framework.

Additionally, due to the nature of this study, a primary objective was to obtain a descriptive assessment and there was limited examination of outcomes, which is recommended for future research (Wagner et al., 2013). The DQF will be able to clarify the effects of nurses' workloads on patient safety in the selected public hospitals, Vhembe District, Limpopo Province, South Africa. Resources at this level include time given to complete work, rest breaks and available human resources, technological resources and remunerations. Task-level workloads refer to the demands and resources for a specific nursing task, such as medication administration. Demands might include the need to concentrate on multitasks, while resources include training, cognitive capacity, technologies, staff support and more. Each type of workload was measured in a distinct manner, and each might have a different impact on outcomes such as quality of care, patient safety, nurse's behaviour, nurse's job dissatisfaction and burnout. Take note that each type could be addressed through distinct approaches to policy change, training, education and systems designed.

The objectives of the current study were to:

- Identify the factors that affect nurses' workloads in the selected public hospitals

- Identify the factors that affect patients' safety in the selected public hospitals
- Describe the relationship between nurses' workload and patients' safety
- Assess the level of knowledge and skills of nurses in relation to patient safety.

2.2.2 Defining theoretical framework

According to Houser (2015:171), a theoretical framework forms the basis for research in a study. It is the basic structure of the idea to be tested in a study. The framework helps the researcher to organise the study and provides a context in which the researcher examines a problem and gathers and analyses data (Brink et al., 2012:26). A theory is a set of concepts, definitions and propositions that project a systematic view of a phenomenon by designating specific interrelationships among concepts for purposes of describing, explaining, predicting and controlling phenomena (Basavanthappa, 2007:104).

2.2.3 The value of a theoretical framework

A theoretical framework clarifies the concepts on which the study was built. It identified and states the assumptions underlying the study, and specifies the relationship among concepts (Basavanthappa, 2007:107). The concepts that form the basis of a study are clarified so that others will be able to understand the study (Basavanthappa, 2007:107). In this study Donabedian's "structure, process, and outcome of the theoretical framework" was adopted.

2.3 WORKLOAD

Nursing workload refers to the amount of performance required to carry out nursing activities in a specified time period (Morris, MacNeela, Treacy & Hyde, 2007:1). Nursing workload can occur at the unit level, job level and task level (Gurses et al., 2008:1).

2.3.1 Workload at the unit level

According to Holden et al. (2011:1) it was depicted that the most commonly used unit-level workload measure is the nurse-patient ratio. The nurse-patient ratio can be used to compare units and their patient outcomes in relation to nursing staffing. Holden et al. (2011:1) further indicated that previous research provides strong evidence that high nurses' workloads at the unit level have a negative impact on patient outcomes. These studies' suggestions regarding improving patient care are limited to increasing the number of nurses in a unit or decreasing the number of patients assigned to each nurse. However, it may not be possible to follow these suggestions due to costs and the nursing shortage. Holden et al. (2011:1) in their findings reported that a major weakness of that type of research is that it conceptualizes nursing workload at a macro level, ignoring the contextual and organisational characteristics of a health care setting (e.g., physical layout, information technology available) that may significantly affect workload.

Holden et al. (2011:1) reported that nurses' workload measures were generally correlated with outcomes of interest. A multivariate structural model revealed that: the unit-level measure of staffing adequacy was significantly related to job dissatisfaction (path loading=0.31) and burnout (path loading=0.45); the task-level measure of mental workload related to interruptions, divided attention, and being rushed was associated with burnout (path loading=0.25) and medication error likelihood (path loading=1.04).

Job-level workload was not uniquely and significantly associated with any outcomes. The researcher adopted this framework in order to show how the workload in the unit level of the respondents in this study compromised patient safety in Vhembe District – the area is very hot. Vhembe District is also an area where many accidents take place and crime is very high according to the media. When the researcher visited the wards for collection of data the patients were many but nurses were few. The fewer the professional nurses, the lower the supervision and the higher the adverse events. In the unit level when the patients are many the

nurses develop burnout syndrome, then follows job dissatisfaction and later staff turnover.

2.3.2 Workload at the job level

According to Holden et al. (2011:1), Affordable Care Act's Hospital Readmissions Reduction Program (HRRP) penalizes hospitals based on excess readmission rates among Medicare beneficiaries. The aim of the programme is to reduce readmissions while aligning hospitals' financial incentives with payers' and patients' quality goals. Many evidence-based interventions that reduce readmissions, such as discharge preparation, care coordination, and patient education, are grounded in the fundamentals of basic nursing care. Yet inadequate staffing can hinder nurses' efforts to carry out these processes of care. We estimated the effect that nurse staffing had on the likelihood that a hospital was penalized under the HRRP. Hospitals with higher nurse staffing had 25 percent lower odds of being penalized compared to otherwise similar hospitals with lower staffing.

Investment in nursing is a potential system-level intervention to reduce readmissions that policy makers and hospital administrators should consider in the new regulatory environment as they examine the quality of care delivered to US hospital patients.

According to Carayon and Gurse (2008:1) to this conceptualization, the level of workload depends on the type of nursing job or speciality (ICU nurse versus operating room nurse). For instance, Schaufeli and LeBlanc (2014:2) used a job-level measure of workload to investigate the impact of workload on burnout and performance among ICU nurses. Previous research linked job-level workload (a working condition) to various nursing outcomes, such as stress and job dissatisfaction. Workload measures at the job level are appropriate to use when comparing workload levels of nurses with different specialties or job titles (ICU nurses versus ward nurses). However, workload is a complex, multidimensional construct, and there are several contextual factors in a nursing work environment

(e.g., performance obstacles and facilitators) other than job title that may affect nursing workload. In other words, two medical ICU nurses may experience different levels of workload due to the different contextual factors that exist in each ICU.

The workload at the job-level conceptualization fails to explain the difference in the workloads of these two nurses. According to Mchugh et al. (2011:1) nursing workload and its influence on patient safety, job dissatisfaction among nurses contributes to costly labour disputes, turnover, and jeopardizes the patient's safety. Mchugh et al. (2011:1) in their report while examining survey data, their findings from 95,499 nurses shows much higher job dissatisfaction and burnout among nurses who were directly caring for patients in hospitals and nursing homes than among nurses working in other jobs or settings, such as the pharmaceutical industry. Nurses are particularly dissatisfied with their health benefits, which highlight the need for a benefits review to make nurses' benefits more comparable to those of other white-collar employees. Patient satisfaction levels are lower in hospitals with more nurses who are dissatisfied or have burnout.

According to Carayon and Gurse (2008:1) in their recommendations, they suggest that upgrading nurses' working conditions may improve both nurses' and patients' satisfaction as well as the quality of care. Aitken et al. (2011:1) found that, in hospitals with high patient-to-nurse ratios, surgical patients experience higher risk-adjusted 30-day mortality and failure-to-rescue rates, and nurses are more likely to experience burnout and job dissatisfaction.

The past decade has been a turbulent time for US hospitals and practicing nurses. News media have trumpeted urgent concerns about hospital understaffing and a growing hospital nurse shortage. Nurses nationwide consistently report that hospital nurse staffing levels are inadequate to provide safe and effective care. Physicians agree, citing inadequate nurse staffing as a major impediment to the provision of high-quality hospital care.

The shortage of hospital nurses may be linked to unrealistic nurse workloads. Forty percent of hospital nurses have burnout levels that exceed the norms for health care workers. Job dissatisfaction among hospital nurses is four times greater than the average for all US workers, and one in five hospital nurses report that they

intend to leave their current jobs within a year. According to the report's findings done by Holden et al. (2011:1), in their study, from a comprehensive study of 168 hospitals, they show the impact of nurse staffing levels on patient outcomes and factors that influence nurse retention. Specifically, they examined whether risk-adjusted surgical mortality and rates of failure-to-rescue (deaths in surgical patients who develop serious complications) are lower in hospitals where nurses carry smaller patient loads. Furthermore, Holden et al. (2011:1) discovered the extent to which more favourable patient-to-nurse ratios are associated with lower burnout and higher job satisfaction among registered nurses.

In this study the researcher wants to find out if indeed there is workload at the job level standard. The researcher wanted to find out if the amount and kind of work required for the job, do cause workload for the respondents. The researcher wishes to evaluate if time and tools are available to do the work. In this study the researcher will evaluate if the nurses' experience is important for a nurse to do a quality work for patient safety. Holden et al. (2011:1) discussed that this conceptualization assumes that the main determinant of nursing workload is the clinical condition of the patient. Several patient-level workload measures have been developed based on the therapeutic variables related to the patient's condition (e.g., Therapeutic Intervention Scoring System) and have been extensively discussed in the nursing literature. However, recent studies show that factors other than the patient's clinical condition (e.g., ineffective communication, supplies not well-stocked) may significantly affect nursing workload.

As with the previous two workload measures, patient-level workload measures have not been designed to measure the impact of these contextual factors on nursing workload.

2.3.3 Task-level workload

According to Holden et al. (2011:1) they depicted task-level workload as the level of workloads. They show that most of the nurses due to shortage, are delegated a lot of work. They added that some of the work they were delegated will need experience, training and support systems of the technology. Due to the shortage of professional nurses they will never ask anybody concerning the "how" part of a

patient's care. However, the more they do that complex task without knowledge and experience the more the adverse events. Due to those problems, nurses develop fatigue, burnout, job dissatisfaction and they can commit medical errors also.

In addition to the number of patients assigned to a nurse and the patient's clinical condition, situation-level workload can explain the workload experienced by a nurse due to the design of the health care microsystem. In a previous study, they found that various characteristics of an ICU microsystem (performance obstacles and facilitators) — such as a poor physical work environment, supplies not well stocked, many family needs, and ineffective communication among multidisciplinary team members — significantly affect situation-level workload. For example, sometimes several members of the same family may call a nurse separately and ask very similar questions regarding the same patient's condition.

Answering all these different calls and repeating the same information about the patient's status to different members of the family is a performance obstacle that significantly increases the (situation-level) workload of nurse. It is important to note that the impact of this performance obstacle on nursing workload would not be apparent if we used a unit-level or patient-level workload measure. Compared to workload at the job level, situation-level workload is temporally bound: it explains the impact of a specific performance obstacle or facilitator on nursing workload over a well-defined and relatively short period of time (e.g., 12-hour shift), rather than using the overall experience of the nurse in a given microsystem. Situation-level workload is multidimensional, that is, different types of performance obstacles and facilitators affect different types of workload. Whereas the distance between the patients' rooms assigned to a nurse affects physical workload, the condition of the work environment (noisy versus quiet, hectic versus calm) affects the overall effort spent by the nurse to perform her job.

No prior study investigated the impact of the microsystem characteristics on situation-level nursing workload. In summary, by studying workload at the situation level, researchers can identify the characteristics of a microsystem that affects workload. The researcher adopted this framework in order to prove if indeed there is a task complexity, difficulty and multi-tasking which cause mental workload hence burnout, job dissatisfaction and medical error. The researcher while visiting the

hospital, found that professional nurses were so busy doing both the scope of junior nurses and professional nurses. Staff absenteeism, high staff turnover and performance of non-nursing duties lead to increased workload. After a century of most spectacular health advances in human history, nurses are confronted with unprecedented and interlocking health crises, some of the world's poorest countries face rising death rates and plummeting life expectancy – even global pandemics threaten all.

Human survival gains are being lost because of a feeble national system. On the front line of human survival, we see overburdened and overstressed workers, too few in number, without the support they so badly need – losing the fight, many are collapsing under strain; many are dying especially from AIDS; and many are seeking a better life and more rewarding work by departing for richer countries (Chen et al., 2004:1986).

2.4 FACTORS CONTRIBUTING TO SHORTAGE OF HEALTH PROFESSIONALS

According to Wildschut and Mqolozana (2008:7) a shortage of nurses exists, the overall production of nurses in South Africa over the past nine years is of major concern and is not even keeping up with the increase in population growth, let alone providing the health system with additional nurses to cope with new demands and the effects of the HIV epidemic. According to Booyens and Bezuidenhout (2014:239), shortage of staff can be due to the following:

- Retirement. A person reaches the set retirement age of the institution and has no option but to retire.
- Resignation may occur at any time, several reasons give rise to staff members resigning. It could be that the mothers want to look after their babies or young children at home or an employee might resign because her/his spouse is transferred to another city.

- Need for new challenges or they experience a high measure of job dissatisfaction.
- Better job offers in terms of more money and/or better fringe benefits.

According to Chikudu (2016:60), the nursing profession currently suffers a world-wide severe shortage. Turnover of professional nurses remains a big problem for public and private hospitals globally and South Africa is not exempt from this challenge. She further explains that the main reason for staff turnover is financial freedom; most nurses are battling to cope financially. Most nurses are in debt and are forced to work overtime shifts to compensate for their already strained salaries.

There is such a huge and unfair disparity in the salaries earned by people with the same qualifications and job experience working for different hospitals. Most nurses leave because of high levels of crime; a nurse was assaulted and killed by a mental patient in Limpopo. Nobody wants to work under unsafe working conditions. Poor working conditions are another reason why nurses leave their current jobs to work at other institutions. The long and inconvenient working hours make it difficult for nurses to stay passionate and motivated in their jobs (Chikudu, 2016:60).

Nurses can be retained in the workplace by researching thoroughly on what nurses want and trying to meet their demands, or at least halfway; hiring first and foremost talent, people with passion and those unteachable qualities vital to successful nursing. Then planning on how to help them acquire teachable skills later. Selecting and promoting nurse managers from the current employees will help in motivating and inspiring the selected personnel and the other employees in the organisation. Staff development which is maximising the strengths of each individual and helping them to identify and develop their talents and skills, engaging staff in formulating policies and decision making, increase wages, benefits and possibly introduce hiring and retaining bonuses, financial support towards education, and training staff will also help in retaining and attracting new personnel and reducing the salary gaps between organisations (Chiduku, 2016:61).

In the health care industry, the challenges to retain professional nurses are ongoing because of global nursing shortage and factors that are related to the health care environment. These include working hours, increased workload, poor salaries and

working conditions, which make retention efforts more challenging than in other industries. Health authorities are faced with the challenge to come up with strategies, policies and legislation that will direct the recruitment and retention of nurses. The high cost that comes with turnover has highlighted the need for organisations to make retention of staff their number one priority, retention entails preventing people from leaving an organisation to work elsewhere. This is not an easy task.

It requires organisations and management to give attention to the employee market and understand what people are seeking from a work environment in order to retain them. Organisations will need to identify the reasons why employees leave, and address them (Mokoka, Oosthuizen & Ehlers, 2010:2). Shortage of staff expands to have great effects on hospitals and clinics. Buerhaus (2000:2) argues that, “Healthcare facilities need patients in order to make money and stay in business.” If they have to turn patients away simply because they cannot accommodate their demand, they are definitely losing out on business. Constant and prolonged understaffing can undermine the long-term health and success of the business, especially if that understaffing leads to patients’ care errors and mistakes or open leads (Jaradat, 2012:4).

The shortage of nurses also impacts the workforce in this way. Nurses who remain in the workforce may find themselves in high demand, but at great cost (NurseGrid, 2014:2). Unmanageable workloads are physically and mentally exhausting with no relief in sight and job dissatisfaction rises. There will be an increased demand for highly specialised nurses as hospital care is reserved for only the sickest of patients. Nurses who are currently employed will face challenges as they will need more education and training in order to compete with specially trained new graduates (Johnson & Harootunian, 2012:6).

2.4.1 Poor working environment

When the environment is poor, it doesn’t motivate nurses to work as expected. It makes them feel frustrated and they later feel that there is much work which needs to be done and, in most cases, it is not usually the case. This was supported by Aiken et al. (2011:1) when they say that a good working environment is the one

which stimulates positive attitudes which leads to good working relationships between doctors and nurses. It helps them to be more innovative and they become more inspired for good patient care in health care facilities. According to Bogossian, Winterchang and Tuckett (2014:377), nurses who are under poor working conditions express dissatisfaction in their hygiene especially relating to the nature of their nursing work, and the same factors attributed to nurses leaving the profession where workload was shifted towards violence and financial remuneration. There are tension between the patients nursing care and systems of work that actively precludes nurses from being able to exhibit their apparent skills and fails to exercise those related skills.

2.5 PATIENT'S SAFETY

Patient safety is the prevention of errors and adverse effects to patients associated with health care (WHO, 2009:2).

2.5.1 Relationship between safety and nurses' workload

In the ward situation here, the researcher has observed the relationship between nurses' workload and patient safety. The researcher observed how nurses worked under a heavy workload and how patients are being affected by the outcome of the nurses' productivity. During a heavy workload nurses dragged their legs and behave as if they are not well. They started gossiping, absenteeism, they even slept on duty and they even name-call patients. This was supported by the study done by Aiken et al. (2012:1) indicating that due to high patient-nurse ratio, nurses suffered fatigue, burnout, and dissatisfaction. Some ended up leaving the country and this led to a high shortage of nurses and patients suffer because there are fewer to deliver patient care.

2.6 EFFECTS OF NURSING WORKLOAD TO PATIENT SAFETY

2.6.1 Poor communication

It has been observed lately that most people no longer want to be admitted in the health care facilities due to how nurses treat them. This was supported by Dingley, Daugherty, Derieg and Pering (2008:1) when they said that, nurses' workload interrupts the quality of patient care. Dingley et al. (2008:1:1) in their study pointed out that ineffective communication among health care professionals is one of the leading causes of medical errors and patient harm. Dingley et al. (2008:1) in their reports from the Joint Commission further reported that communication failures were associated with over 70 percent of supervisors' events. The growing body of literature on safety and error prevention reveals that ineffective or insufficient communication among team members is an important contributing factor to adverse events (Dingley et al., 2008:1).

They further elaborated that in the acute care setting, communication failures lead to increase in patient harm, length of stay, and resource use, as well as more intense nurses' dissatisfaction and turnover. Eisenberg, Murphy, Sutcliffe, Wears, Schenkels, Perry and Vanderhoef (2007:1) supported this study when they established that poor communication in the emergency department causes many medical mishaps. They further elaborated that when triage is done in the emergency department, even in assessment of patients if communication is poor the patient safety is going to be compromised.

2.6.2 Fall out of bed

Dingley et al. (2008:1) reported that, patients fall from the bed unnoticed due to the heavy workload. Workload may contribute to the fact that nurses concentrate less on patient care and more on finishing their delegated duties (Dingley et al., 2008:1:2). According to Dingley et al. (2008:2), nurses who performed non-nursing tasks experienced 1.31 times more cases of patients falling than those who did not (Nishizaki, Tokuda, Sato, Kato, Matsumoto, Takekata, Tera, Watanab, Lim, Ohde & Ishikawa, 2010:1). According to the studies conducted by Nishizaki et al. (2010:1), there is a relationship between nurses' workload and patient safety. Nishizaki et al. (2010:1) reported that, there was a relationship between the working conditions of

nurses and poor patient outcomes, such as the following: central line associated bloodstream infections; ventilator-associated pneumonia; and 30-day mortality.

Nishizaki et al. (2010:1) added what they found about accidental falls which are critical patient safety incidents for inpatients because elderly inpatients are very vulnerable and likely to endure accidental falls. Complications resulting from fall injuries are the leading cause of death in older patients. Nishizaki et al. (2010:1) added that, poor working conditions have been associated with burnout of nurses. A stressful atmosphere at work is a major cause of burnout. It was found to be a dangerous factor in depression and in suicides among nurses.

2.6.3 Pressure sores

Dingley et al. (2008:2) reported that pressure sores develop more often on inpatients due to heavy workload and shortage of nurses. According to Dingley et al. (2008:2), nurses who performed non-nursing tasks experienced 1.16 times more cases of pressure sores in patients than those who did not perform non-nursing tasks. When beds to nurse ratios were higher, nurses experienced 1.35 times more cases of pressure sores. Kang, Kim, and Lee (2016:1) pointed out that, nursing workload can be increased by non-nursing tasks experienced by nurses which had influence on patients experiencing adverse events like pressure sores. They added that when the bed-to-nurse ratio was higher, nurses experienced cases of pressure sores more often.

2.6.4 Medication errors

Dingley et al. (2008:2) stated that the nursing workload variables that influenced medication errors were the performance of non-nursing tasks and the nurse's subjective perception that there was adequate nurse staffing. Hospitals with higher percentages of nurses who reported having a sufficient workforce around them experienced 0.28 times fewer cases of medication errors. Nurses who performed non-nursing tasks experienced 1.23 times more cases of medication errors than those who did not. Brandy, Malone and Fleming (2009:1) in their study concerning factors that contribute to medication errors, pointed out that excessive workload and nurses' knowledge concerning medication can contribute. They added that due to excessive workload nurses will fail to follow procedures for administering

medication hence medication errors can occur. Brady et al. (2009:1) added that staff shortages, overwork and fatigue do contribute to medical errors.

2.6.5 Infections

Dingley et al. (2008:2) stated that there is a possibility of nosocomial infections when nurses experience a heavy workload. Nursing workload contributes to increased ratio of nosocomial infections in inpatients.

Nurses who performed non-nursing tasks experienced 1.23 times more cases of nosocomial infections because they cannot concentrate on doing sterile procedures as they will be in a hurry to finish procedures they come across. They neither scrub or wash their hands nor change their gloves when they move from one patient to another. Hospital-acquired infections are infections that are neither present nor incubating when a patient enters hospital. It adds to functional disability and emotional stress of the patient and adds in some cases to disabling conditions that reduce the quality of life. Nosocomial infection is caused by microorganisms acquired by exposure to another patient, hospital personnel, visitors, medical devices and hospital environment (Roshni, Reghu, Vijayan & Krishnan, 2014:291).

Nosocomial infections (Nis) are a global problem, present in all health systems, irrespective of health services level. Nis cause a variety of medical, ethical, economic and legal consequences. These infections cause substantial morbidity and mortality, prolonged hospitalisation, and increased direct patient costs and number of hospital staff (Milosevic, Korac, Stevanovic, Jevtovic, Milosevic & Jovanovic, 2014:132). The participants indicated that they don't have antiseptic solutions to wash their hands between patients. There are no paper towels to wipe their hands after washing hands. It was further pointed out by Hugonnet, Chevrolet and Pittet (2007:1) that there is an impact of nurses' workload on infection especially critically ill patients. Hugonnet et al. (2007:1) argued that high nurse-to-patient ratio increased the high risk of infection to the patients.

They further argued that due to excessive workload the nurses don't maintain sterility. Due to stress of overworking they transmit infection from one patient to another. Cimiotti, Aiken, Siloane and Wu 2012 supported what Dingley et al. (2008:1) and Hugonnet et al. (2007:1) have said, when they stated that staffing

shortage does contribute to infection. This was elaborated by high nurse-patient ratios which increase workload to nurses. Cimiolti et al. (2012:1) further added that nursing staffing problems due to burnout will lead to divided attention, fatigue and feeling rushed, hence increased infection to the patients.

2.7 LEVEL OF KNOWLEDGE OF NURSES IN RELATION TO PATIENT SAFETY

Education in general is very important in the world of today. In the health care profession, education is fundamental because health care providers are expected to be life savers in society and that requires skilled individuals. Individuals can only be skilled if they undergo proper training to perform these duties. This can be supported by a study conducted by Aiken, Clarke, Cheung, Sloane and Silber (2003:1617) who indicated that, nurses constitute the surveillance system for early detection of complications and problems in care, and they are in the best position to initiate actions that minimize negative outcomes for patients. Registered nurses in America generally receive their basic education in different programmes, being National diploma and Bachelor's degree.

Despite the diversity of educational programmes preparing registered nurses and a logical connection between education and clinical judgment, little if anything is known about the impact of nurses' education on patient outcomes. Results of certain studies have shown that baccalaureate prepared nurses are more likely to demonstrate professional behaviours important to patient safety such as problem solving, performance of complex functions and effective communication. Nurses are a constant presence at the bedside and regularly interact with physicians, families and other members of the health care team. It is therefore a must that a nurse going into field must be highly trained and must have appropriate education to perform their expected duties. With poor education and knowledge nurses may cause harm to patients, and they are often seen going up and down consulting senior management on how to take care of certain issues.

2.8 EFFECTS OF WORKLOAD TO NURSES

2.8.1 Fatigue

Fatigue refers to the elements of tiredness and exhaustion. Rogers (2004:314) defines fatigue as an overwhelming sense of tiredness, lack of energy, and a feeling of exhaustion associated with impaired physical and cognitive functioning. Weinstein (2016) defines fatigue as a mental or physical exhaustion that prevents a person from being able to function normally. Weinstein (2016) further states that fatigue is more than just feeling tired or drowsy. According to Leung, Chan, Wong (2006), fatigue is a factor that has been linked to stress, safety and performance decrements in numerous work environments. Fatigue can be physical or psychological or a combination of the two and can lead to compromised decision making, reaction time and critical thinking and it can also negatively influence general health. Within the health care sector, where the commodity with which we deal with is human lives and human happiness, there is great concern about fatigue.

American Nurses Association (2014) indicates that working on the front line of health care is an immensely rewarding experience but it can also be a tiring one. Due to the pressures that are placed on the modern nurse such as through inadequate staffing levels or increased clinical responsibilities - instances of unacceptably high levels of fatigue in health care environments are on the rise. Inadequate sleep and the resulting fatigue can have major implications for the health and safety of both registered nurses and the patients in their care. Fatigue can also be costly to employers, resulting in increases in health care and workers' compensation costs, disability, recruitment and training costs and legal fees. ANA (2014), indicates that registered nurses and employers in all care settings must collaborate to reduce the risks to nurses, fatigue and sleepiness associated with shift work and long work hours. Kelton, Kingsley, Davis and Miller (2014:45) write that as nurses, we shouldn't work while fatigued because it can damage our health and impair our ability to provide safe, competent, empathetic and conscientious care to our patients.

Nursing fatigue is characterized by a profound lack of energy, feelings of muscle weakness, emotional exhaustion, slowed movements, diminished reflexes and impaired critical thinking skills. Kelton, Kingsley, Davis and Miller further state that fatigue can cause you to make costly mistakes that can injure patients. Common complications of nursing fatigue include:

- Slowed reaction time
- Failure to rescue
- Poor quality patient care
- Inability to convey empathy
- Poor teamwork
- Errors of omission
- Compromised problem solving

Kelton, Kingsley, Davis and Miller (2014:46) argue that a nurse experiencing fatigue may exhibit nonverbal signs such as sighing, folded arms, fixed facial expressions, rushed movements when providing patients' care, and not making eye contact with patients or other team members. Fatigue causes problems at work and also undermines personal and home life. Nurses may not realize how the heavy workload and excessive hours spent at work impair ones ability to enjoy life and meet home and family obligations.

According to Emergency Nurses Associations (2013:1), with the advent of extended work hours as a possible solution to the nursing shortage, a culture has been created which potentially puts our patients, our peers and ourselves at an increased risk of fatigue. Burnout is an emotional condition marked by fatigue, apathy and frustration that interferes with job performance and home life. In order for nurses to provide safe care for our patients, it is imperative to create an environment that cultivates wellness and safety for both patients and staff. All nurses are entitled to work in a positive, safe and healthy work environment. Drake (2012) writes that fatigue can be physical or psychological or a combination and can lead to compromised decision making, reaction time and critical thinking as well as negatively influence general health. In order to fully understand the impact of fatigue on health care/nursing conditions (work environment culture, shift length and

overtime), nurse and patient satisfaction and the consequences and impact of fatigue on patient care must be considered.

The impact of sleep may be reflected in their job performance, their individual safety and their patients' safety. Nurses are working longer shifts with fewer breaks and less recovery time between shifts with an increase in patient load and acuity. EBA (2013:4) indicates that night shift work and rotating shifts have long been identified as being difficult physically and mentally.

2.8.2 Job dissatisfaction

Kelly, McHugh and Aiken (2011:1) pointed out that job dissatisfaction among nurses was due to heavy workloads. Job dissatisfaction contributes to labour disputes, turnover, and poor patients' safety. Due to job dissatisfaction, nurses may develop burnout syndrome. Patient satisfaction levels are lower in hospitals with a majority of nurses who are dissatisfied or experiencing burnout syndrome. Improving nurses' working conditions may improve both nurses' and patients' satisfaction as well as the quality of care. Carayon and Gurses (2008:2) indicated that due to a heavy workload, nurses are demotivated which leads to low morale, absenteeism, turnover and poor job performance. They further show that there is a positive association between job satisfaction and job performance, meaning that poor job performance would result in job dissatisfaction.

According to Khan, Hassan, Anwar, Babar and Babar (2006:27:1), a fair amount of patients were satisfied with the care provided while the rest were partially dissatisfied, although many nurses liked the nursing practice of respecting privacy of patients. Only a few patients felt that nurses were excellent. A significant number of patients had negative experiences as they observed that nurses are not attending to their care, especially at night when they mostly needed physical care. According to Jaradat (2012:2), many nurses experience stress related to general working conditions because of staff shortage and unsocial hours are dissatisfied with the hospital management. However, there is no relationship between work-related stress and job dissatisfaction. Societies are facing medical resource scarcities, inter alia due to increased life expectancy and limited health budgets and also due to temporal or continuous physical shortages of resources. This makes it

challenging to meet the medical needs of all (Krutli, Rosemann, Tornblon & Smieszek, 2016:8).

2.8.3 Nurses' turnover

Hayes, O'Brien-Pallas, Duffield, Shamian, Buchan, Hughes, Laschinger, North and Stone (2006:2) reported that nurse turnover when nurses have a heavy workload and are experiencing job dissatisfaction is high. Hayes et al. (2006:2) added that at the nursing unit level, high turnover affects the morale of nurses and the productivity of those who remain to provide care while new staff members are employed and orientated. The participant indicated that people are resigning based on various reasons. They leave the current workplaces and go where they are paid well. Others resign because there is confusion about the latest reforms that are taking place in the country in both public and private retirement fund contributions for employees. Others resign because they are overloaded with work, posts are frozen, people who die or resign are not replaced.

According to Nkomo (2013:68), high staff turnover and vacancies that remain unfilled for a long time contribute to a situation which is compromising services, provision and the health of patients. This is further supported by Mokoka et al. (2010:4) when they indicated that conditions in the workplace influence professional nurses' intentions to leave their organisations. Nursing shortages with resultant heavy workloads, excessive mandatory overtime, unsatisfactory physical state of hospitals and demands by management, authorities, patients and visitors made it almost impossible for nurses to function effectively, prompting their decisions to leave their employer. "As much as I want to contribute positively to my organisation, poor infrastructure and workload is a major obstacle to good patient care." Relationships in the workplace could influence nurses' decision to stay or leave, including friendships and support between colleagues and peers. Negative relationships are characterised by verbal abuse and lack of respect from doctors, nursing colleagues and nurse managers. At times nurses are abused verbally and even physically by patients and their families. Where relationships with colleagues were happy and collegial, patients received good care while nurses who helped one another made workloads more bearable, contributing to lower turnover (Mokoka et al., 2010:4).

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Hayes et al. (2006:2) further reported that concerns about nursing turnover continue to challenge health care leaders and workforce researchers. The issue is recognized as being complex and multifaceted with factors affecting every sector of health care. Coomber and Barriball (2007:1) in their study supported the study done in the United Kingdom by Hayes et al. (2006:1), when they indicated that the impact of job dissatisfaction due to excessive nurses' workload was the contributory factor of the turnover. People absent themselves from work due to different reasons. According to Singh (2012:13), absenteeism can be classified in three broad categories, namely sickness absence, authorized absence, and unexcused absence. Sickness absence can be categorized as absent due to illness, authorized absence is when employees are granted permission to be absent such as study leave, and unexcused absence is absence that is not included in sickness absence or unauthorized absence, usually when no explanation is given for absence or the excuse is not accepted by the employer.

It is a growing management concern. It can contribute to understaffed units, staffing instability, and other factors that could have negative impact on patient care (Unruh, Joseph & Strickland, 2008:673).

According to Nyathi and Jooste (2008:30) absenteeism results in increased workload for nurses who stand in for a colleague who is not on duty. This can lead to situations in which lack of motivation among nurses and lowering of quality of patient care may occur. The study indicated that personal and managerial characteristics and organisational and working conditions may lead to absenteeism in the workplace. They further explain that nurse managers may experience difficulties in altering work schedules and reallocating the nursing tasks of those who are absent from work to the nurses who are present to ensure continuity of patient care in the unit.

Absenteeism may be directly related to work conditions, reflecting on quality and productivity and on personal life of the nursing profession. Absenteeism has become a problem for organisations and managers and is a concern to nursing as a whole, since it reflects on care quality. The absence of nursing employees disrupts teamwork and alters the quality of patient health care. Moreover, it causes problems in management positions because they are responsible for solving certain administrative issues (Huber, 2008:67). According to Bouphan, Apipalakul and Ngang (2014:131), the level of administrative resources was high; when looking at each resource it was found that methods possessed the highest mean score. The level of public health performance evaluation as a whole was high. The highest mean score was data defining whereas the lowest mean score was interpreting and reporting. Specifically man, money materials and method had a moderate and positive relationship with the performance evaluation. Three significant predictors' methods (materials and man) contributed more than half of the total variance of the public health performance evaluation.

2.8.4 Absenteeism

Absenteeism has to do with being absent without giving warning. Alharbi, Almuzini, Aljohani, Aljohani, Aljohani, Albowini of Althubuni (2018:1783), define absenteeism

as missing a day or many days of work. They further define absenteeism as unplanned absence without excuse or warning.

Absenteeism could result in hindering the delivery of health care to patients that is associated with shortage of the number of available health staff. Alharbi, Almuzini, Aljohani, Aljohani, Aljohani, Albowini of Althubuni (2018:178) write that the absence of nurses is significantly associated with burden of health care settings which impose many costs for health organisations. This could result in increasing the workload on other nurses as well as compromising the patients' health outcomes thus increase the mortality rates. The overload in work was a result of absenteeism among nurses that could decrease their motivation towards work. Nurses are often overloaded when covering the absence of colleagues which might decrease their job motivation and productivity and could differ from one setting to another in the same hospital.

Most common causes of absenteeism include shortage of staff, increased workload in the unit, no overtime payment, easy access to sick leave, no action taken for repeated absence and lack of motivation. Planned absence such as scheduled vacations, continuing education classes and training are easier to cope with because a nurse manager has advance warning of potential staff shortages created by such absences. Wang and Gupta (2009:1) write that unplanned absences are costly and many compromised patients' safety as well as the quality of care because well qualified replacement can be expensive and difficult to find at short notice. Al-Sharif, Kassel of Short (2017:64) write that absenteeism is a concern in hospitals because it decreases the care quality, disorganises the work routine and overburdens the nurses that are present. Nowadays the issue of absenteeism is worldwide. The study which was done by Muller, Dall'Agnol and Marck (2013:152) concur with this study when reported that in the findings, the study found that nurses were always assigned to give nursing care to a great number of patients. He added that due to fatigue and burnout nurses tend to high absenteeism and turnover.

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Sickness absence can be categorized as absent due to illness, authorized absence is when employees are granted permission to be absent such as study leave, and unexcused absence are absences that are not included in sickness absence or unauthorized absence, usually when explanation is not given for absence or the excuse is not accepted by the employer. It is a growing management concern. It can contribute to understaffed units, staffing instability, and other factors that could have a negative impact on patient care (Unruh, Joseph & Strickland, 2008:673).

According to Nyathi and Jooste (2008:30) absenteeism results in increased workload for nurses who stand in for a colleague who is not on duty and can lead to situations in which lack of motivation among nurses and lowering of quality of patient care may occur. The study indicated that personal and managerial characteristics and organisational and working conditions may lead to absenteeism in the workplace. They further explained that nurse managers may experience difficulties in altering work schedules and reallocating the nursing tasks of those who are absent from work to the nurses who are present to ensure continuity of patient care in the unit. Absenteeism may be directly related to work conditions, reflecting on quality and productivity and on personal life of the nursing profession. Absenteeism has become a problem for organisations and managers and is a concern to nursing as a whole, since it reflects on care quality. The absence of nursing employees disrupts teamwork and alters the quality of patient health care. Moreover, it causes problems in the management position because managers are responsible for solving some administrative issues (Huber, 2008:67).

Unruh, Joseph and Strickland (2007:1) stated that nurse absenteeism and workload has negative effects on patient safety. Unruh et al. (2007:1) added that nurse absenteeism is a growing management concern. It can contribute to understaffed units, staffing instability, and other factors that could have a negative impact on patient safety. The impacts of absenteeism on the quality of nursing care have rarely been studied.

Unruh et al. (2007:1) continued to report that nurse staffing instability, in turn, contributes to lower cohesion among nurses, less collaboration with physicians, and greater difficulties in handling workload. Nursing shortages are worsened by absenteeism. (Unruh et al., 2007:1). According to Rauhala, Kivimaki, Fagerstrom,

Elovainio, Virtanen, Vahtera, Rainiho, Ojaniemi and Kinnunen (2007:1), in their study indicated that there are high statistics of nurses' absence from duty due to sicknesses which are being contributed by heavy workload. Rauhalo et al. (2007:1) further added that excessive workload of nurses is associated with job dissatisfaction; impaired quality care and adverse outcome for patients hence increase the risk of sickness absence.

2.8.5 Burnout

Burnout has to do with emotional exhaustion. Weibeerg and Cooper (2007:18) wrote that emotional exhaustion is a feeling of your heart sinking when a new patient is admitted. With burnout, people feel drained, used-up and unable to recover again. Emotional exhaustion firstly emerges where the individual feels tired of work and has no mental strength to devote to work. The individual might develop impersonal interaction with patients in an effort to avoid stress. Lacovides, Fountoulakis and Kaprinis (2003:212) wrote that, this is usually ineffective and may lead to the final phase of burnout which is the decrease in work functioning levels and decreased personal achievement.

2.8.5.1 Causes of burnout

Work environment factors can promote emotional stress and is one of the most important factors in the cause of burnout syndrome. Workload, high job demand, time demand, staff shortage, shift rotation, overtime, lack of resources, poor relationships, violence, moral distress, lack of organisational support and dealing with the dying are the most contributing factors of burnout. Gurses and Caragon (2009:511) argue that, physical work environment of critical care nurses may lead to performance obstacles during shifts. The obstacles include noisy working environment, crowded working environments and disorganised patient areas and these might cause nurses to be overwhelmed and exhausted. A healthy working environment is so important that failure to address the issue would result in harmful effects for every aspect of acute and critical care practice.

Van der Colff and Rothmann (2009:7) stated that nurses leave the profession due to physical workload and fear for their safety. There is a need to decrease nursing workload. Van Wyk (2010:28) writes that work organisation needs to be changed to

reduce nursing workload. Strong evidence suggests a relationship between high nursing workload and negative patients' outcomes. Chang, Daly, Hancock, Bidewell, Johnson and Lambat (2006:31) write that workload has an impact on nurses' health and patients' safety. Another factor contributing to burnout among nurses can be attributed to job demands. Aiken, Clarke, Sloane, Sochaski and Silber (2002:198) write that fatigue contributes to burnout and job dissatisfaction. Injuries and shortages of staff dictate to the nurses to resign. Van der Colff and Rolffmann (2009:7) stated that physical injuries to nursing staff, nursing shortages and reduction of nursing hours at the patients bedside, leads to medical errors hence nurses turnover also..

Because of the shortage, nurses who remain in hospital work must care for more patients under increasingly difficult working conditions. Shift rotation can influence burnout levels in nursing; and overtime is also a contributing factor. Overtime can be seen as a management tool for ensuring coverage of patient needs. Lack of resources is a serious problem which contributes to burnout. Chang et al. (2006:31) write that the lack of job resources such as financial reward, performance feedback and task variety can be seen as conditions that potentially induce stress–reactions among nurses. Lack of resources may cause depersonalisation whilst the lack of equipment may be related to higher levels of emotional exhaustion. Poor relationships may lead to stress and burnout. Kingma (2009:880) writes that it is the responsibility of the employer to ensure that the conditions exist that will allow the nursing profession to fulfil its potential.

2.9 NURSE-PATIENT RATIO

The issue of nurse–patient ratios is a global challenge and it needs to be addressed. There seems to be a direct connection between the number of nurses and quality of nursing care that an institution is able to provide. Adams of Kennedy (2006) writes that as workloads become more substantial and the number of nurses per person diminishes, patients and health care workers across the globe are put

increasingly at risk. The shortage of nurses should not compromise the quality of service.

The nurse–patient ratio is described as the ratio that more directly impacts upon nurses as well as patients as it describes the number of patients each nurse has to care for at any specific point in time. DENOSA (2012) indicates that nurse – patient ratio in South Africa should be contextually regulated taking into consideration the disease burden and the number of nurses available in the country. DENOSA further states that government should increase investment in training more nurses and incentivize them so as to attract young people into the profession to give effect to reasonable regulated nurse–patient ratios in South Africa. Joubert (2009) indicates that whilst nurse shortages pose a challenge to reasonable staffing norms, it is essential that issues of staffing norms are considered and regulated so as to curb situations in which nurses find themselves overburdened with work which in turn will affect the quality of service they provide. Respet (2008:5) writes that the performance of efficient service delivery in South African public health sector depended on addressing nursing challenges; and there was an insufficient number of nurses in the health care system owing to an inability to retain them.

2.10 EQUIPMENT AND SUPPLIES IN THE HEALTH SYTEM

According to Booyens et al. (2015:129), the physical environment in which health care is rendered has an effect on the patients, health care professionals, equipment and supplies. Any obstacle that prevents health care professionals from practicing effectively should be eliminated. The physical environment in which care is rendered is just as important for cost-effective care as the quality of the care itself. Facilities should therefore be kept in good condition. Paintwork should receive attention at regular intervals. Dust, temperature, humidity and dirt are variables affecting the environment, which in turn has an influence on the equipment and supplies used in the unit. She further explains that equipment comprises a large portion of a health service’s budget. Quality care can only be rendered if there is

sufficient equipment of high quality to meet the needs of the patients and to improve the health workers' productivity.

2.10.1 Equipment maintenance

Availability and maintenance of equipment is regarded as one of the requirements for good quality patient care. According to Aveling, Kayong, Nega and Dixon-Woods (2015:3), impact of resource constraints in low income countries affects quality patient care.

The health care workers identified obstacles to patient safety as unavailability of material context and poor staffing. In order to mitigate the circumstances professional nurses are faced with, Booyens et al. (2015:108) suggested the following:

- Equipment must be used for the purpose that it was intended for.
- When agency nursing personnel are utilized, the health services manager must ensure that they are also taught how to use the equipment properly.
- If personnel are not taught how to use equipment properly, they tend to improvise, which can lead to inefficient and dangerous practices.
- The equipment must be kept clean; this is essential for rendering safe care.
- Equipment should be cleaned according to the instructions supplied, as noncompliance can contribute to the problem of cross-infection.
- In some cases, it may be necessary for equipment to undergo special cleaning methods, which requires a specific department specializing in cleaning equipment after use.
- The equipment must be maintained so that it is ready for use and in the right place.

2.10.2 Drug shortages

According to Griffith, Pentoney and Scheetz (2012:665), drug shortage has become an unexpected reality for hospitals and physicians in the United States. Between 2005 and 2011, the number of drugs in short supply has quadrupled from 52 to 219, reaching crisis mode in 2010. In a nationwide survey, we found that a large percentage of gastroenterology practices have experienced significant shortages in drugs used for sedation during endoscopic procedures and to manage gastrointestinal bleeding. According to McLaughlin, Pentoney, Skoglund and Scheetz (2014:2074), drug shortage poses a serious challenge for health care institutions, often interfering with patient care. A common practice during drug shortage is to select an alternate therapeutic; however, these agents often present challenges and may create safety concerns.

Patient harm, including adverse events and medication errors may occur. Patients may file complaints because of drug shortages. He further explains that institutions across the United States are experiencing harm to patients that are attributed to drug shortages.

These patient harms include medication errors or near misses, adverse events, cancelled care, and delayed care. In some cases, alternate medications may not exist and may lead to poor patient outcomes. The shortage of medications and other biomedical products has significantly affected patient care over the last decades. Medication shortage can pose only minor disruption in health care when medication has limited indications and there are suitable therapeutic alternatives available, but it may have significant impact on public health for medications such as vaccines or when there are no therapeutic alternatives (De Oliveira, Theilken & McCarthy, 2011:1429). The National Health Department is urgently trying to source and install a countrywide computer software system that will link health care facilities with drug depots and suppliers in order to relieve ongoing essential drugs stock-out which threatens the lives of thousands of patients. The issue has become a national crisis in eight of the nine provinces.

Contributing factors include a shortage of pharmacists, protracted labour disputes, dismal management, corruption, and woeful communication between suppliers,

deports and facilities (Bateman, 2013:600). In United States of America drug shortages influenced all stakeholders in the supply chain, especially patients and hospitals, which has raised public concerns. Drug shortage for patients can lead to suboptimal care and delays or cancellation of treatment or surgery. Patients may also experience medication errors, adverse outcomes, and increased health care costs (Yang, Wu, Cal, Zhu, Shen & Fung, 2016:10). The rapid growth of South Africa's antiretroviral programme, which is the largest in the world, is said to have produced serious challenges for the public health system.

During September and October 2013, the Stock-Outs Project conducted interviews with personnel at 2,139 of the 3,826 public sectors that provide HIV treatment. The report describes stock-outs of ARVs as a "national crisis" but also reports on shortage of vaccines and TB medications. At the SA Pharmacy Council conference in June 2013, the Minister of Health urged pharmacists to address stock-out as a matter of extreme urgency (Patel, 2013:46). The number of drug shortages has increased over the past decade, and drug shortages may now be considered a public health emergency. Anti-infective medications are irreplaceable lifesaving therapies that, as a class, comprise approximately 14% of all shortages, second only to the therapeutic classes encompassing anesthetics and central nervous system drugs. Northwestern Memorial Hospital experienced shortages of 10 drugs for which mitigating action needed to be taken. In an effort to mitigate the effects of these shortages, the hospitals antimicrobial stewardship team restricted the use of certain agents, while alternative agents were recommended during drug shortages involving ganciclovir, pentamidine and tobramycin (McLaughlin, et al., 2014:2078).

2.11 NEGATIVE ATTITUDES OF NURSES

According to the culture of nursing, nursing was defined as a profession of caring. Connett (2008:198), argues that sharing is an interpersonal process characterized by skilled nursing, interpersonal, sensitive and intimate relationships. Nursing includes technical, medical and emotional aspects of care. Nowadays nurses display uncaring attitudes of being disinterested, insensitive, cold and inhuman.

They show a negative attitude towards patients and their diagnosis. This was supported by a study which was conducted by Huskim, Phakathi, Grant and Horwood (2014:31), when they argued that, “Nurses have negative attitudes towards patients who are admitted in the wards and at the end they provide poor nursing care.” Huskim et al. added that, a negative attitude affects care with elderly patients and those vulnerable patients who are in the ward.

They further argued that, when admitted patients require medical attention from the health care provider and the provider may choose to ignore them and indulge in a conversation with their fellow colleague; and if they decide to respond back to that particular patient, they are more likely to respond using a language that the patient does not understand. This is found mostly in diverse health care facilities.

2.12 SUMMARY

This chapter presented literature review on effects of nursing workload on patients’ safety cited from studies conducted Internationally, Nationally, and Provincially. The following chapter describes the research methodology used in the study.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

This chapter moves on from the literature review covered in chapter 2 to describe the research design and methodology, including the population, sampling techniques, data collection instruments and ethical considerations.

Research methodology refers to the development, testing and evaluation of research instruments and methods (Brink et al., 2012:214). Research methodology refers to “the entire strategy of the study from problem identification to the final plans for data collection” (Burns & Grove, 2013:361). Leedy (1997:104) refers to methodology as “an operational framework within which the data are placed so that their meaning may be seen more clearly”. The researcher collected the data from a sample of the target population and the data obtained therefore is representative of the population. The researcher collected data by using questionnaires which were distributed to the nurses and the patients who were admitted at Tshilidzini, Donald Fraiser and Elim hospitals. The chapter provides a clear explanation of the methodology followed to solve the problem. The researcher also provides a detailed description of the components of the research methodology.

3.2 PURPOSE OF THE STUDY

According to Burns and Grove (2017:78), the research purpose is generated from the problem and it clearly and concisely states the aim of the study. It establishes the general direction of the enquiry as well as capturing the essence of the study.

The purpose of this study was to determine the effects of nursing workloads on patient safety in the selected public hospitals in Vhembe District, Limpopo Province in South Africa.

3.3 OBJECTIVES OF THE STUDY

Burns and Grove (2017:138) define research objectives as the clear, concise, declarative statements expressed in the present tense that usually are presented following the study purpose to specify the study focus.

The objectives of this study are to:

- Identify effects affecting nurses' workloads in the selected public hospitals
- Identify effects affecting patients' safety in the selected public hospitals
- Describe the relationship between nurses' workloads and patients' safety
- Assess the level of knowledge of nurses in relation to patient safety.

3.4 RESEARCH QUESTIONS

A research question is an interrogative statement and used for the same purposes as objectives (Brink et al., 2017:86). In order to attain the purpose of this study the following research questions were posed:

- What are the effects of nursing workload in the selected public hospital?
- What are the effects of patients' safety in the selected public hospital?
- What are the relationships between nursing workloads and patients' safety?
- What are the relationships between the levels of nursing knowledge in relation to patients' safety?

3.5 RESEARCH DESIGN

Polit et al. (2001:167) define the research design as "a blueprint for conducting a study and is necessary as it maximises control over factors that interfere with the

validity of the findings”. In order to achieve a goal, a strategy or plan is required to indicate how the goal will be achieved. Burns and Grove (1999:223) state that the design “guides the researcher in planning and implementing the study in a way that is most likely to achieve the intended goal”.

In this study, the researcher used a quantitative, explorative and descriptive contextual survey to identify the effects of nursing workloads on patient safety in the selected public hospitals in Vhembe District.

3.5.1 Quantitative

Burns and Grove (1997:27) describe a quantitative study as “a formal, objective; systematic process of obtaining numerical data”. Quantitative research is a formal and objective process that adheres to logical, systematic steps to generate information about the world. The purpose of quantitative research is to describe situations, using numbers (Burns & Grove, 1999:23). In this study the researcher used a structured self-administered questionnaire to collect data from the professional nurses in selected public hospitals.

3.5.2 Exploratory

The aim of an exploratory research is ‘to explore the full nature of the phenomenon, the manner in which it is manifested, and its underlying processes’ (Polit & Hungler, 1999:17).

In this study, the researcher explored the effects of nursing workloads on patient safety in the selected public hospitals in Vhembe District.

3.5.3 Descriptive

According to Brink and Wood (1998:289), descriptive studies describe aspects of a situation as they occur naturally. Somekh and Lewin (2005:224) state that descriptive designs are helpful for providing a picture of the sample. The main

objective of descriptive research is to accurately portray the characteristics of persons, situations, or groups and/or the frequency with which certain phenomena occur (Polit & Hungler, 2001:460). In this study, effects of nursing workloads on patient safety in the selected public hospitals were identified, described, and documented.

3.5.4 Contextual

A contextual design focuses on the context of the study, which could be a certain time period, geographical area and/or specific phenomenon (Neuman, 1997:331). In addition, Saks and Allsop (2007:6) define contextual research as “providing current information or intelligence on a problem”. This study was contextual in nature as it was conducted in the context of the professional nurses of the selected public hospital in Vhembe District of Limpopo Province and the phenomenon under study was the effects of nursing workloads on patients’ safety who are admitted in selected public hospitals.

3.5 STUDY SETTING

The research setting refers to the place or places where data are collected, for example a home, hospital, school or ward (Brink et al., 2012:59). Bhattacharya (2012:31); Burns and Grove (2011:352) define the concept “setting” as a location for conducting research which may be natural, partially controlled or highly controlled. According to Polit and Beck (2008:732), a setting is the physical location and conditions in which data collection takes place in a study. The research setting in this study was the three public hospitals that were sampled in Vhembe District of Limpopo Province. All professional nurses who meet the inclusion criteria were given information about the purpose and the objectives of the study and were given by the researcher, respondents were told that participation is not compulsory and if they understand and accept to participate, they were requested to sign a consent form to ensure that they have been informed about the study.

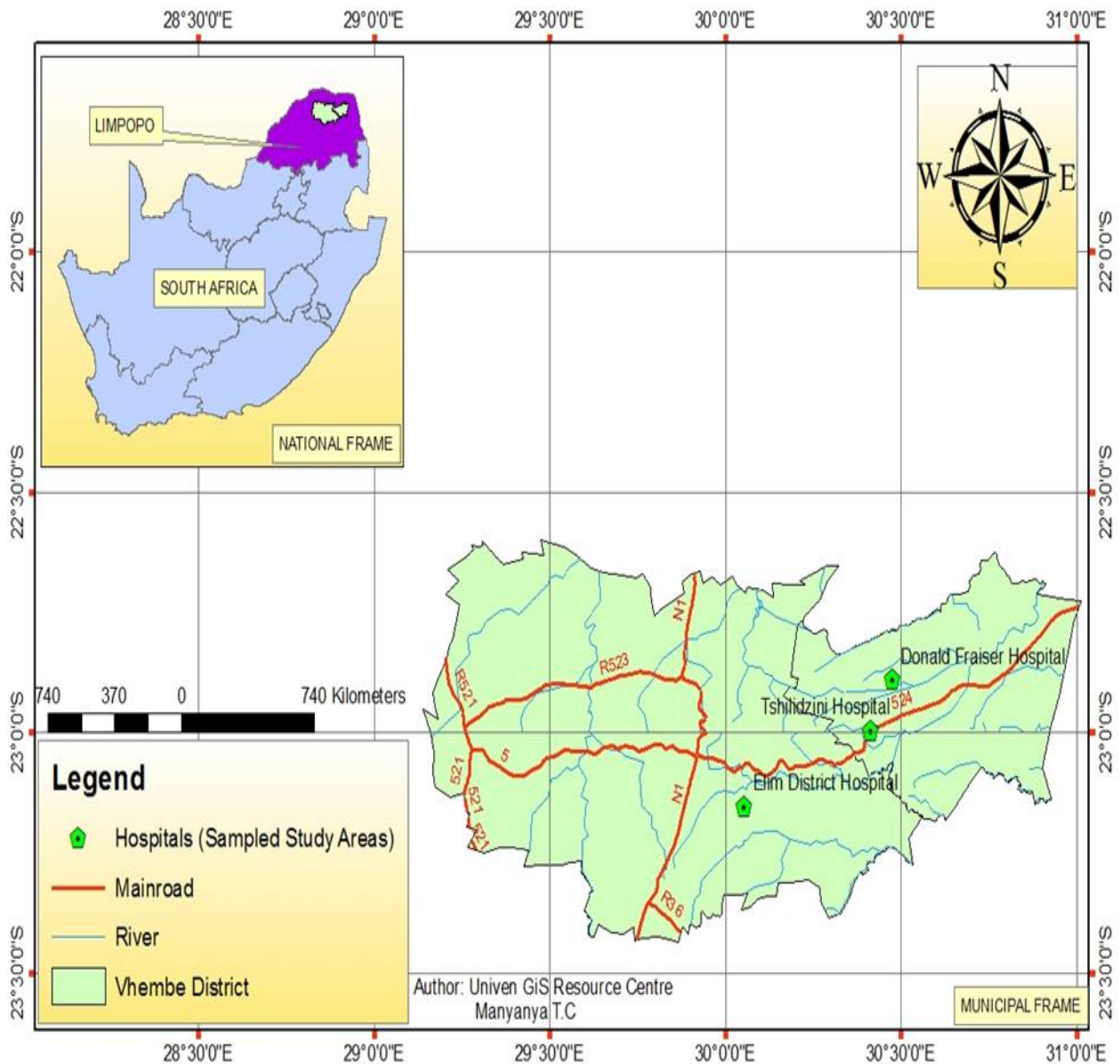


Figure 3.1 Map of the selected public Hospitals of Vhembe District

3.7 RESEARCH POPULATION

A population is “the entire aggregation of cases that meets a designated set of criteria” (Polit & Hungler, 1997:223; Somekh & Lewin, 2005:216-217). In this study

the population comprised all the professional nurses who had two years experience in the profession at the selected public hospital, registered with the South African Nursing Council (SANC) as nurses who were employed by the Department of Health during the time of data collection.

3.7.1 Sample

A sample is a subset of population selected to participate in a research study through the sampling process (Polit & Hungler, 1997:468). Social sciences' research can focus on a specific population or complete set of units being studied (for example, all nursing colleges in one country or all nurses who are working in a region) when time, costs and accessibility prohibit the collection of data from every member or about every item. In such circumstances, according to Somekh and Lewin (2005:217), it is necessary to select a representative sample of the population; one in which the same range of characteristics or attributes can be found in similar proportions as in the population.

In this study, population comprised of all professional nurses who had been working in medical and surgical wards for a period of two years or more at selected public hospitals.

3.7.1.1 Sampling of Hospitals

Purposive sampling was employed to sample the hospitals in which the study focused. The main reasons for sampling the three hospitals from Vhembe District were issues of high statistics of incidences occurring among patients, and that these hospitals admit too many patients while there is a great shortage of nurses. These hospitals were identified as hospitals A, B, and C. All three hospitals are from Vhembe District and those who participated in the study.

3.7.1.2 Sampling of Professional nurses

3.7.1.2.1 Convenient sampling

Brink et al. (2012:140) define convenient sampling as accidental or availability sampling. It involves the choice of readily available participants or objects for the

study. The authors further explain that elements are included in the sample because they happen to be in the right place at the right time. Brink et al. (2012:341) and Polit and Beck (2008:341) add that convenience sampling uses the most accessible available people as study participants. The authors further explain that convenient samples do not necessarily comprise individuals known to researchers. In this study, the researcher used convenience sampling by requesting all professional nurses working at the participating hospitals and who happened to be on duty on the day of data collection, to be recruited as part of the respondent.

3.7.2 Inclusion criteria

To be included in this study, the respondents had to be:

- A professional nurse working at the sampled hospital
- Experience of two years working as professional nurse
- Working in jurisdiction of the Limpopo Province
- Willing to participate in the study

3.8 DATA COLLECTION

According to Polit and Beck (2008:751), data are defined as pieces of information obtained in the course of a study. Brink et al. (2012:211) define data as pieces of information or facts collected during a research study. Brink et al. (2012:211) indicated that data may be collected through observation, self-report and physiological methods. Whilst Keele (2010:27) sees data collection as decisions that include the sample and study population, getting all the necessary approval needed to do the study and deciding on what data will be collected in order to answer the research question.

Data collection was commenced after the researcher obtained ethical approval from the University of Venda Ethics Committee, and the Department of Health Limpopo Province also granted ethical approval.

In order to obtain the data required for the study, the researcher had to make telephonic arrangements with the Operational managers of the different areas within the participating hospitals prior to data collection day.

The researcher visited the participating hospitals, convenience method was used and available professional nurses were recruited to participate. The objectives of the study were explained to the respondents. Approximately 112 questionnaires were hand delivered to the respondents who were able to read the written questions on the form and answer the questions independently. Polit and Beck (2004:235) advise that self-administered questionnaires must be simple, clear and unambiguous (Babbie, 1998:259). The questionnaire has limitations when it comes to the literacy level of the respondents and their visual and writing competence, including limited scope in the responses (De Vos et al., 2005:169). The self-administered questionnaire was, however, used in this study because its advantages outweighed the disadvantages. It was easy to deliver questionnaires to the respondents working in the sampled different public hospitals.

All of the respondents were literate. Questionnaires were completed anonymously and independently, minimising the chances of researcher bias (Polit & Beck, 2004:350). Questionnaires can have both open-ended and closed questions. According to Polit and Beck (2004:349) open-ended questions allow the respondents to respond in their own words, while closed-ended questions offer responses from which the respondents have to select. Open-ended questions are easy to construct but difficult to analyse. Closed-ended questions are difficult to construct but easy to administer and analyse. In this study both open- and closed-ended questions were used in order to accommodate some ideas that could have been missed in closed questions. The professional nurses, by virtue of their training, are literate and they understand the phenomenon under study. The questionnaire also ensured anonymity, minimising researcher bias, since most professionals might know the researcher from professional circles. The questionnaires were collected within 24 hours following dispatch to the hospital visited during the month of May 2018 to August 2018.

3.9 PRE-TESTING OF THE RESEARCH INSTRUMENT

A pre-test (pilot study) was conducted with five professional nurses from one of the participating public hospitals who met the eligibility criteria to participate in the study, but were excluded from participating in the main study. The aim of the pre-test was to give the researcher an opportunity to practise conducting the interviews and to assess the following areas:

- Practice of the data collection
- The flow of the interview, based on the participants' responses and comments
- The time taken to fill in the questionnaire forms
- The recording procedure

3.10 DATA ANALYSIS

According to Saks and Allsop (2007:410), data analysis refers to what is done with qualitative and quantitative research information once it has been collected. Whilst data analysis is predicted by Polit and Beck (2008:751) as a systematic organisation and synthesis of research findings in quantitative studies. In this study the researcher used descriptive statistics to provide answers to the research questions. Descriptive statistics allow the researcher to organise the data in ways that give meaning and facilitate insight and to examine the phenomenon from a variety of angles. De Vos et al. (2011:251) indicate that the aim of descriptive statistics is to produce a scope of the characteristics of such distribution through frequency distributions, measures of central tendency and measures of dispersion and standardised scores. The authors further explained that descriptive statistics are procedures that describe numerical data in that they assist in organising, summarising and interpreting sample data to give them meaning for the readers. In this study the researcher used a professional statistician who used the statistical package for social sciences (SPSS) (version 25) to analyse and summarise the data. Frequencies and basic statistics were calculated and presented in tables and graphs as well as chi square.

3.11 VALIDITY AND RELIABILITY

The following section deals with the validity and reliability of this research.

3.11.1 Validity

Validity is the degree to which an instrument measures what it is supposed to measure (Polit & Beck, 2008:458).

3.11.1.1 External validity

External validity is defined as the extent to which the study findings can be generalised beyond the sample used in the study (Brink et al., 2012:212). Polit and Beck (2008:753) state that external validity refers to the generalisability of the research findings to other settings or samples. It is not possible to guarantee the external validity of this study, since probability sampling cannot be generalised to another setting. Sampling was conducted in such a way that each element in the population had a chance to participate in the study. Although this study could not be generalised to the whole province and district, it could be generalised in the hospital under study and the surrounding areas.

3.11.1.2 Internal validity

Internal validity is defined as the degree to which changes in the dependent variable (effect) may be attributed to the independent or experimental variable (cause). The self-administered questionnaires were pre-tested to ensure that it measured what it is supposed to measure.

3.11.1.3 Content validity

Content validity is achieved when the instrument represents all the components of the variable to be measured (Brink et al, 2012:160). Babbie and Mouton (2007:146) refer to content validity as the extent to which a measure covers the range of meanings included within the concept. In this study content validity was ensured in the development of a structured interview schedule based on the literature review and it was presented to experts in the antenatal clinic and the antenatal ward for evaluation.

3.11.1.4 Face validity

Face validity is defined by Brink et al. (2012:166) as the instrument that appears to measure what it is supposed to measure. Polit and Beck (2008:753) define face

validity as the extent to which a measuring instrument looks as though it is measuring what it purports to measure. Face validity is based on intuitive judgement made by experts in the field (Brink et al., 2012:166). For the purpose of this study, face validity was determined by the experts, professional nurses on the effects of nurses' workloads on patients' safety.

3.11.2 Reliability

According to Brink et al. (2012:169), reliability is defined as the degree to which the instrument may be depended upon to yield consistent results if used repeatedly over time on the same person or if used by two researchers. Polit and Beck (2008:764) define reliability as the degree of consistency or dependability with which an instrument measures the attribute it is designed to measure.

The reliability of the instrument is indicated by a correlation measure which varies between 0 and 1. Polit and Beck (2008:764) define reliability as the accuracy and consistency of information obtained. The reliability of the research instrument in this research was achieved by ensuring that the same structured interview schedule was presented in the same way to all respondents, and it was checked by professional nurses, working in the sampled wards of the participating hospitals. This was done before the major project in order to identify any problems with the self-administered questionnaire and to correct them before the main data collection.

3.12 ETHICAL CONSIDERATIONS

According to Burns and Grove (2001:191), in order to maintain a high standard of research, the conduct of nursing research requires not only expertise and diligence, but also honesty and integrity. Ethical research is also essential to generate sound knowledge for practice. Polit and Beck (2004:141) emphasise that ethical guidelines are set to direct researchers in order to ensure a high standard of research.

The researcher upheld the following ethical principles: permission to conduct the study, informed consent, confidentiality, anonymity, and privacy.

3.12.1 Permission

Permission to conduct the study was sought and obtained from the Ethics and Research Committee of the University of Venda and the Department of Health

Limpopo Province (see Annexure A and B for letters requesting and granting permission). In addition, written consent from the participants was obtained after the process and purpose of the study had been explained (see Annexure C for consent form).

3.12.2 Informed consent

According to Neuman (1997:450), the fundamental ethical principle of social research is never to coerce anyone into participating, and that participation must be voluntary. Consent also means participating in a research study out of one's own free will, without any pressure or intimidation, after having received all the necessary information relating to the study. The researcher explained the nature, purpose, and significance of the study to the participants. Written informed consent was obtained from each participant. The consent forms were kept in a secure place by the researcher and destroyed after the research report had been completed successfully (see annexure C for consent form).

3.12.3 Confidentiality

Confidentiality is the management of private information shared by a subject (Burns & Grove, 1999:163). In this study, only the researcher kept the documents for data collection; no person except those actively involved in the analysis of the data had access to the data.

3.12.4 Anonymity

Burns and Grove (2001:790) refer to anonymity as meaning 'of unknown name'. In this study, anonymity was assured as the participants' names were not written anywhere and their names were never revealed in anyway whatsoever. Code names or pseudonyms were used to reflect the number of the participant interviewed. The identity of the participants remained anonymous in reports and publications of the study.

3.12.5 Privacy

Privacy is the freedom of an individual to determine the time, extent and general circumstances under which private information will be shared with or withheld from others (Burns & Grove, 1993:342). According to Neumann (1997:264), the invasion of privacy is a major ethical issue in most studies.

In this study, a private room was used for the filling in of the self-administered questionnaires individually, with no interference from any source. The respondents were informed of the purpose of the study and voluntarily shared the information with the researcher. Each respondent had the right to decide whether she wanted to reveal personal information and to what extent (Neuman, 1997:264). Each respondent was informed that she/he could refuse to answer specific questions. The respondents were treated with respect and dignity, and privacy was ensured at all times.

3.13 CONCLUSION

This chapter dealt with the research design and methodology in detail. The researcher collected the data in person and the ethical principles were adhered to. The results of the research will be discussed in Chapter 4.

CHAPTER 4

DATA ANALYSIS, INTERPRETATION AND DISCUSSION OF FINDINGS

4.1 INTRODUCTION

In the previous chapter, the research design and methodology were discussed. The data analysis and findings of the study are discussed in this chapter. The study was guided by Donabedian Quality Framework (DQF), as the conceptual framework and research questions were derived from the three major components of the DQF. Responses from study respondents were compiled into frequency tables and converted into percentages and presented in charts, bar graphs, tables as well as chi-square and correlation tests were performed where necessary. The “process” of patient safety as stipulated by DQF was measured in terms of safety culture dimensions according to the AHRQ’s Hospital Survey on Patient Safety Culture. “Outcomes” of event reporting practices and overall safety perceptions were measured by using the AHRQ’s survey outcome measures.

4.2 DATA COLLECTION

Parahoo (2016:467) defines data as the information collected by researchers during the course of a study. Burns and Grove (2011:430) define data collection as the process of selecting subjects and gathering data from subjects. In this study, data were collected by means of structured self-administered questionnaires.

4.3 ANALYSIS, INTERPRETATION AND DISCUSSION OF FINDINGS

Polit and Beck (2008:751) define data analysis as the systematic organisation and synthesis of research data and, in quantitative studies, the testing of hypotheses using those data. The data obtained through the interview schedule were subject to computer analysis with the aid of a professional statistician and converted into percentages. The data are presented in the form of tables, graphs and figures to give meaning to the presentation.

The data collection tool used in this study was analysed to ensure that data gathered were presented clearly with the aid of graphs, tables and percentages. The purpose of the study was to determine the effects of nursing workloads on patient safety in the selected public hospitals, Vhembe District, Limpopo Province, South Africa. The aim of this chapter was to analyse, interpret and describe the data collected. A total number of 112 professional nurses were selected purposively to obtain data.

Data were analysed based on the specific objectives of the study and the discussion results were presented in the subsequent sections. One-hundred-and-twelve questionnaires were distributed to the respondents who consented to participate in the study. However, 101 questionnaires were returned, but only 89 questionnaires were satisfactorily filled in and returned.

The study was guided by the following objectives:

- Identify the effects of nurses' workloads on patients in the selected public hospitals of Vhembe District in Limpopo Province, South Africa.
- Identify the effects of nurses' workloads on patients in the selected public hospitals of Vhembe District in Limpopo Province, South Africa.
- Describe the relationship between nurses' workload and patients' safety
- Assess the level of knowledge of nurses in relation to patient safety.
- Make recommendations that will assist nurses in providing effective patient safety.

Discussion of findings was based on the main items as appeared on the questionnaire. Responses from open-ended questions were grouped and analyzed quantitatively; closed-ended were analyzed using frequency, percentages and cross tabulation. Data collected were presented with the aid of figures, percentage, pie charts, bar graphs and tables. Discussion took place under the following sections:

Section A

- This section comprised items on biographical information of respondents

Section B

- This section comprised items on effects affecting nurses' workloads

Section C

- This section comprised items on effects affecting patients' safety

Section D

- This section comprised items on the relationship between nurses' workloads and patients' safety

Section E

- This section comprised items on level of knowledge of professional nurses in relation to patient safety.

The data collected aided the process of finding out the effects of nursing workloads on patients' safety in the selected public hospitals in Vhembe District, Limpopo Province, S.A. to facilitate easy understanding and assessment of effects of nurses' workloads on the patients' safety.

Data were analysed using SPSS Version 25 of the computer programme, assisted by the statistician from the Department of Statistics at the University of Venda, based on the specific objectives of the study. The discussion results were presented in the subsequent sections. One-hundred-and-twelve questionnaires were distributed to the respondents who consented to participate in the study. However, 101 questionnaires were returned, but only 89 questionnaires were satisfactorily filled in and returned. To provide answers to the research questions stated in chapter one, chi-square and correlation tests were performed.

4.4 SECTION 1: BIOGRAPHIC INFORMATION OF RESPONDENTS

4.4.1 Demographic profile of data

This section presents, analyses and interprets the discussion of the various demographic characteristics of the respondents from which data for this study was collected. Supporting frequency tables and graphs were provided.

4.4.2 Distribution of the respondents by hospitals

The study was conducted in three sampled hospitals and the distribution of respondents as per hospital are outlined below (table 4.1).

Table 4.1: Distribution of respondents by hospitals

Selected hospitals	Questionnaires' distributed	Received back	Response rate
A	60	55	91.6%
B	34	30	88.2%
C	18	16	88.8%
Total	112	101	90.1%

Table 4.1: Shows the response rate and contribution per hospital

Table 4.1 outlines the distributions of the respondents according to their allocations in the three sampled public hospitals where the study focused. Three hospital areas were distinguished where the respondents sampled were verified in table 4.1 above. Out of 100 (100.0%) respondents to this questionnaire, 55 (91.6%) were from hospital A, while 30 (88.2%) of the respondents were from hospital B, and 16 (88.8%) of the respondents were from hospital C as was showed in the questionnaires. The findings show that the response rate of this study was (90.1%). This shows that the responses were sufficient for the study. The study conducted by Fincham (2008:1) in the United States of America (USA) on quality provision in health systems report that respondents could not submit all the completed questionnaires and that made the number of the respondents fewer than the initial expected number.

Figure 4.1: Gender of respondents

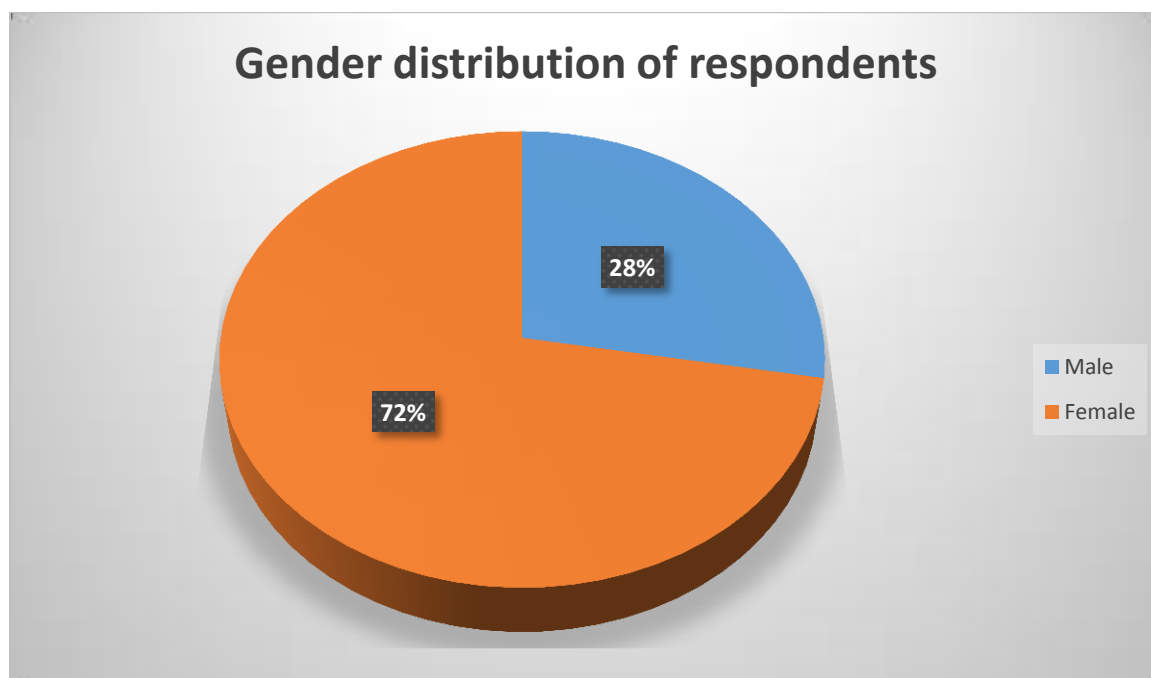


Figure 4.1: Gender of Respondents

Figure 4.1 displays distribution of the respondents, majority 73 (72.2) were females and the minority 28 (22.7%) males. Findings revealed that female respondents outnumbered male respondents; this is not surprising. Probabilities could be the fact that the nursing profession was brought into existence by women and therefore, the profession still operates as a female dominated profession. These findings correlate with the findings of the USA study by Leary, Punshon, MacLaine, Radford, Trevatt and Shanley (2019:2) on patient safety. Lang, Hodge and Olson (2013):11) in their study, report similar findings which indicate that nursing is a predominantly female profession. While Grobler et al. (2011:32) emphasise that the nursing profession is female dominated.

4.4.2.1 Age of respondents

4.2: Age distribution of respondents (N=101)

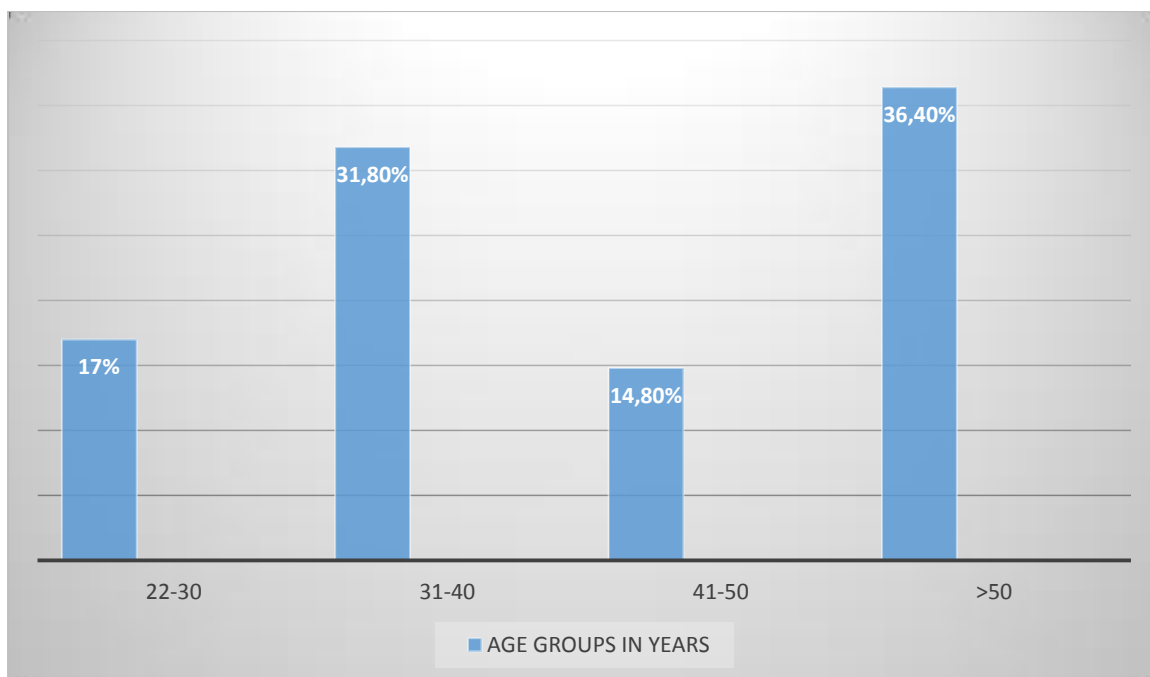


Figure 4.2: Age distribution of respondents (N=101)

Figure 4.2 depicts the respondents' age distribution. The respondents were aged between 22 and 30. Of the respondents (17%.0%) were between 22 and 30 years of age; 32% (n=31) were between 31 and 40; 15% were between 31 and 35, and 3% (n=1) were between 16 and 20. In her study, Netshikweta (1999:57) found that 45% of the participants were between 16 and 17; 38.3% were 18 to 19; and 16.7% were 20 to 21 years of age. Netshikweta (2014:57) found that the majority of the respondents were teenagers; due to their age, respondents were young and inexperienced which might indicate a lack of knowledge and immaturity in terms of quality nursing care to patients.

4.4.2.2 Nursing qualification of respondents

In the nursing profession there are different types of nursing qualifications which nurses have undergone after they became professional nurses to edify their profession.

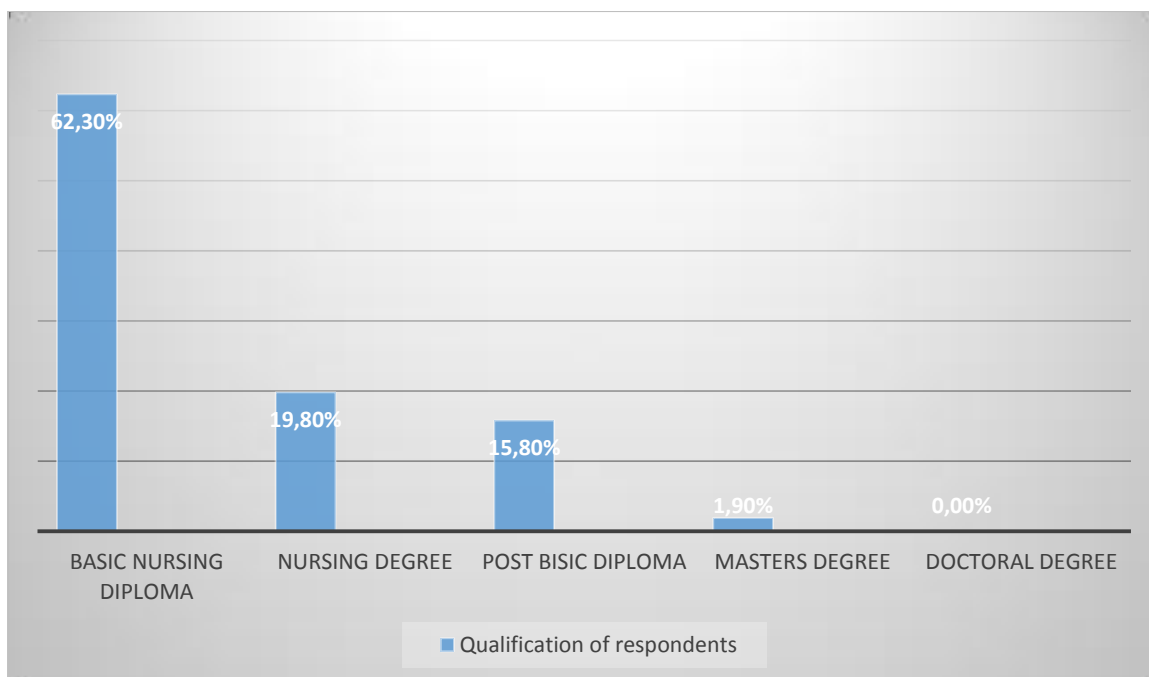


Figure 4.3: Distribution of respondents' qualifications

The findings show that majority 63 (62.3.8%) of respondents had a Basic Nursing Diploma, while 20 (19.8%) of respondents had a nursing degree. Furthermore, 16 (15.8%) of respondents had a Post Basic Diploma and the minority 2 (1.9%) of respondents had a masters' degree. Moreover, none of the respondents had a doctoral degree during the time of the data collection. Freeman and O'Brien-Pallas (2010:11) encouraged that a higher qualification adds to knowledge and more experience.

4.4.2.3 Respondents' years of experience

In this study it was imperative for the researcher to have an insight into the work experience of each respondent, i.e., how many years spent in the allocated ward as a professional nurse. The results of this variable are shown on Figure 4.4 below.

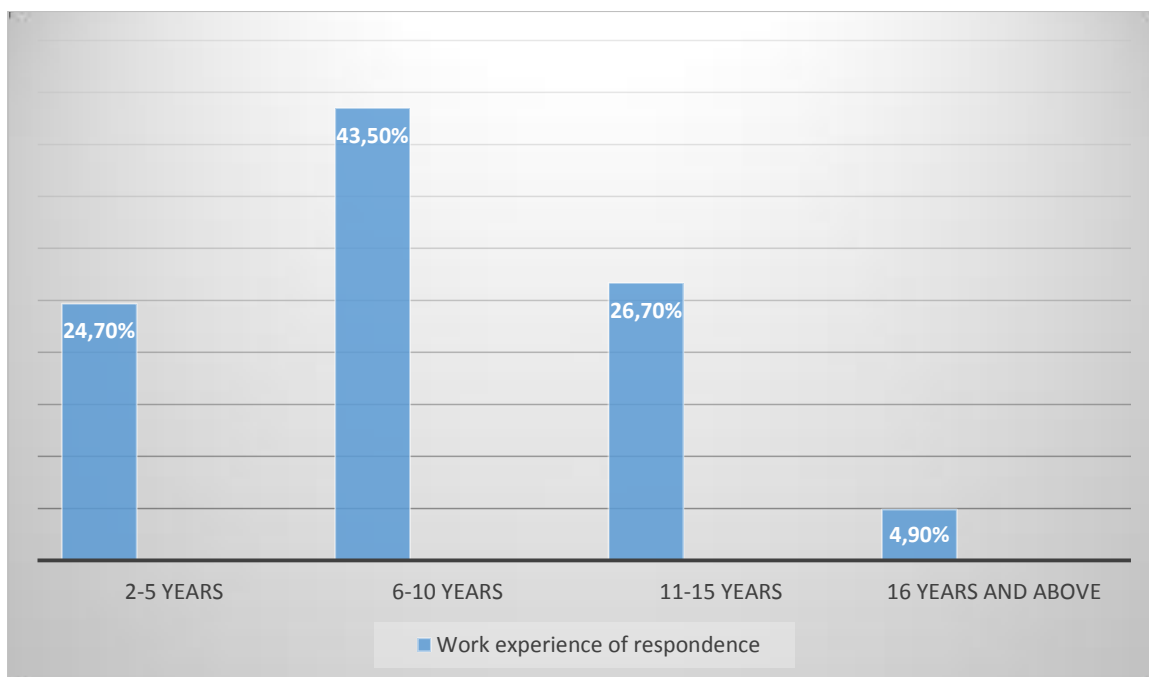


Figure 4.4: Distribution of work experience of respondents'

Figure 4.4 indicates that as many as 44 (43.5%) of the respondents had worked as nurses for 6-10 years; while 27 (26.7%) of the respondents had worked as nurses for 11-15 years. Furthermore, 25 (24.7%) of the respondents had 2-5 years nursing work experience. Moreover, the minority 5 (4.9%) of respondents had worked as nurses for more than 15 years. More years in the ward meant more experience.

Table 4.2: Effects of Respondents' workload on patients

Observed incidence	Number	%
Incidence of medication error displayed	60	59.4%
Incidence of wound infections displayed	8	7.9%
Lack of orientation of new patients during admission	80	79.2%
Poor supervision of students on quality patient care	9	8.9%
Patient right charter is not displayed in the ward	10	9.9%

Table 4.2: Effects of Respondents' workload on patients

Table 4.2 depicts incidences observed in the ward as effects of workloads by respondents. Incidences of medication errors were 60 (59.4%) as observed by respondents as an effect of workload on nurses. Moreover, 80 (79.2%) respondents indicated that they have observed long-stay of patients in the ward as a result of nurses not having enough time to orientate the patients on admission concerning their expectations and treatment, while the minority 10 (9.9%) observed that patients' rights charter is talked about but they don't display it to the patient. Furthermore, 9 (8.9%) respondents have observed poor communication between nurses and students. Students' supervision to quality patient care was poor while 8 (9.1%) observed infection of a wound as a result of heavy workload.

Table 4.3: Respondents' Negative attitude and odd behaviours of nurses as results of workload

Effects due to heavy workloads	Number	%
Nurses displayed Laziness	69	68.3%
Nurses displayed Rudeness	81	80.1%
Nurses displayed Unresponsiveness	6	5.9%
Nurses displayed Aggressiveness	20	19.8%
Nurses displayed Ignorant behaviour	4	3.9%

The findings show that 81 (80.1%) respondents indicated that workload affected them to the extent that they became rude while 69 (68.3%) found themselves being lazy due to heavy workload. Furthermore 20 (19.8) reported being aggressive due to heavy workload while 6 (5.9%) were unresponsive. Out of the 101 respondents, 4 (3.9%) displayed ignorance due to workloads.

Table 4.4: Effects of heavy workload on nurses

Effects of heavy workloads which cause poor nursing care	Number	%
Play sick role	85	84.1%
Become aggressive	66	65.3%
Stay in the duty room	10	9.9%
Sleeping on night duty	11	10.8%
Resignation	8	7.9%

Table 4.4 shows that the majority 85 (84.1%) of the respondents in this study identified a playing sick role as one of the most common effects of heavy workload, while 66 (65.3%) of the respondents have identified being aggressive as one of those effects. Furthermore, 11 (10.8%) of the respondents identified sleeping on night duty, 10 (9.9%) identified staying in the duty room and 8 (7.9%) of the respondents identified resignation as an effect of heavy workload.

Table 4.5: Factors influencing respondents' workload

Nurses' workloads	Strongly Agree Freq. (%)	Agree Freq. (%)	Undecided Freq. (%)	Disagree Freq. (%)	Strongly Disagree Freq. (%)
Inexperienced nurses allocated to a work unit.	48 (47.5)	20 (19.8)	2 (1.9)	20 (19.08)	11 (10.8)
Few professional nurses allocated to a bigger work unit.	71 (70.2)	23 (22.7)	2 (1.9)	4 (3.9)	1 (0.9)
Inadequate resources to enhance clinical work.	82 (81.1)	17 (16.8)	1 (0.9)	1 (0.9)	0 (0.0)
Unconducive work environment for nurses.	83 (82.1)	13 (12.8)	3 (2.9)	1 (0.9)	1 (0.9)
Poor interpersonal relationship between management and nurses.	77 (76.2)	17 (16.8)	2 (1.9)	4 (3.9)	2 (1.9)
Poor team work between nurses and other health care workers.	74 (73.2)	16 (15.8)	4 (3.9)	5 (4.9)	2 (1.9)
Too many patients at a time to few nurses on duty.	82 (81.1)	15 (14.8)	3 (2.9)	0 (0.0)	1 (0.9)
Shortage of other health care or supporting staff to attend to patients before the attendance of nurses to such patients.	76 (75.2)	19 (18.8)	2 (1.9)	2 (1.9)	2 (1.9)
Excessive non-professional duties allocated for nurses.	75 (74.2)	15 (14.8)	6 (5.9)	2 (1.9)	3 (2.9)
Overdue stay of patients in the ward after being discharged due to patient family absence.	69 (68.3)	15 (14.8)	8 (7.9)	3 (2.9)	6 (5.9)

Table 4.5 displays the perceptions of the respondents regarding factors relating to workload. From the table, inexperienced nurses were also in the unit that participated in this study. The statement “inexperienced nurses allocated to a work unit causes excessive workload for professional nurses” has a total support of 48 (47.5%) of the total number of respondents, few professional nurses allocated to a bigger work unit has a total support of 71 (70.2%) from the respondents.

Inadequate resources to enhance clinical work has a total support of 78 (98%), uncondusive work environment for nurses has a total support of 82 (81.1%), poor interpersonal relationships between management team and nurses has a total support of 83 (82.1%), poor teamwork between nurses and other health care workers has a total support of 74 (73.2%), too many patients at a time with too few nurses on duty has a total support of 76 (95%), shortage of other health care or supporting staff to attend to patients before the attendance of a nurse to such patients has a total support of 74 (91%), excessive non-professional duties allocated for nurses has a total support of 69 (85%).

Overdue stay of patients in the ward after being discharged due to patient family absence has a total support of 63 (78%) from the respondents. From this, it is obvious that all these causes are major factors for nurses’ workload, as the respondents' supports were far above 75% in each case, except for inexperienced nurses allocated to a work unit can cause excessive workload for professional nurses which has a total support of 47 - representing 59%. This means that nurses experience’ or inexperience does not necessarily cause excessive workload.

4.3.6 Respondents' perceptions on patients' safety

Table 4.6 presents the perceptions of the respondents on patients' safety and care.

Table 4.6: Respondents' perceptions on patients' safety

Patient safety and care are measured by the following factors	Strongly Agree Freq. (%)	Agree Freq. (%)	Undecided Freq. (%)	Disagree Freq. (%)	Strongly Disagree Freq. (%)
Prompt meals and treatments to patients.	48 (60.0)	22 (27.0)	3 (4.0)	5 (6.0)	2 (3.0)
Level of attention given to patients by the nurses.	52 (64.0)	23 (29.0)	2 (3.0)	3 (4.0)	0 (0.0)
Proper communications between nurses and patients.	59 (74.0)	15 (18.0)	4 (5.0)	2 (3.0)	0 (0.0)
Good relationships between nurses and patients.	57 (71.0)	19 (24.0)	1 (1.0)	3 (4.0)	0 (0.0)
Good behaviour and attitude of the nurses towards the patients.	50 (62.0)	23 (29.0)	3 (4.0)	3 (4.0)	1 (1.0)

Table 4.6 shows the perceptions of the respondents on patients' safety and care. From the table, prompt and proper allocation of meals and treatments to patients has a total support of 70 (87.0%) of the total number of respondents, level of attention or attendance given to patients by the nurses has a total support of 75 (93%) from the respondents, proper communication between nurses and patients has a total support of 74 (92%) from the respondents, good relationship between nurses and patients has a total support of 76 (95%) from the respondents, and good behaviour and attitudes of the nurses towards the patients also has a total support of 73 (91%) from the respondents.

This implies that all these factors relate to patients' safety as they rank way above 75%. However, it is obvious that the major factors relating to patients' safety as perceived by the respondents are good relationships between nurses and patients, followed closely by level of attention or attendance given to patients by the nurses, and proper communication between nurses and patients, good behaviour and attitude of the nurses towards the patients, and lastly prompt and proper allocation of meals and treatments to patients.

4.5 RELATIONSHIP BETWEEN NURSES' WORKLOAD AND PATIENT SAFETY

Table 4.7: Workloads and patient safety

Workloads and patient safety		NO	YES	TOTAL
4.5.1 Heavy workloads affect the enthusiasm of nurses	n	3	98	101
	%	2.9%	97.0%	100.0
4.5.2 Allocating various tasks to one staff member makes one unproductive	n	22	79	101
	%	21.7%	78.2%	100.0
4.5.3 Impacts of workloads on professional nurses results in fatigue, absenteeism and job dissatisfaction	n	9	92	101
	%	8.9%	91.8%	100.0
4.5.4 Workloads lead to lack of commitment to patient care	n	4	97	101
	%	3.9%	96.0%	100.0
4.5.5 Workloads may lead to lack of competency to patient care skills.	n	6	95	101
	%	5.9%	94.0%	100.0

Table 4.7 shows that majority 98 (97.0%) of the respondents agreed that heavy workload in the ward prevents nurses from concentrating on patients, while the minority 3 (2.9%) of the respondents disagreed with the statement. This means that they are of the opinion that they can cope with a heavy workload in the ward while directing attention to the patient.

The findings indicate that majority 79 (78.2%) of the respondents reported that due to multi delegation, patients are not given correct treatment, while 22 (21.7%) of the respondents disagreed that multi delegation of duties causes medical errors.

Out of 89 of the respondents who successfully completed the questionnaires, majority of the respondents 92 (91.8%) indicated that heavy workload on nurses contributes to fatigue, absenteeism and work dissatisfaction. Moreover, the main 9 (8.9%) respondents reported that heavy workload on nurses does not contribute to

fatigue, absenteeism and dissatisfaction. Table 4.5.1 shows that 95 (94.0%) of the respondents indicated that due to heavy workload, they are unable to fill patients' records completely, while 6 (5.9%) respondents disagreed with the statement. This means that majority of the respondents (93.1%) cannot fill patient records completely due to heavy workload they face during performance of duties.

The findings presented in figure 4.9 show that 81 (93.1%) of the respondents reported that they usually mix patients' files and this results in giving wrong treatment due to heavy workload. Despite that, 6 (6.9%) of the respondents reported that they do not mix patients' files even though heavy workload is pressing. It shows that 83 (95.4%) of them indicated that due to heavy workload, they experience stress and results in them talking to patients in a harsh way. However, 4 (4.6%) of the respondents indicated that even though heavy workload is pressing and results in stress, they are able to maintain good communication with patients rather than talking to them in a harsh way.

4.5.2 Nurses' level of knowledge and skills in relation to patient safety

4.8 Professional nurses' role to promote patient safety

Professional nurses' role to promote patient safety		NO	YES	TOTAL
4.5.1 Treatment is important to the patients and it should be given at the correct time.	n	12	89	101
	%	11.8%	88.1%	100.0
4.5.2 Good communication is important when talking to patients.	n	11	90	101
	%	10.8%	89.1%	100.0
4.5.3 Good relationships between nurses and patients promote patient safety.	n	5	96	101
	%	4.9%	95.0%	100.0
4.5.4 Good supervision between nurses and management is important to enhance patient safety.	n	8	93	101
	%	7.9%	92.0%	100.0
4.5.5 Nurses must continue education to be innovative for patient safety purpose.	n	64	37	101
	%	63.3%	36.6%	100.0

The above table shows that 89 (88.1%) disagreed that prompt and proper allocation of meals and treatments to patients enhance patients' safety. However, 12 (11.8%) agreed that prompt and proper allocation of meals and treatments to patients enhances patients' safety.

The table indicates that 90 (89.1%) of the respondents reported that they were aware that good communication is important when talking to patients and enhances patient safety. However, 11 (10.8%) of the respondents were not aware that communicating well with patients is important and enhances patient safety.

Figure 4.13 shows that 96 (95.0%) of the respondents reported that they were aware that good working relationships between nurses and patients promote patients' safety. Despite that, 5 (4.9%) of the respondents indicated that they were not aware that building good working relationship with patients promotes patient safety.

The table shows that 79 (90.8%) of the respondents reported that they were aware that having good supervision relationship with their managers is important and enhances patient safety. Moreover, only 8 (7.9%) of the respondents were not aware of the importance of having good supervision relationships with their managers and that good supervision relationships enhance patient safety.

The findings indicate that 93 (92.0%) of the respondents reported that they knew that poor communication between them and other health care workers show poor knowledge about patient safety. However, 8 (7.9%) of the respondents reported being not aware that poor communication between them and other health care workers show poor knowledge about patient safety.

It again depicts that 64 (63.3%) of the respondents reported that they did not know about necessary skills and experience they should have when attending patients in order to enhance patient safety. Furthermore, 37 (36.6%) of the respondents reported that they knew about necessary skills and experience they should have when attending patients in order to enhance patient safety.

Out of the 101 respondents, only 8 (7.9%) made suggestions and the rest of the respondents did not make any suggestions. The following suggestions were made. Firstly, professional nurses should be taken to training on how to provide quality care to patients. Secondly, management should involve professional nurses when doing strategic planning, and a third suggestion, in-service training is the best way to improve working conditions for professional nurses.

The forth suggestion is that workshops should be done to improve the quality of care provided for professional nurses. Moreover, another suggestion that was made was that workshops that provide training on patient safety should be given. Furthermore, it was recommended that workshops should be done to improve nurses' knowledge.

4.5.3 Association between respondents' demographic patient safety

Table 4.9 Association between respondents' demographic patient safety

Variables		Good communication between nurses and patients promotes patient safety		
		True	False	X ²
		N(%)	N(%)	(P-value)
Age	22-30	13(86%)	2(14%)	0.590
	31-40	26(93%)	2(7%)	
	41-50	13(100%)	0(0%)	
	51>	30(97%)	1(3%)	
Gender	Male	25(92.5%)	2(7.5%)	0.307
	Females	57(95%)	3(5%)	
Years of experience	2-5	21(87%)	3(13%)	0.494
	6-10	30(96%)	1(4%)	
	11-15	26(96%)	1(4%)	
	16>	5(100%)	0(0%)	
Qualifications	Basic Nursing Diploma	6(12%)	47(88%)	0.733
	Nursing Degree	3(18%)	14(82%)	
	Post Basic Diploma	1(7%)	13(93%)	
	Master's Degree	0(0%)	3(100%)	

Table 4.7 shows that respondents aged 41-50 years and 51 years and above (97.0%) agreed that good relationships between nurses and patients promote patient safety. However, there was no statistically significant relationship between age and level of knowledge and skills needed to ensure patient safety ($p=0.590$) as indicated in table 4.4. This study showed that the majority of the respondents (95.0%) were female, more than males, who agreed that good relationships between nurses and patients enhance patient safety. However, there was no statistically significant relationship found between gender of respondents and the

level of knowledge and skills needed to ensure patient safety ($p=0.307$) as shown in table 4.4.

All the respondents to this question (100.0%) with 16 years and above work experience, as well as those respondents with 11-15 years (96.0%) and 6-10 years (96.0%) agreed that good relationships between nurses and patients enhance patient safety. However, there was no statistically significant relationship found between work experience and level of knowledge and skills needed to enhance patient safety ($p=0.494$ as indicated in table 4.4). Furthermore, all (100.0%) respondents with a master's degree, followed by those with Post Basic Diploma (93.0%) disagreed that good relationships between nurses and patients promotes patient safety. Despite that, there was no statistically significant relationship found between respondents' level of education and level of knowledge and skills needed to enhance patient safety ($p=0.733$).

This chapter discussed the data analysis and interpretation with reference to the literature review. The aim of this study was to determine the effects of nursing workloads on patient safety in the selected public hospitals in Vhembe District, Limpopo Province in South Africa.

The main findings of the investigation were summarised in each section. Chapter 5 concludes the study, discusses its limitations and makes recommendations for practice and further research.

CHAPTER 5

SUMMARY, LIMITATIONS, RECOMMENDATIONS AND CONCLUSION

5.1 INTRODUCTION

The previous chapter presented data analysis, interpretation and discussion of the findings on the effect of nursing workloads on patient safety. This chapter discusses the findings, provides a summary of findings, the conclusion and the recommendations of the study which sought to determine the effects of nurses' heavy workload on patient safety in Vhembe District of Limpopo Province.

According to the Donabedian Conceptual Framework, the ability to improve the safety of patient care delivery is dependent on the safety culture, or the norms surrounding reactions following an error, the learning that takes place, and the proactive strategies in place to prevent future errors. While measurement of patient safety culture is now common in the United States (US) using instruments specifically developed for US health care organisations, no measurements of safety culture had been conducted at Hamad Medical Corporation in the State of Qatar, a Middle Eastern country; nor were valid or reliable instruments available.

5.2 PURPOSE OF THE STUDY

The purpose of this study was to determine the effects of nursing workloads on patient safety in the selected public hospitals in Vhembe District, Limpopo Province in South Africa.

5.3 OBJECTIVE OF THE STUDY

The study was guided by the following objectives:

- Identify effects of nurses' workloads in the selected public hospitals of Vhembe District in Limpopo Province, South Africa.
- Identify effects of patients' safety in the selected public hospitals of Vhembe District in Limpopo Province, South Africa.
- Describe the relationship between nurses' workload and patients' safety.
- Assess the level of knowledge of nurses in relation to patient safety.

5.3.1 Objective No.1

This objective was aimed at identifying effects of heavy workloads on nurses in the public hospital.

Respondents in this study were found to be affected by heavy workloads emotionally, physically and spiritually. The findings showed that (84.1%) of the responses revealed that most of the nurses were playing sick because they were frustrated with heavy workloads.

Findings further depicted that (65.3%) of respondents, findings revealed aggressive behaviour in such a way that their communication with the patients was very poor. Heavy workloads precipitated much harm to the nurses in such a way that their productivity in the units was very poor. It was further revealed that (59.4%) incidences of medical errors were observed as the effect of heavy workloads.

Findings of this study depict incidences observed in the ward as effects of workloads by respondents. Incidences of medication error were 60 (59.4%) as observed by respondents as an effect of workload on nurses. Moreover, 80 (79.2%) respondents indicated that they have observed long-stay of patients in the ward as nurses don't get enough time to orientate the patients on admission concerning their expectation and their treatment, while 10 (9.9%) observed that they talk about

patients' rights' charter but they don't display it to the patients. Furthermore, 9 (8.9%) respondents have observed poor communication between nurses and students. Students' supervision to quality patient care was poor while 8 (9.1%) observed infection of wounds as an effect of heavy workload. It shows that 83 (95.4%) indicated that due to heavy workload, they experience stress and it results in them talking to patients in a harsh way. However, 4 (4.6%) respondents indicated that even though heavy workload is a pressing result in stress, they are able to maintain good communication with patients rather than talking to them in a harsh way.

Absenteeism and faking of sickness were reported by 85 (84.1%) as one of the most common effects of heavy workload, while 66 (65.3%) have identified being aggressive as one of those effects. Furthermore, 11 (10.8%) identified sleeping on night duty, 10 (9.9%) identified staying in the duty room and 8 (7.9%) identified resignation as effects of heavy workload.

Poor communication was observed between nurses and students. Students' supervision to quality patient care was poor while 8 (9.1%) observed infection of wounds as an effect of heavy workload. The findings show that 81 (93.1%) respondents indicated that workload affected them to the extent that they became rude while 69 (79.3%) found themselves being lazy due to heavy workload. Furthermore 20 (23%) reported being aggressive due to heavy workload while 6 (6.9%) were unresponsive. Out of the 101 respondents, 4 (4.6%) displayed ignorance about nursing workloads.

5.3.2 Objective No. 2

This objective sought to identify the effects of patients in the public hospital. Respondents revealed poor nursing care which affects patient safety.

This was shown by incidences of medication error that were 60 (68.1%) as observed by respondents as an effect of workload on nurses. Moreover, 80 (90%)

respondents indicated that they have observed long-stay of patients in the ward as nurses don't get enough time to orientate the patients on admission concerning their expectation and concerning their treatment., while 10 (11.4%) observed that they talk about patients' rights charter but they don't display it to the patients. Furthermore, 9 (10.2%) respondents have observed poor communication between nurses and students. Students' supervision to quality patient care was poor while 8 (9.1%) observed infection of wounds as an effect of heavy workload. The findings show that 81 (93.1%) respondents indicated that workload affected them to the extent that they became rude while 69 (79.3%) displays laziness at work.

5.3.3 Objective No.3

This objective was aimed at describing the relationship between nurses' workloads and patient safety

In this objective, it was shown that majority 84 (95.5%) of the respondents reported that heavy workload in the ward contributes to poor concentration amongst nurses, whilst this also leads to incidences. Nurses' workloads and patient safety i.e., Adverse Patient Outcomes in this study was assessed using a checklist showing agree, disagree and do not agree.

Perceived nurses' heavy workload was found to contribute to various incidences such as, interruptions to workflow, nursing tasks left undone, compromised professional nursing standards and the frequency of medication errors and compromised patients' life. Emotional exhaustion among nurses was measured with the 9-item sub-scale of the check list.

It shows that 83 (95.4%) indicated that due to heavy workload, they experience stress and talking to patients in a harsh way. However, 4 (4.6%) respondents indicated that even though heavy workload is pressing and results in stress, they are able to maintain good communication with patients rather than talking to them in a harsh way. Insufficient staff members has many implications. Many studies have shown that insufficient nurse staffing in hospital-based care negatively affects outcomes such as mortality, infections and failure to rescue. However, the results

are inconsistent and indicate a complex and non-linear relationship between nursing workloads, mortality and other patient outcomes. The strength of the evidence underpinning the association between nurse staffing and outcomes in previous studies can be challenged. Poor research designs, measurement problems and/or imprecise data that do not take into account daily variations in patients' care needs may contribute to the mixed findings. Higher nurse staffing and richer skill mix are associated with improved patient outcomes. Therefore, higher ratios have been recommended for improving patient safety and outcomes. However, it is difficult to set fixed, standard patient-to-nurse ratios for units in acute care hospitals, as evidenced in systematic reviews and other studies. Staffing levels must instead match patients' nursing care needs.

The table shows that 84 (95.5%) respondents agreed that heavy workload in the ward prevents nurses from concentrating on patients, while 3 (3.4%) respondents disagreed with the statement. This means that they are of the opinion that they can cope with heavy workloads in the ward while directing attention to the patients.

The findings indicate that 83 (94.3%) respondents reported that due to multi delegation, patients are not given correct treatment, while 4 (4.5%) respondents disagreed that multi delegation of duties causes medical errors.

Out of 101 respondents, 78 (90%) indicated that heavy workload on nurses contributes to fatigue, absenteeism and work dissatisfaction. Moreover, the main 9 (10%) respondents reported that heavy workload on nurses does not contribute to fatigue, absenteeism and dissatisfaction.

The table shows that 81 (93.1%) respondents indicated that due to heavy workload, they are unable to fill in patients' records completely, while 6 (6.8%) respondents disagreed with the statement. This means that majority of the respondents (93.1%) cannot fill in patients' records completely due to heavy workload they face during performance of duties.

The findings presented in figure 4.9 show that 81 (93.1%) respondents reported that they usually mix patients' files and this results in giving wrong treatment due to heavy workload. Despite that, 6 (6.9%) respondents reported that they do not mix patients' files even though a heavy workload is pressing.

The table shows that 84 (95.5%) respondents agreed that heavy workload in the ward prevents nurses from concentrating on patients, while 3 (3.4%) respondents disagreed with the statement. This means that they are of the opinion that they can cope with a heavy workload in the ward while directing attention to the patients.

The findings indicate that 83 (94.3%) respondents reported that due to multi delegation, patients are not given correct treatment, while 4 (4.5%) respondents disagreed that multi delegation of duties causes medical errors.

Out of 101 respondents, 78 (90%) indicated that heavy workload on nurses contributes to fatigue, absenteeism and work dissatisfaction. Moreover, the main 9 (10%) respondents reported that heavy workload on nurses does not contribute to fatigue, absenteeism and dissatisfaction.

The table shows that 81 (93.1%) respondents indicated that due to heavy workload, they are unable to fill patients' records completely, while 6 (6.8%) respondents disagreed with the statement. This means that majority of the respondents (93.1%) cannot fill in patient records completely due to heavy workload they face during performance of duties.

The findings presented in figure 4.9 show that 81 (93.1%) respondents reported that they usually mix patients' files and this results in giving wrong treatment due to the heavy workload. Despite that, 6 (6.9%) respondents reported that they do not mix patients' files even though heavy workload is pressing.

It shows that 83 (95.4%) indicated that due to heavy workload, they experience stress and as a result they talk to patients in a harsh way. However, 4 (4.6%) respondents indicated that even though heavy workload is pressing as a result of stress, they are able to maintain good communication with patients rather than talking to them in a harsh way.

The table shows that 84 (95.5%) respondents agreed that heavy workload in the ward prevents nurses from concentrating on patients, while 3 (3.4%) respondents disagreed with the statement. This means that they are of the opinion that they can cope with a heavy workload in the ward while directing attention to the patients.

The findings indicate that 83 (94.3%) respondents reported that due to multi delegation, patients are not given correct treatment, while 4 (4.5%) respondents disagreed that multi delegation of duties causes medical errors.

Out of 101 respondents, 78 (90%) indicated that heavy workload on nurses contributes to fatigue, absenteeism and work dissatisfaction. Moreover, the main 9 (10%) respondents reported that heavy workload on nurses does not contribute to fatigue, absenteeism and dissatisfaction.

The table shows that 81 (93.1%) respondents indicated that due to heavy workload, they are unable to fill in patients' records completely, while 6 (6.8%) respondents disagreed with the statement. This means that majority of the respondents (93.1%) cannot fill in patients' records completely due to heavy workload they face during performance of duties.

The findings presented in figure 4.9 show that 81 (93.1%) respondents reported that they usually mix patients files and this results in giving wrong treatment due to heavy workload. Despite that, 6 (6.9%) respondents reported that they do not mix patients' files even though heavy workload is pressing.

5.3.4 Objectives No.4

This objective was directed at assessing the level of knowledge of professional nurses in relation to patient safety.

Findings from this study indicate that nurses do not feel free to report errors or issues related to patient safety, knowledge is poor and that reporting may well lead to improvement of patients' safety. This may be due to many reasons such as fear of punishment, blame, and potential for shame which are reasons documented in the literature related to error reporting. The ability to improve the safety of patient care delivery is dependent on the knowledge of the safety culture, or the norms surrounding reactions following an error, the learning that takes place, and the proactive strategies in place to prevent future errors. Respondents in this study 75 (86.3%) disagreed that prompt and proper allocation of meals and treatments to patients enhance patients' safety. However, 12 (13.7%) agreed that prompt and proper allocation of meals and treatments to patients enhance patients' safety. While 76 (87.4%) of the respondents reported that they were not aware that good communication is important when talking to patients and enhances patient safety. In terms of the knowledge, 82 (94.3%) of the respondents reported that they were aware that good working relationships between nurses and patients promotes patients' safety. Findings revealed that the knowledge of incidences that occur to patients may lead to lots of law suites. Majority of the respondents 79 (90.8%) reported that they were aware that having a good supervision relationship with their managers is important and enhances patient safety.

5.4 DISCUSSION OF RESULTS

The study found that the odds for a patient safety incident were 10%–30% higher, and for patient mortality about 25% higher, if the nurses' workload as measured by the delegation system was above the assumed optimal level, as compared with if it was at this level. If OPC/nurse was below the level, the odds for a patient safety incident and for mortality were approximately 15% lower. The latter situation would mean that nurses have more time for caring and observing each patient, which may reduce the risk for adverse events and accordingly prevent the patient's health condition from deteriorating.

However, this study found that majority of the respondents 78 (89.7%) report that they were aware that poor communication between nurses and patients as well as absenteeism from work exposes patients to medical hazards and a variety of incidences. Other previous studies did not find significant changes in patient safety associated with decreased nursing workload and could not confirm compliance with ratios per shift. Other studies used hospital-level administration of the delegation of activities on the ward level that imprecisely allocated staffing to patients' care needs. It may be predicted that such associations between nurse staffing, patient outcomes and mortality may be challenged. Bateman et al. (2013:12) found similar results between mortality and day-to-day, shift-to-shift variation in staffing. Mashau (2014:23) reported what happened between mortality and days with nursing workload over optimal level on a monthly level which was also not favourable.

The OPC/nurse measure is more detailed than the traditional patients/nurse measure. While comparable to the hours per patient day. Donabedian Conceptual Framework's accuracy of nursing resources is higher. For example, if a nurse becomes sick during a shift and leaves the unit, the nurse in charge will deduct those hours from the unit's resources such as available professional nurses at that moment, who are already working as short-staffed.

Several factors affect the reporting of incidents, for example, staff's lack of motivation or low morale, knowledge, nurse staff shortage, stressful situations or burnout. A reasonable argument is therefore that a very high NWL indicates a working situation where the professional nurses' staff resources are too low. Still, too few resources can result in the deprioritisation of the registration of adverse events and thus the under-reporting of incidents connected to high NWL, which may affect the results of this study and the conclusions that was drawn.

Evidence available that a staffing shortage based on daily measurement of individual patient care needs and the recommended NWL was slightly better in predicting incidents' rates that may occur on patients as compared to the standard patient-to-nurse ratio. However, current findings therefore, ought to be further investigated and the findings replicated in larger, longitudinal multicenter studies in order to bring out improvements in the nursing profession.

A strength of this study is that the analyses were conducted based on nurses' independent classifications of patients' nursing intensity. The data used was based on a scientifically tested NWL system, which enabled comparisons since the patient-case mix and patient severity groups require different staff resources to maximize positive patient outcomes. NWL consequently ought to be monitored daily using reliable instruments to ensure good patient outcomes. Such optimal resource allocation is needed such as nurse-patient staff ratio and enough staff in the ward on a daily bases, for the safety of patients' clinical governance and it is very important for favourable outcomes, to prevent adverse events and to reduce patient mortality.

Out of the 101 respondents, only 8 (9.2%) respondents made suggestions and the rest of the respondents did not make any suggestions. Although possibilities are there that nurses can control ward-specific effects and effects of day of the week, holiday and season, there might be other confounding factors, suspecting factors like shortage of professional nurses as this is the order of the day that 82 (92.1%) reported in this study. Hospital settings are characterised by complexity regarding factors that may affect total NWL. While a list of central organisational and contextual factors were included in the PAONCIL instrument, we did not address the effects of skill mix and competence level but work experience was important in this study for patient outcomes. Nurses' patient-related direct time and health care support should probably be included in further studies as well as physicians' time.

Another problem was that a death or an incident caused by low staffing on a ward on one day may not always occur on that same day or on that same ward. This could be explored by analysing patient records around the critical days and at

multiple wards. Although this study was the first of its kind in Limpopo Province, Vhembe District on the relationship between nurses workload and patients' safety and the assumed optimal daily outcomes, a multicenter study with several hospitals is needed to further test the generalisability of the results.

5.5 LIMITATIONS IDENTIFIED DURING THE STUDY

The study suffered an actual limitation in the form of a non-probability sampling. The study was conducted in only one district hospital at Vhembe District of the Limpopo Province. More information would have been generated if other sampling methods such as probability sampling could have been used. Some respondents were not willing to participate by show of resistance to sign the concern form since they did not want to share the truth about their commitment to their working environment and their patients – this may have affected the authenticity of the information. The collection of data was difficult as the researcher acted alone and used the self-administered questionnaires as *modus operandi*.

This study nevertheless, has certain limitations. The reliability of incident reports can always be questioned, despite that the use of Operational managers in the wards is a system that has been in systematic use for more than 10 years.

Therefore, the study results may not be generalised to the whole South Africa.

5.6 RECOMMENDATIONS ARISING FROM THE RESEARCH PROJECT

Addressing the problem of effects of workloads on patient safety is a multifaceted action that nurses cannot manage on their own. It needs intersect oral collaboration for all role players: nurses, social workers, medical officers, the community, non-governmental organisations, politicians and the public and private sectors. These interventions should take place at provincial and national levels. Proper coordination of activities at various levels cannot be over-emphasized. On the strength of the above and based on the research project, the following recommendations are made:

Nurses' workloads and patient safety issues should be adequately addressed by:

- Revising nursing patient ratio at least 1:2 in medical and surgical wards to minimise heavy workloads.
- Empowering nurses to minimise stress and burnout syndrome by attending workshops and seminars.
- There is a need to institute peer-counselling programmes among professionals.
- Nurses to encourage each other.
- Vacant posts should be advertised and more professional nurses should be employed to minimise nursing workload.
- Government should renovate health care facilities to promote conducive work environment which is spacious and free from stress.
- Continuity of in-service training and workshops for professional nurses for empowerment and motivation especially for patient safety should be done.
- Proper allocation of professional nurses according to proper qualifications and training held by professional nurses.
- Free supportive services should be made available for professional nurses when there is need such as psychologist services and social worker services to minimise stress.

5.7 RECOMMENDATION FOR FUTURE RESEARCH

The implications of the main findings of this study suggest that:

- Further research be conducted on the effects of nurses' workloads on patient safety.
- Further research be conducted about the involvement of management on effects of patient safety.
- Further research is necessary especially about the perception of professional nurses on patient safety.

5.8 CONCLUSION

The purpose of the study was to determine the effects of nurses' workload on patient safety in Vhembe District of Limpopo Province.

This study has showed that a work situation above the assumed optimal level increases the risk for adverse events and patient mortality. The study found that most of the nurses experienced an incidence once or more than once when giving wrong treatments to patients because of the excessive workloads. Nurses were found to have difficulty in focusing on patients' needs because of heavy exhaustion from too much work done by one nurse.

However, the resources for nursing staff are limited in all organisations. Nurse managers, therefore, have to use available resources in the most optimal way. This study provided some new evidence to suggest that the traditional nurse staffing methods, the patient-to-nurse ratio, is not necessarily preferable when it comes to controlling for patients' severity and case mix. Nurses' absenteeism was evidenced in this study, rudeness and attitudes to patients because of exhaustion due to heavy workload, faking illness and staying off duty was the order of the day amongst nurses in this study. Nurses' knowledge and skills were high in procedure to be performed and knowledge needed to ensure patient safety.

The staffing measure based on the assumed optimal nurses' workload may therefore be considered a novel attempt to fill a gap in the existing knowledge on leadership and clinical governance. Efficient resource allocation is needed for successful leadership and clinical governance and it is crucial for favourable outcomes, for preventing adverse events and for reducing the mortality risk. Future research is needed to ascertain whether good patient outcomes are ensured by daily monitoring of nurses' workload with instruments like the one studied here.

Finally, quality improvement and patient safety in health care requires complex social and technical systems such as those examined in this dissertation. The management of hospital operations can benefit from the specific findings of this work regarding investments in safety culture and the use of information systems in

various contexts. Understanding the influence of these investments and potential moderating factors is both timely and critical for the advancement of safe and reliable patient care.

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7 ANNEXURES

ANNEXURE A

QUESTIONNAIRE

Instructions

1. Please tick on an appropriate space
2. Do not write your name or number
3. Do not discuss your answer with anybody
4. Respond to all questions

Study title: “Effects of nurses’ workloads on patients’ safety in selected public hospitals, Vhembe District, Limpopo Province, South Africa.”

Target: Professional Nurses

SECTION 1: BIOGRAPHICAL INFORMATION

Please (✓) tick the appropriate space that most closely indicates your personal situation. Please tick one item per question.

Female	1
Male	2

1.1 Gender

1.2 Age

22-30 Years	1
31- 40 Years	2
41- 50 Years	3
>51 Years	4

1.3 Nursing Qualifications

Basic Nursing Diploma	1
Nursing Degree	2
Post basic Diploma	3
Master's Degree	4
Doctoral Degree	5

1.4 Years of work experience

2-5 years	1
6-10 years	2
11- 15 years	3
>20 years	4

SECTION 2: EFFECTS OF NURSES' WORKLOAD ON PATIENT SAFETY

(Use √ to mark in the column below that closely describes the effects of nurses' workloads on patient safety in your opinion)

2.1 Possible reasons why nurses' workloads affect the patients negatively.

(Make a √ in the appropriate space. You can tick more than one.)

2.1.1 Giving wrong treatment	1
2.1.2 Infection of the wounds	2
2.1.3 Long stay in the ward	3
2.1.4 Poor communication between nurses and patients	4
2.1.5 Arguments between nurses and patients	5

2.2 Nurses display the following negative attitudes due to workloads.

(Make √ in an appropriate space. You can tick more than one.)

2.2.1 Laziness	1
2.2.2 Rude	2
2.2.3 Unresponsive	3
2.2.4 Aggressive	4
2.2.5 Ignorant	5

2.3 Results of heavy workload on nurses

(Make a √ in the appropriate space. You can tick more than one.)

2.3.1 Play sick role	1
2.3.2 Become aggressive	2

2.3.3 Stay in the duty room	3
2.3.4 Sleeping on night duty	4
2.3.5 Resignation	5

On Likert scale of 1-5, kindly indicate the extent to which the following factors relate to nurses' workloads .1=Strongly disagree. 2=Disagree. 3=Undecided. 4= Agree. 5=Strongly disagree.

Workload of nurses	1	2	3	4	5
Inexperienced nurses allocated to a work unit.					
Few professional nurses allocated to a bigger work unit.					
Inadequate resources to enhance clinical work.					
Unconducive work environment for nurses.					
Poor interpersonal relationship between management and nurses.					
Poor teamwork between nurses and other health care workers.					
Too many patients at a time to few nurses on duty.					
Shortage of other health care or supporting staff to attend to patients before the attendance of nurse to such patient.					
Excessive non-professional duties allocated for nurses.					
Over-due stay of patients in the ward after being discharged due to patient family absence.					

On Likert scale of 1-5, kindly indicate the extent to which the following factors relate to nurses' workloads .1=Strongly disagree. 2=Disagree. 3=Undecided. 4= Agree. 5=Strongly disagree.

Patient safety and care are measured by the following factors.	1	2	3	4	5
Prompt and proper allocation of meals and treatments to patients.					
Level of attention or attendance given to patients by the nurses.					
Proper communications between nurses and patients.					
Good relationship between nurses and patients.					
Good behaviour and attitude of the nurses towards the patients.					

3. Relationship between nurses' workloads and patients' safety	True	False
3.1 When you have heavy workloads in the ward you cannot concentrate on the needs of the patients.	1	2
3.2 Multi delegation of duties results in patients not given treatment on time.	1	2
3.3 Nurses' workloads contribute to fatigue, absenteeism hence job dissatisfaction.	1	2
3.4 Nurses' workloads contribute to incompleteness of patients' records.	1	2
3.5 Nurses usually mix the files of patients due to workload.	1	2
3.6 Workloads may cause nurses to address patients in a harsh manner.	1	2

4. Level of knowledge of nurses in relation to patients' safety.	True	False
4.1 Proper allocation of meals to patients is important for patient safety.	1	2
4.2 Nurses must be taught communication skills to provide nursing care.	1	2
4.3 Good relationships between nurses and patients promote patient safety.	1	2
4.4 Supervision of professional nurses by management is important.	1	2
4.5 Poor communication between multi-disciplinary team affects patient safety.	1	2
4.6 Experience of nurses attending patients is important for patient safety.	1	2

THANK YOU FOR YOUR COOPERATION

ANNEXURE B

CONSENT FORM

TITLE: “EFFECTS OF NURSES WORKLOAD ON PATIENT SAFETY IN THE SELECTED PUBLIC HOSPITALS, VHEMBE DISTRICT, LIMPOPO PROVINCE, SOUTH AFRICA”

Researcher: Mphephu A.G

You are invited to participate in a research project titled: **“Effects of nurses’ workloads on patient safety in the selected public hospitals, Vhembe District, Limpopo Province, South Africa”**. This study may benefit you directly as you will know the effects of nurses’ workloads on patient safety. The knowledge obtained may also be shared with other people in the community. There will be no risk or discomfort from participating in the study. You will meet with the researcher once, for completion of the questionnaire for duration of 1 hour 30 minutes at your hospital and other team members will be there to help those who do not understand the questions and who need assistance. Questionnaires will be written in English only.

A record of those who will participate in the study will be kept and your name will not be included on the questionnaire and data will not be linked to your name. Data will be stored in a secure place and no one except the research team will have access to your information. Your identity will not be revealed when the study is reported or published.

If you have questions about the study or about participating in the study, feel free to contact Mphephu Gladys at 060 896 6934 (cell). Your participation in the study is totally voluntary and you are under no obligation to participate. You are free to withdraw from the study anytime, without penalty or jeopardizing the health care to be given to you.

The study and its procedures have been approved by appropriate people and research committees of the University of Venda.

I have discussed the above points with the subjects and the subjects understand the risks, benefits and obligations involved in participating in the project.

Researcher

Date

I understand that my participation is voluntary and I may refuse to participate or withdraw my consent anytime without penalty.

I hereby freely consent to take part in this research project.

Signature of Witness

Signature of participant

Date

PARTICIPATION INFORMATION LEAFLET AND INFORMED CONSENT

TITLE OF THE STUDY: Effects of nurses' workloads on patient safety in the selected public Hospitals in Vhembe District, Limpopo Province, South Africa.

You are invited to take part in this study. This information leaflet is to help you to decide if you would like to participate. If you have any questions regarding the study do not hesitate to ask the researcher. Your participation in the study is voluntary; therefore, you have a right to decline participating in the study.

WHAT IS THE PURPOSE OF THE STUDY?

The purpose of this study is to investigate the effects of professional nurses' workloads on patient safety in the public hospitals in Vhembe District, Limpopo Province, South Africa.

WHAT IS EXPECTED OF YOU, DURING THE STUDY?

You will be expected to meet with the researcher on a stipulated date in the selected venue for filling in of questionnaires and clarity about filling them in.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

Application for ethical clearance was submitted to the Research Ethics Committee of the University of Venda, the faculty shall grant a written approval. Written approval shall also be granted by the Limpopo Department of Health and the selected hospitals in Vhembe District, Limpopo Province, South Africa for the researcher to collect data.

WHAT IS THE PARTICIPANTS' RIGHTS?

To participate in this study is entirely voluntary and the participant can withdraw from the study at any time, and the participant will not be prejudiced for doing so.

WILL ANY OF THIS STUDY'S PROCEDURES RESULT IN DISCOMFORT OR CONVENIENCE?

The questionnaires will take 20 to 25 minutes to complete; there is no known discomfort or inconvenience related to the study.

WHAT ARE THE RISKS INVOLVED IN THIS STUDY?

There are no risks involved in participating in this study.

SOURCE OF ADDITIONAL INFORMATION

If you have any questions during the study do not hesitate to contact the following people:

Researcher	:	Ms Mphephu	A.G.	060 896 6934
Promoter	:	Prof. Netshikweta	M.L.	015 962 8000
Co-promoter	:	Prof. Maputle	M.S.	015 962 8000

CONFIDENTIALITY

All information obtained during the course of the study is strictly confidential. Data that may be reported in scientific journals will not include any information that identifies participants in that study.

INFORMED CONSENT

Any participant who will sign the consent implies willingness to participate in the study. The participant shall give consent freely after being informed about the risk and the benefit of the study.

WHO WILL FILL IN THE QUESTIONNAIRES?

All professional nurses who are working in medical and surgical wards for more than two years in the selected public Hospital, Vhembe District, Limpopo Province.

RESULTS OF THE RESEARCH

The results will be available to participants at the end of the study on request by sending a cellular text to 060 896 693.

ANNEXURE C

PERMISSION TO CONDUCT THE STUDY

P.O. Box 2520

Thohoyandou

0950

01 August, 2017

Provincial Nursing Directorate

Department of Health

Polokwane

0700

**RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN THE
SELECTED PUBLIC HOSPITALS OF VHEMBE DISTRICT ON THE EFFECTS OF
NURSES' WORKLOADS ON PATIENT SAFETY.**

Dear Sir/Madam

I, Mphephu A.G., Student no:11640190, a Master's student at the Department of Nursing Science of the University of Venda hereby request permission to undertake a study entitled: Effects of nurses' workload on patient safety in the selected Hospitals of Vhembe District, Limpopo Province, South Africa. The purpose of this study is to investigate the effects of professional nurses' workloads on patient safety in the public hospitals in Vhembe District, Limpopo Province, South Africa.

The study will involve identifying the respondent, giving information to them about the aim of the study and eventually giving them a questionnaire to complete. All information gathered in this study will be kept strictly confidential. A respondent's decision to participate in this research will be voluntary and the respondent can withdraw from the study at any time.

I trust my request will meet with your approval. Thanking you in advance for your assistance.

Sincerely,

Mphephu A.G.

Student no: 11640190

E-mail: gladys.mphephu@yahoo.com Cell: (060 896 6934)

ANNEXURE D

PERMISSION TO CONDUCT THE STUDY

P.O.BOX 2520

Thohoyandou

0950

01 August 2017

**The District Manager
Department of Health
Vhembe District
P.O. Box 120
Thohoyandou
0950**

**RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN THE
SELECTED HOSPITALS OF VHEMBE DISTRICT ON EFFECTS OF NURSES'
WORKLOADS ON PATIENT SAFETY.**

Dear Sir/Madam

I, Mphephu A.G., Student no:11640190, a Master's student at the Department of Nursing Science of the University of Venda hereby request permission to undertake a study entitled: Effects of nurses' workload on patient safety in the selected Hospitals of Vhembe District, Limpopo Province, South Africa. The purpose of this study is to investigate the effects of professional nurses' workloads on patient safety in the public hospitals in Vhembe District, Limpopo Province, South Africa.

The study will involve identifying the respondent, giving information to them about the aim of the study and eventually giving them a questionnaire to complete. All information gathered in this study will be kept strictly confidential. A respondent's decision to participate in this research will be voluntary and the respondent can withdraw from the study at any time.

I trust my request will meet your approval. Thanking you in advance for your assistance.

Sincerely,

Mphephu A.G.

Student no: 11640190

e-mail: gladys.mphephu@yahoo.com

Cell: 060 896 6934

ANNEXURE E

ETHICAL CLEARANCE CERTIFICATE

RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

NAME OF RESEARCHER/INVESTIGATOR:
Mrs AG Mphephu

Student No:
11640190

PROJECT TITLE: Effects of nursing workloads on patient safety in public hospitals in Vhembe District, Limpopo South Africa.

PROJECT NO: SHS/17/PDC/44/2911

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

NAME	INSTITUTION & DEPARTMENT	ROLE
Prof Ml. Netshikweta	University of Venda	Supervisor
Prof MS Maputle	University of Venda	Co - Supervisor
Mrs AG Mphephu	University of Venda	Investigator - Student

ISSUED BY:
UNIVERSITY OF VENDA, RESEARCH ETHICS COMMITTEE

Date Considered: December 2017

Decision by Ethical Clearance Committee Granted

Signature of Chairperson of the Committee:

Name of the Chairperson of the Committee: Senior Prof. G.E. Ekosse

UNIVERSITY OF VENDA DIRECTOR RESEARCH AND INNOVATION 2018 -01- 2 4 Private Bag X5050 Thohoyandou 0950
--



University of Venda

PRIVATE BAG X5050, THOHOYANDOU, 0950, LIMPOPO PROVINCE, SOUTH AFRICA
TELEPHONE (015) 962 8504/8313 FAX (015) 962 9060

"A quality driven financially sustainable, rural-based Comprehensive University"

ANNEXURE F

APPROVAL LETTER FROM THE PROVINCIAL DEPARTMENT OF HEALTH



LIMPOPO

PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

Department of Health

Enquiries: Stander SS (015 293 6650)

Ref:LP_

Mphephu AG
University of Venda

Greetings,

RE: Effects of nursing workloads on patients safety in public hospitals in Vhembe District, Limpopo South Africa.

The above matter refers.

1. Permission to conduct the above mentioned study is hereby granted.
2. Kindly be informed that:-
 - Research must be loaded on the NHRD site (<http://nhrd.hst.org.za>) by the researcher.
 - Further arrangement should be made with the targeted institutions, after consultation with the District Executive Manager.
 - In the course of your study there should be no action that disrupts the services, or incur any cost on the Department
 - After completion of the study, it is mandatory that the findings should be submitted to the Department to serve as a resource.
 - The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.
 - The above approval is valid for a 3 year period.
 - If the proposal has been amended, a new approval should be sought from the Department of Health.
 - Kindly note, that the Department can withdraw the approval at any time.

Your cooperation will be highly appreciated.



Head of Department

Date

02/03/2018

ANNEXTURE G

APPROVAL LETTER FROM DISTRICT DEPARTMENT OF HEALTH



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

**DEPARTMENT OF HEALTH
VHEMBE DISTRICT**


Ref: S5/6
Enq: Muvuri MME
Date: 07 March 2018

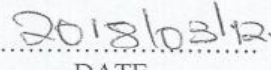
Dear Mphephu A.G

PERMISSION TO CONDUCT A RESEARCH ON THE "Effects of nursing workloads on patients safety in public hospitals in Vhembe District, Limpopo Province, South Africa"

1. The above matter refers.
2. Your letter received on the 07 March 2018 requesting for Permission to conduct an investigation is hereby acknowledged.
3. The District has no objection to your request.
4. Permission is therefore granted for the study to be conducted within Vhembe District.
5. You are however advised to make the necessary arrangements with the facilities concerned.
6. A completed report of the research has to be submitted to the District.

Wishing you success in your endeavors.


.....
DISTRICT CHIEF DIRECTOR


.....
DATE

Private Bag X5009 THOHOVANDOU 0950
OLD parliamentary Building Tel (015) 962 1000 (Health) (015) 962 4958 (Social Dev) Fax (015) 962 2274/4623
Old Parliamentary Building Tel: (015) 962 1848, (015) 962 1852, (015) 962 1754, (015) 962 1001/2/3/4/5/6 Fax (015) 962 2373, (015) 962 227

The heartland of Southern Africa – development is about people

ANNEXTURE G

PROOF READING CERTIFICATE



STEVENS EDITING AND PROOFREADING ~ EDITING ~ PROOFREADING ~ WRITING ~

BA: English; Industrial psychology (Unisa)

Sole Proprietor

Membership:

PEG (SA)

SfEP (UK-Intermediate)

IPEd (WA)

17 May 2019

THIS IS TO CERTIFY THAT:

I have language edited a thesis titled *effects of nursing workloads on patient safety in the selected public hospitals in Vhembe district of Limpopo Province, South Africa.*

for Ms Avhaphani Gladys Mphephu, E-mail: gladys.mphephu@yahoo.com

, a Masters student in Health studies at the University of Venda, South Africa.

The scope of my editing comprised:

- Spelling
- Vocabulary
- Word usage
- Checking of referencing style
- Tense
- Punctuation
- Language and sentence structure

It has been a gratifying experience working with this student who has clearly displayed integrity in a well-prepared paper and prompt communication with the editor when necessary.

My best wishes for good success and a great career accompany Ms Mphephu.

Yours faithfully,

Charlotte Stevens (Ms)

Stevens Editing and Proofreading

e: ajc.stevens@gmail.com

[Note: Signature withheld for security purposes.]