Faculty of Health Sciences
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MEASURING PATIENT SAFETY CULTURE AMONG NURSES IN ADULT CRITICAL CARE UNITS IN A PRIVATE HOSPITAL GROUP IN GAUTENG

Research proposal for the degree MNURS Clinical Field of Study

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DECLARATION

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I, **Nanda de Beer**, declare that, **MEASURING PATIENT SAFETY CULTURE AMONG NURSES IN ADULT CRITICAL CARE UNITS IN A PRIVATE HOSPITAL GROUP IN GAUTENG,** is my own work and that all sources that have been used or quoted have been specified and acknowledged by means of complete references and that this work has not been submitted for any other degree at any other institution.

Nanda de Beer	24 February 2025
Name	**Date**

Nanda de Beer

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ABSTRACT

Background: Healthcare workers are taught the ethical principle of "do no harm" to maintain patient safety; however, this principle is recently facing challenges in the healthcare setting. A safety culture encompasses the values, attitudes, perceptions, competencies and behavioural patterns that shape health and safety management. Critical care units (CCUs) are high-risk nursing units that deliver advanced care to critically ill/injured patients. The Safety Attitude Questionnaire (SAQ) is a widely used tool to measure safety culture. The aim of the study was to assess the safety culture in adult critical care units in a specific private hospital group in Gauteng, South Africa.

Objectives: To assess and describe the safety culture among critical care nurses and to propose recommendations to enhance patient safety culture in the critical care units.

Methods: A quantitative descriptive design was used in this study. The safety attitude questionnaire was used to measure the safety culture of nurses, which could influence patient safety, in four critical care units of a specific private hospital group. Total population sampling was used in this study which included all registered and enrolled nurses working in the critical care units. Data collection was conducted using a questionnaire distributed to eligible participants, and data analysis was performed in collaboration with a university statistician.

Results: This study used the safety attitude questionnaire to determine the safety culture in the critical care units. Six (6) domains were measured to determine the patient safety culture, three of which indicated areas of concern. The results showed that stress recognition, perception of management and working conditions have a significant impact on patient safety culture, which could contribute to an increase in patient safety incidents.

Conclusion: The findings from the safety attitude questionnaire at the specific hospital group highlighted both strengths and areas for improvement in the critical care units related to patient safety culture. Teamwork, safety climate and job satisfaction reflected positive aspects of patient safety culture. However, a significant challenge was identified regarding stress recognition and working conditions, posing a risk to individual wellbeing and patient safety. The perception of management domain was perceived as negative, which also indicated a challenge relating to patient safety.

Key words: Critical care, Critical care nurses, Critical care unit, Patient safety, Safety culture.

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ABBREVIATIONS	**TOPIC**
CCN	Critical care nurse
CCU	Critical care unit
ICU	Intensive care unit
SAQ	Safety attitude questionnaire

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION AND BACKGROUND / LITERATURE REVIEW

One of the first ethical principles healthcare workers are taught is to do no harm, which has been contradictory in recent times when it comes to patient safety (Durgun & Kaya, 2017:29). There are numerous definitions of patient safety in literature, but the World Health Organization (WHO) (2020) defines patient safety as: “a framework of organised activities that creates cultures, processes and procedures, behaviours, technologies, and environments in health care that consistently and sustainably: lower risks, reduce the occurrence of avoidable harm, make errors less likely and reduce its impact when it does occur.” Safety culture is defined as values, attitudes, perceptions, competencies and behavioural patterns that determine the style and proficiency of health and safety management (Hamdan, 2013:886-e7; Gabrani, Hoxha, Simaku & Gabrani, 2015:1). Patient safety culture is pivotally important in the critical care unit (CCU) to reduce errors causing harm, to improve patient safety and to provide quality care (Al-Mugheed & Bayraktar, 2019:918).

Over the past couple of years, there has been a global concern when it comes to patient safety, as the number of patient safety incidents has been on the rise (Bashir, Kong, Buitendag, Manchev, Bekker, Bruce et al., 2019:693). Adverse events due to unsafe care is one of the leading causes of death and disability (WHO, 2019:2). Globally, four out of 10 patients are harmed in a healthcare setting by nursing staff, doctors and patients themselves, with up to 80% of these events being preventable (Slawomirski, Auraaen & Klazinga, 2019:4). South Africa is a developing country with a higher percentage of patient safety incidents due to the burden on the healthcare system that is aggravated by the high number of Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Virus (AIDS) cases (Gqaleni & Bhengu, 2020:1). In South Africa, 30% to 70% of patients admitted to having experienced patient safety incidents (Gqaleni & Bhengu, 2020:1). Gqaleni and Bhengu (2020:7) state that there are still many patient safety incidents, such as medication errors, in CCUs. A total of 47% of the incidents in their study were deemed serious in nature, which leads to a decrease in the quality and efficiency of patient care, causing a decline in patient safety. The effect of decreased patient safety is also seen in an increased mortality rate (Gomides, De Souza Fontes, Monteiro Silveira & Sadomyama, 2019:498). There is a link between the perception of patient safety and the high rate of adverse events in the units where patient safety is a high priority; the staff are more motivated to decrease adverse events, and they have a better perception of patient safety (Thomas & Lomas, 2018:219). Patient safety is a global health priority to strengthen the healthcare system (WHO, 2019:4)

In the researcher's opinion, measuring the safety culture of staff members could assist in improving patient outcomes in the CCU. Patient safety culture can be measured using the Safety Attitudes Questionnaire (SAQ). The SAQ provides a picture of the safety culture by using surveys completed by nurses working in the CCU (Sexton, Helmreich, Neilands, Rowan, Vella, Boyden et al, 2006:44). The SAQ measures the psychometrics at the individual level and the clinical area level, testing the appropriateness of conceptualising patient safety issues (Sexton et al, 2006:44). The SAQ has been adapted for use in the CCU, and describes attitudes of the registered nurse through six analytical factors: teamwork climate, safety climate, job satisfaction, perceptions of management, working conditions and stress recognition (Sexton et al, 2006:44).

Therefore, this study attempted to measure/determine the safety attitudes of nurses in CCUs in Gauteng.

1.2 PROBLEM STATEMENT

CCUs are a highly specialised field of nursing where critically ill and injured patients are managed (Trinier, Liske & Nenadovic, 2016:11). Patient safety is essential in improving the quality of care to patients in the CCU (Chapuis, Chanoine, Colombet, Calvino-Gunther, Tournegos, Terzi et al., 2019: 549). Due to comorbidities and the vulnerability of critical care patients, they are at high risk for adverse events and/or near-miss events (Chapuis et al., 2019:549). Adverse events that cause harm to the patient in the CCU occur more frequently but are underreported (Gomides et al., 2019:502). In addition, Gqaleni and Bhengu (2020:7) state that there is a high occurrence of serious patient safety incidents in the CCU, affecting the quality of care that the patient receives. On a yearly basis, millions of patients suffer serious injuries or die from unsafe practice and poor-quality care (WHO, 2019:3). Medication errors, for example, are one of the leading causes of preventable injury and harm to the patient in healthcare settings (WHO, 2019:3). To ensure patient safety, nursing knowledge, skills and experience are required (Henneman, Gawlinski & Giuliano 2012:e17; Gomides et al., 2019:502). Patient safety is focused on identifying, analysing and minimising patient incident risk (Gabrani et al., 2015:1).

The researcher was an educator in critical care and did clinical accompaniment of students in the CCUs of a private hospital group and observed that patient safety incidents took place often. The number of adverse events that have been reported in the prior six months and caused serious harm to patients, such as medication errors where allergies where not checked leading to anaphylaxis and not giving the correct dosage of schedule medications, in the CCUs amounted to 12% (Mediclinic:2020).

Patient safety incidents is the 14th leading cause of morbidity and mortality globally (Jha, Larizgoitia, Audera-Lopez, Prasopa-Plaizier, Waters & Bates, 2013:813). Approximately 42.7 million patient safety incidents happen in the estimated 421 million hospitalisations worldwide annually (Jha et al., 2013:813). In developed countries, 8% of all admissions to hospitals experienced some type of patient safety incident (Mgobozi & Mahomed, 2021:1), and in the United States of America, reports state that 3.7% of hospitalised patients have experienced an adverse event (Mekonnen, Alhawassi. McLachlan & Brien, 2017:2). In lower- to middle-income countries such as Egypt, Jordan, Kenya, Morocco, Sudan, South Africa and Yemen, patient safety incidents are reported to be at a median of 8.2%, and 30% of those reported incidents lead to the death of a patient (Wilson, Michel Olsen, Gibberd, Vincent & El-Assady et al., 2012:2)

Adverse events involving critically ill patients can potentially be life threatening (Gonzalez-Mendez & Lopez-Rodriquez, 2017:114). Patient safety incidents impact quality of patient care and lead to prolonged hospitalisation, which places a strain on the healthcare system (Ramya, 2017:510). Al-Mugheed and Bayraktar (2019:911) state that nurses play a key role in improving the quality of healthcare delivery and patient outcomes. Determining the culture of nurses pertaining to patient safety culture and the areas that need improvement is important in creating a positive safety culture (Gonzalez-Mendez & Lopez-Rodriquez, 2017:116).

By measuring the patient safety culture in the CCU the researcher was able to identify areas that needed improvement and planned strategies to address the identified gaps to ensure a patient safety culture that will improve patients' outcomes and prevent adverse events as far as possible (Ramya, 2017:510). Patient safety should be a major focus in CCUs. Therefore, the researcher intended to measure patient safety culture among critical care nurses in CCUs in private hospitals in Gauteng, using the SAQ.

1.3 RESEARCH QUESTION(S), AIM AND OBJECTIVES

The main question formulated for this study was:

- What is the safety culture in the adult critical care units of a private hospital group?

The overall aim of the study was to assess the patient safety culture in the adult CCUs of a specific hospital group.

1.3.1 Objectives

The objectives of this study were:

- To assess and describe the safety culture among critical care nurses.
- To describe the safety culture among critical care nurses.
- To propose recommendations to enhance patient safety culture in critical care units.

1.4 DEFINITION OF KEY TERMS / CONCEPTS

Adult critical care: Nursing care focused on the critically/injured ill adult, who needs continuous care, starting from the scene of the injury or initial sickness to the CCU. This includes stabilisation, transportation, monitoring, treatment and care of the adult patient (SANC 2014:2-3). In this study, the adult critical care means a CCU where patients from the age of 13 and older and who are critically ill are being nursed.

Critical care: Care offered by a highly skilled clinical practitioner who may be nursing, medical or paramedical. Nursing staff are supposed to nurse patients on a 1:1 basis with a floor nurse, often the team leader (SANC 2014:2). In this study, the critical care means patients who are unable to take care of themselves and are dependent on inotropic support, ventilator support and require constant hemodynamic monitoring.

Critical care nurse: Nurses with a high level of knowledge, skill and competence (SANC 2014:2). In this study, critical care nurse is a nurse who works in the CCU with a minimum of six months' experience in critical care.

Critical care unit: Specialised unit in a hospital, staffed with specialised nurses and advanced equipment for monitoring, care and treatment of patients with life-threatening conditions (Gqaleni & Bhengu, 2020:3; SANC 2014:2). They are classified according to disciplines: multi-disciplinary (general) intensive care unit (ICU), trauma unit, cardiothoracic ICU, neurosurgical ICU and burns unit. CCUs are also classified according to the population that they serve: neonatal, child and adolescent, adult, obstetric, and others (SANC 2014:2). In this study, a CCU were all the ICUs where adult critical ill/injured patients are managed.

Patient safety: Healthcare discipline that aims to reduce and prevent risk, errors and harm that can occur during patient care in a healthcare facility based on errors and adverse events (WHO 2019:2; Gabrani et al., 2015:3). Patient safety, in this study, means actions by the nurse to ensure the health and wellbeing of the patient.

Safety culture: "The lasting value and priority placed for the worker and public safety for all, in all groups and all levels of an organisation" (Gomides et al., 2019:496). Safety culture, in this study, means that value is added to ensure adequate and safe nursing practices by measuring the teamwork climate, safety climate, perceptions of management, job satisfaction, working conditions and stress recognition.

1.5 CONTEXT / SETTING

This study took place in a private hospital group in the Gauteng province in both urban and rural areas in South Africa. It included six hospitals with 10 CCUs, as illustrated in Table 1. Altogether, there were 284 nursing staff members working in the 10 units, both enrolled and registered nursing staff. The aim was to have a minimum of 200 replies to the questionnaire.

Table 1.1: Nursing staff breakdown per unit (Combined enrolled and registered nurses)

Hospital	Unit 1	Unit 2
Hospital A (2 CCUs)	8	31
Hospital B (2 CCUs)	28	27
Hospital C (1 CCU)	28	
Hospital D (2 CCUs)	34	24
Hospital E (1 CCU)	33	
Hospital F (2 CCUs)	20	31
TOTAL	284	

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1.6 ASSUMPTIONS

Assumptions are defined by Grove, Burns and Gray (2013:41) as statements that are taken for granted or are considered true, even though they have not been tested, often implanted in thinking and behaviour. A positivism approach was used in this research.

Positivism is seen as a systematic way of conducting research with an emphasis on the significance of observable facts (Bothma, Greeff, Mulaudzi & Wright 2016:42). Quantitative research is mainly associated with positivism (Polit & Beck 2017:10). Application of positivism assumptions is indicated in Table 2.

Table 1.2: Application of positivism assumptions to the study

Assumption	Application to study
<u>Ontological:</u> Deals with the nature of reality (Polit & Beck, 2017:10)	The research was conducted in real-time with a questionnaire while the staff were at work, where they might engage in a specific manner. The researcher pursued an understanding of reality by analysing the answers given by all participants who completed the questionnaire fully.
<u>Epistemology</u>: Deals with the nature of knowledge (Polit & Beck, 2017:10)	The researcher's interaction with participants was limited to explaining what the research was about. Questionnaires were completed accurately in a controlled setting while at work. Findings can be measured and generalised to reach a conclusion.
<u>Axiology:</u> Deals with the value judgement of the researcher (Polit & Beck, 2017:10)	The researcher approached the participants in an unbiased manner with the main objective of obtaining honest research that was free from bias and added value to practice.

Methodological aspects: Deal with how the researcher obtains evidence (Polit & Beck, 2017:10)	The researcher remained objective and independent from the participants. Evidence was obtained by handing out questionnaires in the six different hospitals in the CCU, which were answered by registered and enrolled nurses working in the CCU. The researcher was interested in pursuing the patient safety culture in the CCU.

Adapted from Polit and Beck (2017:10)

In this research, the researcher assumed the following:

A valid questionnaire (the safety attitude questionnaire) was used to measure the safety culture in the units. The questionnaire was valid, as it measured what it was supposed to measure. Six hospitals participated in the research, which added up to 10 CCUs. All 284 staff members were available to participate in the research and completed the questionnaire. The staff were expected to be cooperative and to answer all the questions honestly and without bias. The environment in which they answered the questionnaire was calm and non-threatening to prevent adding to their stress. The information provided to the staff completing the questionnaires reduced anxiety and improved cooperation.

1.7 DELINEATION

The focus of the study was for enrolled and registered nurses working in the adult CCU to complete the questionnaire to obtain a clear picture of what the patient safety culture in a critical care unit was. The hospitals are located in both urban and rural areas in Gauteng. The types of CCUs included were mainly general units but also included specific CCUs, such as cardiac, cardiothoracic and neuro.

1.8 SIGNIFICANCE / CONTRIBUTION

This study could raise awareness for registered and enrolled nurses of the major gaps in the healthcare system with regard to patient safety. The study could benefit not only the nurses working with the patients in the CCUs but also the patients by reducing the length of stay in the CCU and improving patient outcomes. Hospitals could use the information obtained from the study to guide them in implementing strategies to improve patient safety in the CCU.

By measuring the safety culture, the researcher could observe what was needed to improve patient safety cultures and attitudes. Measuring safety culture makes a significant contribution in the following: **Improving teamwork climate** under staff working in the CCU. The quality of collaboration between nurses could be improved, as disagreements will be resolved appropriately with regard to what is best for the patient. **Decreasing the perception of stress** of nurses working in the CCU by acknowledging that stress influences everyone differently and that patient safety plays a role in increased stress. Decreasing stress leads to an increase in productivity and less fatigue among staff. **Improving general safety climate** for the patient as well as the nurse. Patients should feel safe in the hospital and unit they are admitted to. **Increased job satisfaction** and positivity with regard to the experience of working in the CCU. This will also lead to an improved **perception of the unit manager and hospital management**, which, in turn, will create a more positive and safe working environment. By identifying where patient safety is problematic, the data will assist in the implementation of a **quality improvement programme**.

1.9 THEORETICAL FRAMEWORK

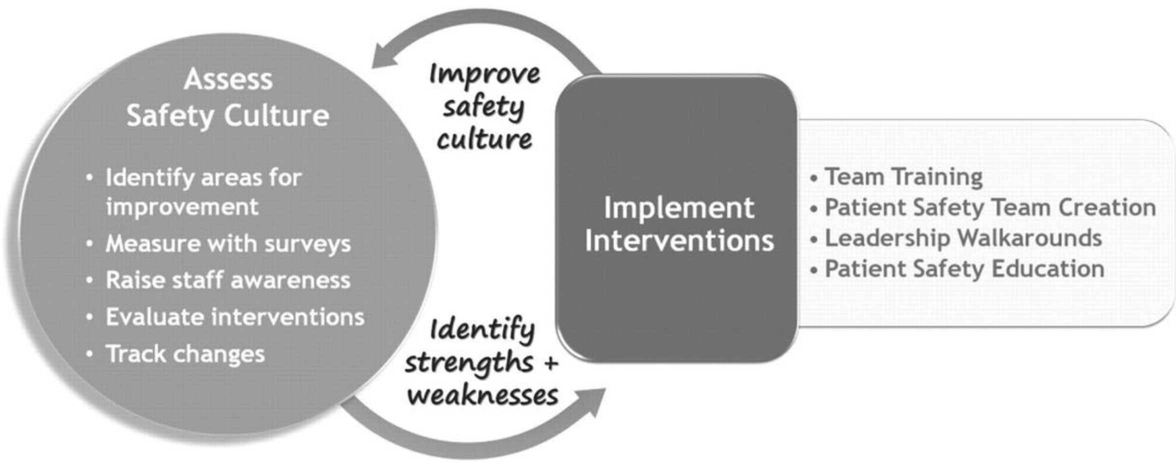

Figure 1.1: The Emerging model of improving safety culture in healthcare (Halligan & Zecevic, 2011:342)

This framework was taken from Halligan and Zecevic (2011:342) and is supported by the two pillars, which are (1) assessing safety culture and (2) implementing interventions.

(1) Assess safety culture

This component demonstrates the importance of safety culture in healthcare by describing the different measures of assessing safety culture. The researcher chose this framework, as it provided structure to assessing safety culture and implementing interventions. Assessing safety culture is usually done by means of quantitative research with questionnaires (Halligan & Zecevic, 2011:340). In this study, the Safety Attitudes Questionnaire (SAQ) was used to measure the safety culture in the CCUs, as attitudes influence the safety culture. The SAQ measures the psychometrics at the individual level and at the clinical area level, testing the appropriateness of conceptualising patient safety issues (Sexton et al, 2006:44). The SAQ has been adapted for use in the CCU and describes attitudes of the registered nurse through six analytical factors: teamwork climate, safety climate, job satisfaction, perceptions of management, working conditions and stress recognition (Sexton et al, 2006:44). The merging model of improving safety culture in healthcare was used om this study as follows:

Areas for improvement were identified by analysing the data collected in the questionnaires and reaching a conclusion on where improvement was required.

Measure with surveys: in this study, the adapted SAQ was used to measure patient safety culture.

Raise staff awareness on the areas of patient safety culture that are lacking and need improvement.

Evaluate interventions to ensure that what was measured and identified has been improved on by evaluating the interventions and the changes in the safety cultures and ensure they were tracked (track changes)

(2) Implement interventions

Describing the patient safety culture in the CCUs will not be enough to improve patient safety. The following interventions to improve the safety culture are identified by Halligan and Zecevic (2011:431): Team training, patient safety team creation, leadership walk around and patient safety education. However, the focus of this study was on identifying the patient safety culture by means of the safety attitudes questionnaire.

1.10 RESEARCH DESIGN

Research design implies the blueprint, or the detailed plan of action, used to execute the research (Polit & Beck, 2017:11; Creswell & Creswell, 2023:4). The nature of the research question guides the researcher in selecting the appropriate research design to collect data to answer the research question (Polit & Beck, 2017:11; Creswell & Creswell, 2023:4). The researcher sought to answer the research questions using quantitative descriptive design.

Non-experimental research is where the researcher collects the data without intervening in the research (Polit & Beck, 2017:55).

The descriptive design, a class of non-experimental research, is used for the accurate portrayal of circumstances and the frequency at which they take place. It is a non-experimental study used to observe, describe and document aspects of a naturally occurring situation (Polit & Beck, 2017:206, 726; Creswell & Creswell, 2023:13).

In this study, descriptive research design was used as the information required had to be an accurate depiction of the safety of patients in the normal/naturally occurring day-to-day operations in the CCU. It was non-experimental because it explored the patient safety culture in the CCU. The researcher described the safety culture in the 10 units participating in the study.

1.11 METHODS

The research method is the technique researchers use to structure a study, collect relevant data and analyse the data in relation to the research question (Polit & Beck, 2017:11). The research methods were discussed in terms of the population, sampling, data collection and data analysis. In this study, a total population sampling method was used to survey all registered and enrolled nurses across five CCUs in four private hospitals in Gauteng with a total of 100 questionnaires handed out. The research focused on all individuals who met the specific inclusion criteria. Data collection took place over a six-month period and data analysis took place in collaboration with a statistician from the University of Pretoria. Population, sampling, data collection and data analysis are further discussed in Chapter 3 of this study.

1.12 RIGOUR / QUALITY CONTROL

Validity is defined as the quality criteria that refer to the degree to which the conclusion reached in a study is accurate and well established – the degree to which an instrument measures what it is supposed to measure, known as face validity (Polit & Beck, 2021:745,308). Face validity was ensured by using a questionnaire that was judged by experts worldwide and has been used multiple times in different critical care settings. Content validity is used to measure all the components of the targeted research (Polit & Beck, 2021:308). It was used in this study because the questionnaire measured the safety culture in the CCU.

Reliability is the degree to which an instrument is used to obtain consistent results if used multiple times (Polit & Beck, 2017:300). The SAQ has good psychometric properties, as it is reliable, valid and measures the safety culture.

Validity and reliability are further discussed in Chapter 3.

1.13 ETHICAL CONSIDERATIONS

Ethical approval to conduct this study was sought from the University Pretoria: Faculty of Health Sciences Research Ethics Committee and the ethics committee of the specific hospital group. Three main ethical principles were essential for the purpose of this study: beneficence, respect for human dignity and justice (Polit & Beck, 2017:139-142). Ethical considerations are further discussed in Chapter 3.

1.14 STRUCTURE OF DISSERTATION

Chapter 1: Introduction

Chapter 2: Literature Review

Chapter 3: Research Methodology

Chapter 4: Results/Article

Chapter 5: Conclusion

1.15 CONCLUSION

This chapter discussed the introduction of the study, which included the aims and objectives of the study as well as the research question. Chapter 2 discusses the literature review.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

Chapter 1 provided an overview of the study. This chapter focuses on the literature review that was conducted relevant to the study. A literature review is an organised, written presentation of the research and information gathered on the topic of interest (Grove et al., 2013:107). The purpose of a literature review is to provide the readers with an overview of existing evidence, give background on why new research is needed and provide the context of the research (Polit & Beck, 2021:99).

This chapter describes the historical background of patient safety, the influence patient safety has on patient care and the healthcare system, the SAQ, the usage thereof and the factors that influence the safety climate in a CCU.

2.2 DEFINING PATIENT SAFETY

Patient safety involves the efforts and systems within healthcare settings aimed at preventing errors, minimising harm and improving the quality of care provided to patients ensuring that healthcare practices prioritise the wellbeing of individuals receiving care (WHO, 2020; Chatzi & Malliarou, 2023:109). Patient safety culture is defined as: the attitudes, perceptions and values related to patient safety that staff share within an organisation (National Library of Medicine, 2021; Abraham, Meyer, Godman & Helberg, 2023:14; Dombrádi, Bíró, Jonitz, Gray & Jani, 2021:2).

2.2.1 Definitions

Quality patient care

Refers to the extent to which an organisation will go to meet a patient’s needs. It is a complex concept that is multi-layered and measured against predetermined standards. Quality patient care refers to safe patient care and treatment that do not cause harm to the patient (Gqaleni & Bhengu, 2020:2).

Harm

Harm refers to the impairment/damage of a structure, body function or any damaging effect, due to either accidental or purposeful injury/damage that requires additional monitoring, treatment and prolonged hospitalisation or even death of a patient (WHO, 2017). In this study, harm means unintended harm sustained by a patient during medical treatment.

Patient safety

Healthcare discipline that aims to reduce and prevent risk, errors and harm that can occur during a patient's care in a healthcare facility based on errors and adverse events (WHO, 2019:2, Gabrani et al., 2015:3). In this stud, patient safety, , means actions by the nurse to ensure the health and wellbeing of the patient.

Patient safety culture

The lasting value and priority placed for the worker and public safety for all, in all groups and at all levels of an organisation (Gomides et al., 2019:496). This management leader and staff interaction, routines, attitudes, practices and awareness that influence the risk of adverse events. This concept is developed by organisational psychology (Bondevik, Hofoss, Husebø & Deilkås, 2019)

Critical care

Care offered by a highly skilled clinical practitioner who may be nursing, medical or paramedical. Nursing staff are supposed to nurse patients on a 1:1 basis with a floor nurse, often the team leader (SANC, 2014:2). In this study, critical care means patients who are unable to take care of themselves and are dependent on inotropic support or ventilator support, and require constant hemodynamic monitoring.

Critical care nurse

Specialised nurses with a high level of knowledge, skill and competence (SANC, 2014:2). In this study, a critical care nurse is a nurse who works in the CCU with a minimum of six months' experience in critical care.

2.2.2 Patient safety incident

A patient safety incident can be defined as "any unintended or unexpected incident which could have or did lead to harm for one or more patients receiving healthcare" (National Health Service, 2019; Department of Health, 2022:1). It refers to incidents relating to the medical mismanagement that result in harm to patients (WHO, 2017; Gqaleni & Bhengu, 2020:2).

Patient harm is harm that the patient sustains due to improper management or unintended physical injury of a patient, harm refers to the impairment/damage of a structure, body function or any damaging effect that could result in death (WHO, 2017; Gqaleni & Bhengu, 2020:2).

Compromised quality care: Patient safety incidents occur due to medical errors by means of deliberate commission or omission of prescribed patient care and usually reflect in the shortcomings in the system of care. Compromised quality care means that the high standard of care the patient and their family expect is not being implemented and the patient suffers harm due to this compromise (Gqaleni & Bhengu, 2020:2).

Burden of harm: Patient safety reports are falling short of providing a full overview of how comprehensive the harm being caused is. This is due to the lack of available tools to measure harm and the fear of admitting to and talking about harm (Classen, Roger & Resar, 2013). The burden of harm falls on the patient as well as the healthcare system. It reflects on the patient, as they are the ones who are physically, emotionally and financially affected, as there is a longer hospital stay, which could lead to an increase in loss of income, leading to stress and anxiety. Healthcare facilities also carry a burden of harm, as there is increased cost of care that the facility must cover and the reputation of the facility can also be harmed when the truth of the cause is revealed (Ramya, 2017; Roque, Tonini & Melo, 2016).

2.2.2.1 Healthcare cost

Adverse events leading to preventable deaths should be seen as a public health issue, as it not only leads to the loss of human life but also has an associated financial cost (Guillod, 2013:182). Patient safety incidents are high among critically ill patients, leading to extremely high healthcare costs in general (Gqaleni & Bhengu, 2020:2; Bauman & Hyzy, 2014; Guillod, 2013). In the United States, the estimated cost of adverse events is between 6 and 19 billion dollars per year (WHO, 2014). The Department of Health in South Africa has previously faced medical negligence claims of between R875 million and R1.26 billion (Abraham et al., 2023:15).

2.2.2.2 Causes of adverse events/patient safety incidents

There are multiple actions that lead to harm to patients. These patient safety incidents that lead to harm are listed below (Skelly, Cassagnol & Munakomi, 2023):

- Surgical events: wrong patient, wrong site, wrong procedure, retained foreign body
- Product/device related: contaminated products, air embolism

- Patient protection events: patient refusal of hospital treatment, suicide
- Care management issues: medication errors, mismatched blood transfusion
- Environmental factor: burns, electric shock, wrong gas administered
- Criminal events: sexual assault, impersonation, physical assault
- Medication-related: wrong patient, wrong medication, wrong deeds, adverse effects/allergic reactions

2.2.3 Patient safety culture in patient safety

Safety culture influences the overall effectiveness of healthcare organisations. A positive safety culture creates institutions with effective communication based on mutual trust, shared perceptions of the importance of safety, confidence in the effectiveness of preventative safety measures and support in the workplace (Abraham et al., 2023:15). Decisions made at higher management levels influence the safety culture of the entire organisation. Working conditions also impact the safety culture in an organisation, as supervision, communication, equipment, knowledge and skills play a major role in the effectiveness of employees and the care they provide. The clinical conditions of patients and the characteristics of health professionals also determine the variability in healthcare safety. Creating a safety culture and an optimal environment for patients can be very challenging in healthcare, but it can have a powerful influence on the daily tasks of healthcare workers to improve care given to patients. High instances of preventable patient safety incidents in the CCU, such as central line-associated bloodstream infections (CLABSI) and ventilator-associated pneumonia (VAP) emphasise the importance of modifying practices to improve patient safety. Nurses working in CCU work under high-pressure conditions due to the critical conditions of patients, where lifesaving decisions need to be made rapidly (Ramya, 2017).

Assessing the safety culture in CCUs helps to identify areas of concern where improvement needs to be made and raises awareness of patient safety. This could also assist in creating a quality improvement programme to improve overall patient outcomes (Ramya, 2017).

2.3 THE HISTORICAL BACKGROUND OF PATIENT SAFETY

The field of medical errors causing harm to hospitalised patients was a relatively small and ignored field until the 1990s. Even though it was made famous in the New England Journal of Medicine paper in 1956, it was only taken more seriously later on (Agency for Healthcare Research and Quality, 2022; Miziara & Miziara, 2022:1).

Studies found that 10% to 12% of hospitalised patients experience adverse events, half of which are preventable (Bates, Levine, Salmasian, Syrowatka, Shahian, Lipsitz, et al. 2023:144-145). In the period 1967 to 1976, the risk of dying from medical errors was far higher than that of dying in an airline accident, but the concerns regarding airline safety were given higher priority. Some believed that this was due to the high media coverage afforded airline safety (Leape et al., 1991:370). When *To Error (Err) is Human* was initially leaked, it caused panic, and the modern patient safety movement was born. The study found that medical errors contribute significantly to the number of patient deaths.

2.3.1 Where does patient safety come from – To Err is Human

To err is Human was the start of the modern patient safety movement. It broke the silence on medical errors that affect patient safety (Kohn, Corrigan & Molla, 2000). The message that was taken from to err is Human was that dramatic changes in healthcare are required to prevent death and injury (Kohn et al, 2000:49). Three important concepts were taken from to err is Human to create change: preventing, recognising and mitigating harm from error. In the words of Hippocrates: “First, do no harm.” Iatrogenesis is a term that stemmed from the Greek for “originating from a physician.” This term is still used today when speaking about harm done to a patient at the hands of medical professionals. Iatrogenesis refers to any event causing harm to the patient that occurs due to diagnostic errors, incorrect medication administration related to the wrong patient, medication or dose (Riskin et al., 2019:358).

Patient safety was relatively ignored until the early 1990s. In 1994, Dr Lucian Leape published an influential piece, “Error in Medicine”, which presented a framework for error analysis and prevention that is still used today. In 1999, the Institute of Medicine estimated that 44 000 to 98 000 Americans die every year due to preventable injuries sustained while admitted for medical treatment. Since *To Err is Human* was published, a considerable amount of attention has been paid to improving patient safety in hospitals, and a modern patient safety movement was born (Leape et al., 1991:370; Miziara & Miziara, 2022:2).

2.3.2 Death due to medical errors

Adverse events, also known as patient safety incidents, due to unsafe care are likely to be one of the 10 leading causes of death and disability in the world (WHO, 2019). Globally, four in 10 patients are harmed in a healthcare facility. Up to 80% of harm is preventable. The most detrimental errors are related to diagnosis, prescription and the use of medicines (Slawomirski et al., 2019:4). In America and the United Kingdom, approximately 400 000 patients per year suffer preventable harm that leads to death (Wassenaar, Schouten & Schoonhoven, 2014:2). Each year, 134 million adverse events occur in hospitals in low- and middle-income countries due to unsafe care, resulting in 2.6 million deaths (WHO, 2019). Patient safety incidents are experienced by about 30% to 70% of patients admitted to hospitals (Montenegro, Romero, Tejada, Olaya & Rubiano, 2016:1). In South Africa, patient safety incidents have increased from 34% in the 2018/19 financial year to 51% in the 2020/21 financial year (Department of Health, 2022). Population-based studies have demonstrated an unacceptably high rate of medical injury and preventable deaths (Gonçalves, Andolhe, Oliveira, Barbosa, Faro, Gallotti, et al., 2012; Gong, Song, Wu & Hua, 2015; West & Eng, 2014).

South Africa is a developing country that has a higher percentage of patient safety incidents because of the increased burden on the healthcare system, which is aggravated by HIV and acquired immune deficiency syndrome (AIDS) causing complicated illnesses (Naidoo, Singh & Lalloo, 2013). In contrast to higher-income nations, South Africa bears a significant load of communicable and non-communicable diseases (Skosana, Schellack, Godman, Kurdi, Kruger & Meyer, 2021; Mashaba, Matlala, Godman & Meyer, 2019; Abraham et al., 2023:14). Most patients who are admitted with severe illnesses also have comorbidities that make them more susceptible to opportunistic infections, requiring specialised CCUs and placing them at an increased risk for patient safety incidents (Naessens et al., 2012). This increased occurrence is because sicker patients require more frequent and complex treatment, exposing them to an increased risk of patient safety incidents (Naessens et al., 2012), increasing morbidity and mortality rates. A shortage of resources, such as CCUs and skilled-, knowledgeable staff, an increasing workload and faulty equipment contribute to patient safety incidents (Bashir et al., 2019:693). According to the WHO (2023), common patient safety incidents that occur are attributed to medication errors, unsafe surgical procedures, healthcare-associated infections, diagnostic errors, patient falls, pressure ulcers, patient misidentification, unsafe blood transfusions and venous thromboembolisms.

2.4 THE INFLUENCE OF PATIENT SAFETY ON PATIENT CARE AND THE HEALTHCARE SYSTEM

2.4.1 Global background on patient safety

Globally, the efforts to reduce patient safety incidents have not yielded any substantial improvements over the last 15 years (WHO, 2020). Patient safety incidents leading to deaths remain a global concern (Bashir et al., 2019:693; Guillod, 2013). A study conducted by researchers at Johns Hopkins estimated that medical errors lead to over 250 000 deaths in the United States annually (Makary & Daniel, 2016:353). These preventable deaths are attracting the attention of multiple healthcare role players, and there is a rising global concern that approximately 400 000 patients suffer from preventable injury due to adverse events/errors that contribute to death (Wassenaar et al., 2014). An increase in patient safety incidents have been highlighted as a major cause of increased mortality and morbidity in the United States and United Kingdom (Sommella, De Waure, Ferriero, Biasco, Mainelli, Pinnarelli et al., 2014). A total of 30% to 70% of all patients admitted to hospitals experience preventable patient safety incidents (Montenegro et al., 2016), and population-based studies demonstrated an unacceptably high rate of deaths due to medical error/injury (Gong et al., 2015; West & Eng, 2014). According to the WHO (2023), one in every 10 patients experience harm, and more than 3 million deaths occur yearly. These incidents have a multiplane impact on different areas of the healthcare system and may impact quality patient care, resulting in higher medical expenses, complaints and suffering, permanent incapacity or even death (Ramya, 2017; Roque et al., 2016).

South Africa is a developing country with a high percentage of safety incidents due to an increased disease burden, worsened by HIV and AIDS, and this has a profound impact on the healthcare systems and more particularly the CCUs, due to the complications brought about by opportunistic infections caused by the HIV and AIDS pandemic (Gqaleni & Bhengu, 2020; Naidoo et al., 2013). The Department of Health in South Africa has previously faced medical negligence claims of between R875 million and R1.26 billion per year (Abraham et al., 2023:15). These patients are usually also diagnosed with comorbidities, making them more susceptible to patient safety incidents (Naessens et al., 2012). The difference can be seen in the United Kingdom, a more developed country, where the causes of patient safety incidents range from a shortage of critical care facilities/beds, shortage of skilled and knowledgeable staff leading to these incidents, an increased workload and faulty equipment (Welters, Gibson, Mogk & Wenstone, 2011).

In South Africa, the resources might be more limited, but the impact of patient safety incidents is just as important as in developed countries (Bashir et al., 2019:693; Abraham et al., 2023:14).

2.4.2 Patient safety culture

Safety culture surveys measure organisational conditions that can lead to patient safety incidents in healthcare. The Agency for Healthcare Research and Quality developed a survey, the Hospital Survey on Patient Safety Culture (HSOPSC), that measures patient safety culture in the following 12 different dimensions (Agency for Healthcare Research and Quality Development, 2022):

1. **Communication openness**

   Communication is key for a safe working environment. Staff need to be able to speak freely without threat of reprimand and ask questions about decisions that are made and actions that need to be taken. Generally, staff are afraid to ask questions (Boussat, Francois, Viotti, Seigneurin, Giai, Francois et al., 2019:101; Agency for Healthcare Research and Quality Development, 2022).

2. **Feedback and communication about error**

   To feel safe, staff need to receive feedback on changes that have been made as and need to be informed about the errors that have occurred in order to discuss ways to prevent the same errors from occurring (Boussat et al., 2019:101; Agency for Healthcare Research and Quality Development, 2022).

3. **Frequency of events reported**

   Catching potential mistakes before they are made reduces the risk of harm to the patients. In addition, mistakes that cause harm should be reported so that they can be corrected and to prevent future harm (Boussat et al., 2019:101; Agency for Healthcare Research and Quality Development, 2022).

4. **Hospital handoffs and transitions**

   Problems in the exchange of information take place frequently, especially when handover is not done properly. Things “fall between the cracks” when information is not carried over properly or miscommunication takes place (Boussat et al., 2019:101; Agency for Healthcare Research and Quality Development, 2022).

5. **Hospital management and support for patient safety**

Patient safety is a top priority, and when management focuses on prevention instead of only focusing on patient safety incidents after they have taken place, there is improved morale and confidence in management. How management manages events can improve the work climate or completely destroy it (Boussat et al., 2019:101; Agency for Healthcare Research and Quality Development, 2022).

6. **Non-punitive response to error**

How a staff member is 'punished' for the patient safety events that took place can improve or reduce the staff's feelings about patient safety (Boussat et al., 2019:101; Agency for Healthcare Research and Quality Development, 2022).

7. **Organisational learning – continuous improvement**

Continuous professional development improves patient safety issues that lead to patient safety incidents and assists in the implementation of effective changes (Boussat et al., 2019:101; Agency for Healthcare Research and Quality Development, 2022).

8. **Overall perceptions of safety**

The safety of the patient should never be sacrificed. Having a good understanding of what patient safety is, leads to a better understanding of how to prevent safety incidents. This leads to a decrease in serious mistakes and an improved patient safety environment (Boussat et al., 2019:101; Agency for Healthcare Research and Quality Development, 2022).

9. **Staffing**

When there are enough competent staff working in a unit to cover any events taking place, patient safety incidents decrease. The usage of agency or temporary staff who have never worked in the unit can be problematic and lead to an increase in patient safety incidents, as they do not know the normal routine of the unit nor what is expected (Boussat et al., 2019:101; Agency for Healthcare Research and Quality Development, 2022).10.

10. Supervisor/manager expectations and actions promoting patient safety

Having a supervisor or a shift leader with knowledge and reasonable expectations of the staff leads to a safer patient environment. Managers should consider staff suggestions, have appropriate words of encouragement, find ways to work faster and not overlook problems because fast effective management of patient safety incidents can lead to an increase in 'team' morale (Boussat et al., 2019:101; Agency for Healthcare Research and Quality Development, 2022).

11. Teamwork across hospital units

In general, there is, in some sense, a difference between units, where one unit might feel disrespected, instead of the concern being with the health and wellbeing of the patients. This causes an unpleasantness between units and discoordination between units (Boussat et al., 2019:101; Agency for Healthcare Research and Quality Development, 2022).

12. Teamwork within units

Working together in a unit on a daily basis creates a feeling of working in a team. Team members need to support each other and treat one another with respect. When a unit becomes overly busy, supporting and helping each other play a major role in creating a safe patient environment (Boussat et al., 2019:101; Agency for Healthcare Research and Quality Development, 2022).

2.4.3 Nursing evolving role in patient safety

Figure 2.1: Aviation Safety Management, 2012

Available online: https://mrosafety.blogspot.com/2012/11/safety-culture.html)

Management and supervisor commitment involves actively participating in a structured manner that adopts collaboration between team members to achieve predetermined goals. This mainly takes place through managers who directly supervise the actions of employees or by monitoring their actions. Management commitment to safety is often proved through physical actions (Naji, Isha, Mohyaldinn, Leka, Saleem, Rahman & Alzoraika, 2021:3; Ghorbani, Ebrahimi, Vosoughi, Eskandari, Hanifi & Mandali, 2024).

Teamwork between different professionals in the healthcare system is essential for the safe and coordinated care of a patient, with each professional playing a different role in the care of the patient. Good teamwork improves the impact on patient safety and the effectiveness of an organisation/hospital (Skoogh, Baath & Hall-Lord, 2022:1; Hassan, Mohammed, Zakaria & Ibrahim, 2024:1; Haugstetter, Hines, Sousane & Mossber, 2024).

Safety rules and procedures play a major role in regulating the safety culture within a hospital/organisation, it establishes rules, guidelines and procedures that employees should follow to ensure a safe working environment (Ghorbani et al., 2024).

Training improves processes' safety culture by fostering employee commitment to safety culture and reduces the likelihood of safety incidents taking place (Ghorbani et al., 2024).

Organisational learning focuses on the process of learning. This process assists organisations in developing new knowledge and understanding from experienced employees and can potentially change the behaviours of employees and improve organisational effectiveness (Alonazi, 2021, Wells, 2021:30).

Safety communication and workforce involvement – effective communication in any organisation, especially in hospitals, promotes safety cultures. Employees who are encouraged to speak openly help in the identification of potential safety hazards and in ways to improve safety by allowing the sharing of information and encouraging safe habits among employees. Open communication contributes to a safe work environment, as employees feel free to voice concerns and can collaborate with management to make better decisions and implement safety practices (Ghorbani et al, 2024).

The reporting system is important to improve the safety culture in an organisation. It is a system that involves procedures and processes used to gather, analyse and report events related to safety events. It helps identify flaws in a process and helps with suggestions for enhancing safety procedures (Ghorbani et al, 2024).

Work pressure impacts individuals' well-being, increasing behaviours and leading to safety incidents (Kaya, Ustebay, Nixon, Pilbeam & Sujan, 2023:6).

2.5 FACTORS THAT INFLUENCE THE SAFETY CLIMATE IN A CRITICAL CARE UNIT

2.5.1 Classification of patient safety incidents

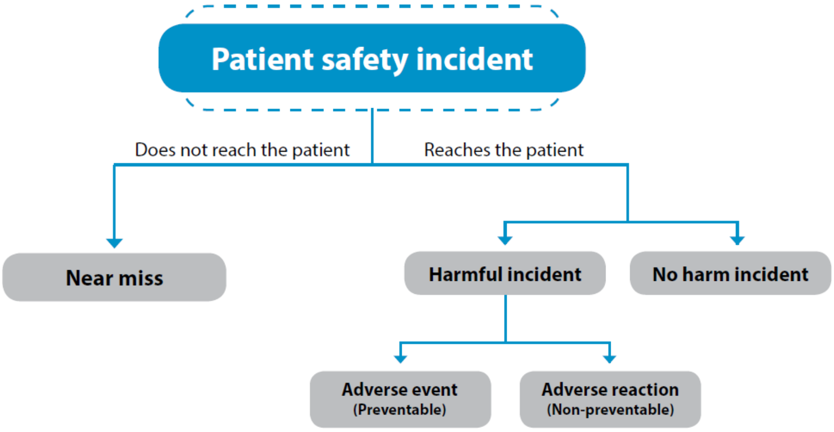

Figure 2.2: Classification of patient safety incidents (WHO 2020)

A **near miss** is a safety incident that does not reach the patient. For example, when the incorrect medication is connected to the wrong patient, but the error was detected before the medication was administered (WHO, 2020; Agency of Healthcare Research and Quality, 2022).

A **no-harm incident** is when the event reaches the patient, but the patient does not suffer any observable harm. For example, the incorrect medication was given to the incorrect patient, but it did not have any adverse effects on the patient (WHO, 2020; Lindblad, Unbeck, Nilsson, Schildmeijer and Ekstedt, 2023:2).

A **harmful incident** is an adverse event that causes harm to the patient. For example, the incorrect patient received the incorrect medication and the patient has an adverse reaction to the medication (WHO, 2020; Agency of Healthcare Research and Quality, 2021).

An **adverse event** (preventable) is an incident that results from preventable harm and has negative outcomes for a patient who is receiving medical care. For example, a ventilator failing and leading to a patient having hypoxic brain damage (WHO, 2020; Skelly et al., 2023:1).

An **adverse reaction** (non-preventable), according to the WHO (2020), is an 'unexpected and non-preventable harm resulting from a justified action where the correct process was followed for the context in which the event occurred'.

In South Africa, we use the Severity Assessment Code (SAC) to determine how severe a patient safety incident is (Table 2.1) (Department of Health, 2022).

Table 2.1: Severity Assessment Code

	SAC 1	SAC 2	SAC 3	SAC 4
Actual/ potential consequence to patient	**Serious harm or death** that is/could be specifically caused by healthcare rather than the patient's underlying condition or illness	**Moderate harm** that is/could be specifically caused by healthcare rather than the patient's underlying condition or illness	**Minor harm** that is/could be specifically caused by healthcare rather than the patient's underlying condition or illness	**No harm**
Type of event/incident	• Procedure involving the wrong patient or body part, resulting in death or major permanent loss of function • Retained instruments or other materials after surgery • Wrong surgical procedure • Surgical site infections that lead to death or morbidity • Suicide of a patient in an inpatient unit • Death or serious morbidity due to assault or injury • Nosocomial infections resulting in death or	Incidents include but are not limited to the following: • Moderate harm resulting in increased length of stay (more than 72 hours to seven days) • Additional investigations performed • Referral to another clinician • Surgical intervention	Incidents include but are not limited to the following: • Minor harm resulting in increased length of stay of up to 72 hours • Only first aid treatment required • ADR that resulted in minor or no harm • Blood transfusion reaction that resulted in minor harm	Incidents include but are not limited to the following: • No harm • Near miss that could have resulted in minor harm

	SAC 1	SAC 2	SAC 3	SAC 4
	neurological damage • Blood transfusion that caused serious harm or death • Medication error resulting in the death of a patient • Adverse drug reaction (ADR) that results in death or is life-threatening • Maternal death or serious morbidity • Neonatal death or serious morbidity • Missing/swopped/absconded patient and assisted or involuntary mental healthcare user/mentally ill prisoner/state patient • Any other clinical incident which results in serious harm or death of a patient	• Medical intervention • Moderate harm caused by a near miss • ADR that resulted in moderate harm • Blood transfusion reaction that resulted in moderate harm		
Action required	• Notify management immediately • Submit a notification to the provincial/district office within 24 hours	• Notify management within 24 hours • Conduct a formalised investigation • In cases of an ADR, notify the South African Health		• Notify management within 24 hours • Conduct a

<table>
<tr><th></th><th>SAC 1</th><th>SAC 2</th><th>SAC 3</th><th>SAC 4</th></tr>
<tr><td></td><td>

- Conduct a formalised investigation
- In cases of unnatural deaths, report it to the South African Police Service and refer to Forensic Pathological Services
- In cases where an assisted or involuntary mental healthcare user, mentally ill prisoner or state patient has absconded, notify and request the South African Police Service to locate, apprehend and return the patient to the relevant health establishment. Complete MHCA 25 (**Appendix M**) and submit to the relevant authority as indicated on the form
- In cases where a mental healthcare user was subjected to **physical or other abuse, was exploited, neglected or received degrading treatment, complete MHCA 02, see Appendix N**
- In cases of an ADR, notify the South African Health Products Regulatory Authority (see **Appendix O**, ADR form). If the ADR was caused by an HIV or TB patient, it must also be reported to

</td><td colspan="2">

Products Regulatory Authority (see **Appendix O**, ADR form). If the ADR was caused in an HIV or TB patient, it must also be reported to the National Pharmacovigilance Centre for Public Health Programs (NPC), using the same form. This may be done on a single email using the different email addresses.

- In cases where a mental healthcare user was subjected to **physical or other abuse, was exploited, neglected or received degrading treatment, complete MHCA 02 (see Appendix N)**
- In case of a blood transfusion reaction that did not cause serious harm or death, notify the blood transfusion service and submit the required documentation and samples (see **Appendix P)**

</td><td>formalised investigation</td></tr>
</table>

	SAC 1	SAC 2	SAC 3	SAC 4
	the National Pharmacovigilance Centre for Public Health Programs (NPC), using the same form. This may be done on a single email using the different email addresses • In cases of blood transfusion reactions, notify the blood transfusion service where the blood was ordered from and submit the required documentation and samples (see **Appendix P)**			
Reporting requirement	• Complete investigation and actions taken within 60 working days. Submit report to provincial department/district office	• Complete investigation and actions taken within 60 working days • Submit report to management		• Complete investigation and actions taken within 60 working days • Submit report to management

Nanda de Beer

2.5.2 National patient safety roles

In South Africa, there is a national safety committee to prevent patient safety incidents and to create change to improve patient outcomes (Department of Health, 2022). The committees' main objective is to oversee the management of patient safety incidents, and it forms part of clinical governance in each hospital.

They have the following roles:

- ✓ Review national patient safety incident management guidelines if needed.
- ✓ Conduct quarterly meetings to discuss patient safety incidents.
- ✓ Monitor provincial departments to ensure that they adhere to the patient safety guidelines.
- ✓ Compile and analyse national patient safety incident statistics.
- ✓ Implement national initiatives to prevent similar future patient safety incidents.
- ✓ Advise the Minister of Health on issues of concern related to patient safety that could be of public concern and receive media attention.
- ✓ Provide appropriate national response to new risks identified.

(Department of Health. 2022)

2.6 SAFETY ATTITUDES QUESTIONNAIRE

2.6.1 Background and adaptions on the SAQ

The safety attitudes questionnaire (SAQ) is an instrument that measures the safety attitudes of healthcare workers by identifying weaknesses in clinical settings and identifying areas of poor patient care. The original questionnaire measures six major areas of concern regarding patient safety (Bondevik et al., 2019).

The questionnaire is a modified version of the Intensive Care Unit Management Attitudes Questionnaire (ICUMAQ), which was adapted from the Flight Management Attitudes Questionnaire (FMAQ), which was used in the aviation industry (Sexton, Adair, Leonard, Frankel, Proulx, Watson et al., 2018). The FMAQ was created after it was found that most accidents were due to the breakdown in interpersonal aspects of crew performance such as teamwork, speaking up, leadership, communication and collaborative decision making, and it measures the crew's attitudes about these topics (Sexton et al, 2006). Twenty-five per cent of the FMAQ is used in the SAQ, and the new items were added after discussions with healthcare providers and experts.

The full version of the SAQ has 60 questions and the shortened version has 40 questions. The SAQ was also adapted into different versions modified to reflect different clinical areas. All versions of the SAQ have 30 core questions that are used to assess attitudes in six domains: teamwork climate, safety climate, perceptions of management, job satisfaction, working conditions and stress recognition (Sexton et al, 2018).

2.7 THE USAGE OF THE SAFETY ATTITUDE QUESTIONNAIRE

2.7.1 How the Safety Attitude Questionnaire is used

The SAQ is a single-page questionnaire with 30 questions, including gender and qualification. It takes approximately 10 to 15 minutes to complete. Each question is answered using a 4-point Likert scale (Strongly Agree, Agree, Disagree and Strongly disagree).

2.7.2 What the Safety Attitude Questionnaire measures and factors influencing the six domains

The six domains measured by the SAQ are discussed in Table 2.2:

Table 2.2: SAQ factor definitions with example (Sexton et al, 2006:3)

Scale: Definition	Example
Teamwork climate: perceived quality of collaboration between personnel	• Disagreements are resolved appropriately (i.e. not *who* is right, but *what* is best for the patient) • Our doctors and nurses work together as a well-coordinated team
Job satisfaction: positivity about the work experience	• I like my job • This ICU is a good place to work in
Perceptions of management*:* approval of managerial action	• Management supports my daily efforts in this ICU

	• Management is doing a good job
Stress recognition: acknowledgement of how perfrmance is influenced by stressors	• Our levels of staffing are sufficient to handle the number of patients • The equipment in this ICU is adequate
Working conditions: perceived quality of the work environment and logistical support (staffing, equipment, etc.)	• I would feel perfectly safe being treated here • ICU personnel frequently disregard rules or guidelines
Safety climate: perceptions of a strong and proactive organisational commitment	• I am less effective at work when fatigued • When my workload becomes excessive, my performance is impaired

2.8 CONCLUSION

This chapter discussed the literature review conducted on patient safety and patient safety cultures. Chapter 3 describes the research design and methodology.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

Chapter 2 described the literature review conducted for this study. This chapter describes the research design and methodology of the study.

3.2 AIM AND OBJECTIVES OF THE STUDY

The overall aim of the study was to assess the safety culture in the adult critical care units of a specific hospital group.

Objectives:

- ✓ To assess and describe safety culture among critical care nurses.
- ✓ To describe the safety culture among critical care nurses.
- ✓ To propose recommendations to enhance patient safety culture in the critical care units.

3.3 RESEARCH QUESTION

The main question formulated for this study:

What is the safety culture in the adult critical care units of a private hospital group?

3.4 RESEARCH DESIGN

Polit and Beck (2021:743) define a research design as an overall plan for addressing a research question, including methods to improve the integrity of the study. It is a detailed method that describes the strategies to test a proposed hypothesis. The research design is the blueprint or detailed plan of action to execute the research; it refers to the structure of a study (Creswell & Creswell, 2023:4; Mckinley & Rose, 2020:3; Polit & Beck 2021:10). The nature of the research question guides the researcher in selecting the appropriate research design to collect data to answer the research question (Ellis, 2016:15; Polit & Beck, 2021:10). Quantitative studies collect numerical data by formal measurements which need statistical analysis (Polit & Beck, 2021:38).

In this research, a non-experimental quantitative descriptive design was chosen, because the information required needed an accurate depiction of the study of patients in the normal day-to-day experience in the CCU. The descriptive design was used for the accurate portrayal of circumstances and the frequency in which they took place. It was a non-experimental study used to observe, describe and document aspects of a naturally occurring situation and the researcher did not manipulate the independent variable (Creswell & Creswell, 2023:13; Polit & Beck, 2021:206, 726; Staffileno, Murphy & Buchholz, 2022:150). It was non-experimental because it explored the patient safety culture in the CCU.

3.4.1 Quantitative research

Between the quantitative and qualitative designs, the most appropriate design for this study was the quantitative design, as the data collected was numerical.

Quantitative research investigates an occurrence that requires precise measurement and quantification involving a controlled design. Quantitative researchers collect data by means of an instrument for statistical analysis and require a numerical value (Creswell & Creswell, 2023:5; Polit & Beck 2021:11, 741). Quantitative research uses logical reasoning to generate predictions that are tested; the research progresses systematically through a series of steps and according to a plan of action (Creswell & Creswell, 2023:5; Polit & Beck, 2021:13). Empirical evidence is gathered, rooted in an objective reality and consists of observations gathered by sight, hearing, taste, touch or smell (Creswell & Creswell, 2023:7; Polit & Beck, 2021:14). Quantitative studies rely on precise measurements obtained during data collection and statistical analysis to determine whether the findings are accurate to the aim of the study (Creswell & Creswell, 2023:5; Polit & Beck, 2021:14).

3.4.2 Descriptive research

The main objective of descriptive research, a class of non-experimental research, is to provide an accurate picture of a person's characteristics or circumstances, and the frequency with which the phenomenon occurs (Polit & Beck, 2021:725; Thomas, 2021:60) and does not involve direct observation (Thomas, 2021:146). Descriptive statistics is used to describe and summarise data (Polit & Beck, 2021; 725) and it does not offer insight into the cause of the problem (Thomas, 2021:147). The purpose of descriptive study is to observe, describe and document the aspects of a situation in its naturally occurring circumstance in order to generate a theory or hypothesis and describe the main aspects of the problem (Polit & Beck, 2021: 226; Thomas, 2021:151).

3.4.2.1 Descriptive correlational studies

Descriptive correlation research describes the association or relationship between two or more variables and does not attempt to support implications of the relationship (Polit & Beck, 2021:226 Creswell & Creswell, 2023:13; Staffileno et al, 2022:150). This includes studies that diagnose or assess a situation to gather information (Polit & Beck, 2021:226).

Descriptive correlation was used in this study, because a questionnaire was used to gather information on the state of patient safety in the CCU. In this study, the researcher essentially attempted to understand how different attitudes towards safety were related to the various outcomes of patient safety without manipulating the variables.

3.5 RESEARCH METHODOLOGY

Polit and Beck (2021:741) define research methods as “the techniques used to structure a study and to gather and analyse information in a systematic fashion.” Research methodology works with the general approaches and guidelines for conducting research, it deals with the planning, implementation and reporting stages in the research process (Thomas, 2021:29).

The methodology includes the setting, population, sample and sampling, data collection and analysis, and ethical considerations.

3.5.1 Setting

Information gathering can take place in a variety of different places and at one or more sites (Polit & Beck, 2021:49). This study was conducted by doing ‘fieldwork’ in a natural setting – in hospitals where the nurses worked in the CCUs.

The setting for this research was in a private hospital group in an urban area in Gauteng. The four participating hospitals together had six CCUs, with 98 staff members (68 registered nurses and 30 enrolled nurses) working in them. The CCUs that participated in the study were all general adult CCUs with a wide variety of patients with conditions ranging from trauma and surgical to medical conditions.

3.5.2 Population

The population refers to all individuals with a distinct characteristic that the researcher aims to utilise in the sample of the research study (Hedge & Salvatore, 2021; Creswell & Creswell, 2023:268). The identified population for this study was all registered and enrolled nurses working in the CCUs of the participating hospitals.

3.5.3 Sampling

Sampling in research is the selection of a specific group or number of individuals with specific characteristics relevant to the study, to accurately reflect the population (Creswell & Creswell, 2023:268; Burns & Grove, 2020:94). Total population sampling was used during this study. The sample size utilized was 63 participants. It is a type of non-probability sampling, which is a technique used when all participants are included in the study because they are in the right place at the right time (Burns & Grove, 2020:1192). In this study, the right place was the CCUs in the participating hospitals and the right time was when the questionnaires were handed out. Answering of the questionnaire was done on a voluntary basis by all perspective participants who met the inclusion criteria.

3.5.3.1 Inclusion criteria

Inclusion criteria are the characteristics that a participant need to adhere to in order to be considered part of the population (Burns & Grove, 2020: 518).

Participants who took part in this study adhered to the following inclusion criteria:

- Had a minimum of six months' work experience in a CCU.
- Was a full-time or part-time employee working in the CCU.
- Was a registered or enrolled nurse.
- Could understand, read and write English.

3.5.3.2 Exclusion criteria

Exclusion criteria are specific characteristics that lead to a prospective participant being eliminated or excluded from the target population (Burns & Grove, 2020:518). The following were the exclusion criteria for this study.

- Employees who did not understand, read or write English.
- Registered and enrolled nurses with less than six months' experience.

3.5.4 Data collection

Data collection is the process of gathering the required information and is a fundamental aspect of research. It involves gathering measured facts to support reasoning and decision-making. Data can be primary or secondary data. Primary data collection methods include observation and surveys (Thomas, 2021:142). This study used a questionnaire to collect data.

3.5.4.1 Data collection tool

The data collection tool was a questionnaire. A questionnaire comprises a sequence of predetermined questions that participants can answer on their own, through mail or during interviews conducted by interviewers (Thomas, 2021:147).

This study used the critical care version of the SAQ (Sexton et al, 2006:44). The questionnaire consisted of two sections (See ANNEXURE C):

- **Section A** – demographic profile of the participants consisting of gender and rank (enrolled or registered nurse)
- **Section B** –30 questions across the six domains

    1. Teamwork climate – the perceived quality of collaboration between personnel (Questions 1 to 6)
    2. Safety climate – perceptions of strong and proactive organisational commitment (Questions 7 to 13)
    3. Job satisfaction – positivity about job experience (Questions 14 to 18)
    4. Stress recognition – an acknowledgement of how performance is influenced (Questions 19 to 22)
    5. Perception of management – approval of managerial actions (Questions 23 to 26)
    6. Working conditions – the perceived quality of the work environment and logistical support (Questions 27 to 30).

The participants selected their answers by using the Likert scale rated as follows:

- 1 – Strongly agree
- 2 – Agree
- 3 – Disagree
- 4 – Strongly disagree

3.5.4.2 Data collection process

The data collection process started by contacting the unit managers of the participating hospitals to collect the number of prospective participants. All prospective participants who met the inclusion criteria received a paper-based questionnaire along with an informed consent form to sign. Data collection took place from August 2023 to February 2024.

In order to protect the hospitals and the private hospital group from criticism, the hospitals are indicated as hospital A, hospital B, hospital C and hospital D, and only the researcher has the information identifying the hospitals. To protect the staff from criticism and ridicule, questionnaires were anonymous and only identified by a number on the questionnaire. There was no identifying information on the questionnaire that could open staff up for reprimand.

All staff members who met the inclusion criteria and indicated their willingness to participate were given a questionnaire and an informed consent document to complete and sign. The researcher placed a sealed container in the unit manager's office for the participants to deposit the signed consent forms and the completed questionnaire. Completion of the questionnaire took approximately 5 to 10 minutes. The container was available for 30 days in the unit manager's office in order to provide adequate time for the participants to complete the questionnaire. The researcher collected the completed consent forms from different unit manager's offices at the end of the 30 days.

3.6 DATA ANALYSIS

The data collected on the questionnaires was then plotted on an Excel spreadsheet and sent to a statistician.

The aim of data analysis is to develop an unbiased insight from the data. According to Polit and Beck (2021:400), descriptive data analysis allows the researcher to illustrate or describe the data. Descriptive data analysis was used in this study.

Participants answering the questionnaire had to indicate the degree to which they agreed or disagreed with the 30 questions relating to the six safety-related clinical domains on the SAQ.

Data analysis took place in collaboration with a statistician. The sample size is noted as a lowercase n and the population as an uppercase N. Population size N = 100 and sample size n = 63 of both registered and enrolled nurses. The sample size is smaller than the population size, as not all questionnaires distributed were returned.

Raw data was captured on an Excel spreadsheet and sent to a statistician who analysed the data and put the statistical analysis of the data on a spreadsheet in order to answer the objectives of the study. Data analysis took place with the assistance of a statistician from the University of Pretoria.

3.7 RIGOUR

Rigour reduces bias and maintains control over the studied variables (Polit & Beck, 2021:308).

3.7.1 Validity

Validity is defined as the quality criteria that refer to the degree to which the conclusion reached in a study is accurate and well-established (Polit & Beck, 2021:745,308). Face validity shows whether the instrument measures what it is supposed to measure based on expert judgments (Polit& Beck, 2021:310).

In this study, face validity was ensured by using a questionnaire that had been judged by experts worldwide, and used multiple times in different critical care settings. Content validity is used to measure all the components of the targeted research (Polit & Beck, 2021:308). In this study, content validity was maintained by using a recognised and previously utilised questionnaire. Construct validity links the relationship between the instrument and theory (Polit & Beck, 2021:225).

This was maintained because the questionnaire measured the safety culture in the CCU. Convergent validity, as a construct validity, measures how closely the new scale is related to other interchangeable factors and other constructs (Polit & Beck, 2021:315). The SAQ has been used globally in multiple studies and different clinical settings.

3.7.2 Reliability

Reliability shows to the consistency of an instrument (Polit & Beck, 2021:300). In this study, the questionnaire used was reliable, as it has been used multiple times.

The SAQ has good psychometric properties, as it is a reliable and valid instrument that has been used since it was first compiled in 2006 (Sexton et al., 2006:1). It has been used multiple times in multiple studies and has yielded positive results in the field of patient safety culture/climate and attitudes with regard to patient safety. (See Annexure C)

3.8 ETHICAL CONSIDERATIONS

Ethical approval to conduct this study was sought from the University Pretoria: Faculty of Health Sciences Research Ethics Committee and the ethics committee of the specific hospital group. There were three main ethical principles that were essential for the purpose of this study: beneficence, respect for human dignity and justice (Polit & Beck, 2021:139-142).

Beneficence indicates the responsibility of the researcher to minimise harm and maximise benefits (Polit & Beck, 2021:135). In this study, the researcher ensured that no participant was harmed by means of bullying and exploitation. The results of the study will be beneficial to all CCUs, as it will allow improvement in patient safety.

Respect for human dignity is about the right to self-determination and full disclosure (Polit & Beck, 2021:136). Participants were able to decide voluntarily if they wanted to participate in answering the questionnaire, they had the right to ask questions regarding the study and the right to full disclosure with regard to the description of the study, the role of the researchers and the risks and benefits the study might have.

Justice is the right to fair treatment and privacy (Polit & Beck, 2021:141). All participants were treated equally and fairly, without discrimination. Privacy was maintained in alignment with the POPI Act.

3.9 CONCLUSION

In this chapter, we discussed the research methodology. Chapter 4 is written as an article and discusses the results of the study.

CHAPTER 4: FINDINGS AND DISCUSSION

Safety culture among nurses in adult CCUs in a private hospital group in Gauteng, South Africa.

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ARTICLE

SAFETY CULTURE AMONG NURSES IN ADULT CCUS IN A PRIVATE HOSPITAL GROUP IN GAUTENG, SOUTH AFRICA.

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ABSTRACT

Background

Healthcare workers are taught the ethical principle of "do no harm" to maintain patient safety; however, it has recently faced challenges in the healthcare setting. A safety culture encompasses the values, attitudes, perceptions, competencies and behavioural patterns that shape health and safety management. Critical care units are high-risk nursing units that deliver advanced care to critically ill/injured patients. The Safety Attitude Questionnaire is a widely used tool to measure safety culture. The aim of the study was to assess the safety culture in adult critical care units in a specific private hospital group in Gauteng, South Africa.

Objectives

To assess and describe the safety culture among critical care nurses and to propose recommendations to enhance the patient safety culture in the critical care units.

Methods

A quantitative descriptive design was used in this study. The Safety Attitude Questionnaire was used to measure the safety culture of nurses, which could influence patient safety, in four critical care units of a specific private hospital group. Total population sampling was used in this study which included all registered and enrolled nurses working in the critical care units. Data collection was conducted using a questionnaire distributed to eligible participants, and data analysis was performed in collaboration with a university statistician.

Results

This study used the Safety Attitude Questionnaire to determine the safety culture in the critical care units. Six domains were measured to determine the patient safety culture, three of which indicated areas of concern. The results showed that stress recognition, perception of management and working conditions have a significant impact on patient safety culture that could contribute to an increase in patient safety incidents.

Conclusion

The findings from the Safety Attitude Questionnaire at the specific hospital group highlighted both strengths and areas for improvement in the critical care units related to patient safety culture. Teamwork, safety climate and job satisfaction reflect positive aspects of patient safety culture. However, a significant challenge was identified regarding stress recognition and working conditions, posing a risk to individual well-being and patient safety. The perception of the management domain was perceived as negative, which also indicated a challenge relating to patient safety.

Keywords

Critical care, Critical care nurses, Critical care unit, Patient safety, Safety culture

INTRODUCTION

Healthcare workers are grounded in the ethical principle of "do no harm", yet recent challenges have increasingly brought this foundational value into question regarding patient safety.[1] There are numerous definitions for patient safety in the literature, but the World Health Organization (WHO)[2] defines patient safety as: “a framework of organised activities that creates cultures, processes and procedures, behaviours, technologies, and environments in health care that consistently and sustainably: lower risk, reduce the occurrence of avoidable harm, make errors less likely and reduce its impact when it does occur.” Safety culture is defined as values, attitudes, perceptions, competencies and behavioural patterns that determine the style and proficiency of health and safety management.[3] Patient safety culture in the CCU should be improved to decrease errors causing harm, improve patient safety and provide quality patient care.[4]

Over the past couple of years, there has been a global concern when it comes to patient safety, as the number of patient safety incidents has been on the rise.[5] Adverse events due to unsafe care are one of the leading causes of death and disability.[6] Globally, four out of 10 patients are harmed in a healthcare setting by nursing staff, doctors and by patients themselves, with up to 80% of the events being preventable.[7] South Africa is a developing country with higher percentages of patient safety incidents due to the burden on the healthcare system that is aggravated by the high number of Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Virus (AIDS) cases.[8] In South Africa, 30% to 70% of patients admitted, experience patient safety incidents.[8] Gqaleni and Bhengu[8] state that the number of patient safety incidents, such as medication errors, is still high in CCUs. Forty-seven per cent of the incidents in their study were deemed serious in nature and led to a decrease in the quality and efficiency of patient care, causing a decline in patient safety. The effect of decreased patient safety is seen in an increased mortality rate.[9] There is a link between the perception of patient safety and the high rate of adverse events. In the units where patient safety was a high priority, the staff were more motivated to decrease adverse events and had a better perception of patient safety.[10] Patient safety is a global health priority to strengthen the healthcare system.[6]

Measuring the safety culture of staff members, in the researcher’s opinion, could assist in the improvement of patient outcomes in the CCU. Measuring patient safety culture was done by making use of the Safety Attitude Questionnaire (SAQ), which provides a picture of the patient safety culture by using surveys that are completed by nurses working in the CCU.[11] The SAQ measures the psychometrics at individual and clinical area levels, testing the appropriateness of conceptualising patient safety issues.[11]

The SAQ has been adapted for use in the CCU, and describes the attitudes of nurses towards patient safety culture through six analytical factors: teamwork climate, safety climate, job satisfaction, perception of management, working conditions and stress recognition.[11]

This study determined the patient safety culture of nurses working in the six CCUs in Gauteng, with the aim of assessing and describing the patient safety culture in these six CCUs.

METHODS

This research was conducted in four hospitals of a private hospital group, in an urban area in Gauteng. The four participating hospitals consist of six CCUs with 98 qualifying staff members (68 registered nurses (RN) and 30 enrolled nurses (EN)) working in these six CCUs. The CCUs that participated were all general adult CCUs, with a wide variety of patients with conditions ranging from trauma to medical and surgical conditions.

The information required for the study was obtained using a validated questionnaire, the SAQ. The questionnaire was handed out to all qualifying critical care nurses (CCNs), who voluntarily participated over a period of three months from January to March 2024. All questionnaires received were included in the study. Ethical approval was obtained from the University of Pretoria's ethics committee (439/2022).

Participants taking part in the study had to adhere to certain inclusion criteria in order to obtain accurate data. The inclusion criteria were as follows: a minimum of six months' working experience in a CCU, being a full-time or part-time employee at the approved hospitals, being a qualified registered or enrolled nurse and being able to understand, read and write English.

The SAQ consisted of two sections: Section A contained the demographic profile of the participants (gender and rank). Section B contained 30 questions with six domains (Table 1) measuring the safety attitudes among staff. These six domains measured teamwork climate, safety climate, job satisfaction, stress recognition, perception of management and working conditions. A 4-point Likert scale was used ranging from 1 – "Strongly agree" to 4 – "Strongly disagree". The data was then analysed, and categories were merged into "Agree" and "Disagree" to simplify the outcomes.

RIGOUR

Rigour reduces bias and maintains control over the studied variables (Polit & Beck, 2021:308).

Validity

Validity is defined as the quality criteria that refer to the degree to which the conclusion reached in a study is accurate and well-established (Polit & Beck, 2021:745,308). Face validity shows whether the instrument measures what it is supposed to measure based on expert judgments (Polit& Beck, 2021:310).

In this study, face validity was ensured by using a questionnaire that had been judged by experts worldwide, and used multiple times in different critical care settings. Content validity is used to measure all the components of the targeted research (Polit & Beck, 2021:308). In this study, content validity was maintained by using a recognised and previously utilised questionnaire. Construct validity links the relationship between the instrument and theory (Polit & Beck, 2021:225).

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Reliability shows to the consistency of an instrument (Polit & Beck, 2021:300). In this study, the questionnaire used was reliable, as it has been used multiple times.

The SAQ has good psychometric properties, as it is a reliable and valid instrument that has been used since it was first compiled in 2006 (Sexton et al., 2006:1). It has been used multiple times in multiple studies and has yielded positive results in the field of patient safety culture/climate and attitudes with regard to patient safety. (See Annexure C)

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Ethical approval to conduct this study was sought from the University Pretoria: Faculty of Health Sciences Research Ethics Committee and the ethics committee of the specific hospital group. There were three main ethical principles that were essential for the purpose of this study: beneficence, respect for human dignity and justice (Polit & Beck, 2021:139-142).

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Respect for human dignity is about the right to self-determination and full disclosure (Polit & Beck, 2021:136). Participants were able to decide voluntarily if they wanted to participate in answering the questionnaire, they had the right to ask questions regarding the study and the right to full disclosure with regard to the description of the study, the role of the researchers and the risks and benefits the study might have.

Justice is the right to fair treatment and privacy (Polit & Beck, 2021:141). All participants were treated equally and fairly, without discrimination. Privacy was maintained in alignment with the POPI Act.

RESULTS

In total, 100 questionnaires were distributed among the four participating facilities. Of these 100 questionnaires, 63 were completed and returned, giving a response rate 63%. According to Polit and Beck,[12] to ensure validity and reliability of study findings, a response rate of 60% or higher is considered acceptable in research. A higher response rate helps ease nonresponse bias and enhances the generalisability of the results. [12]

Demographic data

Of the 63 participants (N=63), the majority were registered nurses (RN) (76% (n=48)), 24% were (n=15) enrolled nurses (EN), 16% (n=10) were male (M), and 84% (n=53) were female (F) depicted in Figure 1.

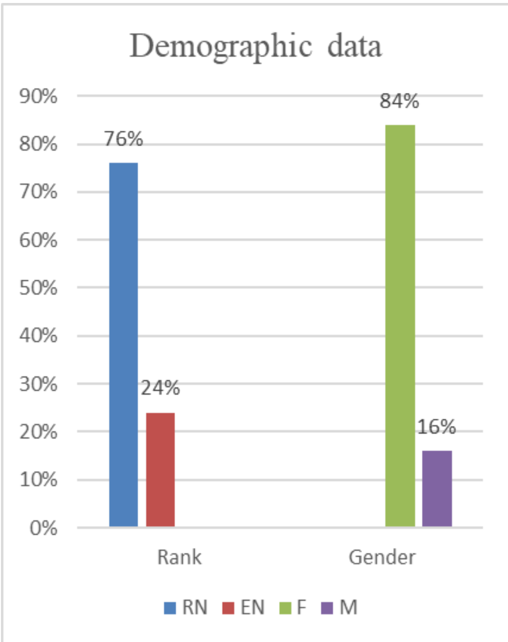

Figure 1: Demographic data

Data

The SAQ utilised 30 questions to assess the safety attitudes of staff members working in the CCUs. These questions were categorised into six domains: teamwork climate (questions 1 to 6), safety climate (questions 7 to 13), job satisfaction (questions 14 to 18), stress recognition (questions 19 to 22), perception of management (questions 23 to 26) and working conditions (questions 27 to 10). The results, detailed in Table 1, provide insights into each question and each domain.

Three domains – teamwork climate (70.6%), safety climate (70.7%) and job satisfaction (90.7%) indicated predominately positive responses without notable outliers. This generally suggests favourable attitudes among staff in these areas towards patient safety culture.

However, stress recognition (37.3%), perception of management (56.3%) and working conditions (71.0%) revealed areas of concern that could affect patient safety culture. Stress recognition emerged as the largest area of concern, with less than half of the respondents indicating positive perceptions, signifying potential issues in recognising and managing stress in the critical care setting.

Perception of management generally received mixed responses; while the overall sentiment was positive, specific concerns were raised, particularly regarding the adequacy of staffing levels in the CCUs. This discrepancy highlighted an area where improvements in management practices could enhance staff perception and potentially patient safety.

Regarding working conditions, the majority of responses were positive. However, there was a notable dissatisfaction (51%) with how conflicts were being managed between doctors and staff. This issue signals a specific management challenge that could affect teamwork and, consequently, patient care. The results are presented in Table 1 below.

Table 1: Results from the SAQ

			Agree (*n* / %)	Disagree (*n* / %)
Teamwork Climate	1.	It is easy for staff in the hospital to ask questions when there is something they do not understand	55 (87)	8 (13)
	2.	I have the support I need from other staff to care for patients	58 (92)	5 (8)
	3.	Nurse input is well received in this hospital	41 (65)	22 (35)
	4.	In this hospital, it is difficult to speak up if I perceive a problem with patient care	23 (37)	40 (63)
	5.	Disagreements in this hospital are resolved appropriately *(not by who is right but by what is best for the patient)*	45 (71)	18 (29)
	6.	The doctors and nurses here work together as a well-coordinated team	45 (71)	18 (29)
Safety Climate	7.	The culture in this hospital makes it easy to learn from errors of others	47 (75)	16 (25)
	8.	Medical errors are handled appropriately in this hospital	44 (70)	19 (30)
	9.	I know the proper channels to direct questions regarding patient safety in this hospital	56 (89)	7 (11)
	10.	I am encouraged by my colleagues to report any patient safety concerns I may have	55 (87)	8 (13)
	11.	I receive appropriate feedback about my performance	46 (73)	17 (27)
	12.	I would feel safe being treated here as a patient	36 (57)	27 (43)
	13.	In this hospital, it is difficult to discuss errors	28 (44)	35 (56)
Job Satisfaction	14.	This hospital is a good place to work	51 (81)	12(19)
	15.	I am proud to work at this hospital	49 (78)	14 (22)
	16.	Working in this hospital is like being part of a large family	45 (71)	18 (29)
	17.	Morale in this hospital is high	46 (73)	17 (27)
	18.	I like my job	60 (95)	3 (5)
Stress Recognition	19.	When my workload becomes excessive, my performance is impaired	45 (71)	18 (29)
	20.	I am more likely to make errors in tense or hostile situations	33 (52)	30 (48)
	21.	Fatigue impairs my performance during emergency situations (e.g. emergency resuscitation)	36 (57)	27 (43)
	22.	I am less effective at work when fatigued	44 (70)	19 (30)
Perception of Management	23.	The hospital management does not knowingly compromise the safety of patients	37 (59)	26 (41)
	24.	The hospital administration supports my daily efforts	44 (70)	19 (30)
	25.	I receive adequate, timely information about events in the hospital that might affect my work	40 (63)	23 (37)
	26.	The levels of staffing in this clinical area are sufficient to handle the number of patients	21 (33)	42 (67)
Working Conditions	27	All of the necessary information for diagnostic and therapeutic decisions is routinely available to me	51 (81)	12 (19)
	28.	This hospital constructively addresses problem doctors and employees	31 (49)	32 (51)
	29.	Trainees in my unit are adequately supervised	50 (79)	13 (21)
	30.	This hospital does a good job in training new personnel	47 (75)	16 (25)

DISCUSSION

The purpose of this study was to assess the safety culture of nurses in CCUs of a private hospital group in Gauteng, using the SAQ. The SAQ is designed to measure the psychometrics at an individual level and in clinical settings, testing the appropriateness of conceptualising patient safety issues.[11] The adapted version of the SAQ describes nurses' attitudes through six analytical factors: teamwork climate, safety climate, job satisfaction, perceptions of management, working conditions and stress recognition.[11]

While teamwork climate, safety climate and job satisfaction reflected positive attitudes among critical care staff, stress recognition and perception of management regarding staffing levels and working conditions were identified as areas of concern regarding overall patient safety culture.

Teamwork climate was mainly answered positively, with most participants agreeing, “I have the support I need from other staff to care for my patients” (92%). The question with the lowest positive rate was “In this hospital, it is difficult to speak up if I perceive a problem with patient care”, with 63% of participants disagreeing. In a similar study done in North Cyprus, it was found that teamwork climate was also, in general, answered positively, with a positive response rate being “I have the support I need from other staff to care for my patients” (78.8%) and cooperation from employees (71.3%).[4] Another study done in Sharqia Governorate, Egypt, found under a teamwork climate that, participants agreed that “I have the support I need from other personnel to care for my patients” (69.2%) and found that “The physicians and nurses here work together as a well-coordinated team” (25%) was answered less positively.[13]

Safety climate was also mainly answered positively, with the highest positive response rate being: “I am encouraged by my colleagues to report any patient safety concerns I may have” (87%), with two statements having lower response rates, “In this hospital, it is difficult to discuss errors” (56%) and “I would feel safe being treated here as a patient” (57%). In the study conducted in North Cyprus, low positive response rates related to “I know the proper channels to direct questions regarding patient safety in this hospital” (55%), “Medical errors are handled appropriately in this hospital” (58.3%), “I would feel safe being treated here as a patient” (82.5%) and “I receive appropriate feedback about my performance” (70.8%). [4] In Sargia Governorate, the safety climate domain was answered negatively, with multiple questions having a response rate of less than 50%. Hussein et al[13] found that “The culture in this hospital makes it easy to learn from errors of others” (68%) was answered positively, but “In this hospital, it is difficult to discuss errors” (40.8%) had the lowest positive response rate.[13]

Job satisfaction was also indicated as a positive domain, with the highest positive response rate being "I like my job" (95%) and the lowest being "Working in this hospital is like being part of a large family" (71%). Compared to Al-Mugheed and Bayraktar,[4] the highest rate was related to communication (82.5%) and the lowest positive response rate was related to respondents being disappointed in their work (55%). Hussein et al[13] found that job satisfaction in general also had more negative responses, with more than half of the questions having a lower than 50% positive response rate. The highest positive response was "I like my job" (53.4%), and he question/statement that had the highest negative responses was "Working in this hospital is like being part of a large family" (44.2%).[13]

Stress recognition emerged as an area of concern, as illustrated in Table 1. Responses indicated that 71% of nurses believed that "When my workload becomes excessive, my performance is impaired", while 52% indicated that "I am more likely to make errors in tense or hostile situations", 57% indicated that "fatigue impairs my performance during emergency situations" and 70% indicated that nurses felt "I am less effective at work when fatigued". This was consistent with recent research, which states that nurses experience high-stress levels due to the demanding and intense nature of their work.[12,13] Al-Mugheed and Bayraktar[4] also reported that "Fatigue impairs my performance during emergency situations" (78.8%) and "I am less effective when fatigued" (51.6%). Some factors contributing to this are that working in the CCUs causes elevated stress levels, such as high patient acuity, staff shortages, increased emotional demands and ethical dilemmas.[14,15] This has been associated with increased patient safety incidents such as medication errors, patient falls and compromised infection prevention.[16] The chronic stress that nurses experience affects personal well-being and patient safety incidents.[17,18] Hussein et al[13] also indicated that stress recognition was a large part of the problem related to patient safety culture, with all of the statements having a lower than 50% response rate. The highest positive response rate was for "I am less effective at work when I am fatigued" (49%), and the lowest positive response rate was for "Fatigue impairs my performance during emergency situations" (33.2%).[13]

Furthermore, under the perception of management, one concerning issue that was highlighted in the questionnaire was that 67% of respondents indicated, "The level of staffing in this clinical area is insufficient to handle the number of patients", and, as mentioned, this has an impact on stress levels among nurses. In the study done in North Cyprus, it was found that there was a lower positive response rate in "Hospital management supports my efforts to ensure patient safety" (53.8%). Ensuring adequate staffing levels and resources is fundamental for providing safe patient care.[4] Hussein et al[13] found the perception of management, in general, was also of concern, as there were more negative than positive responses. The highest positive response rate was for "The hospital management does not knowingly compromise the safety of patients" (51.7%), and the lowest positive response rate was for "I receive adequate, timely information about events in the hospital that might affect my work" (31.6%).[13]

Under working conditions, "The hospital constructively addresses problems between doctors and employees" also showed a negative response, with 51% of respondents disagreeing with the effectiveness of conflict resolution related to "This hospital constructively addresses problem doctors and employees". This was also evident in Al-Mugheed and Bayraktar's[4] study, with an 82.5% response rate. Poor conflict resolution between doctors and nurses also adds to the stress levels of nursing staff.[4] Hussein et al[13] found that working conditions, in general, were also of concern, as there were more negative than positive responses. The highest positive response was for "This hospital does a good job in training new personnel" (75%), and the lowest positive response rate was for "Trainees in my unit are adequately supervised" (20.8%).[13]

Our findings underline the urgent need for interventions to manage stress effectively, improve the perception of management and improving working conditions in the CCUs to prevent patient safety incidents and improve patient safety. Addressing stress among nurses is vital to mitigate patient safety incidents and enhance overall patient safety.[4] Ensuring adequate staffing in the CCU will improve nurses' perception of management and ensure that there is enough staff to take care of critically ill patients. Addressing the problems between doctors and nurses in a faster and more effective manner will improve nurses' attitudes and improve patient safety.

CONCLUSION

The aim of this study was to assess the safety culture of CCNs working in the critical care environment that could influence patient safety. The overall perception of patient safety culture in this study emerged as positive. Staff were generally satisfied with teamwork, safety climate and job satisfaction. The domains with challenges pertaining to patient safety culture were stress recognition, working conditions and the perception of management. The conclusion of the study suggests that increased levels of stress affect patient safety and the patient safety culture in the CCU. This results in increased patient safety incidents and leads to patient harm. Therefore, CCU managers should focus on ensuring that staff can identify what their specific stressors are in the unit, and training should be done on how to identify and cope with stressful situations. They should also focus on working conditions, advocating for adequate staffing levels and ensuring competent staff are allocated in their units. Unit managers should also ensure a good line of communication between staff members and the doctors they work with daily, as this will improve the perception of management.

Author’s contribution

All three authors contributed to all parts of the planning, compilation and review of the manuscript. The researcher collected data, and the statistician of the University of Pretoria performed the data analysis.

Declaration of competing evidence

The authors declare that there was no competing evidence.

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CHAPTER 5: CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

Chapter 4 presented the results of the study. This chapter briefly describes the conclusions of the study, suggests strategies to decrease stress, improve the perception of management and working conditions leading to improvement of patient safety in the critical care unit, makes recommendations for practice and education, highlights the limitations of the study and suggests further research.

5.2 PURPOSE OF THE STUDY

The purpose of the study was to:

- Identify the patient safety culture in the critical care units that could lead to patient safety incidents.
- Suggest strategies to improve patient safety culture in the critical care units by referring to the identified problem.

5.3 CONCLUSIONS

The main conclusion derived from this study is briefly discussed in sections 5.3.1 to -5.3.6.

5.3.1 Teamwork

The teamwork domains received positive feedback regarding the patient safety culture in the CCU. This showed good collaboration between team members, effective communication, shared responsibility for patient safety, good leadership influence and a mindset of continuous willingness to improve.

5.3.2 Safety climate

This domain evaluated fundamental patient safety culture and the effectiveness of safety-related policies and practices. The positive feedback received in this domain indicated a strong safety awareness, commitment to safety procedures, open communication on safetyissues, supportive safety leadership, and commitment to improving safety practices and that safety training and education were perceived positively.

5.3.3 Job satisfaction

The job satisfaction domain provided insights into the employees' overall satisfaction with their roles, responsibilities and working conditions within the organisation. The positive feedback in the questionnaire indicated a high overall job satisfaction, a positive work environment, good reward and recognition practices, a good work-life balance, the availability of career development opportunities and effective leadership.

5.3.4 Stress recognition

The stress recognition domain revealed areas where employees may perceive deficiencies or challenges related to stress management and recognition within the organisational context. This indicated **limited awareness and acknowledgement of stress**. Responses to stress-related issues might not be adequately recognised or addressed, leading to increased patient safety incidents. The feedback also **highlighted perceptions of underlying stressors** that impact work performance. The feedback suggested that there were factors, such as workload, time pressures, inadequate resources and unclear expectations, which affected stress levels and placed patient safety at risk. This finding suggested that there was **insufficient support** in place to address stress-related concerns. Responses also indicated **communication gaps** regarding stress management strategies and resources. The responses also indicated increased management and recognition of stress in hostile and emergency situations. The implication of this is that it impacts patient safety and could lead to patient harm.

5.3.5 Perception of management

The findings from the perception of management indicated a generally positive outlook on leadership within the organisation. It indicated trust and confidence in leadership, a supportive leadership style; there was clear communication of goals and expectations, recognition and acknowledgement of work performance and involvement in decision-making. The only challenges regarding management that emerged from this study were the **adequacy of staffing allocation** and the number of staff who worked with critically ill patients. This leads to increased **incidents of patient error and causes patient harm**.

5.3.6 Working conditions

In general, the findings of this domain indicated a positive outlook on the elements of working conditions. This indicated that there were well-maintained facilities to perform duties adequately, and the necessary information was obtained to treat patients properly. It also suggested that there were good training strategies in place and that new trainees were supervised adequately. In general, there was a comfortable work environment in the organisation. The only area of concern was the **management of conflict between doctors and staff**, which may lead to an increase in stressful working conditions and a decrease in patient safety.

5.4 RECOMMENDATIONS

This study aimed to identify the patient safety culture in the CCUs and, based on the findings, the following are recommended for nursing practice, education and further research.

5.4.1 Nursing management

- Promote open communication platforms where nurses feel comfortable discussing stress-related concerns without fear of judgement and repercussions.
- Implement stress assessment tools or surveys that nurses could use to self-assess stress levels for early recognition of areas of concern.
- Ensure supportive and approachable leadership that actively listens and advocates for nurses and creates policies and procedures that promote work-life balance and stress reduction.
- Establish a peer support programme where nurses can confide in each other regarding their stressors and stress-related problems.
- Encourage and promote self-care practices such as relaxation, physical activity and counselling services.
- Addressing workload and staffing issues will also help reduce stress by ensuring adequate staffing, proper workload distribution and the creation of a realistic work schedule that allows for rest and relaxation.

- Provide regular feedback and evaluation to assess the stress levels and job satisfaction among nurses to identify areas of improvement and create appropriate interventions.
- Monitor and evaluate the interventions implemented during regular feedback, and adjust accordingly.
- Provide feedback to nursing staff on the reasoning and approach to staffing levels.
- Provide support and feedback to staff when dealing with problems between nurses and doctors, ensuring that conflict is well managed and well reported on. Feedback and support will increase the perception of management.

5.4.2 Nursing education

Regarding nursing education:

- Promote comprehensive training and stress recognition techniques – equip nurses with the tools to self-identify stress early.
- Implement continuous development programmes focused on stress management, resilience building and emotional intelligence to equip them with the skills to cope with stressors in their professional roles effectively.
- Include self-care practices in the education and training of nurses to empower nurses with knowledge and skills pertaining to the importance of self-care.
- Educate nursing managers on effective conflict management and how to support staff in these situations. This will provide managers with the tools to support staff in problematic situations between doctors and nurses.
- Educate the nursing staff on staffing levels and the reasoning behind the levels. This will allow nurses to have a better understanding on how staffing is managed.

5.4.3 Critical care nurse

- Engage in self-care activities and training to enhance their self-care skills to enable them to manage stress and conflict better.
- Plan their work schedules with the unit manager so that it allows for rest periods

between shifts to prevent fatigue and stress.

- Collaborate with the multi-disciplinary team to foster a patient safety culture in the CCU to ensure optimal patient care and decrease potential patient safety adverse events.

5.5 FURTHER RESEARCH

Further research should be conducted on the following:

- An investigation into the impact of the stress of nurses on patient safety and the patient safety culture in the critical care unit.

- A further investigation into the causes of stress in the CCU and what the best practices would be to improve the management of stressors.

- Further research is required to assess how nurse-related stress impacts patient care and safety.

- Development of tools or practices to best manage stress and improve patient safety.

5.6 LIMITATIONS

This study was limited to four hospitals in a private hospital group in the Gauteng province, which might affect the general findings of the study. The researcher focused on enrolled and registered nurses working in CCUs with more than six months of experience working in the critical care setting.

5.7 SIGNIFICANCE

The findings of this study should lead to the following:

- Improve patient safety by identifying the nurses' attitudes towards patient safety culture. If this is done, there will be an overall improvement in the quality of care that a patient receives in CCUs.

- Enhanced organisational culture that could improve teamwork, communication and decision making and, in this case, stress in the workplace.

- Reduced workplace stress and burnout. This can help mitigate stress and improve the overall well-being of nurses, leading to an improved patient safety culture.

- Understanding of the nurses' perception on patient safety culture can lead to specific training programmes and continuous development programmes.

5.8 PERSONAL REFLECTION

The journey through my master's degree was a long and hard journey that taught me a lot of patience and resilience. The critical care environment is an area of nursing continuously evolving and growing and has multiple opportunities for research and further development. A big hurdle in my journey was the organisation selected to conduct research, and this caused a lot of delays and personal stress. I have learnt a lot about myself during this journey, as well as about the critical care environment and research processes and challenges.

I am extremely grateful to my supervisors for their support, encouragement and guidance throughout all the delays and my progress. Throughout my study journey, my family, my colleagues and management supported me emotionally and physically, and for this, I am extremely grateful.

5.9 CONCLUSION

This chapter concluded the study, describing the limitations, making recommendations for nursing management, nursing education and the CCN and suggesting further research.

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UNIVERSITEIT VAN PRETORIA
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ANNEXURE A1

RESEARCH ETHICS: UNIVERSITY OF PRETORIA

Nanda de Beer

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08 July 2022

Faculty Ethics Committee

Faculty of Health Sciences

University of Pretoria

To whom it may concern,

Evaluation of a protocol for the following student:

Students Nanda de Beer (10149423)

Title: ASSESSMENT OF PATIENT SAFETY CULTURE, AMONG NURSES, IN ADULT CRITICAL CARE UNITS IN A PRIVATE HOSPITAL GROUP IN GAUTENG

This letter serves to confirm that the above-mentioned protocol was discussed by the Postgraduate Committee of the School of Health Care Sciences during the: On- line meeting of 6 July 2022

The proposal was accepted **with minor changes**, and the corrections were implemented. The proposal is hereby referred to your committee for ethical clearance.

Sincerely yours,

Professor Kitty Uys

Chairperson:Research and postgraduate committee

School of Health Care Sciences

ANNEXURE A2

PERMISSION LETTER: PRIVATE HOSPITAL GROUP

MEDICLINIC CORPORATE OFFICE
25 DU TOIT STREET
STELLENBOSCH
7600

PO BOX 456
STELLENBOSCH
7599

T +27 21 809 6500

www.mediclinic.co.za

Ref: 20220715-Nanda de Beer- University of Pretoria
Date: 21 June 2023
Mrs de Beer
E-mail: Nanda.deBeer@Mediclinic.co.za
Copies to: Research@mediclinic.co.za, Rayno.crouse@mediclinic.co.za, Johan.verwey@mediclinic.co.za and mpho.mosoane@mediclinic.co.za

Dear Mrs Nanda de Beer,

APPROVAL TO CONDUCT RESEARCH AT MEDICLINIC LEGAE, MEDICLINIC KLOOF AND MEDICLINIC MEDFORUM

Your research proposal entitled "*Assessment of patient safety culture, among nurses, in adult critical care units in a private hospital group in Gauteng*" refers.

1. Degree level: Masters in Nursing.

2. Study Aim: Assess the safety culture in the adult critical care units of a specific hospital group.

3. Study design and methodology: Quantitative and questionnaire.

4. Mediclinic contact person: Ms Olivia Adams, Research Administrative Assistant.

5. Access conditions:

- Please provide the unit managers at the specific hospitals with the study information poster.
- Kindly provide two containers for the questionnaires and submission of completed questionnaires.

Kindly submit a written summary/closing report to research@mediclinic.co.za within 30 days of the study end date stipulated in the protocol. Should your research period surpass the initial period indicated in the protocol ending, you will be required to apply for an extension

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Kind regards

N.Z.Maseko

NOMFUNDO MASEKO
Mediclinic Southern Africa: Research Coordinator

ANNEXURE A3

PERMISSION LETTER: USE OF THE SAQ

Subject: Fw: Safety Attitudes Questionnaire

Thomas, Eric <Eric.Thomas@uth.tmc.edu> Wed, Nov 8, 2023, 12:26 AM

to nanda.prinsloo@gmail.com

Hi, you have permission to use the survey. Thank you for your interest in our work.

Sincerely,

Eric

Eric J Thomas MD MPH
Professor of Medicine
The UTHealth-Memorial Hermann Center for Healthcare Quality and Safety
McGovern Medical School at UTHealth

From: noreply@uth.tmc.edu <noreply@uth.tmc.edu>
Sent: Tuesday, November 7, 2023 12:30 AM
To: utpatientsafety@gmail.com <utpatientsafety@gmail.com>
Subject: Safety Attitudes Questionnaire

Safety Attitudes Questionnaire

UTHealth Form Submission	
Date Submitted	Nov 7, 2023 12:24:11 AM
Instructions	This email is being sent because someone submitted the CHQS - User Profile - Safety Attitudes Questionnaire
Full Name	Nanda de Beer
Title Or Occupation	Nurse Educator
Institute Or Organization	University of Pretoria
Country	South Africa
Phone	0795263918
Email	nanda.prinsloo@gmail.com

Purpose Of Survey Use	Good day, I am currently busy with my Master's degree in Nursing science in South Africa and would like to use the survey to measure the safety culture in the Critical care units in a private hospital group. I am a Nurse Educator with a postgraduate diploma in critical care nursing and nursing education. Thank you for the consideration.

UTHealth Houston

ANNEXURE B1

INFORMED CONSENT

Nanda de Beer

Dear Prospective Participant,

1) INTRODUCTION

I am currently employed at this private hospital group as a Nurse Educator for Critical care and general nursing. I am registered as a post graduate student at the University of Pretoria busy with a Masters of Nursing Science. My philosophy is to create the change by starting with myself by being a positive change through leadership and to effect change in my immediate colleagues, critical care nurses, students and the patients we look after. During my interaction with patients and staff working in this facility I have realized that there is a large gap in the patient safety culture that is being grown in the hospitals and both staff and patients are being affected. I am very passionate about creating a safe environment for both patients and staff working in the critical care units. Should you agree to partake in this research study it will enable me to present evidenced based data on the patient safety culture in the hospitals to the hospitals management team.

This information in this document is to help you to decide if you would like to participate. Before you agree to take part in this study you should fully understand what is involved. If you have any questions, which are not fully explained in this document, do not hesitate to ask the researcher. You should not agree to take part unless you are completely happy about all the procedures involved.

TITLE OF THE STUDY: ASSESSMENT OF PATIENT SAFETY CULTURE, AMONG NURSES, IN ADULT CRITICAL CARE UNITS IN A PRIVATE HOSPITAL GROUP IN GAUTENG

2) THE NATURE AND PURPOSE OF THIS STUDY

The aim of this study is to evaluate and measure the safety culture in the critical care units of this hospital group in Gauteng.

By measuring the safety culture, we will be able to observe what is needed to improve patient safety cultures and attitudes. Measuring safety culture will have a significant contribution in the following: **Improving teamwork climate** under staff working in the critical care unit. The quality of collaboration between nurses will improve as disagreements will be resolved appropriately with regards to what is best for the patient. **Decreasing the perception of stress** of nurses working in the critical care unit by acknowledging that stress influences everyone differently and patient safety can play a role in increased stress. By decreasing stress there will be an increased in productivity and less fatigue among staff. **Improvement of general safety climate**, for the patient as well as the nurse. The patient should feel safe in the hospital and unit that they are admitted in. **Increased job**

satisfaction and positivity in regard to the experience of working in the critical care unit. This will also lead to improved **perception of unit manager and hospital management**, that will in create a more positive and safe working environment. By identifying where patient safety is problematic, the data will assist in the implementation of a **quality improvement programme**.

3) EXPLANATION OF PROCEDURES AND WHAT WILL BE EXPECTED FROM PARTICIPANTS.

The researcher will provide each participant with a sealed envelope with a 30 point questionnaire inside. The safety attitudes questionnaire (SAQ) critical care version (Sexton, Helmreich, Neilands, Rowan, Vella, Boyden, et al, 2006:44) will be used to measure the six safety related clinical domains namely: 1) teamwork climate 2) job satisfaction 3) perception of management 4) safety climate 5) working conditions 6) stress recognition The questionnaire consists of two sections: Section A: Demographic profile and Section B has thirty (30) questions amongst the six domains.

The researcher will have a sealed container with her for the participants to deposit the sign consent forms in. Once they have signed the consent form the researcher will give them a questionnaire with a number on to complete, this is to ensure anonymity of the participants. Once they have completed the questionnaire they will deposit it in a sealed container in the unit managers office. The container will be available for 30 days in the unit manager's office in order to provide adequate time for the participant to complete the questionnaire. The researcher will go daily to collect the completed consent forms from the different unit manager's offices.

4) POSSIBLE RISKS AND DISCOMFORTS INVOLVED

For this study to be valid and authentic your personal data must be anonymous. The researcher will not disclose any of your personal information to anyone. The questionnaire and method for completion poses no risk to the well-being of the research participants.

5) POSSIBLE BENEFITS OF THIS STUDY

Although you may not benefit directly. By measuring the safety culture, we will be able to observe what is needed to improve patient safety cultures and attitude.

6) COMPENSATION

You will not be paid to take part in the study. There are no costs involved for you to be part of the study.

7) VOLUNTARY PARTICIPATION AND WITHDRAWAL FROM THE STUDY

Voluntary participation is required, and you are under no obligation to participate in this study. Withdrawal from the study will be accepted without the participant stating a reason.

8) ETHICS APPROVAL

This Protocol was submitted to the Faculty of Health Sciences Research Ethics Committee, University of Pretoria, telephone numbers 012 356 3084 / 012 356 3085 and written approval has been granted by that committee. The study has been structured in accordance with the Declaration of Helsinki (last update: October 2013), which deals with the recommendations guiding doctors in biomedical research involving human/subjects. A copy of the Declaration may be obtained from the investigator should you wish to review it.

9) ADDITIONAL INFORMATION

If I have any questions concerning this study, I should contact:

Mrs. N de Beer	0795263918
Email adress:	nanda.prinsloo@gmail.com

10) CONFIDENTIALITY

Your input into this research will be kept confidential as you will not reveal any personal information on the documents. All information obtained during the course of this study will be regarded as confidential. Each participant that is taking part will be provided with an alphanumeric coded number e.g. A001. This will ensure confidentiality of information so collected. Only the researcher will be able to identify you as participant. Results will be published or presented in such a fashion that the participants remain unidentifiable.

11) CONSENT TO PARTICIPATE IN THIS STUDY

Should you decide to partake in this research study you are required to indicate that you have read and understand the information provided above. In addition, please complete and sign the document below.

- I have also received, read and understood the above written information about the study.
- I have had adequate time to ask questions and I have no objections to participate in this study.
- I am aware that the information obtained in the study, including personal details, will be anonymously processed and presented in the reporting of results.
- I understand that I will not be penalised in any way should I wish to discontinue with the study and that withdrawal will not affect my further treatments.
- I am participating willingly.
- I have received a signed copy of this informed consent agreement.

______________________________	______________________
Participant's name (Please print)	Date
______________________________	______________________
Participant's signature	Date
______________________________	______________________
Researcher's name (Please print)	Date
______________________________	______________________
Researcher's signature	Date

ANNEXURE B2

DATA COLLECTION INSTRUMENT

Nanda de Beer

	Please tick the appropriate boxes: □ Registered Nurse OR □ Enrolled Nurse □ Male OR □ Female	**Strongly Agree**	**Agree**	**Disagree**	**Strongly disagree**
1.	It is easy for staff in the hospital to ask questions when there is something they do not understand				
2.	I have the support I need from other staff to care for patients				
3.	Nurse input is well received in this hospital				
4.	In this hospital, it is difficult to speak up if I perceive a problem with patient care				
5.	Disagreements in this hospital are resolved appropriately *(not by who is right but by what is best for the patient)*				
6.	The doctors and nurses here work together s a well coordinated team				
7.	The culture in this hospital makes it easy to learn from errors of others				
8.	Medical errors are handled appropriately in this hospital				
9.	I know the proper channels to direct questions regarding patient safety in this hospital				
10.	I am encouraged by my colleagues to report any patient safety concerns I may have				
11.	I receive appropriate feedback about my performance				
12.	I would feel safe being treated here as a patient				
13.	In this hospital, it is difficult to discuss errors				
14.	This hospital is a good place to work				
15.	I am proud to work at this hospital				
16.	Working in this hospital is like being part of a large family				
17.	Morale in this hospital are is high				
18.	I like my job				
19.	When my workload becomes excessive, my performance is impaired				
20.	I am more likely to make errors in tense or hostile situations				
21.	Fatigue impairs my performance during emergency situations (eg emergency resuscitation)				
22.	I am less effective at work when fatigued				
23.	The hospital management does not knowingly compromise the safety of patients				
24.	The hospital administrations supports my daily efforts				
25.	I receive adequate, timely information about events in the hospital that might affect my work				
26.	The levels of staffing in this clinical area are sufficient to handle the number of patients				
27	All of the necessary information for diagnostic and therapeutic decisions is routinely available to me				
28.	This hospital constructively addresses problem doctors and employees				
29.	Trainees in my unit is adequately supervised				
30.	This hospital does a good job for training new personnel				

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ANNEXURE C1

PLAGIARISM DECLARATION

Nanda de Beer

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ANNEXURE B – Declaration of originality

DECLARATION OF ORIGINALITY

UNIVERSITY OF PRETORIA

The Department of Nursing Science places great emphasis upon integrity and ethicalconduct in the preparation of all written work submitted for academic evaluation.

Academics teach you about referencing techniques and how to avoid plagiarism; it is your responsibility to act on this knowledge. If you are at any stage uncertain as to what is required, you should speak to your lecturer before any written work is submitted.

You are guilty of plagiarism if you copy something from another author's work (e.g. a book, an article or a website) without acknowledging the source and pass it off as your own. In effect you are stealing something that belongs to someone else. This is not only the case when you copy work word-for-word (verbatim) but also when you submit someone else's work in a slightly altered form (paraphrase) or use a line of argument without acknowledging it.

Students who commit plagiarism will not be given any credit for plagiarised work. The matter may also be referred to the Disciplinary Committee (Students) for a ruling. Plagiarism is regarded as a serious contravention of the University's rules and can lead to expulsion from the University.

The declaration which follows must accompany all written work submitted while you are a student of the Department of Nursing Science. No written work will be accepted unless the declaration has been completed and submitted.

Full names and surname of student: Nanda De Beer

Student number: 10149423

Topic of work: **MEASURING PATIENT SAFETY CULTURE AMONG NURSES IN ADULT CRITICAL CARE UNITS IN A PRIVATE HOSPITAL GROUP IN GAUTENG**

Declaration

1. I understand what plagiarism is and am aware of the University's policy in this regard.

2. I declare that this dissertation (e.g. essay, report, project, assignment, dissertation, thesis, etc) is my own original work. Where other people's work has been used (either from a printed source, Internet or any other source), this has been properly acknowledged and referenced in accordance with departmental requirements.

SIGNATURE 24 February 2025 **DATE**

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ANNEXURE C2

DECLARATION FROM EDITOR

Nanda de Beer

LETITIA GREENBERG

LANGUAGE SPECIALIST

31 Aland Road
Valhalla
0185

Cellphone: 084 077 1580
Email: lgletitia@gmail.com

10 Januarie 2025

To whom it may concern

With this letter, I confirm that I have language edited the dissertation titled *Measuring patient safety culture among nurses in adult critical care units in a private hospital group in Gauteng* by Nanda de Beer.

With a relevant degree and honours degree, I am fully qualified to undertake such proofreading.

Yours faithfully

LGreenberg

Letitia Greenberg