REGISTERED NURSES' EXPERIENCES IN NURSING OF CHILDREN POST CARDIAC SURGERY IN AN ACADEMIC HOSPITAL IN GAUTENG

by

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ABSTRACT

Paediatric cardiac surgery is performed on children diagnosed with congenital, acquired heart defects. Post cardiac surgery, these children are admitted to the cardio-thoracic intensive care unit where they are nursed by trained registered nurses and experienced registered nurses. Most of the registered nurses are bridging courses nurses who completed training and education under Regulation (R683). The South African Nursing Council's (SANC) R683 regulation leads to qualification as registered nurse and is known as bridging course in the South African nursing context. Based on the shortage of registered intensive care nurses in South Africa, the registered bridging course nurses are allowed to work in ICU even though they lack the requisite knowledge and skill. The researcher has observed that these registered nurses manage certain situations inappropriately, and they appear to be dissatisfied and unhappy, and that the atmosphere in the CTICU is often tense.

The purpose of the study was to understand the registered nurses' lived experiences in nursing children post cardiac surgery, and to describe recommendations to support them. A qualitative, exploratory, descriptive, and contextual research design was used. Purposive sampling was utilised. The target population comprised registered nurses who have undergone training in terms of the South African Nursing Council/s Regulation R683. Data collection was conducted by means of in-depth individual phenomenological interviews until data saturation.

The data was analysed according to Giorgi's Descriptive Phenomenological Method. One central theme emerged: registered nurses' lack knowledge regarding nursing children post cardiac surgery, resulting in psychological challenges due to an unsupportive environment. Three themes emerged: the registered nurses' lack knowledge nursing children post cardiac surgery resulting in psychological challenges due to an unsupportive working environment, the registered nurses' experience psychological challenges associated with nursing children post cardiac surgery, and the registered nurses' experiences regarding the provision of supportive working environment that is conducive to learning. Trustworthiness and ethical principles were ensured throughout the study. Recommendations to support the registered nurses nursing children post cardiac surgery were developed. The strategies, limitations, recommendations and conclusions of the study regarding to practice, nursing education and nursing research was presented.

DEDICATION

This research study is dedicated to the Almighty; He confirmed to say Rejoice in the Lord always. I will say it again: “Rejoice, let your gentleness be evident to all. The Lord is near. Do not be anxious about anything, but in everything by prayer and petition, with thanksgiving present your request to God and the peace of God, which transcends all understandings will guard your hearts and minds in Christ Jesus”. Philippians 4: 1-7.

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ABBREVIATIONS

CTICU	Cardio-Thoracic intensive care unit
ICU	Intensive Care Unit
SANC	South African Nursing Council

CHAPTER 1
OVERVIEW OF THE STUDY

1.1 INTRODUCTION

Due to the shortage of intensive care registered nurses in the intensive care units (ICUs), the inexperienced bridging course registered nurses are required to nurse critically ill children post cardiac surgery. The South African Nursing Council's (SANC) R683 regulation that leads to qualification as registered nurse is known as bridging course in the South African nursing context. The regulation R683 curriculum does not cover the complex requisite nursing knowledge and skills required for nursing critically ill children post cardiac surgery. After completion of the R683 training programme, the registered nurses are expected to work responsibly and act accountably in their nursing practice. The registered nurses trained under SANC Regulation R683 only have two years of training. During this two year training period the registered bridging course nurses study general nursing sciences as a major subject, and only receive a basic tutelage in Anatomy, Physiology and Pharmacology. However, Anatomy, Physiology and Pharmacology are subjects that registered nurses are expected to know in order to function effectively in an ICU.

Nursing children post cardiac surgery is one of the most difficult tasks for inexperienced registered nurses in an ICU. Working in the ICU requires unique specialised skills and knowledge, nevertheless, inexperienced registered nurses are assigned to work in the ICUs (Hazinski, 2013:282). Ohnstad and Solberg (2017:573, 574) Norwegian study suggest that using inexperienced registered nurses increases the rate of complications, which may result in loss of life while nursing children post cardiac surgery. Providing the health system with trained registered nurses directly impacts on the patients' outcomes, as inexperienced nurses often lack appropriate clinical judgement.

Ohnstad and Solberg (2017:573,574) state that nursing care without the requisite expertise is detrimental to patient outcomes. Inexperienced registered nurses experience adverse events when they lack clinical knowledge, and these predisposes them to medical errors. Scribante and Bhagwanjee (2007:1315) affirm that South Africa faces the

challenge of experiencing a shortage of registered nurses in ICUs, and further state that it is essential that registered nurses be ICU trained to nurse children post cardiac surgery.

Lala, Lala, and Dangor (2017:64) claim that in South Africa, public hospitals face crises due to a lack of trained registered nurses, especially trained and registered paediatric ICU nurses. The authors further emphasise that the paediatric registered nurse's role is intended to meet the children's complex health care needs, because the health status of children with medical conditions can change suddenly, such that a stable child can become severely unstable and in such an instance requires a registered paediatric ICU nurses' expertise.

Droogh, Smit, Absalom, Ligtenbreg, and Zijlstra (2015:1, 7) confirm that a paediatric ICU is a specialised area in which children require specialised care to reduce their mortality and morbidity rates. In the United States of America (USA) alone, one in twenty (20) children require critical care. In the United Kingdom (UK) 10,000 children need to be transferred to an ICU for better quality care, and to reduce the risk of physiological deterioration and adverse events. Hence further training of ICU registered nurses is required, and sufficient health care facilities are necessary, in order to provide quality health care for ill children.

Matlakala, Bezuidenhout, and Botha (2014:5, 7) agree that there is shortage of trained registered ICU nurses. They state that the inexperienced registered nurses in the ICU are often overwhelmed by the capacity of an ICU, the shortage of supplies and equipment, and working with agency registered nurse that are inexperienced in nursing children post cardiac surgery. Nursing children in an ICU requires competent registered nurses, who should be accessible and able to apply their expertise when children come out of surgery, in order to reduce potential hazards. Matlakala et al. (2014:6) further state that when children come out of surgery, inexperienced registered nurses who lack the specialised knowledge and skills to deal with critically ill patients are the one nursing them. These inexperienced registered nurses need specific intensive care knowledge and skills in terms of how to operate specialised equipment and how to apply clinical decision-making skills. Potter, Perry, and Stockert (2015:315) agree that registered nurses need to conduct a comprehensive nursing assessment post cardiac surgery. They need to gather information and conduct a variety of diagnostic tests and use technology to render quality nursing care.

Ballot, Davies, Cooper, Chirwa, Argent, and Mer (2016:7) and Coetzee (2014:8) agree that the alarming lack of ICU trained registered nurses and doctors working in the ICUs contributes to the high infant mortality rate. They propose that it is necessary to train more registered paediatric ICU nurses, and inexperienced registered nurses need to be motivated and empowered to care for children post cardiac surgery.

1.2 BACKGROUND AND RATIONALE

Post cardiac surgery, children are critically ill and need to be nursed by trained registered paediatric ICU nurses who are specialised, knowledgeable, and skilled (Hazinski, 2013:282). According to Hollywood (2011:20), nursing children post cardiac surgery requires unique knowledge and skills, and therefore, registered nurses taking care of such children must be equipped with specialised skills and knowledge. In South Africa, due to the shortage of trained ICU nurses registered with SANC under regulation (R212), most CTICU use bridging course nurses registered under regulation (R683) with no additional qualifications in paediatric ICU to work in the CTICU (De Beer, Brysiewicz & Bhengu, 2011:27).

The registered nurses trained according to SANC regulation R683 undergo two years of training. During this training period they only receive a basic knowledge in anatomy, physiology, pharmacology, and general nursing sciences. The SANC's R683 curriculum does not cover the complex nursing knowledge and skills required for nursing critically ill children post cardiac surgery Nursing Act, 2005 (Act no. 33 of 2005). On completion of the R683 nursing programme, registered nurses are expected to work responsibly and to act accountably in nursing practice.

According to Almblad, Målqvist, and Engvall (2016:31), when inexperienced registered nurses encounter predictable situations, such as when a child is stable and pain-free post cardiac surgery, they feel in control. However, when complications arise, the inexperienced registered nurses feel insecure as they do not have sufficient knowledge nor the requisite skills to effectively nurse children post cardiac surgery.

Masango and Chilidza (2015:130-132) agree that the registered bridging course nurses do not receive training in a paediatric ICU, and therefore, they experience challenges in integrating their knowledge and skills to ensure effective childcare, and they are unable

to work independently. Morolong and Chabeli (2009:2, 30) agree that inexperienced registered nurses lack competency and the relevant skills required to nurse children in the ICU. Masango and Chilidza (2015:130-132) further state that the inexperienced registered nurses encounter challenges in an ICU environment in terms of their critical thinking and decision-making skills. Inexperienced registered nurses also experience difficulties in accomplishing their delegated duties. They feel overwhelmed when nursing children that are extubated, because they are expected to become responsible and independent practitioners when they are assigned responsibilities in an ICU. The authors further state that shift leaders are unable to facilitate learning or provide appropriate orientation and induction programmes due to staff shortages.

Bhagwanjee and Scribante's (2007:1311) study audited the ratio of ICU beds in South Africa and admitted that there are challenges. Children with mixed medical and surgical conditions require intensive care, however, in the public and academic hospitals only 3.9% of available beds are allocated to the care of children. The authors further emphasise that children require trained paediatric ICU registered nurses and medical doctors to positively impact health services and provide holistic care to children post cardiac surgery.

De Beer, Brysiewicz and Bhengu (2011:7) agrees that the critical care environment caters for children in an emergency situation, and therefore registered nurses need to familiarise themselves with the children's different conditions, complications and the health needs of children very quickly. Ludin, Ruslan, and Mat Nor (2018:156) affirm that registered nurses working in the ICU are vital, and they need the requisite skills and knowledge to identify those children that are at risk and in danger of deteriorating post cardiac surgery. The registered nurses need the necessary skills to manage children in acute stages of illness and must be able to identify a critically ill child. Utilising their skills and knowledge enhances the delivery of appropriate care and identifies high risk patients. The authors further state that good practice and satisfactory clinical judgement is imperative for registered nurses nursing children post cardiac surgery. The need for formative knowledge and team-based simulations should be enhanced in clinical practice and an emphasis should be placed on using protocols to reduce medical errors.

Vatansever and Akansel (2016:1045) agree that the ICU environment is a complex domain, where inexperienced registered nurses are expected to nurse critically ill patients

using complex technology. A critical ICU working environment requires inexperienced registered nurses to be aware of and alert to the serious adverse events that could arise from their lack of knowledge and appropriate skills. Therefore, trained registered paediatric ICU nurses are required to think critically while utilising different monitors and intensive procedures to nurse their patients. It is necessary to ensure that inexperienced registered nurses learn from trained ICU registered nurses when applying different technologies. Participating in different activities and procedures with trained ICU registered nurses allows inexperienced registered nurses the opportunity to learn the complex nursing skills required to care for children post cardiac surgery.

Makgopela, Nel, and Zibi (2014:52) claim that trained registered ICU nurses need to create an enabling learning environment that supports inexperienced registered nurses. This allows inexperienced registered nurses to improve their decision-making, communication, and problem-solving skills in nursing children post cardiac surgery. The authors' further state that reducing noise in an ICU must be facilitated as it affects the psychological and physical well-being of inexperienced registered nurses and reduce concentration and effective learning.

DuToit, Leech, and Coetzee (2016:2) agree that when inexperienced registered nurses are in a new professional environment they are not confident, and are typically faced with difficulties in managing their work due to limited exposure, and this is sometimes overwhelming. They are ill-equipped to handle responsibility and accountability regarding patient care. Registered nurses need to acquire special skills, knowledge, and expertise in ICUs, as they are required to work autonomously to make clinical decisions and judgements to improve the nursing care of children post cardiac surgery.

Magalhães, Queiroz, and Chaves (2016:724) affirm that registered nurses need to be professionally involved when nursing children, they need to apply, screen, and utilise non-invasive techniques to provide care for children born with congenital heart defects during post-operative care. The authors further state that registered nurses need to learn how to detect these problems in children immediately, as some of the cardiac conditions are detected early in life. Involving registered nurses in screening measures may help to decrease complications. Providing registered nurses with skills will improve their understanding and execution of proper nursing care to children post cardiac surgery.

1.3 SETTING

The CTICU under study is in a public academic hospital in Gauteng province in South Africa. The unit consists of two trained ICU registered nurses, six experienced registered nurses and 10 registered bridging course nurses. For the purpose of this study the researcher used the registered bridging course nurses. The registered bridging course nurses are typically trained for two years according to SANC's regulation R683. During this training period they only receive a basic knowledge in Anatomy, Physiology, and Pharmacology. The SANC's R683 regulation does not cover the nursing knowledge and skills that registered nurses require to care for critically ill children post cardiac surgery, and therefore significant and numerous errors and incidences may occur in the CTICU.

The cardio thoracic intensive care unit (CTICU) in the public academic hospital under study in Gauteng is the biggest unit catering for children post cardiac surgery. The unit consists of 20 beds, of which ten are occupied by adults' post cardiac surgery and ten are occupied by children post cardiac surgery. The unit admits children from South Africa, Botswana, Zimbabwe, and other African countries.

In the public academic hospital in Gauteng under study, each registered nurse's lived experiences was subjective, respected, and acknowledged by the researcher. The registered nurses were selected because of their lived experiences in nursing children post cardiac surgery.

1.4 PROBLEM STATEMENT

The CTICU in a public academic hospital in Gauteng consists of 20 beds. The unit is always fully occupied by critically ill children post cardiac surgery. As an ICU trained registered nurse, the researcher observed the following in the CTICU: there was an increasing unhappiness amongst staff; the hospital used inexperienced registered nurses to administer care of children post cardiac surgery; registered nurses frequently become aggressive and argued with shift leaders when instructed to render nursing care; there was a high level of absenteeism and medication errors; and the registered nurses often fight among themselves, cry easily, and become agitated when they realise that they have been assigned to look after children post cardiac surgery.

Thus, the following question arose:
What are the lived experiences of registered nurses in nursing children post cardiac surgery and what recommendations can be described to support the registered nurses?

1.5 PURPOSE OF THE STUDY

The purpose of this study was to understand the registered nurses' lived experiences in nursing children post cardiac surgery, and to describe recommendations to support these nurses.

1.6 RESEARCH OBJECTIVES

- to explore and describe the registered nurses' lived experiences in nursing children post cardiac surgery in the CTICU of a public academic hospital in Gauteng;
- To describe the recommendations to support these nurses.

1. 7 DEFINITION OF KEY CONCEPTS

1.7.1 Registered Nurse

A registered nurse refers to a nurse who has completed the two, three, or four-year training programme at a SANC-accredited nursing institution in South African context. In this study, the focus is on registered nurses, who have completed two years of training and education, and registered under Regulations Relating to the minimum requirements for a Bridging Course for enrolled nurses leading to registration as a general nurse in terms of SANC regulation R683 of 17 January 1997 as amended. (They are normally referred to as registered bridging course nurses). In this study, registered nurses will refer to those registered bridging course nurses with two years' experience in nursing children post cardiac surgery in a public academic hospital in Gauteng.

1.7.2 Experiences

Experiences are personal moments that an individual encounters after being personally involved in a situation or event (Gray, Grove & Sutherland, and 2017:66). In this study, experience includes the thoughts, values, emotions, preferences, and perceptions of

registered nurses when nursing children post cardiac surgery in a public academic hospital in Gauteng.

1.7.3 Nursing

Nursing is an interactive process during which the registered nurse, as a sensitive and a therapeutic professional, mobilises resources in order to facilitate the promotion of health (University of Johannesburg Nursing Sciences Paradigm, 2010:4). Nursing refers to taking care of and providing support and comfort to the sick during nursing care Nursing Act, 2005 (Act no. 33 of 2005). In this study, nursing refers to an interactive decision-making process using the skills of assessment, planning, diagnosis, implementation, and evaluation to ensure relevant nursing care for children who have undergone cardiac surgery.

1.7.4 Cardiac Surgery

Cardiac surgery is defined as a surgical procedure carried out to repair congenital heart disease (Falase, Sanusi, Majekodunmi, Animasahun & Ajose, 2013:8). In this study, cardiac surgery refers to an open or closed incision on the sternum to repair congenital heart disease in children who were nursed in the CTICU post cardiac surgery until they were discharged.

1.7.5 Children

According to the Children's Act, 2005 (Act no. 38 of 2005), children are human beings between the ages of 0 to 14 years. In this study, children are defined as children aged between 0 and 14 who have been diagnosed with congenital heart disease in a public academic hospital in Gauteng, and have required cardiac surgery as well as post-operative nursing care in the CTICU of a public academic hospital.

1.7.6 Academic Hospital

According to the Minister of Health, in terms of section 35 of the National Health Act, 2003 (Act no. 61 of 2003), an academic hospital is an establishment that is classified as a clinic or hospital that is owned or controlled by the state or referred to as public hospital/clinic. In this study, academic hospital refers to a public hospital that provides nursing care to children post cardiac surgery.

1.8 RESEARCH DESIGN AND METHODS

1.8.1 Research design

The researcher used a qualitative, exploratory, descriptive, and contextual design. Qualitative research is rigorous, interactive, holistic, and subjective. Therefore, qualitative research was utilised, to obtain the participants' in-depth lived experiences and data (Grove, Burns & Gray, 2013:67).

Exploratory research explores a phenomenon's dimensions. The researcher explored and described the registered nurses lived experiences when caring for children post cardiac surgery in a public academic hospital in Gauteng (Gerrish & Lathlean, 2015:212).

This study was descriptive, as participants described their lived experiences and the results can be utilised to improve quality nursing care (Burns et al., 2013:66). The context in which the study was conducted was important, as different settings had the potential to influence the research findings.

The design was contextual, as the study was conducted in a specific public academic hospital in Gauteng within the CTICU. Creswell (2015:30) states that phenomenological research is how the researcher describes the participants' lived experiences of the phenomenon or the construct under study. In-depth individual phenomenological interviews were conducted with participants responding to open-ended questions, so that the researcher could elicit in-depth responses from registered nurses about their lived experiences regarding post cardiac children in a public academic hospital in Gauteng (Burns et al., 2013:173).

1.8.2 Research methods

The research study included a population, sample and sampling method, data collection, data analysis, and measures to ensure trustworthiness.

1.8.2.1 Population

Babbie (2013:134) refers to a population as an entire set of elements, individuals, objects, or, substances that are the research study's focus. The population for this study were registered nurses who had undergone two years' training and who were registered

according to SANC Regulation R683. The participants had to be permanently employed and working in the CTICU in a public academic hospital in Gauteng.

1.8.2.2 Target population

The target population refers to an entire set of individuals who meet the sampling criteria (Gray, Grove & Sutherland, 2017:330; Gray & Grove, 2019:229).This study's target population comprised registered nurses who had undergone training and education under SANC Regulation R683 and who had worked for a minimum of two years in the CTICU in a public academic hospital where the study was conducted. Accessible population refers to the part of the population that the researcher can access (Gray & Grove 2019:229).

1.8.2.3 Sampling and sampling method

Polit and Beck (2017:251 Babbie, 2013:134) define a sample as a sub-set of the population that is chosen for a particular study. Purposive sampling was used to select the participants. Only registered nurses registered under SANC Regulation R683, who were permanently employed, and who had worked in the CTICU for two years were included, as they could provide rich information about the phenomena under study.

Sample criteria included:

- nurses who were willing to participate voluntarily;
- registered nurses who had worked in the CITCU for two years; and
- Registered nurses who had undergone training under SANC Regulation R683.

1.9 Data collection

Data collection refers to the process of acquiring and collecting data from the participants in a study (Grove, Gray and Sutherland, 2017:493). The researcher provided each participant with a brief overview of the study and its purpose. The researcher conducted in-depth individual phenomenological interviews with the participants. The researcher operated the audio-recorder and wrote field notes. The interviews were recorded using an audio-recorder until data saturation was reached. The interviews were conducted for approximately 45 to 60 minutes, and the field notes taken were used to enrich the data (LoBiondo-Wood, 2014:276). The interviews were conducted at a place and time convenient for the participants and after working hours. Audio-recordings were only made accessible to the researcher, the independent coder, and the supervisors. The research

question that was asked is: “How is it for you nursing children post cardiac surgery?” Different communication skills were used during the interviews, such as paraphrasing, clarification, reflection, minimal verbal response, listening, probing, and silence, to gain as much information as possible (Moule & Goodman, 2014:356).

1.9.1 Pilot Study

A pilot study was performed prior to the data collection to identify whether or not there was a need to refine the research question designed for participants. One registered nurse was selected for an in-depth interview. It is important for the researcher to evaluate whether or not the participant understand the question, and to establish if there is any ambiguity in the answers provided. The results of the pilot study indicated that there was no need to change the research question. The registered nurse in the pilot study was included in the main study as the participant already provided the data. The study results were given to the study supervisors who were more experienced in qualitative interviews. The recorded interviews indicated that the researcher was able to conduct interviews. The pilot interview findings are included in the study.

1.10 DATA ANALYSIS

The researcher used the five-step method of data analysis based on the principles of Giorgi’s descriptive phenomenological methods (Broomé, 2011:11-18). In qualitative research, data analysis occurs at the same time as data collection (LoBiondo-Wood & Haber, 2014:102). The researcher organised data into units of meaning so that the data could be processed in manageable portions and transcribed. According to Creswell (2013:116), data should be reduced into themes using Giorgi’s descriptive phenomenological method. Field notes were included to enrich the findings reflected in the registered nurses lived experiences in nursing children post cardiac surgery. A consensus meeting was held with an independent co-coder with expertise in qualitative research to analyse the data and to increase its trustworthiness, and to agree on central themes and sub-themes (Parahoo, 2014:371).

1.11 MEASURES TO ENSURE TRUSTWORTHINESS

Lincoln and Guba (1985:294-299) recommend the following measures for trustworthiness in order to ensure that a study is conducted with rigour: credibility; transferability; dependability; and confirmability.

1.11.1 Credibility

Credibility refers to confidence in the truth of the data and interpretation of the data. It requires the researcher to strive for confidence in the truth of the findings (Polit & Beck, 2017:559). To achieve credibility, the researcher engaged with the participants in a prolonged manner during data collection in order to gain an in-depth understanding of their lived experiences of nursing children post cardiac surgery. The researcher conducted member checks with regard to the accuracy of transcripts, interpretations, and conclusions. To ensure triangulation, the researcher used field notes, in-depth, individual phenomenological interviews to collect data.

1.11.2 Transferability

Transferability refers to the extent to which data can be transferred to another setting. This refers to the probability that the research findings may have meaning in other similar situations (Polit & Beck, 2017:560). The researcher provided in-depth methodology and sufficient data about the lived experiences of registered nurses and provided a literature control. Data saturation was reached at the tenth participant, when no new information emerged from the participants.

1.11.3 Dependability

Dependability refers to the stability of data over time (Polit & Beck, 2017:559). The study is dependable if the research findings are similar if the study were to be repeated. This was achieved by using triangulation, i.e. different methods of data collection was used to achieve dependability. Dependability was ensured by using the independent coder and dependability audit trail, where supervisors examined the research process and the transcriptions of the findings.

1.11.4 Confirmability

Confirmability refers to the data's objectivity and the potential for congruence between two or more independent researchers regarding the data's accuracy, relevance and meaning (Polit & Beck, 2017:560). This was achieved by using an independent coder during the data analysis phase. The independent coder was experienced in qualitative research and thematic coding. To achieve confirmability, an audit trail was maintained by recording all the study activities and ensuring their safe keeping.

1.12 ETHICAL CONSIDERATIONS

In this study, the researcher took appropriate steps to ensure that the participants' rights were not violated. Ethical considerations were in accordance with Dhai and McQuoid-Mason (2011:14) and Houser (2012:47-48) principles. The following ethical considerations were adhered to throughout the study: respect and autonomy; beneficence; non-maleficence; and the principles of justice.

1.12.1 The principles of respect and autonomy

The principles of respect and autonomy are concerned with informed consent and confidentiality. The researcher explained the research study's process to the participants, in order for them to make free, independent and informed choices. Data collection was conducted after the University of Johannesburg Higher Degrees Committee (Appendix I); the University of Johannesburg Research Ethics Committee (Appendix H); the Chief Executive Officer of the hospital under study (Appendix E); the Gauteng Department of Health and a public academic hospital in Gauteng (Appendix D) granted approval for the study. The CTICU's unit manager assisted the researcher to select the participants. The researcher obtained consent from the participants before conducting the in-depth, individual phenomenological interviews. The researcher explained the study's risk and benefits, and the participants were informed regarding their right to withdraw from the research study at any time if they felt uncomfortable.

1.12.2 Beneficence

This principle promotes the interests and wellbeing of others, and ensures that participating in a research study does not harm participants (Dhai & McQuoid-Mason, 2011:174-175). The researcher explained the study's consent form, purpose, the objectives, and all the phases to the registered nurses. Interviews were conducted after

hours at places and times convenient to the participants, to ensure that the interviews do not interfere with their professional duties. The participants will benefit from the recommendations described in this study, in order to guide nurses regarding the care of children post cardiac surgery.

1.12.3 Non-maleficence

The researcher ensured that participants were protected from any harm that might have occurred during the study, especially during data collection. Any possible emotional or psychological harm was assessed and an appropriate referral was made if necessary. As mentioned above, the participants could also withdraw from the study at any time they wished to do so (Dhai & McQuoid-Mason, 2011:174-175).

1.12.4 The principle of justice

The principle of justice includes participants' right to fair treatment and their right to privacy (Dhai & McQuoid-Mason, 2011:175). In this study each registered nurse was fairly treated and given a fair chance to participate in the proposed study and the participants were asked to respond to same research questions. The researcher informed the participants of their rights to withdraw from the study at any time without any penalty. The participants were also given the researcher's contact details. All information that the participants shared was kept confidential, and only accessed by the researcher, the supervisors, and the independent coder who analysed the data.

1.12.5 Informed consent

Informed consent means that the participants were fully informed about the research study and voluntary agreed to participate in the study. Informed consent should be both legally and professionally accepted (Dhai & McQuoid-Mason, 2011:175). The researcher ensured that there was no coercion and a complete description of the research study was explained to the participants. The researcher explained and clearly communicated the consent process to the registered bridging course nurses, and gave them information about the study's purpose and its objectives. When it was clear that they understood the information provided and agreed to participate in the study, the researcher obtained their written consent (Appendix B). The participants were informed that they could also withdraw from the study at any time they wished to do so.

1.13 CONTRIBUTIONS OF THE STUDY

The study's findings lead to the recommendations to support the registered nurses in nursing children post cardiac surgery.

1.14 STUDY OUTLINE

Chapter 1: Overview of the study
Chapter 2: Research design and methods
Chapter 3: Description of findings and literature control
Chapter 4: Recommendations, limitations, and conclusion.

1.15 SUMMARY

In this chapter, the abstract, the study overview, the background, the purpose, and the study rationale were discussed. The purpose of the study was to explore and describe the lived experiences of registered nurses nursing children post cardiac surgery in a public academic hospital in Gauteng. Ethical principles were fully discussed. The methodology and research design related to the study is discussed in Chapter 2.

CHAPTER 2
RESEARCH DESIGN AND METHODS

2.1 INTRODUCTION

Chapter 1 provided an overview of the study. In this chapter research design and methods of the study will be described in-depth, this includes population, sample and sampling methods, data collection, data analysis, trustworthiness and ethical consideration. The methods were used with the purpose of understanding and exploring the registered nurses' lived experiences in nursing children post cardiac surgery.

2.2 RESEARCH DESIGN AND METHODS

2.2.1 Research design

The research design refers to a plan that describes how, when, and where data is to be collected and analysed (Parahoo, 2014:183). Mouton (2015:107) states that the research design is a blueprint of how the research study will be executed to answer the research aims; objectives and questions. Bloomberg and Volpe (2016:151) further state that the research design must correspond with the study's problem statement and rationale. As it assists the researcher to plan and implement the study to achieve the desired study goal. In this study, the researcher intended to use a qualitative, exploratory, descriptive, and contextual research design to explore and describe registered nurses' lived experiences during their nursing of children post cardiac surgery.

2.2.1.1 Qualitative research design

According to Gray et al. (2017:62), qualitative research is a holistic contextual approach allowing participants to describe their lived experiences and to give them meaning. The participants expressed their lived experiences and their feelings in their natural settings (Creswell, 2013:44-45). Qualitative research is a social enquiry during which the participants describe their personal moments, their experiences and their actions in their social environment. Merriam and Tisdell (2016:2) and Holloway and Wheeler (2014: 107) affirm that conducting a qualitative study in a natural setting allows complexities of the subjects' realities unfold. It requires a data collection instrument that is sensitive to underlying meanings during data gathering and interpretation. In this study, the

engagement with the participants allowed the researcher to explore the depth and the richness of the phenomena under study. A qualitative research design was used to understand the lived experiences of registered nurses working in the CTICU in which they have not been trained to operate.

2.2.1.2 Exploratory research design

According to Babbie (2013:90), exploratory research is carried out to discover from participants what is little known about a topic. The researcher explores the topic from all perspectives. With this type of study, little is known about the registered nurses who trained under Regulation R683, and their lived experiences in nursing children post cardiac surgery. In exploratory research, issues of concern, questions to be investigated, and unstructured information are provided by participants in their own environment. In constructivist world view, exploratory research seeks to establish meaning from the participants' perspectives (Parahoo, 2014:56) & (Creswell, 2014:19).

To understand the information, the researcher needed to explore the topic via those registered nurses nursing children post cardiac surgery. This enabled the researcher to understand the registered nurses lived experiences when nursing children post cardiac surgery in a public academic hospital in Gauteng**.**

2.2.1.3 Descriptive research design

According to Polit and Beck (2018:191), descriptive research is a philosophy that describes the human experiences to provide more information. The researcher described the human experiences and behaviours without influencing the study, and this was achieved by describing the registered nurses' real life experiences. When conducting descriptive research the researcher requires facts and poses a question to the participants, e.g. in this study the researcher asked: how is it for you nursing a child post cardiac surgery? The gathered information was recorded in the registered nurses exact words describing their lived experiences of nursing children post cardiac surgery, with the aim of obtaining a dense description of the phenomena and its deeper meaning.

2.2.1.4 Contextual research design

Grove et al. (2013:37, 373) believed that contextual research focuses on specific events in a natural environment, natural environments or settings that are uncontrolled and occur in real life situations. Streubert and Carpenter (2011: 78) state that settings will not be changed in any way during data collection. In this study, the researcher captured the registered nurses' circumstances and experiences while nursing children post cardiac surgery in the CTICU of the public academic hospital.

2.2.2 Research Methods

A phenomenological method is a method of inquiry that seeks to understand the people's everyday lived experiences (Grove, Gray & Sutherland (2017:38). According to Polit and Beck (2017:187), the phenomenological method is enmeshed in people's life experiences, where it strives to bring language and perception of human experiences to the surface during the engagement with the researcher.

This study used a phenomenological method to understand the registered nurses' lived experiences in nursing children post cardiac surgery. To understand these experiences, the researcher asked the questions: What is the essence of the phenomena? What does it mean to the participants? The researcher also sought to describe, explore and analyse the meaning of individuals' lived experiences. This method allowed the researcher to listen attentively to the participants' voices and their words without changing their viewpoints. When listening to the participants' voices, the researcher explored the experiences and was able to make sense of the participants' lived experiences. Creswell and Poth (2018:75) and Marshall and Rossman (2016:17), propose that when describing the participants' lived experiences, the researcher must describe the common meaning of the phenomena or concept under the study.

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The research methods are described hereunder.

The population; target population; sampling and sampling method; data collection; research planning; role of the researcher; research setting; and data analysis.

2.2.2.1 Population

Population refers to a collection of objects, events, or individuals having common characteristics that the researcher is interested in studying (Mouton, 2015:134). The population for the study comprised registered nurses who had been trained under SANC's Regulation R683 and worked in the CTICU in a public academic hospital in Gauteng.

2.2.2.2 Target population

Target population refers to the entire set of individuals who meet the sampling criteria (Grove et al., 2017:330; Gray & Grove, 2019:229). The target population in this study was registered nurses who had been trained under the SANC's Regulation R683 and worked in the CTICU in a public academic hospital for two years. Accessible population refers to the part of the population that the researcher can access (Gray & Grove, 2019:229).

2.2.2.3 Sample and sampling method

A sample is the smaller portion or sub-set of the larger population that is selected for a particular study (Grove & Gray, 2019:229). It consists of selected group of participants from a defined population. A sample needs to represent the group's characteristics, and the researcher needs to listen to the participants' voices to make statements that are trustworthy (Grove & Gray, 2019:229). In this study, the sample refers to registered nurses who had been trained under the SANC's Regulation R683 who had worked in the CTICU for two years in a public academic hospital in Gauteng and who had nursed children post cardiac surgery.

Sampling method refers to a process of selecting participants to represent the entire population or other elements to conduct the study (Grove & Gray, 2019:229). Jooste (2010:303) points out that the sampling method is a process during which participants are selected from the target population to ensure that participants are representative of the total population. The sample size was determined by data saturation, which occurs when no new information emerges and redundancy of collected data occurs (LoBiondo-Wood & Haber 2014:232; Polit & Beck, 2018:200). Qualitative research often requires a small

number of participants in order to achieve a detailed exploration with participants regarding the phenomena under study (Grove & Gray, 2019:229). A non-probability purposive sampling method was followed in this study. A purposive sampling strategy identifies and selects a sample that the researcher deliberately chooses for the study. It also involves a sample of individuals who share particular knowledge and have rich, in-depth experiences of the phenomena under study (Babbie, 2013:134). In this study, a purposive sampling method was used to select the registered nurses. Purposive sampling was used to identify those registered nurses who had lived experiences who had nursed children post cardiac for two years in CTICU in a public academic hospital in Gauteng. Ten participants (eight females and two males) were purposively selected in the CTICU to participate in the study.

The following sample criteria were applied:

- nurses who were voluntarily willing to participate;
- registered nurses who had worked in the CITCU for two years; and
- Registered nurses who had undergone nursing training under the SANC's Regulation R683.

2.2.2.4 Data collection method

Data collection refers to the process of acquiring and collecting data from the study participants (Burns et al., 2013:523). Houser (2012:229) further states that data collection methods are precise and systematic, and are used to answer the research purpose, objectives, and the research questions. In this study, the researcher conducted in-depth, individual phenomenological interviews with the participants. The interviews were recorded using an audio recorder until data saturation was reached. The interviews were conducted for approximately 45 to 60 minutes, and field notes were taken and used to enrich the data. The interviews were conducted after working hours at a place and time convenient for the participants. The audio-recordings were accessible only to the researcher, the independent coder, and the study's supervisors.

a) Planning for data collection

The researcher obtained permission to conduct the study from the University Of Johannesburg Faculty Of Health Sciences' Higher Degrees Committee (Appendix I); The University of Johannesburg Faculty of Health Sciences' Research Ethics Committee (Appendix H); the Chief Executive Officer of the hospital under study (Appendix E); and

the Head of Department of the CTICU at the hospital under study. The unit manager in the CTICU assisted in selecting the participants.

b) Researcher's role

The individual phenomenological interviews were conducted in the CTICU at a time chosen by the participants, which was convenient and during their off duty times, to ensure that interviews did not interfering with their nursing care responsibilities.

The researcher welcomed and introduced herself to the participants as a master's student at the University of Johannesburg who was conducting research as part of the study requirements. Participants were made comfortable and the environment was free from interruptions. The researcher requested an appointment for the interviews, and this includes the venue, the dates, and the times, depending on the participants' availability and preferences.

The research study was explained in detail using the following headings: purpose of the study; the study objectives; the participants' expectations; and the data collection methods. The researcher requested permission to use an audio recorder for data's accuracy collection (see Annexure 4). In order to ensure anonymity and confidentiality, the participants' names were not used on the data collection forms, instead identification numbers were used (Grove et al., 2017:509). The researcher established a positive environment that extended respect, friendliness, and a non-judgemental attitude towards participants. The participants were encouraged to be open and to share their experiences with the researcher. The question asked was "How is it for you to nurse a child post cardiac surgery?"

c) The interview settings

Burns et al. (2017:353) define the setting as the physical place where the research study is conducted. This study was conducted in a CTICU in a public academic hospital in Gauteng. The CTICU under study used competent trained registered nurses, inexperienced registered nurse, used expensive state of the art equipment that was designed to provide quality care to children with complex heart diseases. The interview was conducted in a natural setting where the researcher did not change the environment for the purpose of her study.

The researcher ensured that a well-ventilated room with sufficient lighting was used during the interview. All interruptions were minimised to create an open environment conducive to interview. Tables and chairs were organised in a non-threatening manner for the participants to ensure comfortable engagement.

In this study, the CTICU admitted children born with congenital heart defects and provided care pre and post cardiac surgery. These children's age range from birth to 14 years of age. The surgeries performed ranged from simple to complex procedures. Adjacent to the CTICU is a high care area with nine beds. Children in the high care area were held there in readiness to be discharged to the ward.

d) Interviewer's role

According to Polit and Beck (2017:471), bracketing is a process of identifying and holding any preconceived opinions and beliefs about the phenomena under study. The researcher strived to be non-judgmental and to suspend what they know about the experiences in nursing children post cardiac surgery. All the preconceived ideas and perceptions were bracketed to enhance objectivity. The registered nurses were allowed to provide their lived experiences regarding nursing children post cardiac surgery without any bias. The researcher's knowledge, own experiences, and professional preparation of nursing children post cardiac surgery was put aside to allow the registered nurses lived experiences to emerge.

e) In-depth individual phenomenological interview

An in-depth phenomenological interview is defined as a method of discovering deep and rich knowledge from the participants as a result of the researcher's openness (Gerrish & Lathlean, 2015:212), King & Horrocks, 2010:182). Interviews were centred on verbal communication between the participants and the researcher, where the participants provided information to the researcher. When conducting an in-depth phenomenological individual interviews, the researcher encouraged the participants to talk about their lived experiences by sharing such experiences related to the phenomena. The participants had knowledge and an interest in the problem. The researcher explored the experiences from the participants' perspectives and also gained an understanding of their worldviews.

Qualitative researcher focuses on the depth of an individual's experiences that are important and revealing (Rubin & Rubin, 2012:2). An individual phenomenological interview were conducted to gather information required for the study. Detailed information from the registered nurses' lived experiences in nursing children post cardiac surgery was obtained, with the purpose of eliciting rich data from the registered nurses as they lived it.

The researcher asked open-ended questions to allow the registered nurses to elaborate on the questions and raise new issues. The researcher further asked questions that were not set or fixed so that she could identify meaning from the participants' responses. In-depth phenomenological interviews were conducted with the registered nurses who had nursed children post cardiac surgery. The research question asked was, "How is it for you to nurse children post cardiac surgery?" During in-depth phenomelogical individual interviews, the researcher interacted with the participants.

f) Field notes

According to Gerrish and Lathlean (2015:206) field notes are those notes that the researcher jots down during the interviews regarding their experiences and thoughts when collecting data in order to make theoretical comments. These field notes are used at a later stage to recall important issues, questions, or solutions to solve a problem. The researcher writes the notes as briefly as possible in order to gain insight into what is happening (Streubert and Carpenter, 2011:180, 240), (Marshall & Rossman, 2016:140), (Houser, 2012:4250).The field notes assisted the researcher during the subsequent study analysis. The researcher further jotted a detailed description of the environment, and non-verbal communication observed during data collection and these field notes were reworked into details and inserted into the participants' transcripts (Appendix I).

The fields' notes contained the following:

- key participant statements that were reproduced verbatim;
- details of the participants' age, sex, date, etc.;
- observations of participants' non-verbal behaviours, such as body language, facial expressions, and body posture (shaking hands, shivering, wringing hands);
- observations of verbal behaviours, verbatim text transcripts of conversations, the characteristics of speech, and tone of voice.
- The researcher's views and the feelings at the time of the interview).

h) Reflective notes

Reflective notes refers to the researcher's personal experiences, reflections and progress while in the field (Polit & Beck, 2018:207). This reflective notes are not typically integrated into descriptive notes, but are kept separately as parallel notes and are maintained in a journal as self-memos. In this study the researcher kept the journal wherein jotted down all the experiences, non-verbal cues and postures as form of data.

i) Theoretical notes

Theoretical notes refer to thoughts in terms of how to make sense of what is happening in the field. These notes serve as a starting point for a subsequent analysis (Polit & Beck, 2017:523) .In this study, the researcher made separate notes of what each participant said, and this notes were integrated during data analysis.

j) Interviewing skills

The researcher used the following communication skills to elicit information in order to achieve a holistic understanding from the participants' perspective. These skills facilitated further clarifications if deemed necessary, and included paraphrasing, clarification, reflection, minimal response, encouragement, listening, probing, and silence.

Paraphrasing is a researcher's verbal response stating the participant's response or words in another way to enhance meaning (Scott, 2017:63). In this study the researcher used the technique, e.g. ''*If I hear you well you said…"*

Clarification, as defined by Townsend (2017:1003), is trying to understand any of the participants' vague or incomprehensible statements, e.g. *"Could you tell me more about what it is like for you to nurse a child post cardiac?*

Reflection assists the participants to better understand their feelings and thoughts (Halter & Varcarolis, 2014:150). The researcher also reflects on the non-verbal communication and also on what has been omitted (Townsend, 2017:293), e.g. *"Do you feeling stressed when you are left alone to nurse the baby?"*

Minimal verbal response, according to Halter & Varcarolis, 2014:150, are important, as there is a correlation between the researcher's verbal responses and their gesture. It also indicates that the researcher is listening, e.g. occasionally nodding.

Encouragement guides the participant to pursue their line of thought (Townsend, 2017:630). In the study, the researcher said: *"I find that fascinating, tell me more about your experience nursing children post cardiac surgery".*

Listening is the skill where the researcher attentively hears, and uses verbal and non-verbal signifiers to indicate such, without interrupting the participants (Townsend, 2017:257). In this study, the researcher paid undivided attention to what the participants said, and minimised environmental distractions in order to listen to the participants' communicated responses.

Probing according to de Vos, Strydom, Fouché and Delport, (2010:289-290), is a technique used to encourage participants to provide more information about the issues being discussed. Townsend (2017:155) further states that during probing the researcher uses neutral questions, phrases, sounds, and even gestures to encourage the participants to elaborate on their answers and explain why and how they feel. In this study, the researcher used statements, such as: *"Can you please elaborate…"*, *"What is it like for you to nurse a child post cardiac surgery".*

Silence, as defined by Townsend (2017:152), is eliciting information and observations from the participants without interrupting them while they speaking. If used appropriately, it can be a highly effective technique to get participants to talk more, elaborate on, or clarify particular issues. In this study the researcher used technique of nodding of the head to encourage registered nurses to continue talking without interruptions.

2.3 DATA ANALYSIS

Houser (2012:33) states that data analysis is an analytic technique that is appropriate for the type of data collected and that it will answer the research questions. Corbin and Strauss (2015:58) states that during data analysis the participants' thought processes and codes add meaning to the collected data. Once the data is collected it is organised so that conclusions can be drawn (Burns et al., 2013: 283).

2.3.1 Application of Giorgi's descriptive analysis method

The researcher used the five steps of data analysis according to Giorgio's phenomenological descriptive method (Broome, 2011:11-18). The researcher followed the following five basic steps:

Step one: The researcher assumed a neutral position, allowing the participants to describe their experiences as they lived them. The researcher bracketed own attitudes, knowledge, and experiences, allowing the data to emerge without influence of the researcher's doubt and/or disbelief. The participants' experiences were based on participants' full verbal expression, as described and expressed by them. In this study the

researcher tried to bracket previous experiences and knowledge on nursing children post cardiac surgery in CTICU in order that the participants' voices were understood as those of inexperienced registered nurses while maintaining a phenomenological attitude.

Step two: Data analysis required the researcher to read the entire data to get a sense of a whole without critical reflection on the participants' experiences. The researcher read through the field notes and listened to the audio-recorded, in-depth interviews several times whilst maintaining a phenomenological attitude. In this study the researcher familiarised herself with the data collected, and conducted the interviews; and read the transcripts.

Step three: Data analysis required the researcher to demarcate "meaning of units" so that the data could be dealt with in manageable units. The researcher re-read the field notes and listened to the audio-recorded, in-depth interviews again and again to make sense of the information, and to mark and indicate where meaning shift was sensed. In this study, the researcher repeatedly read the transcripts and tried to identify separate meaning entities. Each transcript was read several times, highlighting individual meaning units each time. Similar meaning units were clustered into themes.

Step four: In data analysis, the researcher transforms meanings of units into sensitive statements. The researcher read the field notes repeatedly and the audio recordings were listened to several times in order to gain an accurate understanding of what was said during the interviews, and to uncover the meaning of units. By extrapolating the meaning of units, the participants' experiences could be described from their own viewpoints. The researcher used independent co-coder who analysed and categorised the data into themes and sub-themes to make sense and meaning of the collected data. An experienced qualitative research specialist analysed the data. Follow-up meetings were convened with the co-coder to reach an agreement on themes and sub-themes that emerged out of the data. In this study, the identified meaning units and themes where reviewed in the preparation for synthesis process.

Step Five: Data was synthesised in the form of a structure. The researcher structured the general ideas of the participants' experiences but did not generalise them. This synthesis involved clustering non-conflicting themes into a descriptive statement. The independent coder was engaged based on her coding specialty and qualifications. Several meetings with supervisors were held to review and refine themes. The identified themes that were finally agreed upon are presented in Chapter Three.

2.4 MEASURES TO ENSURE TRUSTWORTHINESS

Lincoln and Guba (1985:294-299) recommend the following measures for trustworthiness in order to ensure that a study is conducted with rigour: credibility; transferability; dependability; and confirmability. **Table 2.1** summaries how these measures were applied, and thereafter a more detailed description follows:

Strategy	Criteria	Application in the study
Credibility	Prolonged engagement	engagement of participants; ensuring rapport with participants; and maintaining a trusting relationship
	Triangulation	utilising multiple methods for data collection; and individual interviews and field notes
	Interview techniques	ensuring effective interview techniques
	Member-checking	study results were discussed with supervisors, both supporting the findings and against the findings; the study was constantly guided by both of the researcher's supervisors who are academic experts; and the participant's statements were repeatedly summarised during the individual interviews
	Permission from various ethical committees prior to implementation of the study	relevant permission and ethical clearance was received from authorities prior commencing this study
Transferability	Thick description of the study results	included were dense results of the participants' direct statements

	Sample description	description of participants' demographics and characteristics were described in detail
Dependability	Audit trail	all study documents, including data transcripts, study permissions, and supervision
	Thick description of the research method.	research methods, including data collection analysis, were described in detail
	Code and re-coding	the researcher coded the data separately under supervision; the independent coder identified statements; and identified quotes were discussed during supervision meetings for consensus
	Frequent supervision	several supervision meetings were held between the researcher and the study supervisors for guidance
Confirmability	Triangulation	As discussed in credibility.
	Triangulation	As discussed in credibility and dependability

2.4.1 Credibility

Credibility refers to confidence in the truth of the data and the interpretation of the data. It requires the researcher to strive for confidence in the truth of the findings. Credibility is achieved when an accurate description that is identifiable by people who have experienced the phenomenon is provided (Lincoln & Guba, 1985). Credibility reflects the true findings of the registered nurses' experiences in nursing children post cardiac surgery. To establish the study's credibility, the following strategies were enhanced: prolonged engagement; persistent observation; researcher reflexivity; bracketing of researcher bias; and member-checking.

- **Prolonged engagement**

Prolonged engagement means spending sufficient time with the participants during data collection to obtain an in depth understanding of the participants' experiences, and the misinformation and distortion is tested (Polit & Beck, 2017:561). Prolonged engagement in this study related to spending sufficient time with registered nurses to understand their lived experiences in nursing children post cardiac surgery. The researcher spent about 45-90 minutes conducting in-depth individual interviews with the registered nurses. The researcher and the study supervisors continued monitoring the research process. The researcher was immersed with the participants during data collection.

The researcher defined the topic, purpose, and the objectives of the study in detail. The questions asked were well explained and clarified to the participants. Interviews were conducted with the participants until data saturation was reached.

- **Persistent observation**

Persistent observation refers to techniques that the researcher used which focusing on the depth of the experiences of the phenomena being studied (Lincoln & Guba, 1985: 290). To be persistent the researcher had to explore details of the phenomena and to decide what was important and relevant and focused on the most relevant aspects. In this study the researcher listened attentively to the experiences of registered nurses in nursing children post cardiac surgery and noted their non-verbal communication

- **Researcher's reflexivity**

Polit and Beck (2017:561) describe reflexivity as a process of reflection during which the researcher reflected on her social and professional identity as well as their values that could affect data collection and interpretation thereof. The researcher maintained non-authoritative attitude during interviews and made no efforts to recognise and document own biases.

- **Triangulation**

Triangulation is the use of multiple sources to draw conclusions about what constitutes the truth (Lincoln & Guba, 1985:290), (Gerrish & Lathlean, 2015:473).In this study different sources, such as persistent observations, interviews, and field notes, was used to collect data, to ensure that a full and accurate understanding of the phenomena was acquired. The researcher used multiple data sources to increase understanding as well as the study's credibility. The independent coder was involved during data analysis to promote credibility of the research findings.

- **Member-checking**

According to Moule and Goodman (2014:406) and (Houser, 2012:266), member-checking is a method of validating qualitative data's credibility through holding discussions with participants and debriefing them. The interviewer probed the participants' responses by asking questions in order to understand their interview responses. The interviewer returned to participants to ask the same questions in order to verify the data's accuracy. At the end of data collection period, the results were analysed. The participants were given a summary and could add or retract information, and this was done to establish credibility before the literature control was performed. Member-checking was done to ascertain the truthfulness of the registered nurses lived experiences when nursing children post cardiac surgery.

- **Frequent debriefing sessions**

Frequent debriefing sessions were held between the researcher and the supervisors who are more experienced in qualitative studies. Such sessions assisted with the proposed course of action in the research study and were of a supervisory role. The researcher developed her own ideas and interpretations and recognised her own biases and preferences in the research study. Having someone else independently point out the implications of the study is important. This was carried out during data analysis and interpretation. The research study was subjected to co-coding for critical analysis. The independent coder confirmed the conclusions that were supported during data collection.

2.4.2 Transferability

Transferability is achieved when the same findings can be applied in other contexts or to other participants. According to Lincoln and Guba (1985:290), this is regarded as the alternative to external validity or generalisability. The researcher can always refer back to the original research. The researcher can transfer information from a sample to a bigger group to generalise. In this study, the sample was registered nurse's lived experiences when nursing children post cardiac surgery in an academic hospital in Gauteng. In this study, the findings and the results were not generalised based on the sample size.

- **Nominated sample**

The nominated sample was a purposeful sample of only registered nurses registered with SANC (bridging courses) who had two years' experience in nursing children post cardiac surgery. The registered nurses were permanently employed in CTICU in the hospital under study. According to phenomenology, each individual history is a dimension of the

present and of past experiences. Even when the participant is describing a past experience, remembered information is being gathered in the present at the time of the interview (LoBiondo-Wood & Haber, 2014:114).

- **Thick description**

The researcher gathered extensive and sufficient information as transferability depends on similarities, and therefore information had to be descriptive in nature (Polit & Beck, 2017:562). In this study the researcher gathered direct statements of the registered nurses lived experiences nursing children post cardiac surgery.

- **Dense description**

A dense description involves a research method in which the researcher gives a clear description of the participants under study. The researcher provided a dense and thick description of methodology used in the study. The participants' direct statements supported the results and interpretations.

2.4.3 Dependability

Dependability refers to the stability of data over time and conditions. The study is dependable if the research findings are similar in a repeat of the study. Dependability was achieved by triangulation, an audit trail, a dense description of the research methods, a stepwise replication, peer examination, and code and re-code procedures (Lincoln & Guba, 1985:316-318; Polit & Beck, 2017:559). In this study dependability was ensured by using independent coder, the supervision process, and from examination of the research process and findings.

- **Triangulation**

Triangulation is the use of multiple references and sources to draw conclusions about what constitutes the truth (Lincoln & Guba, 1985:290). In this study follow-up interviews were held to verify the data. The independent co-coder was involved during the data analysis to promote the research findings.

- **Audit trail**

An audit trail is referred as a thorough and conscientious reflection and recording of the decisions that were made, procedures that were designed, and questions that were raised during data analysis (Houser, 2012:228). An audit trail is the researcher's recorded track that provides an extensive description of developments and the logistics of the research processes. In this study the researcher kept field notes and the recorded interviews under

lock and key. Only the researcher, the supervisors and the independent co-coder had access to the information.

2.4.4 Confirmability

Polit and Beck (2017:560) refer to confirmability as the data's objectivity and the potential for congruence between two or more independent researchers regarding data accuracy, its relevancy, and meaning. This was achieved by using an independent coder during the data analysis phase (Polit & Beck, 2017:560). In this study, the methodology was discussed together with the participants' profiles and their context. Data was transcribed verbatim. Themes and sub-themes emerged from the descriptions provided. Member-checking was done to ensure that the descriptions were truthful and not what the researcher perceived them to be. Experts with extensive knowledge of qualitative research were used in this study. Both supervisors are experts in the critical care and research. According to Creswell (2014:202) an independent coder who is not familiar with the research topic can assist in objective assessment and assist in the study's conclusions.

2.5 ETHICAL CONSIDERATIONS

In the current study, the researcher took appropriate steps to ensure that the participants' rights were not violated. Ethical consideration were in accordance with the principles as set out by Dhai and McQuiod-Mason (2011:14) and Houser (2012:47-48), which were described fully in Chapter 1.The following ethical considerations were adhered to throughout the study: autonomy; beneficence; non-maleficence; and the principle of justice. The researcher obtained permission to conduct the study from the University of Johannesburg Faculty of Health Sciences' Higher Degree Committee (Appendix K), the University of Johannesburg Faculty of Health Sciences' Research Ethics Committee (Appendix J), the Chief Executive Officer of the academic hospital under study (Appendix D), and the Head of Department of CTICU (Appendix F), and the unit manager in the CTICU assisted in selecting the participants.

2.5.1 Respect for autonomy

The principle of respect and autonomy takes self-determination into consideration and involves informed consent and respects confidentiality (Dhai &McQuoid-Mason; 2011:175-176). In this study, the researcher related the truth of the study to the

participants in order for them to consent to it and make informed choices. The participants were also informed of their right to withdraw from the study at any time, without fear or prejudice. The researcher started collecting data after the approval from the University of Johannesburg (UJ's) Higher Degree Committee (Appendix K) and the University of Johannesburg (UJ's) Research Ethics Committee (Appendix J) were obtained.

2.5.2 Beneficence

This principle promotes the interests and the well-being of others, and ensured that participating in the research study did not harm participants (Dhai & McQuoid-Mason, 2011:175-176). The researcher explained the consent form, the purpose, the objectives, and other aspect to the registered nurses. Interviews were after working hours at a place and time that were convenient to the participants.

2.5.3 Non-maleficence

According to Dhai & McQuoid-Mason (2011:175-176) non-maleficence refers to an act of inflicting or non-harming with an aim of beneficial outcome. The researcher ensured that participants were protected from any harm that might have occurred during the proposed study, especially during data collection. In this study any possible emotional or psychological harm was assessed and an appropriate referral would have been made if necessary. As mentioned above, the participants were also informed that they could withdraw from the study at any time they wished.

2.5.4 The principle of justice

The principle of justice was included, participants' rights to fair treatment and their right to privacy (Dhai & McQuoid-Mason, 2011:175-176). Each registered nurse was fairly treated and given a chance to participate in the proposed study. The participants that met the requirements to participate in the study were contacted and informed of their rights to withdraw at any time without penalty. The researcher also gave contact details. All information shared by the participants was restricted to the researcher, supervisors, and the independent coder who analysed the information.

2.6 SUMMARY

In this chapter the research design was discussed. Qualitative, descriptive, contextual, and phenomenological methods were discussed. The process of data collection and data analysis was presented in detail. The analysed data and the research findings are discussed in Chapter 3.

CHAPTER 3
DESCRIPTION OF FINDINGS

3.1 INTRODUCTION

In Chapter 2 the researcher focused on the research designs and the methods used in the study. Chapter 3 describes the study's findings from the participant's perspectives, from the in-depth phenomenological interviews regarding the registered nurses' lived experiences in nursing children post cardiac surgery in the CTICU of a public academic hospital in Gauteng. The participants were purposively selected for the research study to obtain rich data to address the research question. The registered nurses described their challenges nursing children post cardiac surgery. All participants were asked a central research question. "What is it like to nurse children post cardiac surgery and what can be done to support these nurses?'' The interviews were conducted in English, and lasted for 45 to 60 minutes. The researcher conducted all interviews to ensure consistency and data was transcribed verbatim. The data was analysed according Giorgio's descriptive phenomenological method. The research findings were described and integrated into relevant national and international literature.

3.2 PARTICIPANTS' DEMOGRAPHIC PROFILES

The sample for the research study consisted of registered nurses who had completed their training under SANC Regulation R683's bridging course and who worked in the CTICU in a public academic hospital in Gauteng, and who had two years' experience of nursing children post cardiac surgery. Ten registered nurses, eight of whom were females and two who were males willingly participated in the study. One of the participants was selected as pilot study subject and the information gleaned from the interview was in the research findings and the research question was not changed. The participants' ages ranged between thirty to forty-five years.

A pilot study was conducted to ascertain whether or not the research question needed to be adjusted, and to ensure that participants understood the research question. This enabled registered nurses to describe their lived experiences nursing children post cardiac surgery.

The central theme that emerged from the findings was: registered nurses experience lack of knowledge in nursing children post cardiac surgery, resulting in psychological challenges due to an unsupportive working environment.

From the data analysis the researcher identified the following themes and sub-themes, as indicated in Table 3.1 below:

registered nurses experiences lack of knowledge nursing children post cardiac surgery as a theme and the difficulty in interpreting changes in the child's condition/symptoms, difficulty in understanding the child's condition, and the difficulty in understanding the child's treatment modalities as sub-themes;

psychological challenges experienced by registered nurses nursing children post cardiac surgery as a theme, and fear, anxiety, and stress as sub-themes; and experiences of registered nurses regarding provision of a supportive working environment that is conducive to learning as a theme, and registered nurses' experiences of support from doctors and nurses as a sub-theme.

Key for the used codes:

P= Participant

1-10= Code Number

M= Male

F= Female

3.3 FINDINGS

As indicated in Table 3.1 below the themes and sub-themes are discussed along with the relevant verbatim statements from the participants and research findings were described and integrated into relevant national and international literature

Table 3.1: Central theme, themes, and sub-themes that emerged from the interviews

Central Theme: Registered nurses experience a lack of knowledge in nursing children post cardiac surgery, resulting in psychological challenges due to an unsupportive working environment	
Theme	**Sub-Theme**
3.3.1 Registered nurses experience a lack of knowledge nursing children post cardiac surgery	3.3.1.1 difficulty in interpreting changes in the child's condition/symptoms; 3.3.1.2 difficulty in understanding the child's condition 3.3.1.3 difficulty in understanding the child's treatment modalities
3.3.2 Psychological challenges experienced by registered nurses nursing children post cardiac surgery	3.3.2.1 fear; 3.3.2.2 anxiety; and 3.2.2.3 stress
3.3.3 Experiences of registered nurses regarding the provision of a supportive working environment that is conducive to learning	3.3.3.1 registered nurses experiences regarding support from doctors and colleagues

3.3.1 Theme 1: Registered nurses experience a lack of knowledge in nursing children post cardiac surgery

This theme is discussed under the following sub-themes: difficulty in interpreting changes in the child's condition/symptoms, difficulty in understanding the child's conditions; and difficulty in understanding the child's treatment modalities.

Participants made the following statements:

"*Yes I can see the blood pressure is dropping but I don't understand it is difficult ... why ... I try to adjust ... to carry and think as fast as I can – I am trying my best"* **P2F** stammering.

"I would like to think that my training as a bridging course nurse was sufficient when it comes to adults, however I do not think that this knowledge applies to children; these children are unique" **P1M** shaking his head.

Another participant stated:

''Phew (expressing distress) it is difficult, you don't understand ... I do not want to lie, with my little information from school. During [the] bridging course we did not learn about cardiac babies nor nursing them in the intensive care, not even their complex hearts" **P3F** wringing her hands.

Another participant added:

"At first ... it is difficult because these babies are very sick, as we did not get much training at school on nursing children post cardiac surgery" **P7M** silence.

Another participant stated:

"*I looked at the baby and she was bleeding, I was scared to check and look where she was bleeding from. Err... it looks like was bleeding from everywhere*" ... *Phew, this is difficult and scary ... I do not know what I am doing ... things have changed, the baby is critically ill. My heart is beating fast; it is difficult to look after this baby"* **P3F** annoyed.

Webster (2016:44) defines knowledge as the information gained from being educated, therefore, knowledge is valuable and is required for personal and professional development of the registered nurses in the CTICU.

Education is the most powerful weapon, which you can use to change the world. The power of education extends beyond the developmental skills, and is required for economic success. It could also contribute to nation- building and reconciliation (Mandela, 1994).

According to the Nursing Act, 2005 (Act no. 33 of 2005), registered nurses are required to be knowledgeable in theory and clinical practice to provide quality care in accumulating knowledge they should be empowered to practice efficiently and effectively, and become competent nurse practitioners utilising the nursing process. The nursing process entails assessing, planning, implementing, and evaluating. However, according to the SANC Regulation Relating to the Minimum Requirements for a Bridging Course for Enrolled Nurses Leading to Registration as a General Nurse R683, during the two years training the registered nurses receive only basic knowledge in anatomy and physiology and general nursing sciences, resulting in a lack of knowledge regarding the nursing of children post cardiac surgery in the CTICUs.

Sönmez and Yildirim (2016:104,107) argue that when inexperienced registered nurses are working in the ICU, they encounter difficulties in applying their knowledge and skills due to increased work load, decreased clinical skills, and a lack of effective communications skills. When registered nurses experience difficulties in understanding the diseases and the surgeries that were performed on the children in their care, they feel incompetent and powerless when receiving children post-surgery. They experienced a lack of knowledge on the diseases and surgeries that were performed on the patients because they are lacking the appropriate anatomy, physiology, and pathophysiology knowledge provided during training. Sufficient training and attending seminars would enhance their knowledge and skills, and integrate their theory and practice.

Jahanshahi, Sarabi, Borhani, Nasiri, and Anboohi (2017:699) & Asah (2013: 500) state that registered nurses require theoretical and clinical knowledge to direct the nursing care of critically ill patients. It is of utmost importance that registered nurses have advanced knowledge of technology utilised during patient care in order to provide quality nursing care. The acquisition of new knowledge through information technology, encourage registered nurses to demonstrate elements of empowerment, creativity and innovation, as well as the ability to analyse and make clinical judgements. Providing registered nurses

with creativity and innovative solutions enables them to provide quality nursing care in a CTICU. Rendering quality nursing care decreases the mortality rate in critical care units. However, due to the shortage of trained personnel, the inexperienced nurses are assigned to look after critically ill children, which is challenging.

Coyne and Needham (2012:107) and Hansen-Salie and Martin (2014:2) argue that inexperienced registered nurses are assigned to work in ICUs to provide them with clinical experience that is necessary to integrate their theory and practice so that they can provide optimal care to their patients. Inexperienced registered nurses receive minimal exposure in ICUs due to their lack of knowledge, and therefore they encounter difficulties in nursing children holistically and making rational, logical decisions. Working in specialised ICUs will enhance the registered nurses' understanding of the challenges they face and they will be able to apply, their knowledge, assess the situation, communicate effectively, and develop reasoning skills. Understanding the procedures and working with unique patient will provide registered nurses with a range of different skills. Using skills from different perspectives will enable them to excel in communicating with patients and doctors. Working in an ICU and nursing patients on a one-on-one basis will benefit inexperienced registered nurses as they will have the opportunity to apply theory and practis under the supervision of a trained ICU registered nurse, and they can refine their learning objectives, receive guidance, and demonstrate their abilities to evaluate the patients' conditions post cardiac surgery.

Lee, Kim, Meong, and Seo (2017:518) affirm that registered nurses need to acquire specific paediatric knowledge and clinical skills to understand the patient's condition in order to render quality and efficient nursing care. Knowledge of clinical skills, current diseases and management post cardiac surgery equips nurses with advanced skills and interdisciplinary knowledge. Lee et al. (2017:518) and Coyne and Needham (2012:107) agree that holistic care involves knowing the patient, the family, and the child's growth and development.

Twycross, Smeland, Lundeberg, and Rustoen (2018:9) agree that inexperienced registered nurses have a knowledge deficit in assessing and managing conditions in children post cardiac surgery. Due to their lack of knowledge, they are unable to recognise problems on the monitors and they have difficulty in assessing whether or not children are experiencing pain post cardiac surgery. Therefore, they have difficulty in

communicating the information to the doctors and the ICU trained registered nurses. They should continue to work with various health care professionals and team members.

Falk, Hult, Hammer, Hopwood, and Dahlgren (2018:2, 6) agree that inexperienced registered nurses need to acquire special inter-professional knowledge, which is vital in the ICU in order to provide safe and effective health care. Sharing this knowledge enhance collaborative care in the ICU between registered nurses, doctors, and inexperienced nurses. The inexperienced registered nurses must be provided with opportunities to work in the clinical areas where they can assume responsibilities and be accountable for quality patient care on daily basis. They should maintain a working relationship with various health care professionals to be accepted as team members.

Rose (2011: 7, 8) emphasis that inter-professional knowledge is essential in providing registered nurses with knowledge pre and post-operatively in order to prevent complications, and to enhance collaborative care. By empowering nurses with the relevant information and knowledge, the registered nurses develop problem-solving and decision making principles. Skills and knowledge enable registered nurses to anticipate complications and to treat their patients comprehensively. Specific measures and knowledge, such as collaborative care and treatment on how to deal with children with congenital heart diseases is imperative in CTICU.

When asked about what could be done to improve knowledge when nursing children post cardiac surgery, the participants stated that they needed more in-service training regarding cardiac surgeries, especially for children, and they stated that knowledge and skills would optimise patient care and safety.

One participant stated:

"Apart from our bridging course training we should have proper in-service training relating to the conditions. They cannot cover them all, so maybe they can cover common conditions and common treatment modalities. I think they should teach us that. In-service training would help us a lot, because in-service training can be done on the new policies and grievance procedures, and maybe people can come in and teach us how to operate on pumps" **P1M**.

Another participant said*:*

"Personally I think we should have a lot of in-service training in the unit, maybe every month; monthly protocols, conferences and workshops" P3F smiling.

Chaghari, Safari, Ebadi, and Ameryoun (2017: 498) argue that in-service training should be instituted in educational institutions, as it is essential that the registered nurses are empowered with practical skills, clinical performance, and problem-solving skills in the unit regarding care of children post cardiac surgery. Bluestone, Johnson, Fullerton, Carr, Alderman, and BonTempo (2013: 24) state that in-service training is important because it improves competency and knowledge, and facilitates the integration of theory and practice. Letlape, Koen, Coetzee, and Koen (2014:7) agree that ongoing in-service training improves nurses' social, physical, and psychological advantages, encouraging them to provide comprehensive care. The authors indicate that in-service training equips the registered nurses with essential information and activities to refine their skills when nursing children post cardiac surgery. Registered nurses benefit by having more knowledge and skills as a team member, and their other shortcomings are readily rectified to ensure competency. Facilitation of in-service training provides inexperienced registered nurses with new innovations that are implemented in clinical practice to minimize litigations and to manage risks in children post cardiac surgery.

According to SANC Regulation R2598, Chapter 2 Relating to Scope of Practice of Person Who are Registered or Enrolled under the Nursing Act 1978, a registered nurse must be a able to perform scientifically based procedures to a patient under her care, meaning that inexperienced registered nurses lacked the knowledge and skills to develop scientifically-based procedures post cardiac surgery. Therefore, they require in-service training and education regarding the nursing process necessary for care of children post cardiac.

According to the Revised Bloom Taxonomy (Bloom, 1956) three key areas have been identified, namely the cognitive, affective, and psychomotor areas, which are also known as the learning domains. The cognitive domain is associated with knowledge and intellectual abilities, and includes the gathering of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities. The cognitive domain is subdivided into six categories, which include remembering, understanding, applying, analysing, evaluating, and creating. The area that is concerned with understanding can

be further described as the comprehension of meaning, translating of instructions, and understanding problems. Working in the ICU requires registered nurses to possess high order thinking skills; these skills are necessary for registered nurses practising in the ICU since it enables them to interpret the changes in patients' conditions, and to demonstrate the ability to work independently. In this study, the inexperienced registered nurses functioned under the lower cognitive thinking skills.

Essani and Alli (2011:4, 60) affirm that child care is an essential speciality. There are some standards and skills that registered nurses working with children are expected to render in order to provide quality care. The experienced registered nurses must have specialised skills, a wide range of knowledge and the understanding of development, and understand the diseases process in children. Inexperienced registered nurses encountered challenges in providing high quality nursing care in the infant and toddler age group based on their developmental care and appropriate assessment. As a result, this lack of knowledge may cause stress in nurses and thus impact on the quality of care that they are able to render in a variety of ways, such as feelings of depression, psychological distress, the burden of not having sufficient knowledge and feeling pressurised by doctors and colleagues.

The registered nurses have a limited time in which to upgrade their knowledge and skills as a result of the current advancements in technology. This results in possible gaps in the integration of knowledge into practice, which require that they rational and knowledgeable, and be able to provide collaborative care on daily basis. Registered nurses that are digitally literate safely and effectively use the monitors in the ICU to minimise errors. Technical and professional knowledge improves their self-confidence, self-respect, and self-worth.

Registered nurses should be allocated sufficient time to apply the theory that they learned adequately, and be prepared to carry out clinical skills competently and efficiently. ICU trained registered nurses and trained paediatric ICU registered nurses must display the knowledge and skills required to promote theory-practice integration required in nursing education, which will in turn optimises high standards of patient care.

Denosa (2015:4) emphasis that registered nurses are a vital force for providing quality care in difficult times by ensuring that the system is cost effective and care effective. The nurse staffing level and working environment have direct implications for patient care.

However, supervision and one-on-one tuition helps to develop theoretical knowledge, practical skills, and other competence essential in a CTICU.
Alfonsson, Spännargård, Parling Andersson and Lundgren (2017:1) state that the lack of supervision can have adverse implications when nurses are disinterested and if it fails to contribute to their professional growth. Ellis, Hanus, Ayala, Swords, and Siembor (2013:3) argue that the effective supervision of nursing activities post cardiac surgery promotes mutual trust and respect, and it also ensure patient safety and effective communication.

The researcher's opinion is that the registered nurses' lack of knowledge, skills and experience has negative impact on their ability to nurse children post cardiac surgery. Therefore, they require an orientation programme and in-service training on cardiac abnormalities, conditions, and surgeries performed in CTICUs. These requisites can be achieved by attending conferences, workshops, self-development programmes, and by improving their inter-professional collaborative competencies.

3.3.1.1 Sub-theme: Difficulty in interpreting changes in a child's condition/symptoms
During the interviews the participants stated that they experienced difficulty in assessing changes in the child's condition. They felt incompetent and threatened during the first four hours post-surgery, because they felt unable to interpret the vital signs and the changes that occur in the children post cardiac surgery.
This was expressed as follows:
"*Some of them are still blue, despite surgery being done. This makes me so frustrated because now I do not understand the logic. To my understanding, they went for surgery, to correct the blue or the cyanosis or the lesion"* **P7M** appears angry.

Another participant stated:
"*I cannot think straight. I am unable to tell what actually happened to the baby. I did not do anything to the baby. I remember the blood pressure was on the low side ... even the oxygen saturation ... that is all ... I mean that is all ... I think I am not sure ... I am trying my best to watch the baby closely"* **P2F** appeared scared.

Another participant said:
"*You have to ... mm ... to look, and at the sedations side, so that you have to keep them flat ... because ... you know when they are flat... their oxygen demand is decreased, or*

I'm not sure if I will be delivering enough oxygen ... I'm not sure how to interpret the arterial gas" **P10F** appeared distressed.

According to Bloom's Revised Taxonomy (Bloom, 1956), in line with the lower level of thinking, the registered nurses need to remember, understand the concepts, or explain ideas when teaching and learning has taken place, they also need to interpret the concepts and explain them in their own words. Inexperienced registered nurses had difficulty in interpreting basic ICU concepts such as changing vital signs on the monitors, which leads to changes in the children's conditions. They cannot describe the interventions to be rendered.

According to the SANC's Scope of Practice (R2598), registered nurses should be able to assess, document, and interpret vital signs accurately. According to South African Nursing Council Regulation (R387) the failure to assess, interpret, and document vital signs is considered negligence.

Kvande, Delmar, Lykkeslet, and Storli (2016:12) emphasise that registered nurses are important health team members, they spend the most of the time at the patients' bedsides, and therefore it is imperative that they able to interpret signs that may indicate a change in a patient's condition because early recognition prevents deterioration. Kvande et al. (2016:16) states that registered nurses should continuously assess, plan, implement, and evaluate nursing measures, and be organised in their nursing care by using all five senses when providing care at the patient's bedside in order to observe the patient closely and to recognise when a patient's condition deteriorates. An inexperienced registered nurses inability to use their five senses in ICU is worrying, in that patient's condition could deteriorate without being detected.

Applying these cognitive skills and the five senses could save a child's life, thus indicating that registered nurses with additional skills and experience are better equipped to care for sick children and to identify changes in their conditions (Karim, 2017:252). Participants experienced difficulty in identifying and interpreting deteriorating events. Registered nurses expressed that sharing information and communication with other team members encourages prompt responses and helps teams to execute tasks efficiently and collaboratively. Sharing their perspectives with other professionals positively impacts on interpreting the child's condition. However, the fast pace in the ICU and the many

distractions, complex technology used, sometimes affect registered nurse's confidence and intellectual autonomy. Karim (2017:253) affirms that post-surgery registered nurses are the most important health care providers that will enhance nursing care, and hence, they should be skilled with the requisite knowledge to identify and manage adverse events to decrease mortality. However, registered nurses are also responsible for their personal development.

Hart, Spiva, Dolly, Lang-Coleman, and Prince-William (2016:3242) agree that registered nurses need to be sufficiently skilled in recognising and identifying a child that is deteriorating post cardiac surgery to decrease the patient's mortality and morbidity rate. Registered nurses experienced difficulties in recognising the early warning signs of deteriorating patients, which is due to the lack of support and team work. Interdisciplinary support must be exercised post cardiac surgery, as children's conditions change so rapidly at times with only subtle signs to indicate such change. Experienced registered nurses need to be empowered with essential ICU skills such as emergency preparedness, maintaining a patient's airway and performing resuscitation, in order to render quality care post cardiac surgery.

O'Kane (2016:50) states that registered nurses experience difficulties in implementing competency-based practice. Record keeping in an ICU is another problem for inexperienced registered nurses, and therefore nurses need to be taught how to record and interpret ICU charts appropriately. Record keeping increases the strain on shift leaders when many inexperienced registered nurses are allocated to the unit, as this increases the work load for ICU trained nurses. ICU trained registered nurses and trained paediatric ICU registered nurses must support and mentor inexperienced registered nurses and create an enabling learning opportunities for them. It was recommended that a rotational ward programme to be provided to inexperienced registered nurses in order to give them exposure to the ICU environment.

When asked what could be done to improve relationships when nursing children post cardiac surgery, the participants stated that they needed to be involved during the ward rounds and be exposed to procedures, buddy system and mentoring should be encouraged, as this would enhance registered nurses developing an inquiring mind, open-mindedness, and lifelong learning.

One participant said:

"Nurses should be involved during the ward rounds to improve relationships with other health care professionals" **P6F** *Smiling*

Another participant said:

"*Doctors rounds ... especially in the mornings are definitely effective"* **P7M** (giggling).

Another participant added:

"Engagement with doctors is imperative, especially during the ward rounds, as more learning and education opportunities occur" **P9F.**

According to Bruce, Klopper, and Mellish (2013:270), it is vital that registered nurses participate in such ward rounds, as they provide professional input during this time, are able to monitor the patients' progress, and offer suggestions on how to improve patients' outcomes. Therefore, ward rounds are essential teaching and information sharing opportunities during shift handover. During ward rounds, the patients' history, clinical presentation, treatment modalities, and laboratory results enrich learning opportunities for inexperienced registered nurses. The skills acquired from these interactions enable them to value the expertise required to coordinate and manage their nursing activities post cardiac surgery.

Nelson, Provonost, and Huff (2018:517-519) state that ward rounds create teaching opportunities for the multidisciplinary team members when there is formal discussion and co-ordination of patient care activities. Teamwork is essential because people pay attention to details, and registered nurses can participate and ask questions to improve their communication skills and increase their confidence. During ward rounds, there is specialist engagement that renders safety and quality care to patients, thus the registered nurses gain knowledge and collaborate with other team members. The shared knowledge and skills enhance the registered nurses' ability to interpret their patients' conditions.

Pervesi, Yearwood, Belluci, Sraneiri, Bursten, May, and Wolff (2018:2) agree that during ward rounds, a group of health care practitioners unite and deliberately discuss critical issues as a collaborative entity. They further state that during ward rounds the registered nurses learn new clinical skills, leading to decrease in medical errors. When the registered

nurses use these skills efficiently, they improve their ability to interpret the patient's condition and enhance cooperation, teamwork, and interprofessional skills.

Gray and Enright (2018:1011, 1014) argue that ward rounds are educational as they provide learning opportunities for registered nurses. These rounds need to place the inexperienced registered nurses at the centre of educational opportunities. Teaching and learning must be balanced. Sometimes a complex ICU environment makes it difficult to impart knowledge and skills to inexperienced registered nurses.

The researcher believes that the registered nurses experience difficulty in interpreting the children's conditions post cardiac surgery, and thus need to be involved during ward rounds, collaborative care, and team decision-making in order to enhance their clinical competencies.

3.3.1.2 Sub-theme: Difficulty in understanding children's conditions and treatment

Nursing children post cardiac surgery involves a thorough understanding of children's anatomy, physiology, surgical repair techniques, and clinical conditions. Thus, it is imperative that the registered nurses are skilled and specialised when nursing children post cardiac surgery. Participants found it difficult to understand the children's conditions and treatment due to inadequate content being provided during their training period. Participants highlighted the following concerns:

One participant said:

"*Sometimes it is so difficult for me. When these babies come out of theatre they are so critically ill and it becomes so challenging ... I really don't understand what is happening"* **P3F** .

Another participant said:

"*So you ask the operating doctor why the child is on this thing. They don't answer you the way you want, so you continue being unsure of why this child has this thing. That is the hardest part of nursing a child whose operation nature you do not understand*" **P1M.**

Another participant said:

"*Why do they come back still blue? I do not understand, I will try and change the saturation probe to different limb sites so as to clear my mind because of the confusion in me* (sighs)

like is the baby ok?"... *I remember my first experience ... I was so angry with myself, the baby went for repair of tetralogy of fallots, all his limbs ... I mean fingers were blue, very black. I can say his oxygen saturation was very low, accepted. When the lesion was corrected he still had those tints of black fingers... why? I was so frustrated I do not know at times".* **P7M**

According to revised Bloom taxonomy (1956), three key learning domains that have been identified are the cognitive, affective, and psychomotor domains. The cognitive domain is associated with knowledge and intellectual abilities, and includes the gathering of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities. The cognitive domain is subdivided into six categories, namely remembering, understanding, applying, analysing, evaluating, and creating. The category concerned with understanding can be further described as the comprehension of meaning translation and interpolation of instructions and problems.

In this study, the inexperienced registered nurses lacked understanding of children post cardiac surgery due to having only received basic training.

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Petersen, Rasmussen, and Rydah-Hansen (2017:8-9) state that in the clinical area, a patient's condition changes quickly, especially post operatively. The Early Warning Score system is a device that grades vital signs according to colour and indicates what action to be taken by inexperienced registered nurses. These are rated between zero to three total score (zero meaning no action, and three being critical action). Utilising this scoring system could empower registered nurses to identify a patient's condition and escalate treatment and report the patient's condition to the doctor. The scale could assist registered nurses to develop communication skills and knowledge to deal with emergency interventions in providing quality care. In clinical practice the registered nurses experience difficulty in identifying subtle changes in a patient's condition, and therefore they require the necessary training to ensure appropriate responses to a patient's condition. They need additional knowledge in terms of the actions and competencies required to deal with deviations of vital signs from a fixed normal range, because they lack the requisite knowledge to grasp deteriorating conditions. The lack of professional knowledge and support makes them feel incompetent, and as a result they lack confidence in handling patients without assistance.

Bayes and Ewens (2016:599) agree that registered nurses need clinical exposure in an ICU environment in order to understand the patients' condition. Without the intervention of specific nursing care and understanding, the registered nurses working in an ICU are likely to provide inadequate care. It is expected that registered nurses in ICU should be trained and be able work within their scope of practice to understand the conditions and provide quality care. They should receive training according to their nursing curriculum from ICU trained registered nurses that will guide, teach, and supervise them to gain an understanding of different conditions and surgeries performed on children post cardiac surgery. Receiving those children post cardiac surgery with deficits in their knowledge and understanding of conditions, can lead to litigations, as the inexperienced registered nurses don't know what is happening to the sick children in their care (Bayes & Ewens, 2016:599).

When asked what could be done to improve their understanding of children's conditions and treatment, participants stated that they needed a clinical facilitator/shift leaders to provide teaching, support and guidance to enhance learning and to enrich their knowledge and skills when rendering nursing care to children post cardiac surgery.

Another participant said:

"A lot of times we become unsettled when there is no shift leader. Sometimes the shift leaders don't trust each other. They must learn to share the duties for effective nursing care" **P8F.**

Another participant said:

"The clinical facilitator should spend more time with the inexperienced nurses" **P2F** raised her voice in despair.

Sweeney (2017:48) states that leaders in the clinical field should model leadership skills of compassion, encouragement, mentoring, and support to young nurses, which will promote high quality care. Jun, Kovner, and Stimpfel (2016:66) affirms that shift leaders need to be aware of the registered nurses needs to ensure that learning and education is improved. To increase their knowledge in the clinical practice, the experienced registered nurses and shift leaders must provide guidance and share their skills to ensure that the inexperienced registered nurses achieve their educational goals. The shift leaders should

support the registered nurses by providing continuous communication to provide quality care.

Elliot, Bergley, Sheaf, and Higgins (2016:28) agree that leadership in the form of a clinical facilitator needs to be supported for professional development, in order to facilitate appropriate clinical skills. The clinical facilitator provide ICU skills that will give nurses the ability to intervene, support, identify changing conditions, and be involved in clinical decision making. The researcher supports the fact that registered nurses encounter difficulty in understanding the child's condition, therefore they need the support of a clinical facilitator or shift leader to guide them regarding critical aspects of care in the ICU.

Laschinger, Cummings, Leiter, Wong, MacPhee, Ritchier,Wolff, Regan, Rheaume-Bruning, Jeffs, Young-Ritchie, Grinspin, Gurnham, Foster, Huckstep, Ruffolo, Shamian, Burkoski, Wood and Read (2016:93) agree that when registered nurses work with shift leaders and mentors, working conditions are extremely conducive to learning and this increases the registered nurses' job satisfaction and decreases the turnover of registered nurses. The authors further emphasise that when authentic leadership and the work environment are well structured, registered nurses gain experience, and render their duties effectively and increase their expectations of the practice environment. The most important aspect is that the shift leader empowers registered nurses, and promotes respect when regular meetings are held to improve working relationships and to promote interaction amongst the health team members. When shift leaders share information in a transparent manner with group members, trusting relationships and confidence in the unit is enhanced.

3.3.1.3 Sub-theme: Difficulty in understanding the treatment modalities

According to the Concise Oxford Dictionary of Current English (Thompson, 1995:1437), treatment is the application of medication, surgery, or interventions to a patient; and the manner of handling a person or a thing.

Registered nurses experience difficulties in understanding and commencing inotropes, calculating medications, and surgical interventions.

One participant stated:

"Usually when they start to have the symptoms, sometimes it scares you a bit. Especially if it happens immediately after you have given a certain medication" **P1M** voice trembling.

Another participant said:

''When you give medication to them, you need to administer slowly, as they react quickly. They are not like other sick babies ...I mean the ones that suffered burns or who have been involved in car accidents. When you look after them they complicate quickly"
P2F really worried.

Another participant echoed these sentiments:

"*Sometimes we nurse babies on inotropes and the doctor will come and give orders that we must change the inotropes, for an example adrenaline, or say that I must start adrenaline ... it is so difficult to convert the calculations. ...We use the syringe pumps for the inotropes, I sometimes do not feel comfortable to change the doses alone. The shift leader must be around ...err… because the baby can change condition. Therefore I need the support of the shift leader or someone senior to me, to change the adrenaline dose. I do not like it when I change the syringe alone*" **P4F** appeared frightened.

The administration of medicine is one of the most fundamental duties of the registered nurse according to the Nursing Scope of Practice (R2598). Registered nurses spend a significant part of their working day in medication administration-related activities. However, Ku and Smith (2014:236) reveal that registered nurses encounter practical difficulties in both the preparation and administration of medicine, resulting in errors. Esfahani, Varzaneh, and Changiz (2016:483) affirm that there are high risk medications that are administered in the ICUs among critically ill patients that can have adverse effects on the patients, and nurses encounter difficulties in the administration of these medications.

Bagheri-Nesami, Esmaeli, and Tajari (2015:442-446) affirm that registered nurses experience difficulties in administrating intravenous medication and adjusting the infusion rate when administering inotropes. They further state that due to a lack of pharmacological knowledge, inexperienced registered nurses encounter difficulties in terms of how to communicate their errors. To reduce medical errors, the managers must improve working conditions so that a ratio of 1:1 is realised in the ICU environment.

Doctors and nurses need to improve their communication in terms of how to reduce medical errors. Clinical pharmacology expertise is required to address medication administration errors.

Drews and Doig (2014:570, 575) argue that registered nurses working in the ICU require constant observation and they must improve their knowledge in terms of the children's conditions and treatment. It is necessary that they be taught how monitoring systems function and have the necessary confidence and ability to report any changes observed. Cardiac monitors continuously display the vital signs, i.e. blood pressure, heart rate, oxygen saturations, and respiratory rates numerically. In this study, the inexperienced registered nurses faced challenges in assessing potential causes of deterioration due to their multiple tasks post cardiac surgery. Registered nurses stated that when patients return from surgery, their colleagues and the doctors come to assist the primary nurse, and this results in a loss of concentration and the ability to make accurate decisions when the patient deteriorates. Registered nurses need to improve their detection rate and interpretations, and must carefully monitor the patient when their condition deteriorates. This can be achieved by mentoring to improve learning and building a trusting relationship within the team.

When asked what could be done to improve the treatment in nursing children post cardiac surgery, **the participants stated:**
"Re-visits of the bridging course curriculum" **P10F.**

Another participant said:
"During our training or in our curriculum they should include more knowledge on complex cardiac conditions, basic ICU chapter and pharmacology" **P7M.**

DENOSA (2015:6) also agrees that an ICU environment caters for unstable and critically ill patients where the nurses are the vital force in maintaining safety and quality patient care. Therefore, it is important that registered nurses are empowered in the theory of pharmacology related to post cardiac surgery to prevent medical errors that could result in complications and litigations.

Santos, Camelo, dos Santos, Leal, and da Sliva (2016:475) agree that the more years of study and work experience a registered nurse has in a CTICU the better equipped they

will be to deal with critical care treatment and protocols. If inexperienced registered nurses work together in a specialised unit with the trained registered nurses, they are empowered with expertise, knowledge and efficiency. If registered nurses take extra courses in cardiology, they will have a better understanding of the discipline of cardiology and they will excel in providing quality patient care. A lack of cardiac training leads to inefficient and incompetence in nursing practitioners. The researcher believes that registered nurses have difficulty in understanding the treatment modalities on children post cardiac surgery, and therefore recommends seminars and workshops related to ICU and in-service workshops with medical representatives regarding how to use ICU equipment and protocols, and self-development should also be encouraged.

3.3.2 Theme 2: Psychological Challenges Experienced By Registered Nurses Nursing Children Post Cardiac Surgery

The psychological challenges experienced by registered nurses will be discussed under the following sub-themes: fear, anxiety and stress.

3.3.2.1 Sub-theme: Fear

Fear is the emotion of being uneasy, which is due to a sense of impending danger or the prospect of some possible evil (Mertens, Kuhn, Raes, Kalisch, Houwer & Lonsdorf 2016:968). According to Black's Medical Dictionary (2017:247), fear is an unpleasant or very strong emotion caused by the anticipation of danger (Marcovitch, 2017:247).

One participant stated:

"You know the minute you look ... so err ... sometimes you will see those signs and you will know that you need to attend. Other times the baby might not even give you the chance of seeing those signs, you will just hear resus ... meaning resuscitation" **P4F** really worried.

Another participant stated:

"You have to do quarterly observations and milk chest drains make sure that they are patent ... I mean the chest drains ... write observations and take doctors' orders there ... you need to be very cautious because the slightest mistake ... that you make on the baby ... problems if you are not cautious you can lose your epaulets ... it ... It becomes difficult when you are alone and when allocated to a fresh case, meaning baby from surgery, it becomes difficult when a baby changes condition" **P2F.**

Shepherd and Smith (2017:877) state that registered nurses receive children after complex cardiac surgery, and this causes fear due to the nurses' lack of experience. Nursing children with complex cardiac conditions post-surgery can be very difficult and challenging to registered nurses as they need to support children and their families emotionally. In addition to the increased work load, the nurses acknowledge that it is challenging to deal with their own fears and to cope with children and parents who are suffering.

According to Hashem and Abusaad (2016:106), nursing children post cardiac surgery is frightening and lives registered feeling fearful. The registered nurses experienced intense distress of fear due to their lack of confidence. Registered nurses experienced this intense fear because they have to manage complications and become fearful due to uncertainty regarding the illness and the fact they don't have enough information, knowledge and skills to care for these children. Maina, Mavri & Rosi (2016:237) emphasise that fear and depression are being reported to nurses nursing children post cardiac surgery. The registered nurses suffer from separation anxiety and temporary attachment which is manifested when they lose either a child or their jobs.

Keegan (2015:5-8) state that in a working environment, registered nurses are concerned about their job security, their roles, and their relationships with their managers, and they are also fearful about the future of the children under their care. Therefore, the medical organisation needs to shape a hierarchical model from top-down and ensure that senior managers mentor inexperienced registered nurses to increase their specialisation knowledge and to incorporate role clarification, and ensure that they receive counselling and wellness services to alleviate their fear. When registered nurses and managers assist the inexperienced nurses with wellness programmes, the benefits of these programmes assist in the early identification of chronic diseases and a culture of health and wellness will be adopted.

Nooryan, Sasanpour, Sharif, and Shirazi's (2013:457) study show that in ICUs, poor interpersonal relationship and a lack of communication can increase registered nurses' anxiety levels. Furthermore, when nurses look after a patient who is experiencing a high level of anxiety, they too will also experience similar anxiety. The registered nurses and the physicians in the ICU environment experience significant anxiety related work factors, which is exacerbated by nursing shortages, complicated conditions, and emergency

situations. The health care work environment as a source of overwork and anxiety has been implicated in today's nursing shortages. It is essential to teach doctors and nurses appropriate coping methods to deal with anxiety and to provide them with support services. When registered nurse experience anxiety they find it difficult to maintain a healthy balance between their work and their non-work life. At times they can engage in unhealthy life style habits such as smoking, drinking, and substance abuse. It is of utmost importance that the health systems assess, prevent, and manage work-related anxiety, i.e. a relevant psychosocial service should be available and accessible for nurses.

Mikkola, Hoktala, and Paavilaines (2016:2961) state that fear in the critical care setting can be related to death, violence, and medication errors that leads to mistakes and the subsequent loss of life. The above action increase fear, insecurity, and danger in a clinical setting. In this study, the registered nurses experienced difficulties in looking after children with exposed abdomen, open chest and children who are prone to infection. The registered nurses found that their work was interesting and challenging, therefore there was a need for support services and continuous professional development and personal growth, to avoid the mental and physical challenges faced the inexperienced registered nurses experience.

Klopper, Coetzee, Pretorius, and Bester (2012:686) study indicates that nursing work processes, such as an increased work load, rotational shift work, and long working hours does not instil a sense of belonging. However Govender, Brysiewkz, and Bengu's (2015:7) KwaZulu-Natal study indicates that due to the shortage of ICU trained registered nurses, inexperienced nurses are assigned to work in the ICU, and this increases the occurrence of medical errors due to inadequate supervision. Working in an ICU requires accountability and responsibility, this can be overwhelming to inexperienced registered nurses when they cannot cope with the job demands and it increases their uncertainty and fear in their clinical practice, leading to a decrease in the ability to provide comprehensive quality care.

Tito, Baptista, da Silva and Felli (2017:870) state that due to the intense work pace, work overload, and the suffering of children due to pain, as well as death, a registered nurse can be predisposed to fear, which is exacerbated by blame or sense of failure. The authors further emphasise that registered nurses experienced difficulty in caring for children with serious heart disease, and the unavoidable losses can make it difficult to interact with the patient's families. This had negative implications for registered nurses,

as they appeared to suffer more headaches, tension, and anxiety when assigned to the nurse children post cardiac surgery.

The researcher believes that registered nurses experience fear nursing children post cardiac surgery when they are faced with unpredictable situations and they fear making mistakes. They need to be more accountable and responsible, and to achieve this they require additional training and mentoring, and need to be more exposed, more inquisitive, and share information in a supportive environment.

3.3.2.2 Sub-theme: Anxiety

According to the Mosby Medical Dictionary, (2017:119). Anxiety is the anticipation of impending danger or dread that is accompanied by restlessness or worry about the future, or uncertainty about the outcome, or being uneasy about a person or situation. (Myers, 2017:119). Karanikola, Giannakopoulou, Kalafati, Kaite, Patiraki, Mpouzika, Papathanassoglou, and Middleton (2016:800) further state that anxiety is followed by intense physical, neurocognitive disturbances due to stimuli from the autonomic nervous system. In addition, Bardeen and Daniel (2018:482) state that anxiety can also cause a burden on the social and occupational life and on their family, and result in poor physical health that will result in a diminished quality of life.

The participants' statements support this as follows:

"*It is so painful and heart-breaking to see that baby lying there with an open chest – you see the heart beating ...I sometimes feel sorry for mothers ... I imagine if it was my baby"* **P2F** rubbing hands.

"I do not know, everything is in God's hands ... we are not in control hence we need to save lives. These children are suffering it is like a curse ... deep in my heart I feel it … I play sport, swimming, but they are always in hospital. They know nurses more than anyone else they know the hospital environment" **P3F** shaking her head.

"I do not like to see a sick baby, they remind me of my children… (silence) ... because I am a male nurse, people do not understand how it hurts me so much to look at sick children ... it is difficult to nurse them. Some time ago I felt like leaving the profession to work in a psychiatric unit to work with older patients" **P7M** rubbing his hands.

"When you work in the CTICU it is heart-breaking. It is heart-breaking. You know to nurse children post cardiac surgery, is heart-breaking, because some the children are nearly my child's age" **P9F** stammering and wringing her hands.

"I am also not sure of what I am doing ... I mean I am also stuck with my own sick baby. I am trying to concentrate, imagine two blind mice laughing... incongruently it is stressful" **P4F.**

According to Karanikola et al. (2016:805), anxiety symptoms can affect registered nurses professionally, socially, and personally in the work environment. This results in behavioural changes that affect the provision of quality nursing care. In inexperienced registered nurses, anxiety can be provoked by professional interactions between nurses and doctors. The increased workload and long working hours increases anxiety levels amongst nurses. Experienced registered nurses encounter positive and harmonious social relationships with their colleagues when they share their problems, thus decreasing their anxiety levels and promoting professional satisfaction and wellbeing. Poor nurse interaction with health care professionals can lead to increase anxiety and a stressful environment. When health care professional experience less anxiety they improve their communication skills and their professional satisfaction. Collaborative coping strategies between doctors and nurses improves the provision of quality care and decreases mental stability.

It is necessary to routinely screen registered nurses to detect psychological distress, and subsequent referral, counselling, and support should be provided to them. However, it is noteworthy that registered nurses demonstrate lower anxiety in terms of their workload of nursing children post cardiac surgery if other registered nurses support them. Experiencing a lack of autonomy when nursing children decreases the likely hood of developing professional relationships and collaboration with doctors. Registered nurses feel unable to make decisions and deliver quality care.

Nooryan et al. (2013:459) propose that both doctors and nurses experience anxiety when they start working in an ICU. Long-term anxiety leads to psychological problems, psychiatric disorders, and absenteeism or resignation. Young inexperienced registered nurses in the ICU are prone to anxiety especially if there is a high shortage of trained

paediatric ICU registered nurses, due to the high psychological demand and challenges at work.

According to Moxnes (2016:104), alleviating anxiety is a good way of making decisions in life, these can be achieved by being positive when interacting with colleagues, by demonstrating the ability to contribute to one's performance at work and by setting and achieving personal goals and growth. These positive aspects could be achieved when the working environment is conducive to learning and fosters trusting relationships. Working in an ICU is an anxiety-provoking situation for inexperienced registered nurses where they feel insecure or unsafe in pursuing their personal goals Thus, due to the nursing environment's rigidity and bureaucracy, they feel powerless and uncooperative.

O'Kane (2011:50) states that inexperienced registered nurses need time to complete their tasks as they are concerned about time management. Being placed in a new job interferes with their socialisation, accountability, and being part of a team. The ICU trained registered nurses and doctors are at times uncertain about their job descriptions, which increases feelings of anxiety and isolation. They also encounter difficulties in operating equipment and machinery in the ICU, leading to diminished confidence. However, at times they find the ICU to be a good learning opportunity, which increases their personal development.

Noome, Kolmer, van Leeuwen, Dijkstra, and Vloet (2016:657) argue that inexperienced registered nurses encounter difficulties in terms of their roles as nurses. Nursing critically ill patients is based on certain protocols that require doctors' interventions. At times, the registered nurses are unaware of how to intervene due to restricted policies, and their anxiety increases. Nurses feel that when they take a step back and don't intervene, their withdrawal leads to reduced communication regarding patient care on what has this impacts on their integrity and the care they render. They need professional development, autonomy, self-determination, motivation, self-efficacy and freedom of expression and association in ICU environment.

Depending on their knowledge of complication and types of surgery performed on their patients, nursing patients post operatively can be challenging to registered nurse. When the registered nurses expect their patients back from theatre they experience fear and

anxiety due to their uncertainty in terms of how they will manage their patients (Shah et al., 2013:123).

When asked what could be done to reduce the anxiety post cardiac surgery, the participants recommended counselling, autonomy, freedom of association, and working together with a mentor to increase their communication and clinical judgement.

One participant said:
"More support and mentoring for inexperienced nurses, especially when they are allocated nursing simple and complex cases" **P8F.**

Another participant said:
"When one is allocated to nurse a new baby post-surgery, he or she should be supported by a trained sister or a registered nurse who is experienced" **P3F.**

Fountain and Newcomer (2016:3) and Smith, Newman-Thomas, Stormont (2015:265) posit that mentoring is an interaction between an inexperienced registered nurse and a senior ICU trained registered nurse, where social and academic support is rendered. Mentoring could be either formal or informal, in order to socialise and support inexperienced registered nurses in the ICU environment to strengthen the relevant skills, promote leadership, and build organisational capacity, all of which facilitates an effective working and interpersonal relationship. Sowell (2017:132) agrees that a trusting relationship will improve managerial skills, coaching, and trust.

Jackson, Peters, Andrew, Daly, Gray, and Halcomb (2018) affirm that a trusting relationship fosters respect, openness, and a shared guidance, which benefits inexperienced registered nurses. In addition to the relevant information on how to nurse children post cardiac surgery, inexperienced registered nurses will benefit from the following strategies: recruitment; retention; and the advancement of knowledgeable staff in the clinical department. A trusting relationship increases socialisation into the theory and practice of nursing. Improving the relationship between the mentor and the mentee increases work productivity for the institution, thus promoting professional growth and career development in the mentors and mentee in ICU.

Hart and Bowen (2016:550) argue that mentoring and formal orientation have been identified as being important successful strategies in clinical areas. Mentors are considered important in providing support and assisting inexperienced registered nurses to provide quality patient care. Interestingly, doctors provide most of the support to registered nurses, yet doctors have a different educational background and a different role to registered nurses. Sowell (2017:132) posits that when inexperienced registered nurses receive support, productivity and staff retention is maintained in the nursing sector. Working with ICU trained registered nurses and trained paediatric ICU registered nurses post cardiac surgery, especially within the first four hours provides support, which increases the development of evidence-based practice in ICUs. Mentoring enhances independence in clinical practice.

Schatz-Oppenheimer (2017:289) affirm that mentors exert a positive influence in the unit for inexperienced registered nurses, and this positivity enhances their professional maturity. By the end of mentorship, the inexperienced registered nurses feel confident and become independent and self-sufficient, resulting in decreased level of anxiety. In addition, the inexperienced registered nurses encounter emotional difficulties, but through trusting relationships and empathy they are able to experience a sense of achievement.

Hess (2012:12) agrees that wellness programmes, coaching and guidance assist the registered nurses to manage their time and handle their workloads, and thus perform their duties competently. Ensuring reflective thinking and practice, encourage experienced registered nurses the opportunity to improve their professional work, and interpersonal relationships, and to develop self-directedness. Jackson et al. (2018:13) affirm that providing a supportive relationship to registered nurses improves their clinical care competencies and ensures that leadership and responsibility skills are enhanced.

Vandermaas-Peeler, Miller, and Peeples (2015:378,391) state that a mentor role in an ICU is to act as a facilitator that guides. It is important that ICU trained registered nurses' act as mentors to the registered nurses. During mentoring there should be continuous teaching and learning, and the mentor must be consistent, as this will have a significant impact on the registered nurses' confidence, to explore and ask questions, use their cognitive skills, and produce knowledge from their learning. However, Bowen, Kable, and Keatinge (2018:11) argue that some ICU trained registered nurses lack mentoring skills,

and thus it is clinical experience that enables the inexperienced registered nurses to reflect on their practices, in order to improve their performance.

Meyer, Naudé, Shangase, and van Niekerk (2018:160,161) affirm that in nursing, mentors should provide orientation for the inexperienced registered nurses. This will benefit the inexperienced registered nurses by increasing their self-awareness and enhancing their self-esteem. Providing relevant information, clarity, and consistency when teaching registered nurses, positively impacts on their patient care post cardiac surgery. Hart and Bowen (2016:550) state that due to the shortage of ICU trained registered nurses, the concept of mentoring should be embraced in clinical settings, as this will minimise the anxiety they experience.

Hoffman, Ellard, and Seigel (2012:293) claim that anxiety is an emotional response to a threat, and when it increases in intensity, frequency and duration, it develops into an emotional disorder. Registered nurses experienced worry and anxiety as the same emotion when children spent a long time in the surgical theatre. They have doubts regarding their failures, experience self-blame, and are unable to handle their disappointments (Renner, Hock, Bergner-Kother & Laux, and 2016:3).

Brandt, Zvolensky, Daumas, Grover, and Gonzalez (2016:422) argue that when registered nurses anxiously anticipate their patients' from the theatre, they suffer emotionally and they experience pain, which increases their anxiety levels. They experience pain-related anxiety due to the fear of nursing children post cardiac surgery, or they absent themselves from work.

One participant said:

"I mean if the baby does not make it… (sighs)…. *you feel that you did something wrong, whilst deep down you know that you did not do anything wrong that will put your patients life at risk... you try and find out your wrongs rather than the right things you did at that moment. You actually go on soul searching"* **P8F.**

Evans, Morrel, and Spiby, (2017:85) affirm that anxiety symptoms are similar to those experienced by nurses working in the ICU environments, however they manifest differently. Due to the health team members' lack of support, registered nurses are unable to discuss their anxieties or make their shift leaders aware of their experiences when they

are assigned to nurse a child post cardiac surgery. In addition to the anxiety they experienced, the participants reported that there was no time to build a relationship with the shift leaders due to the ICUs' fast pace, thus the situation results in absenteeism. The situation of nursing post cardiac surgery children increases anger, frustration, and uncertainty in terms of how registered nurses deal with complications that arise. When asked what should be done to correct the situation, the registered nurses claimed they would benefit from wellness programmes, an increase in shift leaders and mentors to give them support and guidance in clinical practice.

Evans et al. (2017:86) state that registered nurses lack a supportive environment in which to discuss their anxieties, and the authors therefore recommend that an emotional support group be instituted, that nurses be made aware of these support services, and the buddy system be introduced.

Boelen, Reijntjes, and Carleton (2014:134) state that registered nurses experience separation anxiety disorder when nursing children who are of a similar age to their own children, as they experienced difficulty in separating their two roles, i.e. their parental role and professional role, resulting in elevated anxiety.

Participants stated:

"I do not like to see a sick baby; they remind me of my children (silence*) because it hurts me, people do not understand how it hurts me so much to look at sick children ... [it] is difficult to nurse them. Some time I feel like working in different ward. I really want to be moved to less complex unit such as high care.*" **P7M.**

"When you work in CTICU it is really disturbing. Especially when you observe children's condition changing rapidly. You know to nurse children post cardiac surgery, you feel so anxious, one could not even sleep properly. You know to nurse children post cardiac surgery, it is so sad, because some the children are nearly my child's age" **P9F.**

Ingebresten and Sagbakken (2016:4) affirm that nursing critically ill patients can be emotionally draining for registered nurses. The authors further argue that previous personal experiences evoke nurses' memories, leading to a decreased ability to cope with other difficult challenges when nursing a child that is critically ill and unstable in the

ICU. The registered nurses also have to ensure that the children's parents are well cared for and updated about the children's conditions.

Almeida, Moraes and Cunha (2016:122) argue that registered nurses experience their own emotional fear professionally and personally. The authors further state that nursing critically ill children is significantly stressful, and may represent a difficult period if the nurses failed to accomplish and meet the sick child's needs. In cases such as these, they tend to blame themselves and feel stressed and fearful, however there are times when nurses experience feelings of accomplishment when they have done their best.

Khalaf, Al-Dweik, Abu-Snieneh, Al-Daken, Musallam, BaniYounis, Al-Rimawi, Khatib, Allah, Atoum, Masadeh, (2018: 8) state that rate of mortality has increased in the intensive care, cardiac care, and neonatal ICUs. Thus, it is unsurprising to discover that nurses still suffer emotional exhaustion when nursing children with severe illnesses in the public hospitals. Registered nurses that are overly involved and emotionally insecure may become psychologically distressed, and this could predispose them to anxiety, leading to them suffering from burnout and stress as they watch children undergoing painful procedures and witnessing a child's sadness **(**Günüşen, Wilson & Aksoy, 2018:152).

Temane, Simelane, Poggenpoel & Myburgh, (2016:8, 11) state that nursing children can be emotionally draining for inexperienced registered nurses, and therefore it is imperative that nurses develop a sense of awareness and emotional stability. Jacob and Lourens (2016:12) confirm that the lack of a trusting relationship with the children's parents and the doctors increases registered nurses' job dissatisfaction and increases the registered nurses' fears. When nursing children that are experiencing fear, anxiety, pain, attachment and suffering, many professionals are likely to experience similar feelings. Butler, Willets and Copnell (2018:197) argue that nurses have personal, interpersonal, and background factors that could negatively impact on the patient's critical health. Registered nurses need to develop trusting relationships with the team members to promote collaborative care to ensure quality care.

Maina et al. (2016:239) define anxiety as internal or external brain stimulation that can evoke an intense reaction or result in significant impairment of an individual's functioning. Other symptoms of anxiety include anxious, anticipation, and a rising level of concern and tension. Approaching a fearful situation or avoiding a situation could trigger anxiety.

Overt signs of anxiety are constant restlessness, quick to grow fatigued, difficulty in concentrating, muscle tension, and interrupted or unsatisfactory sleep patterns.

Tobajas, Celia, Ortis, Martinez, and Gavillan (2017:250) agree that nursing children who have undergone cardiac surgery creates anxiety in registered nurses, as do new cases that attempt “freshies” in the cardiac settings, meaning a new post cardiac surgery child. Within the first four hours registered nurses develop relationship with the patient and their family. There is considerable hope and anticipation that the surgery will go well. However, when the registered nurse receives news that the child is not doing well intraoperatively, they develop anxiety and fearfulness, resulting in the family-registered nurse interpersonal relationship being impacted. Registered nurses should be equipped with the appropriate decision-making skills to cope in this stressful environment.

Ghods, Sotodehasl, Khalaf, and Mimorhamadkhani (2017:4) state that authorities must demonstrate the ability to identify registered nurses that are prone to anxiety, and ensure that employment health programmes are designed and implemented to improve nurse’s mental health care. Blanco-Donoso, Garrosa, Demerouti, and Moreno-Jimenez (2016:107,111) state that nursing has been a reason for concern among health researchers, due to demanding factors, such as dealing with critically ill patients. Post operatively, when receiving children in the ward, the registered nurses experience emotional exhaustion, stress, and frustration in their efforts to complete their work timeously. However, in registered nurses with a sound emotional intelligence, they are aware of and have clarity in terms of their emotional exhaustion. This becomes a source of motivation and reduces their stress levels.

Hegney, Craigie, Hemsworth, Osseiran-Moisson, Aoun, Francis, and Drury (2014:11) and Ali, Rasheed, Naz, and Awan (2018:355) agree that anxiety affects registered nurses globally. When registered nurses are new to the nursing profession and have no additional qualifications, anxiety can be overwhelming, and results in a lack of being able to balance their professional and personal life, increasing their anxiety. They further state that managers need to identify and recognise anxiety symptoms in registered nurses. Therefore they need to empower them with positive coping strategies in terms of how to deal with their anxiety. The registered nurses report that they experience a lack of sleep, especially after twelve hour shift. Working long hours nursing cardiac surgical patients can affect the registered nurses’ health. The authors’ further state that female registered

nurses are more prone to increased levels of anxiety as oppose to their male counterparts. It is imperative that the trained registered nurses attend to their personal performance and their health status to improve quality care to children post cardiac surgery. Chan, Wong, Leung, Lin (2018: 376) support the above statement by stating that registered nurses are vulnerable to anxiety and depression that affects their physical wellbeing, and they don't seek medical attention due to fear of stigmatisation by peers and employers. This is likely to result in decreased work performance. Different approaches need to be implemented to prevent stigmatisation and mental disorders developing in registered nurses. The ICU trained registered nurses need to identify and ensure measures are implemented to prevent and treat anxiety in clinical practice.

Gardiner and Sheen (2017:13) agree that registered nurses encounter difficulties in their roles as professional nurses that require them to act responsibly and accountably and work cautiously and safely with children post cardiac surgery. The ICU trained registered nurses need to provide positive feedback to the registered nurses to improve their confidence and job satisfaction. When inexperienced registered nurses receive compliments about their performance they make fewer errors and don't feel quite as inadequate, thus elevating their job performance. Effective feedback and support by ICU trained registered nurses reduces registered nurses' anxiety levels; creating policies and providing programmes can improve this, i.e. programmes that provide professional orientation and educational programmes, and thus ultimately ensure patient safety.

Zuralska, Anand, Mziray, and Sheltz (2015:3) agree that when registered nurses experience heightened anxiety levels, their tasks and the rendering of competent skills on children post cardiac surgery is negatively impacted. This can be alleviated by reappraisal to increase self-worth, self-control, and problem-solving skills. The registered nurses should be taught how to identify anxiety risks as this will enable them to design preventative resources. To efficiently perform work duties, the registered nurses are entitled to receive psychological and social support from their employing organisation. They can also attend courses to prepare them to cope with work-related anxiety and negative emotions. Providing the registered nurses with assertive principles encourages learning. When faced with difficult situations they will be able to use the different coping skills to improve their professional and personal lives.

Ahmed (2015:308) affirms that anxiety levels are high in registered nurses working in the ICUs. The registered nurses experience symptoms such as tension, insomnia, and mood swings when nursing children post cardiac surgery, as they have to face end of life decisions, nursing children with open chest wounds, and contend with delivering highly competent skills required in an ICU unit. To alleviate anxiety levels, the ICU trained registered nurses and managers need to create policy measures to ensure that registered nurses are regularly rotated in different ICUs so as to reduce their anxiety and burn avoid out.

The researcher believes that when registered nurses experience anxiety post cardiac surgery, they would benefit from the buddy system, employee wellness programmes, orientation and induction, which would offer the opportunity for ICU trained registered nurses to guide inexperienced registered in the clinical situation, assisting them with their allocated a patient, so that they can learn at their own pace and develop practical experience.

3.3.2.3 Sub-theme: Stress

Mosby's Medical Dictionary (Myers, 2017:1693) defines stress as any emotional feelings or other factors that affect a person physically, socially, or emotionally that require a response or change. Stress is considered a contributory factor in many physical diseases, and it can be positive or negative, ongoing, or even chronic. Stress is the body's reaction to excessive stimuli provoked by external stressors that maybe physical or psychological.

Some participants stated:

"*Working in CTICU is a very stressful situation because the babies are very sick. ...I mean stressful, because post-surgery, the baby will come out with lot of lines and I don't understand some of the lines"* **P2F.**

Another participant said:

"When you nurse these babies, you need to be on your toes you need to do quarter hourly observations, the patient is haemodynamically unstable sometimes ... you need to be aware of the surroundings, you need to be aware of anything that can happen to your patient. This is stressful" Shaking her head **P5F.**

Another participant said:

"*You know babies are not like adults, they differ in terms of size, blood pressure ranges, and even when you put them on the ventilator they differ. Therefore, you need to know exactly their nursing care required when nursing them post cardiac surgery, and it's stressful....like you need to know their ranges and it becomes stressful when nursing them. I remember before I used not to like nursing these children; they are stressful"* **P7M.**

Mohamedkheir, Amara, Balla, and Mohammed (2016:170, 171) state that stress affects all type of workers in society, and when registered nurses don't meet their work requirements or their expected capabilities, they experience stress. When registered nurses are exposed to increased workloads that overwhelm their abilities, they become insecure. Registered nurses report that their inability to cope with clinical staff and doctors' orders often results in their failure to render quality patient care.

Rodrigues, Cohen, Swartout, Trotochaud, Murray (2017:369.375) affirms that nursing children can be rewarding for registered nurses. Experienced registered nurses develop a strong relationship with children and their parents, thus the nurses are comforted and experience a sense of accomplishment when their child's lives have improved. Supporting ICU registered nurses improves collaboration and productivity, and provides quality care. A supportive environment enables inexperienced registered nurses to gain knowledge and skills on how to nurse a child in totality.

Qin, Zhong, Ma, and Lin (2016:451) claim that the working environment is stressful due to the fast pace of managing children post cardiac surgery. Continuous monitoring of patients requires nurses to be vigilant in delivering quality care. Because of the nursing shortages, often both experienced and inexperienced registered nurses have to work with

agency nurses, which increases their workload, resulting in decreased job satisfaction. This intensifies the nurses' interpersonal relationships and their communication with doctors, and it affects their social and physical well-being. The authors further state that an increased workload and anxiety about errors is a result of the lack of specialised ICU trained nurses. Not only is nursing stressful, but the inexperienced registered nurses experience difficulty in utilising sophisticated technologies and attending to increased patient demands, which they are unable to cope with. There are many physical noises in the ICU, and this results in miscommunication between health team members.

Asadi, Garavand, Khammarnia, and Abdollahi (2017:75) agree that stress can adversely affect the registered nurses' physical well-being, which can lead to job dissatisfaction. Therefore, the trained registered nurses and other health team members should provide a supportive relationship to the inexperienced registered nurses. A supportive working environment reduce stress that facilitate the provision of high quality care. Managers and trained registered ICU nurses need to support inexperienced registered nurses during unpredictable situations, by providing resources and maintaining interpersonal relationships in order to increase productivity and enhance career achievement for colleagues and the organisation. Management should pay attention to the causes of stress and its effect on their personnel, by providing proper information and role clarification, and ensuring privacy to inexperienced registered nurses are given the privacy they require. Training programmes in stress management and employee wellness should be improved and implemented to create job satisfaction. Management and trained registered nurses must remove and alleviate stressors and engage in supportive organisational activities, such as team-building and excursions to alleviate stress.

One participant stated:

"In the morning when you come on duty; you plan as you know what was delegated to you. You also plan and set goals for the nursing care for the surgery that has to be performed on your patient. It becomes challenging, because now the child changes condition at any time, which requires you to change your plan at any time" **P8F.**

Negble, Agbenorku, Ampomah, and Hoyte-Williams (2014:1431) confirm that registered nurses encounter physical and emotional stress when working in an ICU. Post operatively, child patients' issues can be complicated and they could spend a long time in the ICU, and nurses develop emotional attachments, which negatively affects their

work. The inexperienced registered nurses need support in managing their emotional stress by engaging in staff meeting forums, sharing their responsibilities, and creating a working environment that is conducive to positive nursing outcomes.

Dagget, Molla, Belachew (2016:39) state that registered nurses are the ones that experience more stress than any other health workers; they experience difficulty in managing chronically ill patients when they need follow-up or readmission for cardiac surgery. If conflict develops between registered nurses and doctors on how to manage the patient, these misunderstandings create job-related stress. Mutual understanding between nurses and doctors decreases job related stress. When there is collaboration between the health team members, it creates openness, honest communication, and collective decision-making.

Vicente, Shadvar, Lepage, and Rennick (2016:223) and Stevenson and Duxbury (2018:10) state that providing nursing care to children is overwhelming due to their conditions, and registered nurses have to attend to family members, resulting in high levels of stress and burnout. Registered nurses need to be more responsible and accountable in order to provide excellent care. When nursing children with acute care needs, they need special attention, and require nursing competencies based on their vulnerability. There is a lack of specialised nurses, and increasingly, there is lack of health team member's support to decrease the work load that will increase decision-making. Participants claimed that procedures on children require extra time as they are complex, and experienced registered nurses and doctors frequently fail to acknowledge the registered nurses' presence, thus they feel powerless and perceive a lack of collaboration in providing quality care.

Nagel, Towel, Nel, and Foxall (2016:2) agree that emotional exhaustion and stress increases heavy workloads and responsibilities. The registered nurses require the requisite knowledge and skills on demand, and need to be constantly alert to provide excellent care. When registered nurses face difficulty in rendering care they become stressed due to uncertainty and the likelihood of making mistakes, thus reducing efficacy of their work performance. The authors further emphasise that registered nurses need good communication skills, and they need to increase their work knowledge, and be psychologically and emotionally prepared. If they are accepted in the health team they are able to make critical decisions when caring or nursing children post cardiac surgery.

Possessing emotional intelligence will help them to perform with the requisite toughness, resilience, and persistence.

According to Elshaer, Moustafa, Aiad, and Ramadan (2018:12), registered nurses working in ICU are exposed to high levels of stress, which can be attributed to complexity of care, high mortality rates, and improper working conditions. Registered nurses feel stressed and powerless to provide quality care for sick children because of multiple and diverse responsibilities, which can be overwhelming and result in emotional stress amongst nurses. The authors conclude that reducing inter group conflict, improving skills, and raising job satisfaction will reduce stress levels amongst registered nurses.

When asked what could be done to reduce stress in nursing children post cardiac surgery, the participants stated that they needed orientation and induction programmes.

Participants made the following statements:

"I think that is something they can try and implement. That would help us a lot, and not just to generalise post cardiac surgery, but say maybe this month you are going to do two lessons on how to nurse a patients post PDA, how to nurse a patient post tetralogy of fallots repair, how to nurse a child post arterial switch …you know, that kind of a thing. Those will help us. So I think those are the considerations" **P1M**.

"This is everyone's wish and hope that when you nurse a patient or the baby it must get better and go home. Now in our unit the babies are so complex, meaning the heart are so...what can I say wrongly done from the utero or sometimes the heart veins come upside down and you have to do the one procedure at a time. Yes we need orientation" **P9F.**

Bruce et al. (2013:338) state that when commencing work in a new environment or a new job, it is important for the organisation and the individuals who work there to orientate new employees as this acquaint with communications' skills and procedures in the work place. When the registered nurses are introduced into an orientation programme, they are empower to provide effective and efficient patient care.

Engaging registered nurses in orientation programmes allows them to grow and develop and become competent professional nurses, enabling them to enhance their knowledge in a reasonable time. During this process, the registered nurses and the ICU trained

registered nurses, participate in open-minded engagement to achieve their goals. Thus, when providing care the inexperienced registered nurses can reflect on their skills and on their thought processes utilised during orientation. This will assist them in understanding the work place and enable them to interpret the curriculum (Jacobs & De Wet, 2013:81-82).

Gountas and Gountas (2015:290,291) attest that throughout their service periods in the ICU, the registered nurses need to interact with the organisation to ensure effective service delivery. This affirms that supervisors need to be orientated and support by registered nurses and ICU personnel. When empowered with skills, registered nurses develop job satisfaction and achieve organisational objectives. When managers provide registered nurses with the organisation's objectives, the registered nurses understand the organisation's expectations and effectively manage the organisation's stress and improve the patients' conditions.

Baumann, Crea-Arsenio, Akhtar-Danesh, Fleming-Carroll, Hunsberger, Keatings, Elfassy, Kratina, (2016:4-5) emphasise that during orientation programmes, the registered nurses who participate are more likely to develop communication skills, leadership skills, and plan programmes in their units. They develop improvement in self-confidence, competencies, and professional satisfaction. When registered nurses are given engagement opportunities during patient interaction or nursing care, it enables them to make safe decisions in their clinical settings. When the registered nurses are retrained in complex practices in the ICU, they feel more empowered to apply their knowledge and skills freely without fear.

Poikkeus, Suhonen, Katajisto, and Leino-Kilpi (2018:388, 389) argue that registered nurses who are not fully involved during decision-making, due to relevant polices and laws, feel disrespected, ignored, and lacking in managerial support. Thus, during the orientation programmes registered nurses need to be supported and guided on how to handle ethical issues, and this should be included in the organisation's mission, vision, and values.

Brindise, Baker, and Juarez (2015:e15) highlight that when registered nurses work in an ICU for the first time, it is exceedingly stressful because they lack ICU experience. Due to restricted time and staff shortages, the registered nurses are assigned to clinical

practice areas without proper support, leaving them feeling stressed and unable to cope with the demands of the unit. The ICU trained registered nurses and the registered trained paediatric ICU nurses can provide the needed guidance, however they are not always available to work with the inexperienced registered nurses due to increased management activities. When registered nurses are given guidance, they are able to function independently when monitoring their patients in an ICU setting.

Khamisa, Oldenburg, Pelzer, and Ilic (2015:661) state that registered nurses perceive stress in the ICU to be caused by poor supervision, peers conflict, and high job demands, which results in emotional exhaustion, depersonalisation, and a lack of personal accomplishment. Their inability to meet the job's demands affects the registered nurses' morale and affects patient care. It is of the utmost importance that management increases staff morale by ensuring a work environment that is conducive to providing quality care, and therefore stress management programmes involving training must be provided for registered nurses on a personal level. A culture of openness and transparency must be addressed, and the nurses and management should collectively commit towards improving nursing and patients' outcomes.

Orientation programmes provide the registered nurses with basic and intermediate knowledge and skills. Therefore, it can improve their skills in terms of the specific cardiac condition that they are unfamiliar with, allowing them to implement safe, total patient care, and to manage the health care environment, and to demonstrate applicable competencies (Bruce, et al.: 2011).

Hill, Posey, Gómez, and Sharpiro (2018:111) affirm that utilising different trends in orientation programmes in the organisation, assists the registered nurses in understanding their professional environment in order to integrate the social wellbeing, academic, and clinical setting. During orientation, the inexperienced registered nurses and ICU trained registered nurses both benefit from collective knowledge construction. They further state that during orientation programmes, there is improvement in their social interactions, this help registered nurses to develop meaningful relationship with team members.

Peltokoski, Vehviläinen-Julkunen, and Miettinen (2015:620) argue that a comprehensive health care orientation health programme is effective in retaining registered nurses. It

improves the educational and professional development rendered by the organisation, thus increasing the registered nurses' clinical knowledge and skills, and increasing their confidence when nursing children post cardiac surgery. When registered nurses are provided with the organisational vision, mission, values, policies and goals, they are able to meet and maintain organisational standards, thus, achieving competency in their tasks and providing safe and high quality nursing care for children post cardiac surgery. During the ICU orientation, it is of utmost important that registered nurses are allocated with a supernumerary for three months to meet their clinical needs, as this will improve their satisfaction in their clinical experiences, allowing them to become more flexible and versatile. The researcher's opinion is that when nurses are stressed, they need orientation programmes that promote supportive strategies and psychosocial services for empowerment and growth.

3.3.3 Theme 3: **Registered nurses' experiences regarding the provision of a supportive working environment that is conducive to learning**

Suliman and Aljezawi (2018:23) define a supportive working environment as a perceived setting where health team workers enhance learning, trust, and inter-professional communication. In the ICU, the registered nurses play a pivotal role by providing patients with round the clock nursing care. The registered nurses need the doctors' support to ensure that they know what has taken place during induction, intra-surgery, and post-surgery, in order to learn more.

The participants made the following statements:

"But when you are in ICU you need to know the detailed report of the operation, so that you know how to manage the child. Some interventions require you to act immediately regardless of whether the doctor is there or not. I feel it is important to know what exactly is happening, so that I can maintain the pressures. Maybe in theatre they were maintaining the pressures with volume, then when they come in the unit you want to maintain with inotropes; that will not work" **P1M.**

"I am unable to see the doctors' handwriting. He does not come back ... I know I am a junior nurse ... at least respect. I hope he comes back and explains what happened in surgery" **P2F**.

"We work hand in hand with the doctors; we talk about them and reassure ourselves; and we know that we are doing the best for the children with the help of doctors... When doctors explain and make some drawings about a patient's abnormal heart, then we say 'Work well done'. I sometimes ask why in our curriculum we were not taught about the cardiac babies?" **P9F.**

"You know when the doctors are around the bedside they give orders ... but they do not look at me, they are talking to the shift leader ... because they trust her. ...The doctor is looking at her directly, I am a nurse looking after the baby. Maybe they trust her, she knows everything. Sometimes I am thinking because they know her better" **P3F**.

"Sometimes it is better when the doctor is around and I will check with him ... if what I am seeing is correct, or is it my imagination" **P7M**.

"*I feel comfortable when he is around my patient"* **P6F**.

Muller and Bester (2016:2910 states that a positive environment is needed in clinical practice to meet the patient's outcomes and organisational objectives. When registered nurses provide nursing care to the children post operatively, they feel more fulfilled, accountable and responsible.

Aboshaiqah, Roco, Pandaan, Baker, Tumala, and Silang (2018:1, 9) states that there are different types of patients managed in an ICU. The ICU setting can provide learning opportunities with more exposure to gain experience. Registered nurses should allow inexperienced nurses to apply their skills and to interact with multidisciplinary heath team members in order to acquire more clinical decision-making skills and to develop sound communication skills.

Flinkman and Salantera (2015:1055) affirm that doctors and colleagues should support the positive practice environment. An adequate practice environment increase managerial skills, encourage good inter-personal relationships, and improves quality care rendered to patients. The registered nurses experience a lack of support from their colleagues and doctors due to the increased workloads and verbal abuse that results in poor performance, burnout, and dissatisfaction. The registered nurses highlighted the importance of being supported by their colleagues and doctors, as this enhances their

psychological welfare and encourages them to voice their opinions, thus decreasing their stress levels.

Alfares, Jones, Ramakrishnan, Endicott, Zurakowski, Shankar, and Nath (2016:354) affirm that regardless of experiential differences, a doctor's presence in the ICU unit is vital as it benefits both nursing and patients. It appears that specialists such as cardiac doctors and registered nurses play an important role in assisting cardiac paediatric patients. This clearly supports the assertion that the presence of an in-house doctor results in improved patient outcomes (Alfares et al., 2016:358).

Kvande, Lykkeslet, and Storli (2017: 6, 7) affirm that it is a necessary for nurses and doctors to work together in an ICU, even though they have different roles, knowledge, and skill sets. The registered nurse's role is to ensure patient safety and prevent illness, and the doctors should be aware of these complimentary roles in order to include nurses in decision-making process. In a positive practice environment, registered nurses continue to provide quality patient care, which fosters good communication between them and the doctors. It is essential that collaboration between registered nurses is efficient and effective to provide excellent quality care and continuous learning opportunities for registered nurses.

Al-Qadheeb, Nada, Hoffmeister, Roberts; Shanahan, Garpestad, and Devlin (2013:e54) affirm that nurses and doctors work together to render effective, quality patient care. Good communication is vital in resolving clinical outcomes. Registered nurses should carefully communicate their urgent needs and interpret the patient outcomes to avoid confusion and miscommunication. Registered nurses encounter difficulties when leaving unstable patients to inform the doctors about deteriorating patients; this is due to a lack of ICU trained registered nurses.

Slusher, Kiragu, Day, Bjorklund, Shirk, Johannsen, and Hagen (2018:5) affirm that working together as health team members in a respectful manner strengthens good communication, team cohesion and provides quality patient care. They also agree that the supportive service of critically ill patients is fundamental to sound health services. Therefore, registered nurses should be knowledgeable, have sound technical skills and proper understanding of the equipment, as this shows leadership and will facilitate teamwork and trusting relationships with the doctors.

Sodeify, Vanaki, and Mohammadi (2013:15, 16) affirm that registered nurses need to operate in a supportive environment and provide available resources to facilitate respect. They should create a positive working environment where registered nurses and doctors work as a team, and where all the healthcare professionals value the contributions from all the members. When doctors respect the registered nurses, the team tend to work harmoniously in an ICU setting. They should also foster a learning environment, which can be formal or informal, by acknowledging each other's roles and responsibilities.

Muthathi, Thurling, and Armstrong (2017:6) claim that in a sound working environment the registered nurses learn procedures and the different standards used while nursing children post cardiac surgery. Clinical facilitators empower registered nurses with sufficient clinical support, and there is enhancement of observational skills where they can recall what they learned in theory. The authors further state that when they are allocated enough time, the registered nurses feel as though they belong and are able to participate in learning. The authors also emphasise that registered nurses should be paired with ICU trained registered nurses to increase competencies, and to encourage socialisation with other team members.

Salah, Aljerjawy, and Salama (2018:004) highlight that during ward rounds, the inexperienced registered nurses develop professional socialisation skills, which encourage them to provide competent, effective, and high quality care to patients post cardiac surgery. When clinical facilitators support and mentor inexperienced registered nurses by sharing current research and latest treatment modalities they improve inexperienced registered nurses' knowledge and skills, ensuring that educational objectives are achieved. When ICU trained registered nurses provide support to the inexperienced registered nurses, interpersonal relationship and professional engagement are established, and both parties participate in a positive way. The registered nurses emphasise the empowering benefits of role modelling by ICU trained nurses. Pretorius and Klopper's (2012:70) study highlights the necessity of a positive environment in attracting and retaining inexperienced registered nurses. The ICU trained registered nurses need to provide inexperienced registered nurses with a professional identity, and to empower them by working closely with them to ensure capabilities and better concentration working in the complex environment like ICU.

Belton (2018:192) affirms that inexperienced registered nurses need social support in the work place, and thus workplace wellness programmes should be provided, which will assist them in promoting good mental health and decrease disruptions in the work environment. When registered nurses are given an opportunity to attend these programmes, it increases their physical, social and psychological well-being, and increases their mental vigour. Providing them with meditation and opportunities to distress, and to practice self-compassion will alleviate distrust. When the inexperienced registered nurses are at peace, their intra-personal communication skills are increased.

When asked what could be done to create a supportive working environment, the participants recommended debriefing sessions.

Participants stated:
"We need to work together as nurses and doctors by respecting each other. I will say good communication and ... debriefing. I'm not sure" **P4F.**

"There are things that you as a nurse cannot do; you need a doctor .err... and the doctor is not around, so we need a house doctor to intervene when the baby is unstable. Some of the policies restrict us as nurses, therefore the doctors should be the ones that intervene. For example we have the junior doctors – and remember this is an academic hospital, so they are given preference in terms of learning; they are the ones that are allowed to make ventilation changes" **P5F.**

Clark and McLean (2018:6) confirm that certain patients' conditions warrant debriefing, especially when nurses are actively involved. The opportunity of debriefing post involvement or nursing the patient increases the nurse's likelihood of improving their performance and care delivery in similar events. In a supportive environment the registered nurses are able to discuss their fears openly, and communicate errors appropriately, resulting in improved decision-making and thereby improving quality patient care. The timing of providing debriefing sessions is important, as it enhances team performance and psychological issues are immediately addressed. Sharing experiences with the team improves professional development and changes learning, resulting in improved patient care. However there are barriers that impede effective facilitation of debriefing, such as being uncertain of the debriefing role, the time of debriefing, and a lack of clear guidance from organisational protocols. There has been a shift from utilising

simulation training as a form of teaching and learning for nurses, to utilise debriefing and feedback in clinical settings.

Gardner (2013:173-4) defines debriefing as a continuous discussion amongst personnel or team members after an event or situation to analyse an experience in order to move forward with the aim of exploring what has happened and to make sense out of it. Fey and Jenkins (2015:364) agree with the above definition, however they argue that debriefing sessions can be used for reflective guidance that attempts to bridge the gap between experiencing the event and making sense of it. During the debriefing sessions learners are taught to engage their cognitive skills, i.e. how to think, examine, interpret, make decisions, and argue.

Hall and Tori (2017:49) and Reierson, Haukedal, Hedeman, and Bjork (2017:7) argue that debriefing sessions that are held in a safe environment and a structured clinical setting can effectively promote psychomotor skills and knowledge in new inexperienced registered nurses, resulting in best nursing practice, The benefits of debriefing are reflection, critical thinking, and clinical reasoning, where registered nurses can engage, evaluate, explore, and elaborate to reinforce learning. When debriefing is facilitated, the inexperienced registered nurse's knowledge of nursing children post cardiac surgery is increased, and the inexperienced registered nurse are able to nurse the patient with confidence. In terms of reflection, the registered nurses want to understand the reasons behind certain procedures in order to improve learning, and this knowledge also promotes psychological safety. Registered nurses utilising debriefing sessions are able to integrate theory into practice. Reierson et al. (2017:109) agree that showing assertiveness when reflecting back during feedback sessions results in nurses developing comprehensive and specific thinking skills.

Browning and Cruz (2018:68) affirm that debriefing alleviates moral distress in staff members, and they feel empowered and encouraged to work with sick children. Health professionals are encouraged to have monthly debriefing sessions or as needed, to promote collaborative care.

Ostovar, Allabashian, Gholizadeh, Disaji, Sarbakhsh, and Gharahmanian (2018:111) agree that clinical settings can be very challenging to inexperienced registered nurses due to the availability of adequate trained ICU registered nurses to facilitate learning,

therefore debriefing sessions help inexperienced registered nurses to achieve their learning goals as a result of the feedback they receive during these sessions. The registered nurses are able to identify their mistakes and rectify them, resulting in sound performance and knowledge in clinical skills, and in developing self-confidence and satisfaction when nursing children post cardiac surgery.

Ali and Musallam (2018:23) affirm that debriefing is important as it provides constructive feedback where registered nurses are able to reflect on their experiences. Not only do the learners reflect on their clinical experiences they also reflect on their emotions, and the psychological, behavioural, and environmental aspects of their job. However, a reliable tool that will enable the facilitator to focus on the key elements of learning is required, as there are different approaches that affect the quality of debriefing results.

The researcher supports the fact that registered nurses experienced difficulty in rendering care and therefore a supportive environment is essential, and debriefing sessions are required to empower the inexperienced registered nurses so that they can clarify issues and change or improve their learning.

3.3.3.1 Sub-theme: Registered nurses' experiences of support from doctors and colleagues

The registered nurses desperately require support from their more experienced supervisors, which are the shift leaders, and although they felt comfortable with their shift leaders, such support was not always forthcoming, as highlighted in the following **participant statements:**

"I do not feel comfortable when there is no shift leader. I feel very lost. I do not know, I feel so empty because I do not have support. I am scared now, if anything happens to this baby, the responsibility is upon my shoulder" ...You know when the shift leader is around the nursing care becomes much better ... when the child changes condition you will call for help ... usually the shift leader is ICU trained; they know everything" **P4F**.

"You know ... when you have a shift leader life will be easier, as she will help with other activities, because sometimes it becomes hectic" **P5F**.

"I feel at times the shift leader will be ignoring the experienced nurses who really need to be supported, but she is now concentrating on the staff nurses" **P6F**.

"If we could be professional enough and work as a team ... we would be able to alleviate all these medico-legal hazards. Most of the time when you look at the nurses, we are not supportive of each other" **P5F**.

"So if we can work together and be paired with a person that is trained, then that person will be reliable, and the interventions of that person will not be of concern, so I think it is important to have a shift leader" **P1M**.

"Sometimes you are allocated next to an enrolled nurse ... remember she or he is your junior, now you have to assist and intervene appropriately. The other challenge is that most of the things we do in nursing the babies, we are not hundred per cent sure. I sometimes feel at ease when the shift leader is next to me, but I know that a lot of times she is supervising the whole unit. It becomes difficult when there is no shift leader for the day **P8F***.*

After completion and training as a bridging course registered nurse, SANC provides graduates with certification of training and competence and expect the registered nurses to function under the scope of practice R2498. Registered nurses experience difficulty in clinical, emotional, and social skills. The nurse managers and shift leaders should understand this and provide the necessary support to promote confidence to practice within their scope.

Rikhotso, William, and De Wet (2014:162) emphasise that ICU trained registered nurses need to guide and support inexperienced registered nurses in their practice environment in terms of clinical competence. A high level of support and guidance increases the inexperienced registered nurses' behavioural aspects, which gives them a sense of responsibility and accountability. However negative attitudes and a lack of support hinders development and increases tension, develops mistrust and poor relationships within a team. It is essential that ICU trained registered nurses support inexperienced registered nurses in acquiring critical thinking, decision-making, psychomotor, and affective skills in the clinical environment to excel when nursing critically ill or challenging patients.

Anderson, Moxham, and Broadbent (2016:169) emphasise that ICU trained registered nurses need to support, supervise, and guide inexperienced registered nurses in their professional development; they should be involved in workshops and clinical teaching during ward rounds, in order for inexperienced registered nurses to develop confidence when carrying out required ICU activities. During their clinical rounds, the ICU trained registered nurses should create learning opportunities to integrate theory into practice. However, some of the ICU trained nurses are reluctant to teach and supervise due to limited staff and a lack of experience and supervisory skills.

Sobekwa and Arunachallam (2015:7) agree that nursing patients in a highly specialised area requires specific knowledge and skills. Providing care within a specialised unit is challenging due to availability of complex technology and protocols, this is compounded by the shortage of ICU trained registered nurses and trained paediatric ICU registered nurse. The authors argued that patient/staff ratio need to be revisited. Skill mix need to be revised to minimise shortage. Staff retention strategies and exodus to various countries need to be addressed as a matter of urgency. The inexperienced registered nurses should have positive attitudes when ICU trained registered nurse support them, and this results in motivation and appreciation despite an increased workload. When the registered nurses support each other they gain confidence, team work is enhanced, and collaborative care is promoted.

Schmutz and Manser (2013:17) argue that working as a team and providing support to each other has a positive impact on registered nurses because teamship is established, resulting in increased clinical performance, which directly and indirectly affects patient care. Samuelson, Willen, and Bratt (2015:2454) affirm that when registered nurses are experienced in nursing children and are equipped with relevant knowledge in ICU setting they feel confident and competent enough to render sound practice. Registered nurses will benefit from role-modelling, leadership skills, and interpersonal skills.

Ewertsson, Bagga-Gupta, Allvin, and Blomberg (2017:7) agree that an enabling environment that is conducive to learning, especially in ICU, encourages the inexperienced registered nurses to become life-long learners, broad-minded and to be dynamic in their professions. It reinforces their ability to transfer knowledge and interact with patients in the community they serve. The inexperienced registered nurses are then able to use different perspectives to navigate healthcare issues locally and globally.

However, at times registered nurses need to read articles or books to acquire more information in meeting the needs of the children they are nursing, however, when there is support and collaboration within the team, communication channels are strengthened and the registered nurses are able to solve clinical issues from various healthcare domains with ease. The authors argue that experienced registered nurses perceive colleagues' critical support as a strong influence that help them to build their confidence in coping dealing with sick children and their parents. A need for further professional development programmes to increase connection with health team members is evident. When collaborative care is enhanced, the dynamics of specific congenital diseases and child physiology are addressed.

Collegial support and affective disposition is critical in ICU, in that collective decisions are shared amongst registered nurses and other healthcare professionals. The inexperienced registered nurses further stated that a course in paediatric care should be included in their curriculum or programme. This will teach the registered nurses on how to maintain standards in children with serious diseases, and help the nurses to increase their knowledge of specific diseases and conditions. Attending refresher courses could also enhance registered nurses skills and knowledge. Similarly Fradelos, Mpelegrinos, Mparo, Vassilopoulou, Argyrou, Tsironi, Zyga, and Theofilou (2014:107) assert that supportive relationships in a practice environment increases registered nurse's sense of self-worth, and security in the clinical environment. Refresher courses can provide relevant information, advice, guidance, and assistance regarding the current concepts related to how to nurse children post cardiac surgery. Providing this knowledge, skills and support in a practice environment benefits inexperienced registered nurses and reduces their psychological challenges, anxiety, and depersonalisation by other professionals.

Gorman and McDowell (2018:129) highlight that registered nurses educational needs must be considered on allocation of inexperienced registered nurses in the clinical environment, especially during the first two years of their experiences, they must be valued as team members to ease workload. However Flinkman and Salantera (2015:1051) claim that registered nurses experience high levels of emotional exhaustion, which results in dissatisfaction in the unit. Management should ensure availability of peer support in the organisation, registered nurses should be provided with adequate training on shift leading and supervision, because when registered nurses are assigned a child post cardiac surgery, it affects them physically and emotionally. When the registered

nurses are not orientated in the unit, they feel abandoned, insecure, and fearful of making a mistake, because nursing children post cardiac surgery is stressful.

When asked what could be done to improve the clinical environment, the participants recommended counselling.

"We nurses, we need counselling as well, not only the parents" **P6F**.

"The nurses should receive counselling after nursing these babies post cardiac surgery...mmm...the parents needs counselling as well" **P10F**.

"We are young nurses at child-bearing age, maybe we need to have, emotional intelligence, supervision and counselling sessions with some debriefing so that we can ventilate our feelings" **P3F**.

Bruce et al. (2016:367-368) state that counselling is a form of assisting individuals who are experiencing psychological problems. Counselling services should focus on establishing a trusting working relationship. In a clinical setting, registered nurses should help each other to address psychological challenges that interfere with their social performance. They should be involved in team building sessions which can lead inexperienced registered nurses to develop a sense of confidence, self-worth, and self-respect, this will benefit them in their practice.

Weaver, Dy, and Rosen (2014:368) agree that nurses should be engaged in research related to cardiac surgery in a clinical setting, they should explore, identify and solve problems in detail to meet patients' needs. Involvement in clinical research with colleagues from different professions open the horizons and opportunities for knowledge of complex procedures and intervention strategies in CTICU. Exposure to different healthcare professions dissolve silo thinking and professional tribalism and stereotypes.

Irving and Long (1993:132) affirm that group interaction and learning minimises stigma, the health care professionals become change agents and become fit for purpose. Interpersonal relationship is essential in CTICU, it reduces confrontation and healthcare professionals do not look down upon each other. Group cohesion leads to healthy working relationship. When experienced registered nurses encounter difficulties in knowledge

they will be supported by other healthcare professionals, this reciprocal working relationship is essential to change ICU and organisational culture.

Bemelmans, Goux, Baert, van Custsem, Motsamai, Philips, van Damme, Mwale, Biot, van der Akker, and Ford (2016: 596) attest that sharing of perspectives can increase inexperienced registered nurses' knowledge and skills in ICU, team support also increase healthcare professionals self-awareness and self-efficacy and leads to adherence of organisational policies and rules. Supportive relationships empower healthcare professionals to become creative, innovative and vigilant in order to reduce litigation and errors. Furthermore, Middleton, Marks, Bruce, Protheroe-Davies, King, Claber, Houghton, Giffney, Macleod, Dolling, Kenwrick, Scotcher, Hall, Patch, and Boyes (2017:661) emphasise that working with multidisciplinary team members ensures that communication is clear, smooth, relevant and based on knowledge and understanding. Team work and support in CTICU provide practical, psychological, and social support to healthcare professionals, and are able to provide collective interpretations and share complex conditions. The researcher believes that the inexperienced registered nurses need the shift leaders and doctors' support, in order to become autonomous practitioners in their future working environments.

3.4 SUMMARY

In this chapter the researcher described the central theme, themes, and sub-themes that emerged from the individual interviews. The findings where conceptualised in relation to the existing relevant literature. The findings from inexperienced registered nurses revealed the need for orientation, induction, workshops, counselling, in-service training, teamwork and 'to provide leadership support when nursing children post cardiac surgery in CTICU. In Chapter 4 the researcher will focus on recommendations to address the registered nurses' lived experiences in nursing children post cardiac surgery in a public academic hospital in Gauteng. Recommendations, limitations, and the conclusion are presented.

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CHAPTER 4
RECOMMENDATIONS, LIMITATIONS AND CONCLUSIONS

4.1 INTRODUCTION

Chapter 3 focused on the findings of registered nurses' lived experiences nursing children post cardiac surgery, and these findings were then contextualised into existing literature with participants' recommendations being included. Chapter 4 focussed on recommendations for registered nurses experiences in nursing children post cardiac surgery in a public academic hospital in Gauteng. A summary of findings is provided with recommendations for nursing practice, education, future research, and the study's limitations. The recommendations have been developed with the aim of improving the registered nurses' experiences and answers the second research question, which was:

- What can be done to support these nurses?

4.2 RECOMMENDATIONS TO ADDRESS THE REGISTERED NURSES' EXPERIENCES IN NURSING CHILDREN POST CARDIAC SURGERY IN AN ACADEMIC HOSPITAL IN GAUTENG

The table below encompassed themes, sub-themes, objectives and recommendations.

Table 4.1: Recommendations

Theme 1	Objective	Recommendations
4.2 .1 Registered nurses experience lack of knowledge nursing children post cardiac surgery	To improve knowledge when nursing children post cardiac surgery	• **To improve knowledge the registered nurses should do the following:** • Properly integrate theory and skills in the clinical practise by ensuring that registered nurses are efficient and effective. **P2, P7**
		• Apply the appropriate nursing process namely assessing, planning, implementation and evaluation to provide quality nursing care **P2, P7** • Provide advance technology to empower nurse's creativity and innovation skills to render quality care **P2 ,P7** • Provide enough exposure in specialised areas and clinical setting to encourage nurses who encounter a variety different conditions to develop a range of skills. **P2, P7** • Have enough exposure to care for children with cardiac surgery, these enhances skills on how to apply the nursing process and nurse patients holistically. **P2,P7** • Facilitate nurse-supervisor interaction, to promotes learning guidance and the ability to evaluate patient condition effectively **P2, P7** • Ensure registered nurses acquire interprofessional knowledge to enhance collaborative care. **P2,P7** • Provide and maintain a trusting relationship with various health care professionals to decease complications and improve continuity of care. • Encourage and teach anticipatory skills to prevent errors and thus patient receive quality care.

		•Provide proper orientation and induction programme in order empowered registered nurses with practical skills, improved clinical performance, to unsure that they implement problem solving skills. **P1 ,P3** • Involve medical representatives for in-service training. **P1 ,P3** • Provide and develop scientific based procedures utilising nursing process post cardiac surgery to minimise adverse events. **P1 , P3** • Provide nurses with specialised skills in order to understand children condition and developmental stages associated with children diseases to ensure quality care. **P2, P7** • Ensure that inexperienced registered nurses are allocated sufficient time working in the specialised areas this can be achieved via rotational work and mentors being available in the intensive care unit. **P2, P7** • Ensure that managers and ICU trained registered nurses provide a skills audit and orientation program. **P2, P7**
Sub-theme	**Objective**	• **Recommendations**
4.2.1.1 Difficulty in interpreting changes in children's condition/symptoms	To empower nurses to interpret children's conditions and symptoms	• **empower the registered nurses to interpret changes in a child's condition, which should be carried out as follows:**
		• all health team members should be involved in ward rounds, as these are teachable moments **P2, P7, P10;** • ensure nurses are aware of the signs of patient deterioration, utilising the EWS system so that there is prompt clinical response, to prevent complications, and manage the patient's condition **P2, P7, P10;** • integrate theoretical knowledge and observational skills in order to interpret any changes in the patient's condition, complications, and adverse effects **P2, P7, P10;** • apply prompt responses in ICU to manage complexities in the ICU by sharing information with other health team members **P2, P7, P10;**

		• foster a trusting relationship amongst team members to decrease mortality and morbidity rates in the unit **P2, P7, P10;** • ensure that nurses are able to monitor the patient's progress and are empowered with important information during handover such as sharing skills, which enhance the ability to interpret a patient's condition **P6, P7, P9;** • be aware of clinical signs and symptoms of a deteriorating child post cardiac surgery, and ensure constant monitoring **P6, P7, P9;** • develop interprofessional; communication skills, decision-making, leadership skills, negotiation, and personal growth amongst team members **P6, P7, P9;** • empower nurses with clinical skills and theory for personal development and prepare them to become independent practitioners; and • ensure nurses are exposed to critical care by developing an inquiring mind, fostering lifelong learning, and encouraging attendance of workshops **P6, P7, P9.**
4.2.1.2 Difficulty in understanding child's condition.	To empower the registered nurses to understand the child's condition.	• **To empower the registered nurses regarding their understanding of a child's post-operative condition, the following should be done:** • ensure availability of clinical facilitator or shift leader in the clinical setting for support and guidance to model leadership skills, compassion, and the courage to understand the post-operative child's condition **P9, P5;** • promote learning skills in the clinical practice and ensure that the shift leader is aware of the learning objectives and outcomes of the inexperienced registered nurses to provide quality care **P9, P5;** • provide adequate training according to the nursing curriculum to gain an understanding of cardiac conditions and surgeries **P9, P5;**

		• apply specific post cardiac surgery nursing care and interventions using protocols and specific medication to promote understanding; • facilitate continuous support, guidance, and understanding by the clinical registered nurses **P9, P5;** • be involved in decision-making to enhance leadership skills **P9, P5** • Provide awareness of different categories of skills to inexperienced registered nurses to ensure quality care **P5, P9.**

4.2.1.3 Difficulty in understanding child's treatment modalities	To be able to understand the treatment modalities.	• **To understand child's treatment modalities, the registered nurses need to do the following:** • empower nurses with appropriate pharmacological knowledge to prevent medicine errors and to prevent complications and litigations **P1, P2, P4;** • include paediatric pharmacology in the bridging course curriculum **P1, P2, P4;** • provide orientation and induction programmes in terms of cardiac treatment for a period of six months prior to assigning inexperienced registered nurses to operate the ICU monitors, in order for them to become acquainted with the ICU environment; • promote and mentor nurses to improve their concentration, work pace and monitoring when a patient's condition deteriorates **P1, P2, P4;** • Provide short courses and refresher seminars to empower nurses with expertise and knowledge in cardiology to ensure that they are competent and efficient in the ICU **P1, P2, P4.** • ensure that medical representatives are invited into the units to keep nurses updated with technology advances and new treatment modalities in order that nurses are updated and competent in technology use **P1, P2, P4;** • provide standard protocols regarding treatment that nurses have access to and ensure that there is continuous professional development **P1, P2, P4**; • Provide inexperienced registered nurses with a rotational programme to empower them and expose them to the ICU environment and provide various interventions to increase competency and confidence **P1, P2, P4.**

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Theme 2	Objective	Recommendations
4.2.2 Psychological challenges experienced by registered nurses nursing children post cardiac surgery *4.2.2.1 Sub-themes* **i. (Fear)** **ii. (Anxiety)** **iii. (Stress)**	To reduce psychological challenges regarding fear, anxiety and stress	• **To reduce psychological challenges regarding fear, anxiety and stress the registered nurses need to do the following:** • ensure that there is support of inexperienced registered nurses when receiving children pre and post cardiac surgery **P4, P2;** • promote the buddy system, pre and post cardiac surgery to relieve the work load for effective observation and proper nursing care to be rendered **P4, P2;** • provide relevant information and how to manage complications to improve confidence in inexperienced registered nurses; • encourage a healthy balance between work and non-work life **P4, P2'** • assist in healthy activities to prevent additional fear; • promote strategies to alleviate fear; • promote mentoring programmes in clinical settings; • the employer should empower staff with employee wellness programmes and assist in promoting positive health behaviours **P2, P3, P7, P9;** • the organisation should have a health system for assessing, promoting, preventing, and managing work-related anxiety **P2, P3, P7, P9;** • teach employees/ registered nurses about the negative implications of anxiety in order for them to acquire knowledge and reduce self-blame **P2, P3, P7, P9;** • promote enabling physical, social and professional environments by changing their behaviours **P2, P3, P7, P9;** • ensure that there is good communication between doctors and nurses **P2, P3, P7, P9;** • reduce high work demands between nurses and doctors by

		ensuring collaborative and engagement in decision-making **P2, P3, P7, P9;** • create a working environment that encourages personal development **P2, P3, P7, P9;** • Create safe and secure work environment in order to reduce negative distraction **P2, P5, P7;** • promote support system by having meetings and sharing responsibilities to increase positive environment **P2, P5, P7;** • create stress alleviation training programmes to improve job satisfaction **P2, P5, P7;** • provide specialised trained nurses because of their additional knowledge and competencies to provide excellent care **P1, P2, P5, P7;** • improve inter-group conflict management by creating conducive working relationship, **P2, P5, P7;** • Establish a positive work ethics, which in turn improves the morale of inexperienced registered nurses **P2, P5, P7;** • provide orientation and induction programmes to equip nurses with the organisational objectives and to improve patient outcomes **P2, P5, P7;** • develop leadership skills and training programmes that will enhance personal growth and increase patient satisfaction **P2, P5, P7;** • Maintain trusting relationships and respect amongst team members **P2, P5, P7;** • include stress management skills in registered nurses education and training **P2, P5, P7;** • encourage harmony and cohesion amongst colleagues in order to facilitate knowledge sharing, and to relieve stress **P2, P5, P7;** • encourage counselling by other health team members who have appropriate knowledge and skills, to help increase

Sub-theme	Objective	Recommendations
4.2.3.1 Registered nurses' experiences regarding support from doctors and colleagues.	To ensure support from doctors and colleagues	• **To ensure support from doctors and colleagues the registered nurses should do the following:** • encourage clinical, emotional, and social skill development in order to function competently in a team; **P1, P5, P8** • Seek guidance from the team, in order to improve their behaviour and values. **P1, P5, P8** • be involved in clinical teaching educational rounds to increase their skills and confidence **P1, P5, P8;** • encourage team work to increase clinical performance and direct patient care; **P1, P3, P8** • enhance collaborative care to share responsibilities in nursing children post cardiac surgery; • providing supportive relationships, to increase a sense of self-belonging, security, and self-worth in a clinical environment **P1, P5, P8** • establish a trusting working relationship to assist in psychological challenges; **P6, P10, P3;** • create good inter-personal relationships to encourage the development of self-awareness and self-efficacy **P6, P10, P3;**
		• encourage buddying system during the first four hours post cardiac surgery when children are critically ill and unstable, to promote independency **P2, P3, P7, P9;** • facilitate a positive attitude as this enhances feelings of self-reliance, self-efficacy, and minimises anxiety and stress **P3, P8;** • reduce increased workloads, through coaching, time management skills and provision of guidance to inexperienced nurses, which will improve their competency **P2, P3, P7, P9;** • integrate skills to improve the interpersonal relationships, and to develop responsibility, accountability and self-directedness **P2, P3, P7, P9;** • Provide relevant information, clarify issues and misunderstanding early, to reduce the risk of anxiety **P2, P3, P7, P9;** • Teach and encourage development of emotional intelligence to alleviate emotional instability when experiencing feelings of fear and anxiety **P2, P3, P7, P9;** • Prevent situations that trigger stress, fear, and anxiety **P2, P3, P7, P9;** • Maintain interprofessional relationships in order to make collective decision in a stressful environment **P2, P3, P7, P9;** • ensure and promote effective

4.3 LIMITATION OF THE STUDY

The limitations of this research are as follows:

- the researcher collected data on the registered nurses that have worked in the CTICU for two years only in order to obtain their lived experiences in nursing

Theme 3	Objective	Recommendations
4.2.3 Experiences of registered nurses regarding the provision of a supportive working environment that is conducive to learning	To promote a supportive working environment that is conducive to learning	• **To promote a supportive working environment that is conducive to learning the following strategies should be followed by the registered nurses:** • debrief and counsel inexperienced registered nurses; • provide learning opportunities for health team members to acquire clinical decision-making skills to manage complex heart surgeries **P3, P7, P6**; • provide managerial support to enhance job satisfaction, good practice performance, and open communication channels to facilitate personal and professional growth; • promote the presence of doctors in the ICU to assist in emergencies, to clarify issues, and to improve patient care **P3, P7, P6;** • encourage the collaboration of health team members as it improves clinical knowledge, involvement in decision-making, improves communication, and creates effective and efficient care **P3, P7, P6;** • develop sound communication skills to deliver correct messages, apply appropriate care, and perform interventions to be carried out **P3, P7 P6** • empower nurses with appropriate equipment and leadership skills to decrease the infant and child mortality rate **P3, P7, P6;** • create a positive working environment where team members will earn understanding, respect, and value each other to provide quality care **P3, P7, P6;** • encourage debriefing sessions to improve performance and provide excellent care **P4, P5;** • encourage teamwork sessions to improve team performance, psychological issues, and professional development **P3, P7, P6;**

children post cardiac surgery as they were unable to manage stressful situations leading to medical errors;

		• facilitate teaching, and learning of organisational protocols **P3, P7, P6;** • utilise simulation sessions in clinical settings to reinforce teaching and learning, which will encourage positive feedback **P3, P7, P6;** • encourage continuous discussion amongst the team members in order to clarify and develop abilities and strength to move forward **P3, P7, P6;** • develop cognitive skills as they assist learners to examine, interpret, and make decisions when providing quality care **P3, P7, P6;** • constructive feedback improves reflection, social, emotional, psychological, and behavioural aspects of inexperienced nurses, these will improve learning in the ICU **P3, P7, P6;** • shift leaders need to support and promote confidence to inexperienced registered nurses by incorporating their cognitive, affective and psycho-motor skills which will increase their sense of responsibility and accountability **P4, P5, P6;** • foster a positive support system, as this will increase trust, good relationships and critical thinking when nursing critically ill children **P3, P7, P6;** • utilise clinical learning opportunities and integrate theory into practice to improve professional development **P3, P7, P6;** • support provided by the ICU nurses will result in increased motivation, appreciation and team work **P3, P7, P6'** • build supportive relationships in practice to increase a sense of self-worth and of belonging in order to decrease psychological challenges experienced by nurses **P3, P7, P6;** • institute a counselling programme to assist nurses to address their psychological issues and social performances to improve nursing

		children post cardiac surgery **P3, P6, P10;** • Promote awareness through counselling, in order to improve knowledge and ability to access information **P3, P7, P6.** • Promote supportive relationships that enhance communication in a multi-disciplinary team **P3, P7. P6.**

- there was a staff shortage, therefore the researcher could not interfere with the scheduling of personnel;
- the study participants consisted of eight female registered nurses and two male registered nurses, and therefore male perceptions of their experiences are limited
- there is limited literature on registered nurses' experiences nursing children post cardiac surgery as most studies have focused on newly-qualified registered nurses working in the ICU's.
- the study involved only registered nurses who had taken bridging courses at one public academic hospital in Gauteng, South Africa thus the findings cannot be generalised.

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4.4 RECOMMENDATIONS FOR NURSING PRACTICE, NURSING EDUCATION AND FUTURE RESEARCH

4.4.1 Nursing Practice

- registered nurses lack knowledge when nursing children post cardiac surgery, and therefore support is necessary to provide skills and knowledge in the clinical practice;
- clinical facilitators need to be available in the clinical settings to teach, guide, and create learning opportunities;

- in-service training and orientation programmes should be available and utilised effectively to empower registered nurses in nursing of children post cardiac surgery;
- training programmes for clinical facilitators should be developed to improve learning in the CTICU;
- Team-building is essential in relieving stress when integrating theory into practice.

4.4.2 Nursing Education

- the bridging course registered nurses identified that they had received basic knowledge on anatomy and physiology in their curriculum and therefore it is necessary to include an introduction to complex cardiac conditions and surgeries in their programme, as well as a six month orientation course that include cardiac literature for nurses that need to work in CTICU;
- the programmes in higher education need to be detailed and carefully structured to include care of patients post cardiac surgery
- the training of paediatric registered nurses or specialist, need to be accelerated in order to address shortage of nurses caring for children post cardiac surgery.

4.4.3 Future Research

- further research must be extended to other academic hospitals in Gauteng in order to establish whether or not the same situation is present there; and
- Further research is needed on the registered nurses' experiences nursing children post cardiac surgery.

4.4.4 Reflection

- During data collection the researcher explored and described the registered nurses nursing children post cardiac surgery in an academic hospital in Gauteng. Most of the available literature refers to studies conducted on registered nurses working in ICUs, not specifically nursing children post cardiac surgery.
- The researcher observed the inexperienced registered nurses' fear, stress, and anxiety when nursing children post cardiac surgery. These experiences are encountered on a daily basis and in this research study they had the opportunity

of raising them. However, some the registered nurses were afraid that voicing their challenges would result in them being removed from the ICU. They stated that they received benefits from the ICU allowance. They were also stressed out by the lack of information guiding them to deal with the parents of the children whose health was deteriorating. They had to spend long shifts in the ICU. Their attachment to the parents somehow fulfilled their nursing care.

- The study was an eye opener to the researcher, as the researcher was not aware of the inexperienced registered nurses' feelings, especially when there was a shortage of staff and they were allocated to nurse critically ill children, which negatively affected their emotions.
- Mentoring and supervision is important to the inexperienced registered nurses as their curriculum does not include paediatric surgery and abnormalities.
- Support and debriefing sessions are of the utmost importance in retaining inexperienced registered nurses in the ICU.

4.5 CONCLUSION

The purpose of the study was to explore and describe the registered nurses' lived experiences in nursing children post cardiac surgery. The research objectives and questions were clearly described to ensure the focus of the study. A qualitative, exploratory, descriptive, contextualised study was used. The purposive sampling method was used to select the participants, using in-depth, individual, phenomenological interviews. Data was analysed according to Giorgi's Descriptive Phenomenological Methods. The principles of trustworthiness according to Lincoln and Guba (1985: 294-299) were used throughout the study, and Dhai and McQuiod (2011: 175-176), ethical standards were adhered to.

The researcher observed that there were clear challenges regarding nurses nursing children post cardiac surgery. The registered nurses experience challenges in terms of their lack of knowledge in nursing children post cardiac surgery and in terms of psychological issues and an unsupportive working environment that doesn't enhance learning. The findings were discussed in detail and were supported by statements

extracted from the transcripts, and conceptualised in the local and international literature in Chapter 3.

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ANNEXURE A

UNIVERSITY OF JOHANNESBURG

FACULTY OF HEALTH SCIENCES

HIGHER DEGREES COMMITTEE

HDC-01-45 - 2017

11 July 2017

TO WHOM IT MAY CONCERN:

STUDENT: **MEHLAPE, T**
STUDENT NUMBER: **909871033**

TITLE OF RESEARCH PROJECT: Registered Nurses Experiences in Nursing of Children Post Cardiac Surgery in an Academic Hospital in Gauteng

DEPARTMENT OR PROGRAMME: **NURSING**

SUPERVISOR: **Mr S Matlala** **CO-SUPERVISOR:** **Prof WE Nel**

The Faculty Higher Degrees Committee has scrutinised your research proposal and concluded that it complies with the approved research standards of the Faculty of Health Sciences; University of Johannesburg.

The HDC would like to extend their best wishes to you with your postgraduate studies

Yours sincerely,

Prof S Nalla
Chair: Faculty of Health Sciences HDC
Tel: 011 559 6258
Email: shahedn@uj.ac.za

ANNEXURE B

UNIVERSITY OF JOHANNESBURG

FACULTY OF HEALTH SCIENCES

RESEARCH ETHICS COMMITTEE

NHREC Registration no: REC-241112-035

REC-01-88-2017

11 July 2017

TO WHOM IT MAY CONCERN:

STUDENT: MEHLAPE, T
STUDENT NUMBER: 909871033

TITLE OF RESEARCH PROJECT: Registered Nurses Experiences in Nursing of Children Post Cardiac Surgery in an Academic Hospital in Gauteng

DEPARTMENT OR PROGRAMME: NURSING

SUPERVISOR: Mr S Matlala **CO-SUPERVISOR:** Prof WE Nel

The Faculty Academic Ethics Committee has scrutinised your research proposal and confirm that it complies with the approved ethical standards of the Faculty of Health Sciences; University of Johannesburg.

The REC would like to extend their best wishes to you with your postgraduate studies.

Yours sincerely,

Dr C Stein
Chair : Faculty of Health Sciences REC
Tel: 011 559 6564
Email: cstein@uj.ac.za

ANNEXURE C

UNIVERSITY OF JOHANNESBURG

FACULTY OF HEALTH SCIENCES

DEPARTMENT OF NURSING

ATTENTION:

The Chief Executive Officer

JOHANNESBURG GENERAL HOSPITAL (CHARLOTE MAXEKE)

Date: _____

Dear Sir /Madam

RE: REQUEST TO CONDUCT A RESEARCH STUDY AT AN ACADEMIC HOSPITAL IN GAUTENG

My name is Thereza Mehlape and I am currently employed at Sunninghill Hospital as an intensive care nurse. I hereby request permission and written consent to conduct a research study at your hospital. The study is a requirement for the completion of a Master's degree in Medical and Surgical Nursing: Critical Care Nursing, and will be conducted under the supervision of Dr Matlala and Professor W.E. Nel from the Nursing Department at the University of Johannesburg. The title of the study is: Registered nurses' experiences in nursing of children post cardiac surgery.

The purpose of the study is to understand the registered nurses' experiences in nursing of children post cardiac surgery and to describe the recommendations to support these nurses. I will conduct in-depth individual phenomenological interviews with the participants and the interviews will be recorded using an audio-recorder. The interviews will take approximately 45 to 60 minutes. The interviews will be conducted at a place

and time convenient for the participants, after work. The participants' information will be kept confidential and code names will be used. Audio-recordings will be accessible only to the researcher, independent coder and the supervisors.

My contact details are:

Thereza Mehlape

If you feel that any questions or complaints regarding your participation in this study have not been dealt with adequately, you may contact the chairperson of the Faculty of Health Sciences Research Ethics Committee at the University of Johannesburg:

Professor C Stein

Tel: 011 559-6564

E-mail: cstein@uj.ac.za

You may also contact my supervisor:

Dr Sidwell Matlala

Tel: 011 559-6818

E-mail: sidwellm@uj.ac.za

Co- supervisor:

Prof. W.E Nel

Tel: 011 559-6985

E-mail: ewnel@uj.ac.za

ANNEXURE D

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

CHARLOTTE MAXEKE JOHANNESBURG ACADEMIC HOSPITAL

Enquiries:
Ms. G. Ngwenya
Office of the Nursing Director
Tell: (011): 488-4558
Fax: (011): 488-3786
30 November 2017

Mrs Thereza Mehlape
University of Johannesburg
NHRD REF: GP_201711_017

Dear. Mrs Thereza Mehlape

RE: **"Registered Nurses' Experiences in Nursing of Children Post Cardiac Surgery in an Academic Hospital in Gauteng"**

Permission is granted for you to conduct the above recruitment activities as described in your request provided:

1. Charlotte Maxeke Johannesburg Academic hospital will not in anyway incur or inherit costs as a result of the said study.
2. Your study shall not disrupt services at the study sites.
3. Strict confidentiality shall be observed at all times.
4. Informed consent shall be solicited from patients participating in your study.

Please liaise with the Head of Department and Unit Manager or Sister in Charge to agree on the dates and time that would suit all parties.

Kindly forward this office with the results of your study on completion of the research.

Supported / ~~not supported~~

Ms. M.M Pule
Nursing Director
Date: 2017/12/01.

Approved / not approved

Ms. G. Bogoshi
Chief Executive Officer
01.12.2017

ANNEXURE E

UNIVERSITY OF JOHANNESBURG

DEPARTMENT OF NURSING SCIENCES

RESEARCH STUDY INFORMATION LETTER

Dear Sir/Madam

My name is Thereza Mehlape. I would like to invite you to participate in a research study on registered nurses' experiences in nursing children post cardiac surgery in a private hospital in Gauteng.

Before you decide to take part in the research it is important that you understand why the research is being conducted and what it will involve**. I will go through this information with you and answer any questions that you might have.** This will take about 10 to 20 minutes. The study is part of the research requirements for the completion of the Master's degree in Medical and Surgical Nursing Sciences at the University of Johannesburg.

The purpose of the study is to understand the experiences of registered nurses in nursing children post cardiac surgery in a private hospital in Gauteng.

You have been chosen because you are working in CTICU and have experience in the nursing of children post cardiac surgery.

Do I have to take part? No, you don't have to. It is up to you to decide whether or not to take part in the research. You will be given an information sheet and a consent form to sign once you have decided to participate.

What exactly will be expected from me if I agree to take part in the study? If you agree, you will be expected to complete the consent forms. I will contact you to arrange a date for an in-depth interview during which I will collect information for this study. Each interview will last from 45 minutes to 60 minutes. Interviews will be conducted in English.

I will also ask for your permission to record the interview. Only the supervisors will have access to the recordings. The recordings will be locked in a safe place and will be destroyed after the publication of the study.

What will happen if I want to withdraw from the study? You are free to withdraw from the study at any time without giving any reasons and without any consequences. If you wish to withdraw your consent please inform me as soon as possible.

What are the risks involved in my taking part in this study? There are no risks involved in participating in this study. However, if you experience any emotional distress, I will refer you to the counsellor in your hospital.

What are the benefits involved in participation? There are no direct benefits involved in this study.

Will my taking part in this study be anonymous? Personal details will not be reflected in any records. As a result, it will not be possible for me or anyone else to link your responses to your identity once the study has been submitted.

Will my participation in this study be kept confidential? Yes. All personal information will be treated as confidential. All data and back-ups will be kept in password-protected files and locked safely away. Only authorised personnel will have access to use your information in connection with this research study. Any other person wishing to work with your anonymous information as part of this research other than the independent data coder will be required to sign an undertaking of confidentiality before being allowed to do so using code to names.

What will happen to the results of the study? The results of the study will be written up in a research report. In some cases the results will be published in scientific research journals. In either case, you will not be identifiable in any documents, reports or publications. You can contact me if you wish to see the study results.

Who is organising and funding the study? The study is being organised by me under the guidance of my research supervisors in the Department of Nursing Sciences at the University of Johannesburg. This study has not received any funding but may receive funding from the supervisory-linked bursary.

Who has approved and reviewed this study? This study has been discussed in detail with the study supervisors and consensus was reached on the research process. The study review was done first by the Department of Nursing and, secondly, by the Faculty

of Health Sciences Higher Degrees and Research Ethics Committees of the University of Johannesburg. In all cases the study was approved.

What if there is a problem? If you have any complaints or problems regarding this study, its procedures or risks and benefits please feel free to talk to me. You may contact me at any time. My contact details are:

Thereza Mehlape

Tel: 011-806-1574

If you feel that any questions or complaints regarding your participation in this study have not been dealt with adequately, you may contact the chairperson of the Faculty of Health Sciences Research Ethics Committee at the University of Johannesburg.

Prof C Stein

Tel: 011 559-6564

E-mail: cstein@uj.ac.za

You may also contact my supervisor:

Dr Sidwell Matlala

Tel: 011-559-6818

E-mail: Sidwellm@uj.ca.za

Co supervisor

Professor. W.E Nel

Tel: 011-559-6985

E-mail: ewnel@uj.ac.za

ANNEXURE F

UNIVERSITY OF JOHANNESBURG

DEPARTMENT OF NURSING

RESEARCH CONSENT FORM

REGISTERED NURSES' EXPERIENCES IN NURSING OF CHILDREN POST CARDIAC SURGERY

Please initial each box below:

☐ I confirm that I have read and understand the information letter dated_____ regarding the above study. I have had the opportunity to consider the information and ask questions, and these have been answered satisfactorily.

☐ I understand that my participation is voluntary and that I am free to withdraw from this study at any time without giving any reason and without any consequences to me.

☐ I agree to take part in the above study.

_____	_____	_____
Name of Participant	Signature of Participant	Date
_____	_____	_____
Name of Researcher	Signature of Researcher	Date

ANNEXURE G

UNIVERSITY OF JOHANNESBURG

DEPARTMENT OF NURSING

RESEARCH CONSENT FORM OR INTERVIEWS TO BE AUDIO-RECORDED

REGISTERED NURSES' EXPERIENCES IN NURSING OF CHILDREN POST CARDIAC SURGERY.

Please initial each box below:

☐ I hereby give consent for my interview, conducted as part of the above study, to be audio-recorded.

☐ I understand that my personal details and identifying data will be changed in order to protect my identity. The audio-recording of the interview will be destroyed after publication of the research study.

☐ I have read this consent form and I have been given the opportunity to ask questions.

_____	_____	_____
Name of Participant	Signature of Participant	Date
_____	_____	_____
Name of Researcher	Signature of the Researcher	Date

ANNEXURE H

RESEARCH DATA ANALYSIS REPORT

FOR: Thereza Mehlape **DATE:** 4 March 2019

STUDY: EXPERIENCES OF REGISTERED NURSING CHILDREN POST-CARDIAC SURGERY

INDEPENDENT CODER: Annatjie van der Wath

Method: Data was analysed in accordance with Giorgi's method of descriptive phenomenological data analysis.

Saturation of data was achieved related to the major themes – The researcher conducted 10 interviews.

Dr Annatjie van der Wath (M Cur, Ph. D) annavdw@mweb.co.za

Qualitative Data Analysis

This serves to confirm that Annatjie van der Wath has co-coded the following qualitative data: 10 interviews for the study:

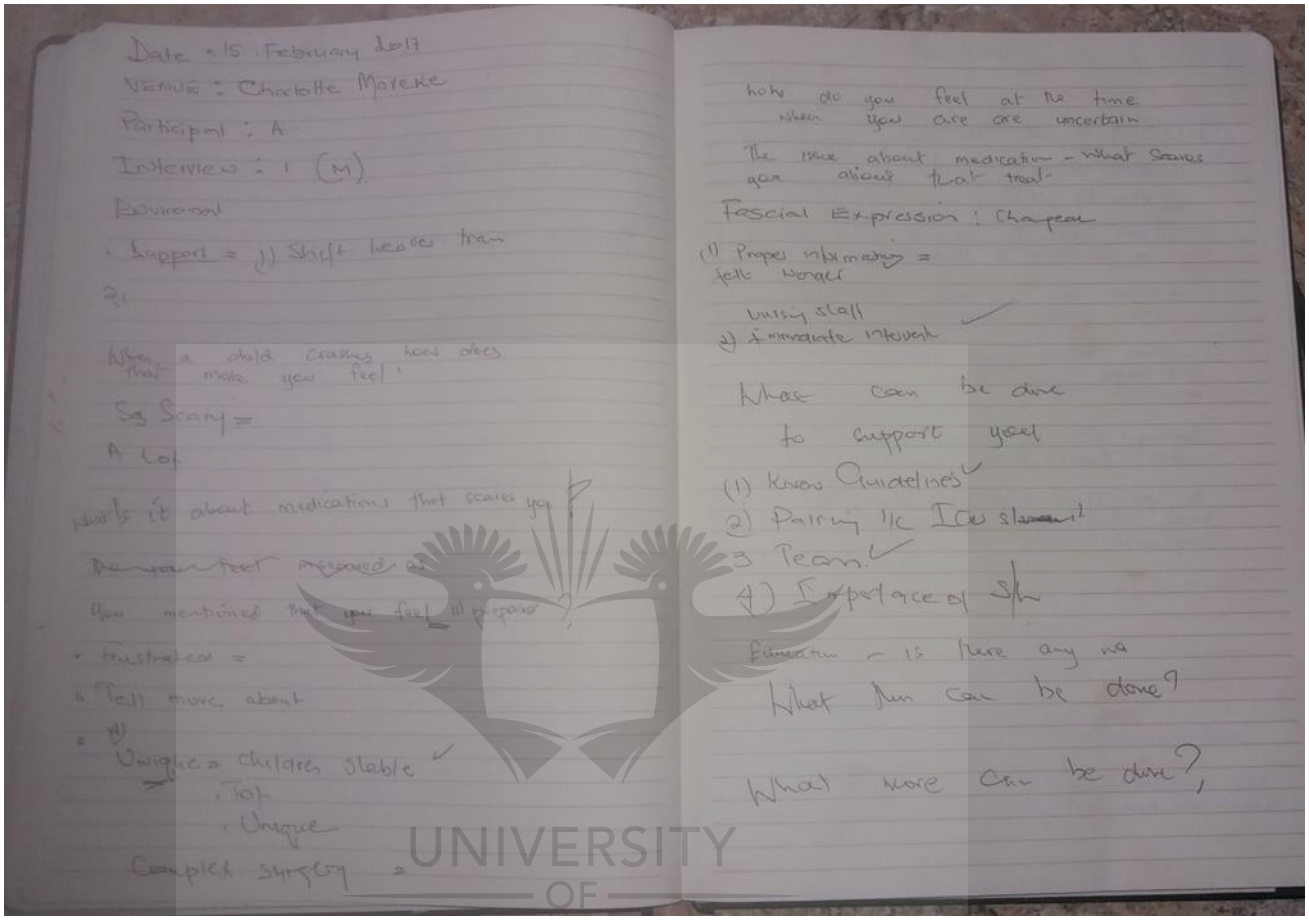
EXPERIENCES OF NURSING CHILDREN POST-CARDIAC SURGERY

I declare that the candidate and I have reached consensus on the major themes and sub/ categories as reflected in the findings during a consensus discussion.

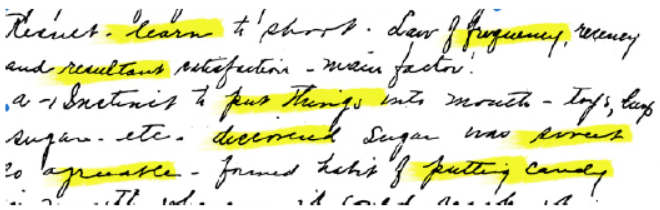
Annatjie van der Wath (M Cur, Ph. D) annavdw@mweb.co.z

ANNEXURE I

FIELD NOTES


Date = 15 February 2017
VENUE : Charlotte Maxeke
Participant : A
Interview : 1 (M)
Environment
Support = 1) Shift leader train
2)
What a child crashing does that make you feel?
Eg Scary =
A lot
What is it about medications that scares you?
Do you feel prepared as
You mentioned that you feel ill prepare
frustrated =
Tell more about
1)
Unique = children stable
: Tot
: Unique
Complex surgery =
How do you feel at the time when you are are uncertain
The issue about medication - what scares you about that treat
Facial Expression : Chagrin
(1) Proper information =
felt worse
busy staff
2) Immediate intervention
What can be done to support you?
(1) Know Guidelines
2) Pairing 1/c I can share it
3 Team.
4) Importance of Sh
Emergency - is there any na
What can be done?
What more can be done?

ANNEXURE J



CORPORATE * ACADEMIC * LITERARY EDITING

TEL: 08104686501
EMAIL: isabellaza@hotmail.co.uk

30 May 2019
To Whom It May Concern:

RE: CERTIFICATE OF EDITING – Ms. Thereza Mamaselane Mehlape

I hereby confirm that I am a qualified and experienced editor and I performed a thorough language edit of Ms. Thereza Mamaselane Mehlape's dissertation ***"Registered nurses' experiences in the nursing of children post cardiac surgery in an academic hospital in Gauteng"*** in May 2019. This dissertation is to be submitted in fulfilment of the requirement for a master's degree in medical and surgical nursing science at the Department of Nursing Science in the Faculty of Health Sciences at the University of Johannesburg.

I have not had final sight of the final article accepting or rejecting suggested language and grammar changes, *which is usual*.

Yours sincerely

ISABELLA MORRIS
M.A. (WITS)
Memberships:
SA PEN
ANFASA

ANNEXURE K

Transcript of Participant Interview

Key

P1M = Participant 1 Male

R = Researcher

Participant 1

R: Thank you so much for consenting to undertake the study with me. My name is Thereza Mehlape. I'm doing my research on registered nurses experiences in nursing children post cardiac surgery in an academic hospital in Gauteng. The purpose, as I have indicated, is to understand the experiences of registered nurses in nursing children post cardiac surgery in an academic hospital in Gauteng. I thank you so much for taking part and consenting to participate in this research. I hope you have understood the information letter thoroughly as we discussed. Thank you for signing the consent form and audio recording.

P1M: Thank you

R: Tell me how is it for you nursing children post cardiac surgery**?**

P1M: Ok, would you like to know my experience in nursing…my general experience in nursing children post cardiac surgery?

R: Oh ok.

P1M: Most of the children that we have mostly come in contact with… Ok as experienced nurses we are not given all the children we are only given children who have done PDA, children who have done minor ops, but not children who come in (unclear) and all that. So we often get support from our shift leader because our unit has a shift leader.

R: Oh, okay.

P1M: We get support from the shift leader when the children are sedated on high inotropic support. So we get support from the immediate doctor who has operated on the child, at least 4 hours post-op and the shift leader for the rest of the shift.

R: Nodding head

P1M: So for me it has not been that difficult, I haven't had any personal challenges with them. Unless if it was challenges of their condition, a child suddenly crashes maybe 3 hours or even 30 minutes post-op. So that's probably the only challenge, but the team

will be there to assist you so there's personally no bad experience with these children or any form of trauma

R: How do you feel about that?

P1M: Our shift leaders are trained. You only have to be ICU trained to be a shift leader, so most of our shift leaders stay with you. They basically almost nurse the patient for you for the few hours post-operation. But of course there are some times where you'll find yourself on your own, maybe there is no shift leader or maybe there is another patient more critical than yours, but if it's a patient you can manage you will try to manage on your own with minimal supervision. But most of the shift leaders are very helpful.

R: Tell me more on what you saying about these children and when do they support you?

P1M: Usually when they start to have the symptoms, sometimes it scares you a bit especially if it happens immediately after you've given a certain medication. Because as soon as the baby comes there are a lot of orders "please do this", the next 30 minutes "switch this off" "give adrenaline." So there are a lot of orders as soon as the baby comes so after you finish giving all those orders maybe something happens and you start to think "what did I do wrong?" The first moment is very scary, but as soon as the team comes and they find the problem and the baby is ok, you can think straight and explain what you gave the baby. Then you can calm down a bit, but as soon as happens it's sort of scary to say "what did I do wrong?" That is the only part actually.

R: Am I hearing you correctly, how does it make you feel?

P1M: Since I'm ICU experienced and these babies are unique. You think "Am I really supposed to be doing this?" You know what I'm saying? Am I really able to do this or should there be someone who's maybe trained to do this. So you somehow feel that maybe you're not trained for that, you know? But that just comes within that moment and then you feel normal again.

R: Mmm….Can you tell me more.

P1M: Ok, uhm… You know, when I went to admit a baby I actually do prepare myself before.

R: How do you prepare, tell me more.

P1M: The baby comes because you know babies (unclear) so I'd make sure… Ok I can maybe tell you about how I used to feel and how I'm trying to defeat that now. Before, you wouldn't know what to expect, you didn't know if the baby was going to come incubated, you didn't know whether the baby would come unstable, you know, so you'd just wait there in suspense wondering how the patient was going to come. As soon as the patient comes, everyone comes to help you. At that stage it's sort of easy for you, because everyone is there connecting for you. And then they leave to attend to their patients, now you're alone and you have to go through the anaesthetic chart, figuring out what happened to the baby because you would want to know more about what happened to the child during the operation and what to expect. So after you've gone through that period you feel that you need to focus, you feel that you don't need to make any mistake.

R: nodding head

P1M: So whatever you do you try to do it diligently without any form of error. So in that moment there is a little bit of frustration. You get frustrated a bit, you do get frustrated thinking what you're going to do next, what if the baby changes if I give them this. Because they do change, they can have 3 different states in 2 minutes so it's kind of frustrating in that moment, until you're 100% sure that your child is completely stable. Especially if you don't have… you know our nurses are not the same. There are some nurses who will be there and support you with knowledge and experience and there's maybe a shift leader who doesn't note of what's really happening with other patients. You would want to make no error because you know you'll be answerable because this person will not help you. So that's what happens in the first in the first hours of admission.

R: I understand that during these 4 hours, the feelings of frustration, uncertainty with regards to whether or not the patient is stable. Tell me more about this baby… you told me about the uniqueness of this baby. What do you actually mean?

P1M: Ok. There are children who come and they will be stable throughout, maybe they have had a mini operation. And there are babies who come without having done (unclear). And there are some babies come on a new regime of medication. And some come post surgery and we know because we have used…before surgery. So you ask the operating doctor why the child is on this thing.

R: Still nodding the head.

P1M: They don't answer you the way you want, so you continue being unsure of why this child has this thing. That is the hardest part of nursing a child whose operation nature you do not understand.

R: Mmm…

P1M: Some come with very complex surgeries and they will still try to explain to you that they did this and took this artery and put it here… but you still won't understand it all at that time. So you try to think of your actions, interventions versus the condition of the child because ideally you want to nurse a baby knowing exactly what has been done to the child. You would know that if you take a minute or 2 mixing adrenalin and other medicine you know what will happen depending on the op that was done, and in this op you don't know what will happen to the child if you give this kind of morphine and you don't know how it will affect the child. Not understanding the nature of the op instantly kind of affects your interventions.

R: How does this intervention or this uniqueness make you feel in your experience?

P1M: It always comes down to not knowing and needing to study. This one is challenging in the sense that every time a unique patient comes, it challenges you to go study about that condition. So it kind of makes you feel like you still don't know much and you still need to study about this. But it becomes overwhelming because you need to study more about the nature of the op, you still need to study your nursing consideration and all that takes time. And the patient is lying here on the bed, the patient needs immediate intervention and as a nurse you need to know exactly why you're doing this and how it's going to affect whatever they did in the heart. So it's that moment whereby you want to fit everything in that short space. The baby is already on the bed and there is no time for you to learn about the condition, to learn about the treatment, to learn… for example there is some medication you can give over one hour for certain conditions. All of that you cannot learn all of that in there, you know what I'm saying, you just have to give this medicine for 3 hours and then you find that in this condition you have to extend the hours. But how will you know that if it's a new condition that just came and you didn't know about it before and you have to give the medication now and there are other interventions to be done. You kind of feel like you have to squeeze all the new information at the same time, it's challenging in that manner.

R: Can you tell me more about the lot of interventions that come in while you're inexperienced?

P1M: Ok. Usually it does not become a problem to intervene, multi task and intervene properly. There comes a point whereby you… You know it all comes down to support, when you have that support intervening does not become a problem because you'll be doing something and your shift leader will be there to advise you. The problem comes when you are alone, or if the ward is busy and there isn't much support. I think it all comes down to support, when you are properly supported I don't think you encounter such problems. It all comes down to the importance of having a shift leader in the ward or being paired with someone who's experienced enough to notice a certain thing that you could not see was there.

R: You told me about the baby coming out with the Prostin E…and errr, which you never thought the baby will come out with…

P1M: I'm just making an example of things you won't be used to. Maybe a certain type of medication. Ok let me give an example, you know with Prostin E we give it pre-op to keep the (unclear) open if the baby's circulation depends on that opening. But now they've fixed the problem now the baby come back…Let me just say an unusual treatment modality. They would have been knowing why they gave that modality depending on the surgery that they would have done.

R: So for that uncertainty, how does it make you feel when the anaesthetist is there but they don't know, the surgeon is not there.

P1M: It makes you feel like you are nursing blindly, you're just nursing without insight you become scared. So let's say maybe the child starts to be restless, you become scared, you don't know which kind of sedation to use that will contradict… it kind of affects your nursing care in a way. So you are nursing blindly, giving in small amounts hoping it does not cause problems. That's all.

R: You told me about the issues of the medication. You said Meronem to be running over 3 hours and in other babies, one hour…

P1M: No no no no. Meronem, according to the manufacturer, advice 3 hours, that is standard. But if further (unclear) you'd want to know why. So that is actually the catch and you say in every baby that comes we run it for 3 hours, but in this one they will ask us to trial for one hour. So when a baby comes you ask yourself if you're running it for

an hour or 3 hours, so you kind of get stuck between there then you ask your shift leader. Sometimes they refer you to the doctor and the doctor is not there or the attending doctor is not there but the child has to get that Meronem, it's important to avoid infection. I think it comes down to proper information, proper report giving and support.

R: Tell me more about this proper information? What do you mean?

P1M: By proper information I mean… a few days ago there was a doctor who came and gave me a detailed report of what they did, how the baby was during the operation and how they managed to get through the operation. It felt so wonderful to nurse that child, you know, because I knew exactly what was done and knew exactly what to do. The doctors would guide and say you can stop this kind of medication and run this one." "You can run a bit of that blood, because I believe that during operation we were depending on volume…" you know exactly what to do. The other scenario is whereby you are given a report by your nursing staff or someone. They'll say "this is your child, we did this and that, no problems during the operation." You're only shown once and then they put a patch. That's the report they can give you of course. But when you are in an ICU you need to know the detailed report of the operation so that you know how to manage that child. Some interventions require you to act immediately regardless of whether or not the doctor is there. I feel it's important to know exactly what happened in theatre, how they maintained the pressures. Maybe in theatre they were maintaining pressures with volume, then you come to the ward and try maintain the pressure with inotropic support, that will not work. For example when the patient has inotropic ventricular something, that will not work. So if you have a detailed report explaining how the patient was before… that's what I mean by proper information.

R: Tell me more about… you said this immediate intervention. How do you feel about it?

P1M: Most of the times, I am personally afraid to intervene immediately because of protocols, but intervention can only be done by someone who is ICU trained… sorry, sorry. Ok I was saying that I am sometimes sceptical to intervene immediately because of the laws that are in place. Like ICU trained are the only people who are allowed to administer the medication that kind of thing. So mostly they say do this, but I'm sceptical about it because of the illegality. Usually I would ask a person who is close to me or

even if we are experienced, we are two so we can co-check and do it. But at interventions, I don't like to start on my own especially if I'm not trained.

R: Ok. What can be done to support nurses in terms of experience in nursing these children?

P1M: From my point of view, I think what's important is that…number one, the patient that you are nursing, you should know almost everything about that patient. It's not that the doctors will not know you are experienced, some doctors do know the difference between us. They know that there is a shift leader and the shift leader is trained. So what they do is, they would rather give the report to the shift leader in hopes that the shift leader will guide you. What happens when the shift leader is not around or busy with another patient, you lack in that information. So I think proper information should be given to either both or the person who is currently nursing the baby. You should know exactly what you are dealing with. Another thing they can do to help us is if… you know on the big side we have 4 beds. If they can pair you with somebody who is trained. Even if the shift leader is not there you can rely on that person. I think if we can work as a team to say that if an ICU trained person can give you advice. So if you are paired with that person and that person gives you advice regarding your baby, the shift leader must not take offence because we are a team and we are thinking of the same treatment. It's not like I will treat the baby this way and this own will do his own way. So if we can work together and paired with a person that is trained, then that person will be reliable and let the interventions of that person not be of concern to the shift leader. So I think it's that and the importance of a shift leader. If we can always have someone that you can report to. The immediate support that you can report to before you report to the doctor. Because sometimes you will see something as major and the shift leader sees it as a minor thing and they can simply sort it out there and then, instead of calling the doctor for something small. I think they can support us in that way, pair us with somebody that is trained because the unit… not only this unit, most units. If they feel that you know what you are doing, they don't feel the need to support you. If they feel that you have enough knowledge to take care of this child, they don't feel you need enough support. Truly speaking you need that support. For example they pair me with a junior or maybe another experienced nurse, hoping that I will assist that person. Or they will pair me with a staff nurse hoping that I will assist that person. But it's no necessarily my role to be overseeing that person's interventions because of the liability.

So I feel that they should treat every junior nurse and treat them equally. I think that's the only way they can help us.

R: So do you think that there is anything we can do in this unit?

P1M: I would like to think that my training as a bridging course nurse was sufficient when it comes to adults, however, I do not think that this knowledge applies to children because these are children with unique conditions. It's not just children with burns that you know how to treat, you know how to treat children who come with flu, and it's not that kind of knowledge. So I think this is very different from our education because you cannot… For example let me say the way we administer adrenalin on these children is not the same way you would administer on a child who suffered a traumatic experience, you know, so I feel we should have training on how to treat these children. Maybe during our orientation or even before, because our comprehensive course does not cover what is happening with these children?

R: How do you feel and what can be changed in this unit?

P1M: I think the important thing for us was the proper orientation. The orientation of experienced nurses to this kind of unit or from the ward should not be the same. They put you on a two week orientation showing you this and how this and that is done. But with these children we must… maybe when they orientate us they can take the first week and orientate us and maybe the following week we do the conditions.

R: If I understand you well, you talking about orientation?

P1M: Yes

R: Okay

P1M: Maybe again they should take a month of proper lectures on what to expect with these children and how to treat these children, what kind of conditions to expect and possible outcomes of the conditions. I think that is what's important.

R: So what do you think should be done, in terms of your training?

P1M: You mean our bridging course training or here?

R: Nodding head

P1M: Apart from that… I think I just mentioned. Apart from our bridging course training we should have proper in-service training relating to the conditions, they cannot cover

them all, so maybe common conditions. And common treatment modalities, I think they should teach us that.

R: Nodding head

P1M: Yes….and in-service training would help us a lot, because in-service training can be done on the new policies and grievance procedures and maybe people can come in and teach us how to operate on pumps.

R: Okay, if I understand you well, you need in-service training on policies and grievance procedures and how to operate pumps.

P1M: Of course

R: Okay [Smiling]

P1M: But there is no in-service training on how to take care of a baby post cardiac surgery. I think that is something they can maybe try and implement. That would help us a lot. And not just to generalise post cardiac surgery, but say maybe this month you are going to do 2 lessons on how to nurse a patient post PDA, how to nurse a patient post (unclear) repair, how to nurse post … you know, that kind of thing. Those will help us. So I think those are the considerations.

R: Thank you so much for the knowledge and your experience that you have provided me with to during research study. I really appreciate it and after you have completed, if you want to go to UJ and look at my thesis, the findings will be there in 2018 I hope. Thank you very much.

P1M: Thank you and good bye.

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