



**LIVED EXPERIENCES OF NURSES REGARDING SHORTAGE OF MEDICAL EQUIPMENT AND
SUPPLIES IN PRIMARY HEALTH CARE FACILITIES IN MAKHADO MUNICIPALITY**

By

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DECLARATION

I, Masuwa Rofhiwa, hereby declare that the research study titled - **Lived experiences of nurses regarding the shortage of medical equipment and supplies in Primary Health Care facilities in Makhado Municipality, Vhembe District** - submitted by me has not been submitted previously for a degree at this or any other university, that it is my own work in design and in execution, and that all reference materials contained therein have been duly acknowledged.



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DEDICATION

This study is dedicated to all healthcare workers who continue to give service to the public amidst the Corona virus pandemic, and it is also dedicated to my parents, Mr and Mrs Masuwa, for their continued guidance and motivation that keep me focused on my career.

ACKNOWLEDGEMENT

- Firstly, I would like to express my sincere gratitude to Jesus Christ, my Lord and Saviour for giving me the wisdom, strength, support and knowledge in undertaking this research study; for His guidance in helping me to overcome all the trials that I encountered and for giving me the determination to pursue this study, and to make this study possible.
- This study would not be a success without all the support I received from my family members, therefore, I would like to express my deepest gratitude to my husband, Kwinika Bongani for his love, support and help in making this study a success. I would also like to acknowledge my children, Kwinika Gundo and Thendo Kwinika for giving me the courage to keep going. I would also like to acknowledge my siblings, Fulufhelo, Eunice, Patricia, Sylvia and Lutendo for supporting me and giving me words of encouragement. My parents, Mr and Mrs Masuwa, are always there in times of need; they always motivate and give me words of encouragement which really helped in making this study a success.
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- Special thanks to all the registered professional nurses who made this research study a success by agreeing to participate.

ABSTRACT

Introduction: There is a critical decline in the availability of functioning medical equipment and supplies in developing countries. The World Health Organisation revealed that in the African countries including South Africa approximately 50-80% of medical equipment is not working, resulting in failure to provide quality care to patients by nurses. This study aimed to determine the lived experiences of nurses regarding shortage of medical equipment and supplies in Primary Health Care facilities in Makhado Municipality of the Vhembe District.

Methods: A qualitative, phenomenological design was used. The population was composed of all registered professional nurses working in primary health care facilities in Makhado Municipality. A nonprobability purposive sampling method was used to select 20 registered professional nurses, four from each PHC facility, however, sample size was determined by data saturation. A purposive sampling method was used to select five PHC facilities from Makhado Municipality.

Data was collected through face-to-face unstructured interviews, which were audio-taped after obtaining permission from participants; observational and field notes were also taken. Voice recordings were transcribed and inductive coding was used for data analysis, using computer assisted qualitative data analysis software programs. Trustworthiness was ensured through credibility, transferability, dependability and conformability. Ethical clearance certificate was obtained, ethical recruitment of subjects ensured, informed consent was obtained, participation was voluntary, while anonymity and confidentiality were ensured.

Results: Challenges related to shortage of medical equipment and supplies were identified; these had resulted in failure to provide quality nursing services. Contributory factors to shortage of medical equipment and supplies were also identified. Shortage of resources does not only negatively affected nurses' performance but also their personal lives.

Recommendations: Further research should be conducted on the same research topic; however, it should be conducted in a different setting to generate more comprehensive knowledge about the problem. The logistics personnel responsible for the maintenance and servicing of medical equipment must service the equipment as per protocol to avoid malfunctions.

Keywords: lived experiences, medical equipment, medical supplies, primary health care, primary healthcare nurses

LIST OF ABBREVIATIONS AND ACRONYMS

CAQDAS- Computer-Assisted Qualitative Data Analysis Software

CHC- Community Health Centre

DHS- District Health System

DoH- Department of Health

ICRM- Ideal Clinic Realization and Maintenance

NCSBN- National Council of State Boards of Nursing

NHI- National Health Insurance

PHC- Primary Health Care

SAMED- South African Medical Industry Association

SANC- South African Nursing Council

UNICEF- United Nations International Children Emergency Fund

USA- United State of America

WHO- World Health Organization

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CHAPTER 1: OVERVIEW OF THE STUDY

1.1 Introduction and background

Effective delivery of the Primary Health Care services requires that these primary health care facilities have proper infrastructure, functional medical equipment and sufficient supplies. Poor funding and mismanagement often result in shortage of medical equipment and supplies in primary health care facilities which then impact on the nurses' experience as they execute their daily duties (Oyekale, 2017).

The Alma Ata conference on primary health care by the World Health Organisation and United Nations International Children Emergency Funds held in 1978, declared that primary health care should be regarded as essential, scientifically sound, ethical, accessible, equitable, affordable and accountable to the community. It has been decades since the primary health care (PHC) strategy was introduced; however, its implementation remains sub-optimal. The shortage of medical equipment and supplies in the PHC facilities serves as a barrier to the implementations of the Alma Ata conference, (Moyimane, Matlala & Kekana, 2017).

Regardless of the economic status of the country, shortage of medical equipment and supplies is a worldwide problem; which has a negative impact on the nursing care delivered to patients, as well as the physical and mental health of nurses (Rivaz, Momennasab, Yektatalab & Ebadi, 2017). Shortage of medical equipment and supplies has been reported in countries such as Greece where there was insufficient physical space resulting in overcrowding of patients as well as insufficient modern and quality life-saving medical equipment and supplies (Rachiotis, Kourousis, Symvoulakis & Dounias, 2014). These shortages were found to have negatively impacted on the quality of the healthcare provided to patients, (Rachiotis et al., 2014). Emotional exhaustion and depersonalization among health care workers in Greece have been also attributed to the shortages of medical equipment and supplies (Rachiotis et al., 2014).

The authors concluded that most nurses working in the PHC facilities in Iran are exposed to shortage of essential medical equipment and supplies and these are the main stressors that decrease job satisfaction in the nursing staff. Emotional tensions amongst the nurses, the pressure in the workplace and stress due to shortage of medical equipment and supplies are among the most common reasons for a decrease in motivation, job dissatisfaction, and high staff turnover in Iran, (Rivaz et al., 2017).

Most developed countries, such as the United States of America, hold back-up medical supplies, which are referred to as 'the reserve'; these help in cases of shortages in their health care facilities, (Zhou & Olsen, 2018). In Tanzania, it was documented that medical equipment and supplies availability at health facilities remain uncertain. A report of the Tanzanian National Health Service Provision Assessment revealed that only one in eight PHC facilities which have delivery services had basic medical equipment and supplies. The nursing staff reported negative experiences, such as burnout, increased workload, job dissatisfaction and some nurses even thinking of leaving the profession (Mkoka, Gicolea, Kiwara, Mwangu & Hurtig, 2014).

Most developing countries, such as Malawi, have approximately 80% of its medical equipment donated by developed countries with almost 40% of the medical equipment being non-functional. There is a high number of non-functional medical equipment because when medical equipment is broken, they often remain unrepaired for extended periods of time. This is because there are usually few supply chains to get replacement parts and this contributes to the shortages of medical equipment and supplies which puts a strain on patient care and makes it difficult for nurses to render quality patient care (Cancedda, Davis, Dierberg, Lascher, Kelly, Barrie, Koroma, George, Kamara, Marsh & Sumbuya, 2016).

A study conducted in Nigeria also emphasised that this problem of shortage of medical equipment and supplies also impact on the delivery of antenatal care services which are very crucial in the primary health care facilities; without the necessary medical equipment and supplies in the PHC facilities, the antenatal cases are referred to the hospital for management (Nnebu, Ebenebe, Adogu, Adinma, Ifeadike & Nwabueze, 2014).

Similarly, in South Africa medical equipment and supplies are crucial health intervention tools that are needed for patient care; however, there is growing evidence of critical shortage of functional medical equipment and sufficient supplies (Moyimane et al., 2017). In South Africa, an individual's first stop is at a primary health care facility when sick, however, this sector is characterised by crucial shortages of medical equipment and supplies. Approximately 50-80% of medical equipment, in the country, is not working and medical supplies are frequently out of stock, resulting in health facilities delivering poor quality patient care (Moyimane et al., 2017). This resulted in the country scoring below 50% in the national healthcare facilities baseline audit in 2012 (Sooruth, Sibiya & Sokhela, 2015). It was also reported that most nurses showed emotions of self-blame and guilt, as well as

feelings of being discouraged, frustrated and demotivated as a result of these shortages of medical equipment and supplies.

The shortage is higher in rural healthcare facilities than in urban facilities, and it is higher in PHC facilities than in hospitals. Moyimane et al., 2017 continued that most PHC facilities in rural areas have poor roads, making it difficult for personnel responsible for delivering and maintenance of medical equipment and supplies to reach these locations.

Moyimane et al., (2017) observed that nurses make up the largest single group of healthcare service providers. The critical shortages of medical equipment and supplies project a bad image of the nursing profession to the community and nurses lose respect in the community as a result. In Limpopo, Mokoena, (2017) documented that nurses are expected to provide quality nursing care to patients, despite the negative impact that these shortages pose on their daily working environment. This leads to feelings of frustration and demoralisation amongst the nurses. It is estimated that 84, 3% of nurses in Limpopo reported dissatisfaction with workplaces' resource availability (Tshitangano, 2013). Nurses also reported receiving threats, insults and being mistrusted by the public due to slow and poor nursing care delivered to patients as a result of shortages in medical resources at hospitals and PHC facilities. Limpopo in 2010 had the worst nurse shortage of over 60% as well as unavailability of medical equipment and supplies, leading to a high turnover of nurses because of job dissatisfaction.

The PHC facilities in Limpopo, especially in the rural areas, still encounter huge challenges with the shortage of medical equipment and supplies. Isobel, Hannah, Marize & Edward, (2019), revealed that most of the PHC facilities in Vhembe District have huge shortage of essential equipment, such as blood pressure monitoring machines, blood sugar monitoring machines, weight scales, beds, surgical equipment, thermometers and medications; this has contributed to poor nursing care including basic antenatal care services as well as having a negative impact on the lives of the nurses.

According to the Vhembe District Health Plan of 2018/19-2020/21, Vhembe PHC facilities had the worst shortages of medical equipment and supplies. For example, 20% of the PHC facilities had no tracer medicines; 82% had incomplete emergency trolleys due to the unavailability of endotracheal tubes, nasogastric tubes, haemoglobin meters and glucometers; 52% had old infrastructure; 94% had no stand-by generators in case of electricity unavailability; 85% had no diagnostic sets, no non-invasive blood pressure

machine and 26% had constrained budgets leading to poor maintenance of old medical equipment (Massyn, English, McCracken, Ndlovu, Gerritsen, Bradshaw & Groenewald, 2015).

The South African government developed the Ideal Clinic Realisation and Maintenance (ICRM) Programme in 2011. This was designed in response to the current deficiencies in the quality of PHC services and to lay a strong foundation for the implementation of the National

Health Insurance (NHI) (Hunter, Asmall, Ravhengani, Chandran, Tucker & Mokgalagadi, 2017). The government initiated the ICRM programme to ensure that all PHC facilities have good infrastructure, essential equipment, adequate nursing staff, adequate medicines and supplies, however, there are still reports of a high shortage of essential medical equipment and supplies in most PHC facilities (Hunter et al., 2017).

Moyimane et al., (2017) advise that authorities should provide PHC facilities with sufficient and functional medical equipment and supplies. This will ensure that nurses work in an enabling environment, thus, eliminating any negative experiences. The authors believed that with sufficient and functional medical tools, PHC nurses can provide quality patient care, therefore, it is evident that the shortage of medical equipment and supplies affects many countries in developing countries such as South Africa and even in developed countries such as United State of America. This makes it imperative to conduct research that will explore the lived experiences of nurses in PHC facilities regarding the shortage of medical equipment and supplies.

1.2. Problem statement

Grove, Gray and Burns (2015) explain a problem statement as indicating the gap in the knowledge needed for practice and that the problem statement usually provides a basis for the study's purpose. PHC facilities are responsible for offering antenatal care services - immunization, family planning, and treatment of minor elements as well as other special programmes, (Moyimane et al., 2017). For the PHC facilities to render quality services to clients and patients there must be enough medical equipment and supplies.

Vhembe PHC facilities, however, have recorded the worst shortages in 2020 as compared to other years, the shortages were reported as follows: shortage of face masks and gowns as the South African country was also facing the Covid-19 pandemic; 82% of PHC facilities had incomplete medical emergency trolleys; 52% were without resuscitation equipment and supplies; 52% had old and non-functional medical equipment; 94% were without generators

and 20% were without tracer medicines (Muthelo, Moradi, Phukubje, Mbombi, Malema and Mabila, 2020). The researcher is a registered professional nurse working at a PHC facility and has observed a serious shortage in medical equipment and supplies in the facility. During the provincial, district and local meetings and workshops, other registered professional nurses from different PHC facilities complained that shortages of medical equipment and supplies in their facilities are worsening.

Owing to these shortages, care that is provided to patients and clients is of poor quality. For example, without proper medical equipment and supplies in PHC facilities there will be delay in diagnosing patients and the treatment will therefore be delayed. This was supported by Muthelo et al., (2020) who argued that shortage of medical equipment and supplies make it difficult for nurses to render quality PHC services.

It is in this light that the researcher intends to explore and describe the lived experiences of nurses regarding shortage of medical equipment and supplies in PHC facilities in Makhado Municipality, Vhembe district of the Limpopo Province.

1.3. Rationale of the study

The South African national Department of Health implemented the ICRM programme which aims at improving healthcare services, provision of essential medical equipment and supplies in PHC facilities, as well as the implementation of the District Health System (DHS). The shortage of medical equipment and supplies, however, remains a huge problem which affects the nurses when rendering patient care (Hunter et al., 2017).

In a study conducted by Moyimane et al. (2017) in a district hospital in the Mpumalanga Province, experiences of nurses on the critical shortage of medical equipment were reported. Another study conducted by Mokoena, (2017) in Mankweng hospital in the Capricorn District of Limpopo focused on the perceptions of nurses regarding shortage of resources and the impact thereof on the provision of quality patient care.

The current researcher, however, found no studies specifically about the lived experiences of nurses regarding the shortage of medical equipment and supplies in PHC facilities in the Makhado Municipality. Shortage of medical equipment and supplies in PHC facilities usually contribute to nurses' negative experiences that might impact on their lives and the services they render to patients, hence, it is necessary to conduct a study in Makhado Municipality PHC facilities to fully understand the extent of the problem in this area.

1.4. Significance of the study

The significance of a study refers to the extent to which the topic can lead to authorities and stakeholders attending to this topic / problem for the benefit of the population. It is hoped that the findings of the proposed study may help the policy makers to revise policies regarding the allocation of finances for the purchasing and maintenance of essential medical equipment and supplies in PHC facilities. The Department of Health may also save funds because of the anticipated reduction of litigations. Nursing education curriculum may benefit as students may be able to perform nursing and midwifery skills properly during their clinical training and placements. Nursing services may be improved as there will be enough essential medical equipment and supplies required for quality nursing care and may contribute to the body of knowledge through the dissemination of journal articles and reports. Lastly, it is evident that community members may benefit from improved provision of patient care.

1.5 Purpose and objectives of the study

Below follows the discussion about the purpose and objectives of this study.

1.5.1. Purpose

Grove et al., (2015) state that a study purpose is the concise, clear statement of the specific goal or aim of the study. The purpose of this study was to determine the shortage of medical equipment and supplies in PHC facilities in Makhado Municipality Vhembe District, Limpopo Province.

1.5.2 Objective

The objectives of the study were:

- To explore and describe the lived experiences of nurses regarding shortage of medical equipment and supplies in PHC facilities in Makhado Municipality of the Vhembe District.
- To explore and describe the impact of shortage of medical equipment and supplies in PHC facilities on nurses' professional and personal values
- To determine measures to efface negative lived experiences of nurses in PHC facilities.

1.6 Research question

For Grove et al., (2015) a research question is an interrogative statement that is clear, concise, and expressed to direct a study and it focuses on identifying and describing variables and relationships among variables. The research questions of this study were:

- What are the lived experiences of nurses regarding shortage of medical equipment and supplies in PHC facilities in Makhado Municipality of the Vhembe District.
- What is the impact of shortage of medical equipment and supplies in PHC facilities on nurses' professional and personal values
- What are the measures to efface negative lived experiences of nurses in PHC facilities.

1.7. Definition of terms

Experiences- Erlich (2003) defines lived experiences as the sum of the conscious events which compose an individual's life.

In this study, lived experiences refer to the negative and positive situations that nurses encounter in their workplace and in private life caused by working in the PHC facilities in Makhado Municipality Vhembe District, Limpopo Province.

Medical equipment- Medical equipment is the capital equipment and durable items, for example, beds, examination tables, sterilisers, microscopes, weighing scales, blood pressure monitoring machines and bed pans that are supposed to last for several years (Kaur & Attawell, 2001).

In this study, medical equipment refers to all medical tools that can be used repeatedly for a long period and is necessary in PHC facilities for provision of care.

Medical supplies- Kaur & Attawell (2001) define medical supplies as items that need to be replaced routinely, such as disposables, single use items, for example, disposable syringes and needles; expendables, items that are used within a short time, for example, cotton wool, laboratory stains and tapes and reusable items, for example, catheters, thermometers and other items with a short life span.

In this study, medical supplies refer to all materials that are used once or for a short period and are necessary in PHC facilities for provision of care.

Primary Health Care (PHC) – A primary health-care approach is centred on the individual, the family and the community. The ideal health service should be accessible, affordable, acceptable, available, equal, effective, efficient, continuous, caring, comprehensive, comfortable, considered scientifically-advanced and consistent with patients’ safety (Mokoena, 2017).

In this study PHC refers to care rendered by the nurses in a primary healthcare facility.

Primary healthcare nurse - According to the South African Nursing Council, a nurse is a person registered under Section 31(a) of the Nursing Act (33/2005).

In this study, a PHC nurse refers to a professional registered nurse who works in the Makhado Sub-district PHC facilities.

TABLE 1: Chapter Outline

<p>Chapter 1: Overview of the study</p> <p>This Chapter outlined the orientation of the study indicating the introduction and background, problem statement, significance of the study, purpose of the study, research questions, objectives, definition of terms, summary and chapter outline.</p>
<p>Chapter 2: Literature review</p> <p>This chapter focused on the literature related to lived experiences of nurses, regarding shortage of medical supplies and equipment in PHC facilities.</p>
<p>Chapter 3: Research design and methodology</p> <p>This chapter presented the research methodology employed in order to address the objective of this study.</p>
<p>Chapter 4: Data presentation and discussion</p> <p>This chapter presents and discusses the data collected and the findings.</p>

Chapter 5: Conclusions and recommendations

This chapter covered recommendations, limitations, summary, and conclusion of the whole study.

1.8 Summary

Shortages of medical equipment and supplies in the PHC facilities are the common causes of negative experiences encountered by the PHC nurses in both their professional and private lives. The researcher has identified that the shortage of medical equipment and supplies result in the PHC nurses experiencing many difficulties when providing care to the patients, therefore, the purpose of this study was to determine the lived experiences of nurses regarding shortage of medical equipment and supplies in PHC facilities in Makhado Municipality, Limpopo Province. In this chapter has been described the significance of the study, purpose and objectives of the study, research question, definition of terms, as well as chapter outline. Chapter 2 encompasses the literature review based on the works of relevant researcher.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Brink, Van der Walt & Van Rensburg (2015) define a literature review as an objective and critical summary of published research literature relevant to a topic under consideration for research. The main purpose of a literature review is to create familiarity with the topic at hand and with other similar studies. A literature review can also be explained as a logical combination of existing studies around a specific field of study.

During the literature review process, the researcher focused on the global, Sub-Saharan and South Africa as well as the local area of the Vhembe District in Makhado Municipality. In this section, the researcher also examines literature on lived experiences of PHC nurses regarding shortages of medical equipment and supplies in the selected facilities.

The literature review covered the following contents:

- The lived experiences of PHC nurses regarding the shortages in medical equipment and supplies in PHC facilities,
- Encounters with shortage of medical equipment and supplies,
- Defective health system,

- Patient care,
- Nursing's professional image,
- Nursing education,
- Legal implications,
- Shortage of medical equipment and supplies seen as posing health hazards to nurses, and
- Theoretical framework: Humanistic Nursing Practice Theory.

2.1.1 The lived experiences of PHC nurses regarding the shortage in medical equipment and supplies in PHC facilities

Regardless of the economic status of the country, there is a huge shortage of medical equipment and supplies worldwide which has a negative impact upon the nursing care delivered to patients, as well as the physical and mental health of nurses. The availability of medical equipment and supplies are very crucial for ensuring quality nursing care. PHC nurses are also negatively affected by the shortage of medical equipment and supplies, and patients are also disadvantaged because of these shortages (Rivaz et al., 2017).

During this literature review, the researcher identified nurses' lived experiences regarding shortage of medical equipment and supplies under the following categories: experiences related to encounters with shortage of medical equipment and supplies, defective health system (lack of support, lack of sufficient budget), patient care (distrust, delayed patient diagnosis, delayed patient treatment), nursing professional image (lack of advancement in the nursing career, poor nursing training), nurses' high turnover and migration, legal implications of unsatisfactory care, shortage of medical equipment and supplies posing health hazards to the nurses, as well as experiences related to low morale/job dissatisfaction.

2.1.2 Encounters with shortage of medical equipment and supplies

Most primary health care facilities often have problems with the suppliers, particularly, unreliability in getting medical supplies. It has been observed that there are delays in getting ordered medical supplies and no clear information is given to the facility manager about the reasons for the delay. Sometimes, medical supplies brought to the PHC facilities have expired or are not those that were ordered; this affects the delivery of necessary care (Mkoka et al., (2014).

Reliable suppliers of medical equipment and supplies play an important role in the quality of health services rendered to the patients. Concerns around selection in Medical Device

Industry is neglected in literature, hence, there is no focus on the fact that a reliable supplier should deliver supplies in due time and correct ordered supplies should be delivered. Medical equipment and supplies should always meet the clients' and the regulatory requirements (Ghadimi & Heavey, 2014).

2.1.3 Shortage of medical equipment

Mkalaf, (2015) documented that the purpose of medical equipment is for it to be of assistance in the diagnosis, monitoring, treatment and rehabilitation of patients' conditions.

Most nurses expressed challenges around medical equipment that is not maintained, replaced or repaired. These complaints were attributed to the fact that there is no service plan for medical equipment in most health facilities. Most inspection teams in healthcare facilities are not provided with guidelines for the maintenance of equipment and because the inspection teams are stationed at district hospitals, the turnaround time for repairing an equipment in PHC facilities is too long resulting in most facilities being without key medical equipment for considerable periods (Moyimane et al., 2017).

Isobel et al., 2019, revealed that most health institutions, including hospitals, clinics and community health centres in SA, have aged imaging and electro-medical equipment which needs to be replaced; most of the existing medical equipment is old and has reached the end of its life-expectancy period. Isobel et al., 2019 also documented that some of the medical equipment no longer comply with amended regulatory requirements and could pose a risk to healthcare personnel and patients; most of the equipment is broken down and very expensive to repair.

2.1.4 Defective Health System

PHC facilities must remain functional so that quality nursing care is delivered to patients and to ensure that nurses working in the PHC facilities remain satisfied and well prepared to care for patients. However, defective health system serves as a barrier to the provision of quality patient care. The discussion below reveals the factors that lead to defective health system.

Lack of support

The District Health System (DHS) has been appointed as the medium for the implementation of PHC at the community level. The DHS which is based on the primary health care approach is aimed at keeping people healthy and caring for them when they are unwell. Positive outcomes, such as increased life-expectancy has been observed through the DHS,

but intervention efforts and significant allocation of resources over the past 20 years have not succeeded in strengthening the PHC as much as is needed (Massyn, et.al., 2015)

Nurses in the PHC facilities complain about the lack of support from the PHC management and that coping in the working environment is difficult for them, for example, from lack of protective clothing, such as gowns, goggles and masks. Some of the characteristics of nurses, in the PHCs include, occupational stress and burnout owing to being forced to work long hours without adequate resources and organisational support (Brophy, 2015).

Ndikwetepo, (2018), revealed that nurses were dissatisfied with the leadership style of most health facility managers. Nurses expressed the need for frequent supportive visits from the managers for their better understanding of the working environment that nurses are exposed to, on a daily basis.

Lack of sufficient budget

According to the Provincial Health Department's Budget Speech (Moyimane et al., 2017), Limpopo has the lowest expenditure per capita on primary health care in South Africa. Worryingly, between the 2015/16 and the 2016/17 financial years, this even dropped further by 3, 8 %. It was particularly low in Mopani, Vhembe and Capricorn districts (Moyimane et al., 2017).

Mkoka et al., 2014 argued that the funds that are provided by the government for medical equipment and supplies for each of the PHC facilities are not enough since the allocation of funds for facilities does not take into account their individual needs.

Unequal distribution of medical resources and low prioritization of budget towards healthcare are the most obvious challenges in achieving health coverage in low and middle-income countries (Behera & Dash, 2018).

2.1.5 Patient care

Registered professional nurses in the PHC facilities have complained that there is not enough medical equipment and supplies in the primary health care facilities, making it difficult to render quality patient care (Ndikwetepo, 2018). Nurses are willing to deliver quality nursing care to patients but medical equipment is not available or available medical equipment is either old or malfunctioning; this then delays patient care as the available equipment and supplies are insufficient to correspond with the number of patients in most PHC facilities (Ndikwetepo, 2018).

Lack of essential medical equipment and supplies in the PHC facilities creates a relationship of distrust between the patients and the nurse practitioners. It was also revealed that the community members perceived healthcare providers as those who are responsible for the shortage of medical resources, hence, nurses were mostly blamed and accused of using the medical equipment and supplies for their own purposes (Mkoka et al., 2014).

Nurses are essential assets of the health care system, however, increasing their productivity and work performance remains a challenge for most African countries. The situation of shortages in medical equipment and supplies project a bad image of the nursing profession to the community members leading to nurses not being respected by community members anymore (Moyimane et al., 2017).

There are delays in diagnosing patients as in many instances, diagnostic equipment is not available. Patient diagnosis is delayed due to broken equipment, for example, when glucometer strips are not available, the nurses may not be able to test the patients' blood glucose levels (Ndikwetepo, 2018).

There is usually delayed patient treatment when there are scarce medical resources in PHC facilities. Lack of medical equipment and supplies affect patients badly as patients may be returned home without any intervention, leading to delays in commencement of treatment (Ndikwetepo, 2018).

2.1.6 Nursing profession's image

The nursing profession's image has always been a concern among those in the profession and stakeholders. Many people, as well as nurses have a negative perception of the nursing profession; this can be attributed to their poor working environment due to the fact that the necessary instruments and equipment needed by the nurses to work, professionally, are usually not available (Ingwu, Ohaeri & Iroka, 2016).

Gunawan, Aungsuroch, Sukarna, & Efendi, 2018 state that the image of nurses remains crucial for the profession. How nurses and community at large view the nursing profession has an impact on healthcare and on the nurses' professional self-esteem. Gunawan et al., 2018 stress that image can influence nurses themselves, thus, they may feel depressed or less effective if others view them negatively. This was also supported by Safara 2018, who stated that the nursing profession still face extensive challenges related to its image; this has effect on nurses' power, self-esteem and confidence.

A professional image is the way the profession appears to others including, the general public. The image of the nursing profession impacts on the recruitment of students, the

views of the public, funding for nursing education and research, relationships with healthcare administrators and other healthcare professionals, government agencies, and legislators in all levels of government, and ultimately the professions' self-identity (Gunawan et al., 2018).

The decision to enter the nursing profession continues and is enhanced with its practices, therefore, to improve and promote the nursing profession depend on its image (Ingwu et al, 2016). Mkoka et al., 2014 argued that lack of medical equipment and supplies create a difficult working environment for the nursing staff in PHC facilities; nurses often feel disappointed as they feel they are providing incomplete nursing care to their patients. This leads to high staff turnover and migration.

The ability to provide high quality care is not only important to patient, finding it impossible to provide such care is also a contributory factor in nurses leaving their positions (Bjorn, Rissen, Wadensten & Josephson, 2017).

High nurse turnover and migration remain a concern for those in nursing management as the nurse turnover intentions range from 4% to 68%. Labrague, Gloe, McEnroe, Konstantinos & Colet, 2018 conclude that inadequate essential medical equipment and supplies may lead to job stress and dissatisfaction and nurses who experience work stress and burnout have high intentions to leave the employment.

Limpopo Province had the highest nursing staff turnover (more than 60%) in 2010 and the reasons were attributed to job dissatisfaction due to lack of medical equipment and supplies in healthcare facilities (Tshitangano, 2013).

2.1.7 Nursing education

One of the most valuable components of a nursing program is the clinical learning environment. This setting provides students with unique learning opportunities in which classroom theory and skills are put to the test with real life situations (Steivey, Caranto & Juan, 2015).

Nursing students are required by the SANC to do practical sessions in the PHC facilities, however, there are concerns about inadequate medical equipment and supplies for demonstrating nursing procedures to student nurses. SANC's objective for the clinical practice is for student nurses to be provided with meaningful learning opportunities in all areas of clinical placement to ensure that on completion of their training, nurses are able to provide quality nursing care. The shortage of medical equipment and supplies in the PHC facilities serve as an obstacle to the training of student nurses and as they become newly-

qualified nurses they will not be able to use certain medical equipment and supplies which they were never exposed to during their training. Poorly-trained nurses will slow down the multidisciplinary health teams' effectiveness to provide quality patient care. This means that the shortage of medical equipment and supplies affects the quality of education of the nursing students, (Moyimane et al., 2017).

Nurses in the PHC level usually lose their skills and knowledge acquired from the nursing schools as they do not practice their skills more often due to the shortage of medical equipment to perform some nursing procedures. When nurses lose their skills and knowledge required for patients care, patients are often referred to hospitals for minor illnesses that can be treated in a PHC level. For this reason, patients were found to be bypassing PHC facilities to hospitals, (Moyimane et al., 2017).

The National Council of State Boards of Nursing (NCSBN) reported that in the midst of Corona virus pandemic, nursing students were disallowed access to the hospitals and PHC facilities for their clinical experience; this was due to the hospital and PHC facilities' inability to supply enough proper protective equipment and supplies to the students. The education of the nursing students, therefore, was significantly disrupted since the clinical hours that students must spend in their respective allocated wards were not reached as per the SANC requirements (Spurlock, 2020).

2.1.8 Legal implications

The nursing personnel do their best to perform the requirements of their jobs, however, nurses can make decisions or be exposed to situations where legal actions may be initiated against them by patients or patients' families (Julie & Hudson, 2013).

Shortage of medical equipment and supplies may lead to negligence, malpractice and patient deaths which may result in legal actions taken against the healthcare facilities. Failure to provide quality nursing care in South Africa can result in nurses, the hospital, the PHC facility or the Minister of Health being sued by the patients. Lack of medical equipment and supplies exposes the nurse practitioners to malpractice and poor work performance (Mkoka et al., 2014).

Alexa, 2015 supported this by stating that failure to use medical equipment or supplies in a responsible manner and failure to assess and monitor the patient correctly is labelled as a 'legal negligence' in the nursing profession. This means that due to shortage of medical equipment and supplies in most of these primary health care facilities, nurses may be sued if they failed to care for the patients adequately (Alexa, 2015).

2.1.9 Shortage of medical equipment and supplies posing health hazards to the nurses

When there are shortages of medical equipment and supplies in the PHC facilities nurses may be exposed to many health hazards. For example, having nurses without proper working equipment and supplies in an infectious environment where nurses are bound to care for patients with highly infectious diseases, nurses are put at risk of contracting these diseases. The Canadian Nurses Association reported that in 2020 when the Coronavirus pandemic spread throughout the world, nurses were forced to work with limited proper protective equipment against this virus and this led to many nurses contracting this infection and many died (Havaei, Ma, Staempfli & MacPhee, 2021). The Association, in 2021 also reported that nurses face unprecedented challenges from work-related stress, due to increased workload, lack of medical equipment and supplies. When nurses work in an environment that exposes them to the risk of becoming ill or passing diseases to their family members, it causes a lot of moral distress and significant human suffering.

2.2 Theoretical framework

In this section, the Humanistic Nursing Theory and its application to the research study is described.

Humanistic Nursing Practice Theory

Glanz, Rimer & Viswanath (2008) define theory as a set of interrelated concepts, definitions, and propositions that present a systematic view of events or situations by specifying relations among variables, in order to explain and predict the events or situations.

The Humanistic Nursing Theory focuses on the nurse-patient relationship, wherein both the patient and the nurse have an influence on the outcome of the nursing interventions. Wu & Volker (2012) argue that it is a theory focusing on practice because it develops from the lived experiences of the nurse and the person receiving care.

The Humanistic Nursing Theory was developed from the phenomenological method to describe an individuals' experiences. Nursing is conceptualized as a lived human act and a response to a human situation. Parker and Smith (2010) argue that the Humanistic Nursing Theory offers nurses a way to illuminate the values and meanings central to their lived experiences so that they may share them with other nurses and integrate them into their nursing practice.

The founders of this theory, Paterson and Zderad (1995), suggest three concepts that provide the basis of nursing - dialogue, community and phenomenologic nursing -

however, this study only adopted dialogue. George (1995) points out that the community and phenomenologic nursology concepts largely focus on the subjective relation between the nurse and the patient, therefore, they will not be suitable for this study.

The Humanistic Nursing Theory emphasises maintenance of holistic care throughout the nursing care process, however, this cannot be achieved if there is a shortage of medical equipment and supplies, since patients would not receive the care they expect from nurses. Shortage of medical equipment and supplies would prevent nurses from establishing a good foundation to holistic nursing care for their patients, thereby, providing compromised care.

The dialogue concept in humanistic nursing theory

Nursing is a lived dialogue; it is a nurse-nursed created relation. Humans need nursing and nurses need to nurse. The dialogue concept of the humanistic nursing theory makes us understand that the interaction between a nurse and the patient has to follow certain steps in order for the nurse and the patient to maintain their relationship. George (1995) explains that involved in this dialogue are four steps, namely:

- Meeting
- Call and response
- Relating and
- Presence

These steps give a brief description of how humanistic nursing can be achieved.

Meeting

Meeting is the coming together of human beings and is characterized by the expectation that there will be a nurse and a nursed, who is a patient or a client. Factors that influence this meeting are feelings that are aroused by the anticipation of the meeting, the amount of control that the nurse or client has in coming together, the uniqueness of the nurse and the client, and the decision for disclosure and enclosure with the other (George, 1995). In this study, meeting refers to the coming together of the patient and the nurse in a primary health care facility. The patient comes to the primary healthcare facility to seek medical help from the nurses and expects to get help. In the meeting phase, the nurse expects to give quality and holistic nursing care to the patient. When the patient meets with the nurse for medical help, their meeting may be influenced by the patient's perception of the nurse and the services rendered by the nurses.

The patient may have negative perceptions about the nursing profession which can influence the attitude and reactions of the patient when meeting with a nurse for

consultation. The negative perceptions mostly result from a poor nursing care that the patients had received. This can be attributed to the fact that, sometimes, nurses are unable to render quality patient care due to shortage of medical equipment and supplies in their facilities. Meiring and Van

Wyk, (2013) also observe that negative media reports on nursing might influence the public's perceptions of nurses and the services they render.

Patients' negative attitudes towards nurses may prevent the patient from opening up to the nurse about their medical needs, and losing interest in the nursing care. The nurse may also lose confidence when meeting with a patient knowing that the patient may be aware of the poor nursing care rendered in the facility due to shortages in medical equipment and supplies.

Call and response

The complex nature of the lived dialogue is seen in call and response. Call and response are transactional, sequential and simultaneous. Nurses and patients call and respond to each other both verbally and non-verbally, and there is a potential for all this to happen at once. Nurses can relate simultaneously to the subjective and objective aspects of the lived situation. George (1995) argues that even though people can express this experience verbally or in writing in succession only, it is paradoxically occurring simultaneously for the nurse.

In this study, call and response refer to a situation where a patient calls for medical help and the nurse responds to the call. When the patient presents his/her health problem to the nurse, he/she is calling for medical assistance, and expects a positive response from the nurse. Such response is provision of quality medical care, manifested by proper assessment of the patient's condition using standard quality medical equipment and supplies followed by proper diagnosis resulting in appropriate treatment. The nurse is assumed to be professionally ready and has sufficient nursing skills to respond to the patient's call, however, the response is interrupted or is not forthcoming if the essential tools needed are not available.

Relating

George (1995) explains that human beings may either relate to each other as subject-object or subject-subject. Subject-object relating refers to how human beings use objects to know others through abstractions, conceptualizations, categorizing, labelling, and so on. Subject-subject relating occurs when two persons are open to each other as fully humans. George

(1995) argues that through subject-object relating, it is possible to gain certain knowledge about a person.

In this study, relating refers to the relationship that a nurse builds with the patient through a process of knowing each other. The patient explains all the problems that bring him/her to the PHC facility and the nurse must relate to the patient's needs through attentive listening, probing, understanding and identifying with patient's feelings and emotions. This relationship is also facilitated by the use of medical equipment and supplies. Without the necessary medical equipment and supplies, it becomes difficult for nurses to conduct assessments, observations, diagnosing and categorising of patient's illness. This results in compromised care provision which negatively affects nurse-patient relationship.

Presence

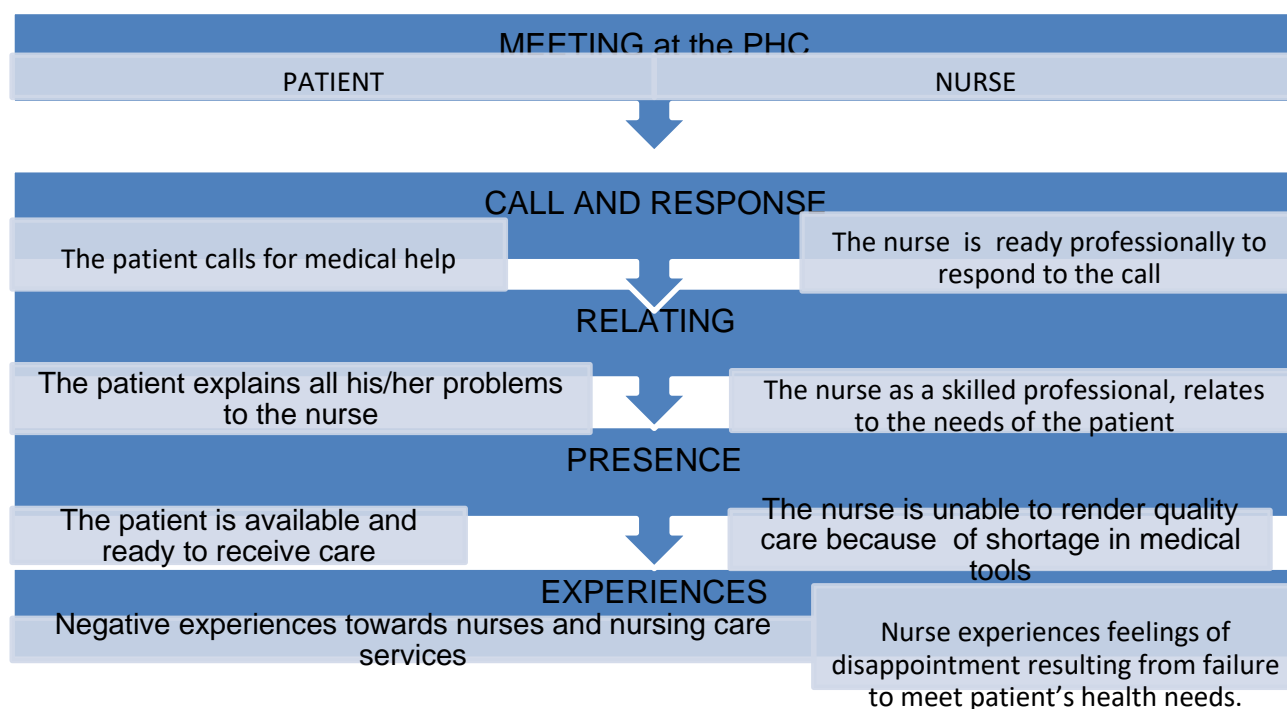
The ability of being open, receptive, ready and available to another person in a reciprocal manner is known as presence. George (1995) states that the nurse should be open to the patient and the patient should be open to the nurse so that they achieve the humanistic nursing care together.

In this study, presence refers to PHC nurses' ability to listen and assess the patient's needs. Presence also refers to the availability of medical equipment and supplies in a PHC facility, when these medical equipment and supplies are available, PHC nurses are said to have a presence since they are able to implement procedures necessary for meeting patients' needs. It is difficult, for a nurse to render high quality, humanistic nursing care if patients do not feel his/her presence due to unsatisfactory care from insufficient medical equipment and supplies.

A nursing dialogue occurs when a nurse and the patient comes together. The nurse presents him/herself as a helper ready to assist the patient, however, without the necessary medical equipment and supplies this cannot be achieved. The humanistic approach in nursing ensures the establishment and maintenance of nurse-patient relationship in which both parties influence the outcome of the nursing interventions.

Unavailability of medical tools sabotages the relationship. Failure to receive expected standard of care by patients, has a negative impact on the image of the nursing profession. The patient may develop negative perceptions towards the nurses and the services that they render, while the nurse also experiences feelings of disappointment from failure to meet a patient's health needs.

Figure 1 illustrates the relationship within the Humanistic Nursing Theory's concepts (Adapted from Parker & Smith, 2010)



The patient expects to receive help and the nurse expects to give this, therefore, if the nurse fails to give help to a patient as expected, it becomes difficult for both the nurse and the patient to reach their humanistic needs. This means that nurses must acknowledge their responsibility of giving as the essential nature of the nursing process and also accept the struggles they encounter during the process. In this study, this theory was used to explore the lived experiences of nurses as they carry out their daily duties without sufficient medical equipment and supplies in the primary health care facilities (George, 1995).

The unavailability of equipment and supplies in the primary health care facilities is making it difficult for nurses to render quality patient care. Ndikwetepo (2018) argues that nurses are willing to deliver quality nursing care to patients but equipment is not available or the available equipment is either old or malfunctioning and that this then delays and reduces the quality of patient care.

2.3 Summary

The shortage of medical equipment and supplies brings about negative lived experiences for the nurses in most PHC facilities. Some of these shortages found by previous researchers shows their significant impact on nursing education, nursing's professional image, quality of patient care delivered, and result in increased nursing workload, burnout, as well as legal

implications. PHC nurses encounter tremendous challenges, despite that, they try to provide quality nursing care to their patients with the limited resources they have. Chapter 3 will elaborate on the various aspects of the research methodology.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3. RESEARCH METHODOLOGY

Brink et al., (2015) explain a research methodology as the procedures by which the research is going to be carried out, how to measure its progress and what constitutes its success. In this study, the researcher employed a qualitative design to fully understand and explore the experiences of PHC nurses regarding shortage of medical equipment and supplies in the PHC facilities.

3.1 Study design

Brink et al., (2015) state that a qualitative research approach helps to explore and produce a detailed description of participants' feelings, opinions, and experiences about a phenomenon under study. This approach requires smaller sample size, since in-depth information can be obtained with a limited number of participants, although, Rhahman (2017) observes that the qualitative research method is time-consuming. Through a qualitative research, a researcher can explore a wide array of dimensions of the social world, including the texture and weave of everyday life, the understandings, experiences and imaginings of the research participants. The approach helped the researcher to obtain in-depth information from the participants about the lived experiences of nurses in selected PHC facilities regarding the shortage of medical equipment and supplies.

Phenomenological study design: This approach examines a phenomenon through the descriptions that are provided by the people involved. Brink et al., (2015) reiterate that a phenomenological study describes what people experience regarding certain phenomena, as well as how they interpret these experiences or what meaning the experiences hold for them.

With the phenomenological research approach, the researcher was able to describe nurses' experience about the shortage of medical equipment and supplies in the PHC facilities, as well as interpret these experiences and their meaning for nurses.

3.2 Study setting

Grove et al., (2015) identify a study setting as the location for conducting research and that it can be natural, partially controlled, or highly controlled.

According to the Vhembe District Health Plan (2018/19-2020/21), the study's site is a category C municipality located in the northern part of Limpopo Province. Massyn et al., (2015) reported that Vhembe District is the 19th geographically largest district in South

3.3.1 Study population

Grove et al., (2015) explicate that population is all the elements (people, objects, events, or substances) that meet the sample criteria for inclusion in a study and sometimes being referred to as a 'target population'. The population of this research study was all registered professional nurses working in five selected PHC facilities in Makhado Municipality while 'accessible population' is the portion of the target population to which the researcher has reasonable access (Mokoena, 2017). In this study, accessible population were all registered professional nurses permanently employed in the PHC facilities located in Makhado Municipality, Vhembe District Limpopo Province, have at least 1 year working experience and were willing to participate in the study.

3.3.2 Sample and Sampling

Brink et al., (2015) describes sampling as taking a portion of population and considering it as a representative of population. The researcher adopted a non-probability sampling method using the purposive sampling approach to select the study population and study setting. The researcher adopted this procedure because it helped to select the ideal participants who were knowledgeable about the phenomena being studied, therefore, adequately answered the research question.

Sampling of the health care facilities

The researcher selected five PHC facilities in Makhado Municipality using non-probability purposive sampling method; these were facilities that had the highest shortage of medical equipment and supplies as presented on the statistics of the Makhado PHC facilities. Another PHC facility was also selected using the non-probability purposive sampling for the purpose of the pilot study. After obtaining an ethical clearance certificate from the University of Venda Higher Degrees Committee and permission from Limpopo Department of Health, the researcher obtained a list of PHC facilities from the Makhado Municipality that had a high shortage of medical equipment and supplies, hence, these five PHC facilities were selected for the study.

Sampling of participants

The total population sampled for the study were 23 registered professional nurses, including the 3 registered professional nurses who were sampled for pre-test. Registered professional nurses who had at least one year working experience in the PHC facilities were sampled using non-probability purposive sampling method. Registered professional nurses are the

ones who are responsible and accountable for control and maintenance of medical equipment and supplies. Four (4) participants were selected from each of the five facilities, and three participants were selected from other facility for the purpose of pre-test.

Sample size

It is recommended that the sample size in qualitative studies should not be too small, otherwise it makes it difficult for the researcher to ascertain the identity of the participants (Brink et al., 2015).

For this reason four (4) participants were selected from each of the five PHC facilities, however, sample size was determined by data saturation, which was reached after interviewing 18 participants excluding 3 participants for pre-test.

3.4 Inclusion and exclusion criteria

The inclusion criteria and the exclusion criteria for this research study are fully discussed in this section.

Inclusion criteria

Grove et al., (2015) indicate that the inclusion criteria refer to characteristics that potential participants must have in order to participate in the study. Only registered professional nurses who have worked for a period of at least 1 year in PHC facilities under the Makhado Municipality participated in this study.

Exclusion criteria

The exclusion criteria refer to any characteristics that potential participants might have that would disqualify them from participating in the study (Grove et al., 2015). Registered professional nurses who do not work in the selected top five PHC facilities with the highest shortages of medical equipment and supplies were not part of this study.

3.5 Pre-Test

The researcher conducted a pre-test, which is also called a 'feasibility' study to investigate for possible flaws in the data collection instruments such as ambiguous instructions and inadequate time limits as well as whether the variables defined by the operational definitions are actually observable and measurable (Brink et al., 2015).

Three registered professional nurses from one PHC facility in Makhado Municipality who meet the inclusion criteria, but did not form part of the main study, were selected and interviewed to determine if there are flaws in the research instrument, in other words, if there are any questions that may be unclear. Pre-test results were not included in the main study and this is in line with what has been established, that data collected during the process of pre-test should not form part of the main study (Brink et al., 2015).

After collecting pre-test data from the three registered professional nurses, the researcher analysed the data. The researcher did not find any flaws in the research instrument, thus, this suggested that the research instrument was ready for the collection of data for the main study.

3.6 Data collection method

The researcher visited the managers of all the selected PHC facilities to make arrangements regarding data collection. Appointments were made with the registered professional nurses to ask for their permission to be included in the study, and to obtain informed consent. After obtaining written consent from participants, the researcher commenced with interview sessions.

The interviews were conducted in a natural venue, which in this study was in PHC facilities' meeting halls. The researcher ensured that the environment was quiet, comfortable and conducive.

Data was collected through face-to-face interviews with the participants. The researcher conducted the unstructured interviews which are particularly appropriate for exploratory, phenomenological and qualitative research studies since unstructured interviews produce a lot of in-depth information.

Interviews were conducted during participants' lunch time to ensure that the sessions did not interfere with their work; interviews were conducted in English. Participants were addressed using the alphabets; therefore, no names were mentioned by the researcher during the interviews to ensure anonymity. Each interview session lasted for 45-60 minutes depending on each participant's pace of responses. The central question that guided the interviews was: *"What are your lived experiences regarding shortage of medical equipment and supplies in your PHC facility?"* Probing questions followed after the main question, depending on the response from the participants.

To ensure that the data collected is accurately captured the interviews were recorded using a digital tape-recorder after obtaining permission from participants. Observational and field notes were written during the interview sessions to avoid forgetting some aspects of the data. Grove et al., (2015) explain that field notes are notations recorded by the researcher while an observation is taking place. Interviews were conducted until data saturation was reached after interviewing 18 participants. All Covid-19 regulations were followed strictly, thus, the researcher and all participants were wearing face masks during interviews; all participants and the researcher sanitized their hands before entering the interview room and a distance of 1.5 meters was kept between the researcher and each participant.

3.7 Measures to ensure trustworthiness

Trustworthiness is a method of establishing rigor in qualitative research without sacrificing relevance. Rigor assists the researcher in preventing errors. The following are the measures considered to ensure trustworthiness of this study based on Brink et al., (2015):

3.7.1 Credibility

According to Brink et al., (2015), credibility refers to whether researchers have established the truth of the findings from the subjects or clients and the context in which the study was undertaken. Credibility refers to confidence in the truth of the data and its interpretations (Brink et al., 2015). Brink et al., (2015) developed the following steps to ensure credibility of a research:

Prolonged engagement refers to the extent of the process by which the researcher engaged with the study participants to gain their trust and establish rapport (Grove et al., 2015).

The researcher ensured quality of the research through prolonged engagement in the study setting to gain in-depth understanding of the research phenomenon. The researcher visited participants and had information sessions with them and made appointments, during the preparatory phase. This enabled participants to be comfortable with the researcher and provided a platform for trust which resulted in open discussions. During the interviews, the researcher spent time with participants, listening and observing them as they shared their experiences.

Member checking refers to an on-going formal and informal validation of data, analysis of themes and categories, interpretations and conclusions with those study participants from whom the data was collected (Grove et al., 2015). In ensuring the truth of the data, the researcher went back to the participants to provide feedback about emerging interpretations

and to seek clarifications of some aspects of participants' responses. Participants then confirmed that the findings were a true reflection of the experiences they had shared.

Triangulation refers to the use of two or more theories, methods, data sources, investigators, or analysis methods in a study (Grove et al., 2015). Triangulation was also used to ensure credibility of the study as the researcher collected data using interviews, as well as observational and field notes as means of ensuring triangulation.

Peer debriefing refers to a method in which the researcher discusses the research methodology, data analysis and interpretations continuously throughout the study with his/her peer who is not directly involved in the research project (Grove et al., 2015). Peer debriefing is one of the quality enhancement strategies that involves external reviews and sessions with peers to review and explore various aspects of the inquiry (Grove et al., 2015). The researcher presented the findings to supervisors; suggestions for improvements were incorporated in the findings.

Referential adequacy

This involved the use of a voice-recorder as well as taking of field notes.

3.7.2 Transferability

Transferability refers to the extent to which the findings can be transferred to other settings or groups (Brink, et al., 2015). Transferability was ensured by selecting participants who represented the entire population of the study. The researcher also presented a thick description of the methodology and the results to enhance transferability to other settings. The researcher also explained in the background information to the participants, the detailed context and techniques of the research.

3.7.3 Dependability

Brink et al., (2015) define dependability as one of the criteria that is used to establish trustworthiness by having a peer researcher perform an audit of the study. In this study, dependability was ensured by sending the findings to the supervisors and co-supervisors for an audit trial.

3.7.4 Conformability

Conformability is the last criterion of the trustworthiness that a qualitative researcher must establish. It relates to the researcher's confidence that the findings are based on participants' narratives rather than the researcher's potential biases (Brink et al., (2015).

Conformability was ensured by guaranteeing that the findings, conclusions and recommendations are supported by the data and that there is an internal agreement between the investigator's interpretation and the actual evidence. Responses from the research participants were transcribed and recorded; all non-verbal cues were also indicated on the transcription of responses. Conformability was also accomplished by incorporating an audit procedure.

3.7.5 Principle of beneficence

Brink et al., 2015 stated that for the researcher to adhere to this principle, the researcher needs to secure the well-being of the participants, who has the right to protection from discomfort and harm. In this study, the research problem does not involve a potentially harmful intervention, therefore; the participants were protected.

3.7.6 Principle of justice

The principle of justice refers to the participants' right to fair selection and treatment, (Brink et al., 2015). This principle was ensured by selecting participants with fairness and all participants were selected for reasons directly related to the research problem.

3.7.7 Principle of non-maleficence

This principle implies that during the research study the participants must be protected from harm. The researcher ensured this principle as the research study did not impose the participants on any harm.

3.8 Ethical consideration

The principles for ethical research are fully discussed in this section.

Ethics are a set of rules or standards that regulate people's lives and are used for decision-making. In this study, the researcher acknowledged welfare and moral obligation towards the participants (Brink et al., 2015). Ethical clearance was obtained from the University of Venda Research Ethics Committee, and the Project Number is: SHS/20/PSYCH/12/2011.

Permission to access PHC facilities was granted by the Department of Health, Limpopo Provincial Research Committee (Provincial Project No: LP_2020_11_044). Vhembe District Executive Manager (DEM), Assistant Manager of PHC facilities in Makhado Municipality and Operational Managers of the five selected PHC facilities, also granted permission for the researcher to access the selected facilities.

To maintain confidentiality, the information obtained from the interviews was shared between the researcher, the supervisor and the co-supervisor, only.

Recruitment of subjects is the process by which individuals are recruited as potential subjects in a research study (Carvil, Regan, Yendle, O'Roak, Lozovaya, Bruneau, Burnashev, Khan, Cook, Geraghty and Sadleir, 2013). Upon learning full details of the study by reading the informed consent form, eligible individuals may or may not decide to participate (Carvil et.al., 2013). Everything possible should be done to avoid coercion of subjects in their study participation (Brink et al., 2015). In this research study, the researcher made appointments with all selected PHC facilities and visited them to have a face-to-face discussions with possible participants for the study.

Voluntary participation refers to the decision made by a prospective subject, of his/her own volition, without coercion or any undue influence, to participate in a study. Participants have a right to know what the research is about, how it might affect them, the risks and the benefits of participation and the fact that they have the right to withdraw from participation if they feel like doing so (Brink et al., 2015). In this study, the researcher explained to the participants what the study entails and the requirements for participation. Participants were told that participation in the study is voluntary and they have the right to terminate their participation at any stage of the project, despite their initial consent, without any adverse consequences.

Informed consent refers to the agreement by a prospective subject to participate voluntarily in a study after he/she has assimilated essential information about the study (Grove et al., 2015). Written informed consent was obtained from participants before conducting the study.

Anonymity: Brink et al., (2015) defined anonymity as the act of keeping individuals nameless in relation to their participation in research. During data collection, participants' anonymity was maintained by not calling the participants by names, but referred to them using alphabets when writing the report. Collected data was not shared amongst the participants.

Confidentiality refers to the protection and unavailability of participants' information (Brink et al., 2015). Information gathered during the research was protected and was unavailable to anyone other than the researcher; the collected data was kept in a laptop with a password.

3.9 Data analysis

Data analysis refers to the technique used to reduce, organise and give meaning to data (Grove et al., 2015). The researcher adopted the use of computer-assisted qualitative data analysis software (CAQDAS) programme. Using this program, the researcher created transcripts, identified codes and grouped similar codes into themes. This program did not do

the analysis but it recorded decisions that were made by the researcher. Other benefits of the CAQDAS programme included the automatic creation of an audit trail, ease of retrieving text with the same code, maintenance of an organized storage file system, development of visual representations of the analysed data, linkage of memos and journals to the text or code, and ability to share analysis with fellow researchers. Disadvantages of using CAQDAS included the time invested in selecting and learning the software (Grove & Gray, 2019).

Transcribing interviews

Following the completion of all data collection all the recorded interviews were transcribed verbatim. All the fieldnotes about the expressions such as exclamations, laughter, crying and expletives were included in the text and separated from the verbal text by square brackets.

Immersion in the data

The researcher personally transcribed the interviews, hence, the researcher immediately immersed herself in the data. During this stage, the researcher became familiar with the collected data by reading and rereading the transcripts and the field notes of the recorded experiences, as well as repeatedly listening to the audio-tapes.

Data reduction

During this step, the researcher reduced the acquired data and tentatively attached meanings to the elements in the data. Data was reduced by classifying them into main categories based on the words used by the participants. Data was grouped in an orderly manner to prevent misinterpretation and omission of any information. Deductive and inductive approaches were used to group categories and themes in terms of the aims and objectives of the study, available literature and the conceptual framework developed.

Coding refers to the way of indexing or identifying categories in qualitative data (Grove et al., 2015). The researcher read through the collected data, breaking the text down into smaller parts and labelling those parts. Hand-written codes were used to classify words and phrases in the data. Codes such as, A or B, were used to ensure and maintain the anonymity of participants; the researcher used inductive coding.

Reflection refers to the method in which the researcher discusses her position within the study and how her personal beliefs and past training have influenced the research findings (Hadi & Closs, 2016). The researcher ensured that she critically examined the interaction

between herself and data to identify her own biases, preferences and preconceptions. The researcher set aside her own preconceived ideas and focused on the available data.

Identifying themes

Themes and sub-themes were developed from the codes linked to the data from the participants. Codes that frequently appear were grouped to form a theme and then subthemes.

Interpretation refers to the method by which a researcher seeks to understand and analyse the phenomenon under study, from the point of view of participants (Hadi & Closs, 2016). The researcher examined the findings and verified the evidence through peer reading. The researcher's interpretations were further verified by the supervisor and the co-supervisor and they all reached a common conclusion.

Findings and report

The CAQDAS programme helped the researcher to develop the codes and recording of the research results and these results will be discussed later in chapter 4.

3.10 Data dissemination and implementation of the results

The findings of the study will be disseminated through publications in peer reviewed journals, workshops, seminars and conferences.

The authorities responsible for the management of the PHC facilities under Makhado Municipality will be made aware of the lived experiences of PHC nurses regarding the shortage of medical equipment and supplies through the publication of a research article with the findings.

A soft copy of the research findings will be submitted to the Provincial Department of Health.

This will help them develop strategies and come up with solutions to the problem.

3.11 Summary

This chapter described the research approach, design and the methods. A qualitative research approach which is phenomenological in nature, was adopted for conducting the study and was described in this chapter. Data collection, analysis, and sampling methods as well as the ethical considerations and measures to ensure trustworthiness were discussed. Chapter 4 covers presentation and discussion of research findings.

CHAPTER 4: PRESENTATION AND DISCUSSION OF THE RESULTS

4.1 Introduction

The aim of this chapter is to present and discuss the findings of the research study. The purpose of this study was to determine the lived experiences of nurses regarding shortage of medical equipment and supplies in PHC facilities in Makhado Municipality Vhembe District, Limpopo Province. Data was collected through unstructured interviews. The interviews were audio-taped and field notes were taken. Voice recordings were transcribed and inductive coding was used for data analysis using the computer-assisted qualitative data analysis software (CAQDAS) programme and a narrative method was utilised to allow the researcher to describe constructs that emerged during the data collection. The participants were very open during the interview session. All unclear points that arose during interview, were clarified by the participants in their answers.

The central question which guided the interviews was: *“What are your lived experiences regarding shortage of medical equipment and supplies in your PHC facility?”*

The average interview sessions lasted for about 60 minutes. Data were collected until data saturation was reached after interviewing 18 participants excluding the 3 participants for the pretest. Of the registered professional nurses interviewed, 13 were females and 5 were male participants. Qualitative data were analysed with the help of the CAQDAS programme, which was used in the arrangement of similar codes identified during data collection. During coding of data by the CAQDAS programme, four (4) themes with fifteen (15) sub-themes emerged; these reflected the lived experiences of nurses regarding shortage of medical equipment and supplies in the PHC facilities. Discussions of the findings were supported by an existing body of literature and the Humanistic Nursing Theory developed by Paterson and Zderad (1995).

4.2 Presentation and discussion of the results

All the research results are presented and discussed below.

4.2.1 Demographic characteristics of the participants

Table 4.1 shows the demographic characteristics of the registered professional nurses who participated in the study. Females constituted 72% of all the participants and males 28%. In terms of race, 100% participants were blacks/Africans. Of all the participants, 72% had working experience of 2 to 10 years, 17% had working experience of 11 to 20 years and

11% had 21 years and above working experience and, 100% participants have been working in PHC facilities, in rural areas.

Table: 4.1 Demographic characteristics of the participants

CHARACTERISTICS	NUMBER OF PARTICIPANTS	NUMBER IN %
RACE		
Black	18	100
White	0	0
Coloured	0	0
Indian	0	0
GENDER		
Male	5	28
Female	13	72
EXPERIENCE		
2 to 10 years	13	72
11 to 20 years	3	17
21 years and above	2	11
GEOGRAPHIC AREA		
Rural	18	100
Urban	0	0
n=18		

4.2.2 Themes and sub-themes identified from the data analysis

The researcher identified five themes and fourteen sub-themes.

The results are discussed, supported by verbatim quotations, as well as the literature and the Humanistic Nursing Theory by Paterson and Zderad (1995).

The table below presents the emerged themes and their sub-themes.

Table 4.2: Presentation of themes and sub-themes

Themes	Sub-themes
1. Nurses' experiences relating to professional values	<p>1.1. Shortage of medical equipment and supplies negatively affecting nursing teamwork</p> <p>1.2. Nurses' performance negatively affecting professional image</p>
2. Impact of shortage of medical equipment and supplies on nurses	<p>2.1. Nurses' social relationships negatively affected</p> <p>2.2. Poor working conditions resulting in occupational-acquired health problems</p>
3. Impact of shortage of medical equipment and supplies on care provision	<p>3.1. Shortage of equipment and supplies versus patient care</p> <p>3.2. Poor utilization of PHC facilities by community members</p>
4. Factors contributing to shortage of medical equipment and supplies in PHC facilities	<p>4.1. Poor allocation of funds in PHC facilities</p> <p>4.2. Poor management of medical equipment and supplies</p> <p>4.3. Failure of the manufacturer to meet demand for medical equipment and supplies</p> <p>4.4. Inappropriate maintenance of medical equipment</p>
5. Measures to efface negative lived experiences of nurses regarding shortage of medical equipment and supplies	<p>5.1. Maintaining strong teamwork</p> <p>5.2. Ensuring community awareness of challenges faced by the PHC facility</p> <p>5.3. Improvisation of medical equipment and supplies</p> <p>5.4. DoH support visits to PHC facilities</p>

4.2.2.1. Theme 1: Nurses' experiences relating to professional values

The following sub-themes were discussed below: Shortage of medical equipment and supplies negatively affecting nursing teamwork as well as nurses' performance negatively affecting professional image.

Participants reported that they tried their best to provide quality care to patients, but shortage of medical equipment and supplies hindered their professional efforts, resulting in provision of compromised patient care.

Participant E said: *"I am overwhelmed because of this chronic shortage of medical equipment and supplies in the PHC facilities, considering the fact that this profession is my passion, the only reason I trained to become a registered professional nurse is because I wanted to heal people and all that is made impossible when I don't have tools to achieve my goal"*.

➤ **Sub-theme 1.1: Shortage of medical equipment and supplies negatively affecting nursing teamwork**

The shortage of medical equipment and supplies in the PHC facilities prevents the spirit of teamwork amongst the nurses and this puts nurses under a great deal of stress when performing their nursing duties, thus, putting them under great stress.

Participant B reported: *"The shortage of medical equipment and supplies create a division amongst the nurses. In this PHC facility nurses are divided into 2 shifts and mostly these two groups tend to lack teamwork as these shortages take a toll on them; for example, we usually fight and blame each other for the shortages because some will be saying the other shift misused certain supplies and vice versa"*.

Teamwork is a must-have when people are working in a high-pressure environment like in PHC facilities; without teamwork the nurses are most likely to become stressed, (Rosen, Diazgranados, Dietz, Benishek, Thompson, Pronovost & Weaver, 2019). Inadequate teamwork amongst the nurses often contributes to adverse patient events such as misdiagnosis of the patients and nurses' burnout, (Rosen et al., 2019).

Participant A supported: *"The way these shortages created tension between the staff members of this clinic! I still remember during my shift there was a patient who needed a dressing change but there was no gauze. We were shown by the patient where the gauze are because she was there when the nurse from the other shift hide them in a closet just for this specific patient. To think that we referred other patients to the hospital because we*

thought that we were out of gauze! I guess she prioritised this patient because she really needed a daily dressing change but this betrays our teamwork spirit, oh my God”.

Lack of teamwork amongst PHC nurses also result in communication failures in which critical information about patients’ status and plan of care is miscommunicated resulting in delayed patient care or inappropriate therapies (Rosen, et.al., 2019)

Nursing care is a continuous process, therefore, all staff members in a facility must work together in order for them to deliver effective nursing care as well as to create a healthy working environment. When nurses are no longer working as a team, patients suffer and the nurses also suffer because they will be working in a toxic environment where no one protects the other (Mokoena, 2017; Moyimane et al. 2017; Musoke et al. 2014).

The chronic shortage of medical equipment and supplies in the PHC facilities was proven to have great negative impact on teamwork spirit of nurses and this even disrupts the principle of Ubuntu amongst them.

Best patient management can be attained through teamwork and harmonious working relationship between healthcare professionals, however, it is reported that there is lack of teamwork amongst healthcare professionals, around the globe, (Uko, 2015).

➤ **Sub-theme 1.2: Nurses’ performance negatively affecting the profession’s image**

Results of the study revealed that shortage of medical equipment and supplies put nurses under pressure which also affect their work performance, further putting the nursing profession’s image at risk.

Participant N stated that: *“I don’t think people really think nursing is a profession, because we fail to perform our duties adequately due to lack of resources and patients do to value us anymore as a result”.*

Participant C said: *“The Department of Health or let me just say the government as a whole is crushing the nursing professional image; how can we uphold the image of the nursing profession if we as nurses are failing to do our work accordingly because we do not have medical essentials to work with? Patients and community as whole won’t respect this profession, never! Not when we are still failing to help patients with just a mere Paracetamol, never!”*

The image of the nursing profession has been an issue of concern for a very long period of time. It was revealed that the way patients perceive nurses affects the care relationship between the nurse and the patient. If the patients perceive nurses negatively it lowers the

nurses' professional self-esteem. When nurses fail to render quality nursing care to their patients due to the shortage of medical equipment and supplies, patients usually lose their trust and they often start to undermine the nursing profession and this negatively affect the nurses, (Moyimane, 2017). Nurses report that shortage of medical equipment and supplies is contributing greatly to the poor nursing professional image. An inaccurate image of the nursing profession can negatively affect recruitment, resource allocation and the perception of nursing professionalism (Koo & Lin, 2016).

Throughout the interviews, it was also evident that nurses are either performing their nursing duties poorly because they lack medical equipment and supplies to help the patients with, or they did not receive proper nursing education because of the lack of medical equipment and supplies during their practical sessions while in nursing schools.

The nursing profession has since been underrated and most professional nurses working in different healthcare facilities reported feelings of self-blame and frustration as they work without essential medical tools, (Moyimane et al., 2017).

The study revealed that poor work-performance resulting from shortage of medical equipment and supplies makes it difficult for patients to trust nurses and this tarnishes the image of the nursing profession. Patients then start to view nursing care as being sub-standard as they will be receiving poor nursing care due to the shortage of medical equipment and supplies.

Participant K supported: *"It is very difficult for patients to trust the nursing care that we are providing to them, because we often provide poor nursing care as the necessary tools that we need to provide quality nursing care are usually not available"*.

The way patients perceive nurses affects the care relationship, therefore when shortage of medical equipment and supplies disrupts the patient care, nurse-patient relationship is affected furthermore ruining the image of the nursing profession, (Ndirangu, Sarki, Mbekenga & Edwards, 2021)

Nurses are expected to apply the skills that they were taught in colleges and universities into practice when they are helping patients, however, this study revealed that nurses do not have the necessary medical equipment and supplies to perform nursing procedures and this means that they do not get to put their theoretical knowledge into practice. With time they tend to forget some nursing procedures because they are not frequently performing them due to the shortage of medical equipment and supplies; this then results in poor work performance which devalues the nursing's professional image.

To corroborate above statement, Participant M said: *“The shortage of medical equipment and supplies leave us in a very awkward position. We even transfer patients to the hospital who do not even need to be treated in a hospital facility just because we do not have necessary tools to help the patient. We end up forgetting primary care skills because we are referring patients to the hospital. Patients do not believe in the nursing profession as a healing profession, as we have disappointed them many times”.*

It was also revealed that nursing schools are producing poorly-trained nurses because the availability of medical equipment and supplies in the PHC and hospital facilities often determine if these students will be able to apply their theoretical knowledge. Some students end up graduating from their respective nursing schools before they can actually put into practice some of the theoretical knowledge they acquired from school, causing under-skilled nurses in the PHC facilities. Ingwu et al., (2016) reported that poorly-trained nurses are obviously going to perform poorly in their duties causing patients and the community as a whole to lose trust in the nursing profession

Participant F attested to these findings by stating that: *“As a registered professional nurse working in the PHC facility, it is one of my duties to teach nursing students when they come here for their practical sessions, however; it is a pity because we end up not showing them how procedures must be done properly because we will also be thinking about the shortage that we are experiencing, so we become stingy with our equipment and supplies and not teach the students.”*

Participant B also supported this by saying: *“Newly qualified nurses who are just fresh from school are perfect example that students in the nursing schools are not receiving quality nursing education due to lack of medical equipment and supplies. They often say that they have not seen certain procedures done but they just have the theoretical knowledge on how it is supposed to be done.”*

The shortage of medical equipment and supplies has a significant impact on the nursing education and the training of nursing students because when there is no certain medical equipment to perform a certain medical procedure, it means that these students will have no practical knowledge of how that particular procedure is done, thus, leading to knowledge deficits amongst newly-trained nurses, (Moyimane et al., 2017).

It was also revealed during the interviews that poor work performance by the nurses also put them at risk of malpractice cases as they will be giving poor nursing care to the patients and neglecting some of the vital nursing care. The increased law suits in the Department of

Health are mostly due to negligence by the nursing personnel; therefore, their image is being tarnished in the process.

Participant O corroborated this and said: *“The truth of the matter is that we are not managing patients accordingly because of these shortages and there is nothing else we can do. We just help them with the little tools that we have and cross our fingers that nothing goes wrong.”*

Participant D supported the findings by stating that: *“The shortage of medical equipment and supplies in the PHC facilities scares us as nurses, because one mistake from you mismanaging a patient as a result of these shortages and the lawsuit falls on your lap.”*

The shortage of medical equipment and supplies result in the mismanagement of patients, delayed patient care even death of patients. This can cause the nurse, the PHC facility or the DoH to be sued for medical malpractice and negligence, (Mokoena, 2017).

4.2.2.2. Theme 2: Impact of shortage of medical equipment and supplies on nurses

The results of the study revealed that, shortage of medical equipment and supplies in the PHC facilities also affect nurses' lives. There are certain aspects of the nurses' personal lives that become affected when they experience shortage of medical equipment and supplies in the PHC facilities.

➤ Sub-theme 2.1: Impact of shortage of medical equipment and supplies on nurses' personal relationships

Participants reported that they work under pressure every day and the stress that they experience in their working environment has negative impact on their personal relationships. Working in a high pressure environment may have an impact on an individual's social relationships.

Participant F supported this by arguing that: *“Nurses are human beings too, if I am being called names at work it is obviously going to ruin my entire day even when I get home, it will still linger. Patients call us names when we fail to take their blood pressure because of the machine's malfunctioning or something which is not even our fault as nurses”.*

Owing to the nature of the nurse's work, work-related stress and pressure can affect their private lives, thus putting strain on their personal relationship. Work and private life must be balanced so that they remain productive. The shortage of medical equipment and supplies

frustrate both the nurses and the patients and nurses are often blamed by their patients for providing poor nursing care,(Mollart, Skinner, Newing & Foureur, 2013).

Participant I also supported this and said: *“This other day I was pushed by a patient because I told her that she needed to go to the hospital as we were unable to help her because the necessary tools for helping her were not available at the clinic, even though what she needed was a service that could be offered at a clinic level. I was so angry I fought with my husband when I got home. It is just the human nature to react when provoked; I couldn’t just shut off how I felt at work when I reached home. I was just still very angry”*.

During working hours nurses are expected to perform their duties as employees of the DoH and during time-off from work nurses are expected to become mom/dad and wife/husband, but this is not always fairly balanced. Nurses work in a high-pressure environment that is accompanied by heavy workloads and this expose them to stress, thus, putting a strain on their personal relationships at home, (Sharma & Kamal, 2020).

The shortage of medical equipment and supplies in the PHC facilities put nurses in a difficult situation because even though they are not the ones responsible for the provision of medical equipment and supplies, they are the one who receive harsh words and unfair treatment from the patients. Nurses are professionals, but also, they are human beings. Being assaulted and scolded by patients affect them personally like it may affects anyone, therefore, this will also put their personal relationships under stress.

➤ **Sub-theme 2.2: Poor working conditions resulting in occupational- acquired health problems**

Nurses need to always protect themselves when working as they work with patients who suffer from different contagious condition. The study revealed that the shortage of medical equipment and supplies in the PHC facilities put nurses in danger as sometimes nurses are forced to work without proper protective clothing which should protect them from getting in contact with contagious infections.

A study conducted in Gauteng province of South Africa supported this by reporting that health care workers are not fairly vaccinated against hepatitis B infections due to lack of supply of hepatitis vaccine and 67.9% of healthcare workers received only one dose of hepatitis vaccine and only 19.9% were fully vaccinated. This increases the risk of health care workers to becoming infected by the hepatitis B infection, (Engelbrecht, Van Rensburg, Rau, Yassi, Spiegel, O’Hara, Bryce & Nophale, 2015).

Participant H said: *“It is very painful to be called an essential worker by the government yet the government does nothing to protect these essential workers from highly contagious illnesses like the corona virus that we are dealing with in this moment. Many nurses succumbed to this corona virus illness. Sometimes we are forced to wear the same disposable face mask for the whole 12 hour shift which in my opinion is not fair because how am I really expected to wear the same mask that I used to attend to a patient with the symptoms of corona virus?”*

Participant L also supported the findings by stating that: *“Yoh! I know a nurse who acquired HIV infection at work because they did not have goggles, so she was conducting a delivery when blood of an infected patient splashed in her eyes. So you see that is very sad because she was only trying to help but she ended up getting sick as a result of these shortages”.*

Nurses must always wear protective gear when attending to the patients because they work in an environment where there are different people with different medical conditions which in many cases may be contagious (Engelbrecht et al. 2015). Nurses have been working with the shortages of medical equipment and supplies, like protective wear for a very long time, therefore, they are now used to working without them; this puts them at risk of injuring themselves or contracting infections.

The shortage of masks and other protective clothing for healthcare workers in the PHC facilities and hospitals must be at the top of the priority list for the DoH during this era of the Covid-19 pandemic. If healthcare workers are not protected, they will get infected in large numbers creating an enormous crisis that will put additional pressure on the healthcare system (van Staden, 2020).

The shortages expose the nurses to infectious conditions, as giving nursing care without proper protective clothing increases nurses' chances of getting infected; this, naturally will affect their personal lives. The exhaustion and stress in the workplace were also reported as affecting nurses' personal relationships.

4.2.2.3. Theme 3: Impact of shortage of medical equipment and supplies on care provision.

Based on the results of the study, shortage of medical equipment and supplies negatively affect the quality of care provided to patients. This is in line with what was reported by Rachiotis et al., (2014) that, lack of equipment and supply in health facilities result in patients and clients receiving compromised care.

➤ **Sub-theme 3.1: Shortage of medical equipment and supplies versus patient care**

The goal for the nursing profession is to provide quality patient care to all, making use of appropriate medical equipment and supplies. The findings of the study revealed that shortage of medical equipment and supplies in PHC facilities leads to a delay in patient care provision which sometimes results in unnecessary complications. Participants also reported that patients are exposed to long periods of waiting, which is frustrating to both patients and healthcare providers.

The shortage of medical equipment and supplies in the PHC facilities disrupts patient care. Failure to provide necessary quality materials that must be used to help the patients can result in many adverse events such as delayed patient care, misdiagnosis and malpractice. Without these medical equipment and supplies nurses are delivering poor nursing care and this slows down the health system, (Berry and Tucker, 2017).

Participant A affirmed this by stating that: *“The shortage of medical equipment and supplies here in this facility gives us problems because we see a high volume of patients and there is only one functional blood pressure monitoring machine and patients are forced to wait for longer periods of time in order to be helped. This shortage really disturbs me, it is not humane for patients to go through this; the government must do something”*.

Participant M also validated the impact of shortage of medical equipment and supplies on patient care by stating that: *“Patients are here for our help, but working without proper medical tools makes it impossible for us to render quality nursing care. I personally find it frustrating when I am helping an old person without checking their vital signs as sometimes our glucometer is not functioning and the Bp machine also malfunctions as we only have one”*.

Ndikwetepo (2018), reported that nurses are willing to deliver quality nursing care to patients but medical equipment is not available; sometimes the equipment is available but old and no longer functioning well. This makes it difficult for the nurses to give patients the best care.

According to Rivaz (2017), although nurses are well trained and are willing to provide quality care to patients, the issue of shortage of medical supplies makes them provide poor quality care to patients. The shortage of medical equipment and supplies are associated with poor patient care and safety outcomes such as medical errors, (Hall, Johnson, Watt, Tsipa & O’Conno, 2016).

Participant F supported this by reporting that: *“There are some patients here who need dressing change for their wounds; some we dress once every two days but when we are out of dressing supplies, we are forced to increase the days between dressings. This puts the health of patients in danger because they won’t heal accordingly and we as nurses we become demoralised in such a way that we feel guilty for not providing quality patient care to the patients. The patients sometimes fail to understand that we are doing all we can to try and help them with the little that we have; they tend to blame these shortages on us, as nurses.”*

There is usually delayed patient treatment when there are scarce medical resources in PHC facilities. Lack of medical equipment and supplies affect patients badly as patients may be returned home without any intervention, leading to delays in commencement of treatment (Ndikwetepo, 2018).

The main aim for PHC facilities is to provide quality patient care to all, however, nurses are failing to provide quality nursing care because of the shortage of medical equipment and supplies. This results in some patients being faced with complication, as they are poorly managed, (Moyimane et. al., 2017).

Through the data collected, the researcher managed to the conclusion that the shortage of medical equipment and supplies in the PHC facilities in the Makhado municipality has a negative impact on the provision of quality patient care.

➤ **Sub-theme 3.2: Poor utilization of PHC facilities by community members**

It is very sad for the community to have a PHC facility that is not rendering quality service. Community members may lose trust in the nurses and stop seeking medical care from that PHC facility.

Unavailability of medical equipment and supplies in the PHC facilities is perceived by community members as an indicator of poor quality health services. Furthermore, community members are discouraged to utilise PHC facilities because owing to these shortages there are often frequent unnecessary referrals to the hospitals, (Musoke, Boynton, Butler & Musoke, 2014).

In support of this, participant B said: *“When we keep on disappointing the patients they tend to bypass the PHC facilities and seek medical attention from the hospital without being referred. This makes the staff at the hospitals to be angry with us.”*

To support this, participant M said: *“During the 1st quarter of this year we experienced a huge shortage of vaccines. I think this shortage was at a provincial level, but we had to tell all patients to stop coming for vaccines until we have spread the message that vaccines are available! It was like we were telling them to stop coming to the clinic altogether; some went to other clinics and some just stayed at home even when we informed them that the vaccines are now available”.*

Despite reaching some success on the availability of PHC services in most communities, the utilization of these services remain low and this was attributed to the fact that shortage of medical equipment and supplies is higher in the PHC facilities. Patients are either doing self-referral to the hospitals or they do not seek medical help as they have lost trust on PHC services, (Hodge, Firth, Bermejo, Zeck & Jimenez-Soto, 2016).

When patients come to the PHC facility they do so because they need medical attention but when nurses fail to provide care for them, they are bound to go and seek it from other healthcare facilities and some just lose interest in the medical care, hence, and they end up not seeking medical attention for their problems.

When a certain PHC facility within the community is not providing quality patient care, patients usually lose interest in it, therefore, that PHC's headcount statistics go down. The neighbouring PHC facilities and hospitals will have an increase in workload as they will be attending even to patients who are not within their demarcation (Moyimane et.al., 2017).

4.2.2.4 THEME 4: Factors contributing to shortage of medical equipment and supplies in PHC facilities

During data collection certain factors were mentioned by the participants as contributing to the shortage of medical equipment and supplies.

➤ Sub-theme 4.1: Poor allocation of funds in PHC facilities

The way a country finances its health care system is a critical determinant for reaching the universal health coverage. Allocating insufficient funds that are unable to cover all the costs necessary for the purchasing and maintenance of necessary medical equipment and supplies put the PHC facilities under pressure, (Uzochukwu, Ughasoro, Etiaba, Okwuosa, Evuladu & Onwujekwe, 2015).

The budget for the PHC medical equipment and supplies must be enough to cover all services as there are very essential services that PHCs offer. When collecting data most participants blamed the shortage of medical equipment and supplies on a lack of budget.

Insufficient finances are a common barrier to the purchasing of enough medical equipment and supplies in the PHC facilities. The facilities have challenges with shortage of medical equipment and supplies and this problem is making it difficult for healthcare staff to render quality patient care, (Gowin, Dytveld, Michalak and Sikorska, 2012).

According to the Provincial Health Department's budget speech, Limpopo has the lowest expenditure per capita on primary health care in South Africa. Worryingly, between the 2015/16 and the 2016/17 financial year, this even dropped by 3, 8 %. The budget was particularly low in Mopani, Vhembe and Capricorn Districts (Annual inspection report 2015).

This is evidenced by what participants G said: *"The only thing that our Limpopo Department of Health complains about is the shortages of funds all the time, when we ask why they are not attending to our requests they always complain that they do not have money."*

Participant N also supported this by saying: *"The government is either not allocating enough funds to the Department of Health or the officials responsible for the management of the funds are misusing these funds or neglecting our facilities' needs."*

This study also revealed that the poor allocation of funds to the PHC facilities is also contributing to poor infrastructures in these facilities. Many facilities reported lack of enough storage for the medical equipment and supplies, thus, forcing them to order few medical equipment and supplies as they do not have room to put them.

After decades of the implementing PHC care there are still PHC facilities that have very limited physical space and one room is used for multiple purposes. Phc facilities that were built decades ago are aged and renovations and extensions of these facilities is very slow because of the low budget allocations. Lack of physical space makes it impossible for these facilities to be supplied with more medical equipment and supplies, (Dalinjong, Wang and Homer, 2018).

Participant J also confirmed the lack of physical space by stating that: *The pharmacy room is very small, so this makes it impossible for us to order more supplies and we end up ordering less which will be finished in a very short period of time and we suffer the shortage until it's our turn to place an order again".*

In agreement with the quote above participant E revealed that: *“Our emergency room can only accommodate 2 beds, this is a disadvantage because sometimes we have more than 2 emergencies at a time and we are unable to attend to them all accordingly, or we compromise patients’ privacy. It really bothers me a lot”*.

Low budgets in the healthcare system result in building of poor health care facilities with insufficient space. The physical space in the health care facilities is crucial because sufficient storage is needed for storage of medical equipment and supplies, therefore; without enough physical space there will be limited equipment and supplies supplied to the facility, (Oyekale, 2017).

Through the information collected from the participants, It was evident that DoH needs to be allocated a large sum of money because the budget that they are allocating currently is insufficient to cover all expenditures including purchasing of sufficient medical equipment and supplies for the PHC facilities. The PHC facilities offer essential healthcare services and if these services are delivered sufficiently to the patients, it may even reduce the number of patients in hospitals. PHC facilities provide preventive care, so giving enough money to these facilities may actually reduce the amounts that the government spends on hospitals. It was also reported by the participants that if the government decentralise the PHC facilities’ budget to the hospitals it may help alleviate the problem of shortage of medical equipment supplies.

Participant M supported: *“The solution to this problem is enough money, if the Department of Health gives us enough money to purchase the tools we need, then everything will be fine”*.

Participant D also supported this by saying: *“Decentralisation of budget to the respective hospitals providing services to the PHC facilities will be better, because hospitals are mostly within reach and the staff members there understand our challenges better than the people from the district offices”*.

An effective delivery of the healthcare services requires availability of adequate medical equipment, supplies, infrastructure and well-trained healthcare personnel. Poor funding and mismanagement often characterize healthcare service delivery. The quality of healthcare services depends on the availability of proper medical equipment and supplies and the root cause of the shortage of medical equipment and supplies, in most PHC facilities is attributed to the poor allocation of funds by the DoH, (Oyekale, 2017).

➤ **Sub-theme 4.2: Poor management of medical equipment and supplies**

It was revealed during data collection that poor management of medical equipment and supplies also play a huge role in their shortage in the PHC facilities. Nurses and logistics personnel in the DoH were identified in this study as those who are also mismanaging the medical equipment and supplies in the PHC facilities, further exacerbating an existing problem of shortage.

Nurses are mismanaging the medical equipment and supplies by misusing them and managing them poorly through unpropitious ordering. The logistics personnel are contributing to the poor management of medical equipment and supplies in the PHC facilities through late ordering and deliveries to the respective PHC facilities.

To support this Participant H said: *“Nurses are also contributing to the shortage of medical essentials in the clinics by misusing them, and the personnel responsible for the procurement and delivery of these medical tools are also poorly conducting the delivery process as mostly we complain of late deliveries”*.

Administrative mismanagements such as poor ordering of medical equipment and supplies in the PHC facilities contribute greatly to the shortage of medical equipment and supplies. Ordering of medical equipment and supplies must be timeous and scheduled, so that the facility does not run out of essential medical equipment and supplies, (Shahen, Islam, & Ahmed, 2020).

Using medical equipment and supplies unnecessarily also contribute to the shortage of these equipment and supplies in the PHC facilities. It was revealed that some nurses in the PHC facilities tend to overuse medical supplies, for example, using too much gauze when doing wound dressing is also reported as the main cause of gauze shortage in most PHC facilities, (Moyimane et al., 2017).

This is also supported by what participants B said: *“Using a lot of gauze during wound dressing is our main challenge here; you will see a nurse using a whole packet of sterile gauze on a single patient for a very small wound dressing. This is very boring because we end up not having enough gauze to use on other patients or with nothing at all to use”*.

Participant O also supported this by stating: *“Some nurses just check their glucose level unnecessarily, causing us to have shortage of glucometer sticks. I sometimes wonder why they do that”*.

It is the responsibility of the registered professional nurses to place an order for medical equipment and supplies in a PHC facility; however, it was revealed that some nurses poorly conduct the ordering process which leaves the facility with shortages of items which are actually available in the medical depots and pharmacies.

In agreement with this participant K said: *"It is not like everything is in shortage as there are some of things that the DoH is supplying but nurses fail to place correct orders. Just like this week here in our facility, we are running short of pink needles and this is due to the fact that nurses from the other shift who were ordering the weekly clinic stock forgot to order these needles"*

Participant A stated: *"it's hard working in the PHC facilities, especially, here in Limpopo I think it is worse; more over if you are a registered professional nurse everything is on your shoulders and it's only a few of us, so we tend to forget to place orders of the clinic stock in time, or maybe forget to place an order for some of the important supplies that we need on a daily basis"*

The shortage of the nursing personnel in most PHC facilities is associated with the poor administrative work because operational managers who are responsible for administrative work are focusing on patient care. The shortage of pharmacists and pharmacists assistants in the PHC facilities also contribute greatly to the poorly conducted ordering process of medical equipment and supplies, (Tibandebage, Kida, MMackintosh & Ikingura, 2016).

Participant J also supported this and said: *"some nurses order unnecessary things that we don't even need on a daily basis in surplus, and these things end up expiring on our shelves because we will not be using them often"*.

The study revealed that even though it is proven that the PHC facilities in Limpopo Province have a shortage of medical equipment and supplies which affects the nurses working in these facilities, there are still some equipment and supplies that are made available by the DoH. There, however, seems to be a problem with delivery of these equipment and supplies to the respective PHC facilities from healthcare pharmacies and depots.

Participant E said: *"Late deliveries of medical equipment and supplies also exacerbate this problem of shortages, because sometimes we order medications or request certain supplies from respective personnel and we sometimes wait very long before they could deliver our equipment and supplies"*.

Delayed delivery of medical equipment and supplies to the PHC facilities was also reported to be caused by delay in approval of the order forms from the PHC facilities, by the pharmacy and maintenance managers.

Supply chain management is the backbone of healthcare delivery. This is because healthcare is dependent on the availability of essential medical equipment and supplies at the right time and in right quantities for the management of patients, (Kazi, 2012).

Participant I said: *“Late approvals for our orders is also a problem, because sometimes the people who are responsible for approving our requests take their time and delay our orders which makes the deliveries also late”*.

It is evident that nurses undergo difficulties when there is shortage of medical equipment and supplies, although, they are expected to act responsibly in managing the little medical equipment and supplies that they have in stock. Misusing the medical equipment and supplies worsens the existing shortage in the PHC facilities. Nurses must work together with the DoH in order to put a stop to these chronic shortages of medical supplies and equipment in the PHC facilities so that they also relieve themselves from negative lived experiences that are caused by these shortages.

Participant G supported the above statement by stating that: *“Nurses must always use the supplies and equipment in a responsible way, because they know that the department is failing to provide enough medical essentials to work with”*.

The researcher recommends that the personnel responsible for delivery of medical equipment and supplies to the PHC facilities should make sure that they schedule their delivery accordingly and follow the schedule to avoid delays in delivery. It was also suggested that nurses must place the order for the PHC facilities stock in time so that they reduce the shortage of medical equipment and supplies.

Participant F suggested that: *“Those who deliver medical equipment and supplies must stick to their schedules, because every month we do have a schedule in place. The nurses must also make sure that they order in time”*.

The DoH must ensure that it focus on providing well-functioning transport management systems and inventory policies, clear responsibilities and roles, good supervision systems and adequate budgeting for proper procurement of medical equipment and supplies, (Schopperle & Woodburn 2013).

➤ **Sub-theme 4.3: Failure of the manufacturer to meet demand of medical equipment and supplies**

This study revealed that some the shortages of medical equipment and supplies in the PHC facilities and also in the hospitals are caused by insufficient stock on the manufacturers' side, During the third quarter of the year 2020, for example, there was a communiqué from the DoH to all PHC facilities nationwide that manufacturers had no stock of the new ARV drug, Tenofovir, Lamivudine, Dolutegravir :TLD, hence all the nurses were discouraged from initiating their patients on this highly-recommended drug, so that the remaining stock can be given to those who are already initiated on this drug.

During the third quarter of 2020, the country experienced unprecedented shortage of TLD due to increase in demand exceeding production and supply capacity. On 16 Oct 2020 the DDG HCS approved a temporary halt to switching patients to TLD from TEE. This memo authorized all facilities in Limpopo Province to resume switching of all eligible first-line clients to TLD, following the 2019 ART guideline with effect from 12/02/2021, (Limpopo DoH internal memo, 10:02:2021).

This incident is reported by Participant K: *"It was a huge disappointment to us as healthcare workers because we were really encouraging patients to consider switching to the new ARV drug as the DoH recommended this drug to be more effective, but they told us to stop switching and this really confused our patients"*.

The manufacturers must increase their productivity so as to meet the demand for medical equipment and supplies in the PHC facilities. It is essential that the manufacturers of the medical equipment and supplies to always bear in mind that their low productivity levels are putting the whole healthcare department in jeopardy, therefore, they must make sure that they produce sufficient medical equipment and supplies. Patients rely on these medical equipment and supplies for their wellbeing and nurses also rely on them for their work performance and their protection as well.

Participant L supported: *"The people who are responsible for making medical equipment and supplies must make sure that they never run out of the essential things that they require in their production, because if they are not producing enough, it means we will suffer and the shortage of medical tools really confuses us, as nurses"*.

Over the years, the public health care sector has under-invested in the manufacturing and procurement of essential medical equipment, thus, the demand for most medical equipment exceeds the supply, (South African Government News Agency, 2015).

➤ **Sub-theme 4.4: Inappropriate maintenance of medical equipment**

Medical equipment requires timeous servicing for quality performance and for it to last long, however, it was revealed during the collection of data that most medical equipment in the PHC facilities remain un-serviced for long periods of time, causing them to malfunction and eventually stop working altogether. This leads to shortage of this essential equipment that is needed for quality healthcare.

All medical equipment in the PHC facilities must be maintained through timeous servicing of the equipment. When medical equipment is not serviced, it may malfunction and this put the patients at risk. All medical equipment comes with a manual book and service schedules, this means that the DoH must ensure that people who are responsible for maintenance are following these schedules to prevent patients; adverse events, (Wang, 2012).

Participant K supported the above statement by saying that: *“I have been working here for almost 3 years now but I only saw the people responsible for maintenance and servicing once; they were servicing the fire extinguishers and when they had finished, they took off. Other equipment continue work without being serviced, even the fire extinguisher that they serviced, it was due for another service six months ago, they never came back. The manager of this facility keeps on calling them and they always promise to come, but they never do”*.

Participant L also supported this and said: *“We have 4 blood-pressure monitoring machines that are not functional anymore, but I believe that if the maintenance personnel come and look them, they may be able to fix them”*.

According to the participants' responses above, most equipment are available in the PHC facilities but they are just not functioning anymore, however, it is possible that if the personnel responsible for servicing of equipment came and serviced these equipment, the nurses may be able to use them and curb the shortage.

In order to address the shortage of medical equipment in the PHC facilities, the medical equipment must be serviced as instructed in the manual for that particular equipment; this will help in sustaining the life of the medical equipment.

Effective and appropriate maintenance of the medical equipment contributes to improved efficiency within the health sector. This will result in improved and increased health outcomes, and more sustainable health services, (Derek, Garriss, Korownyk, Campbell, Lindblad, Vandermeer, and Allan, 2014).

Participant N also emphasised the above recommendation and said: *“The maintenance team must be active when it comes to servicing of the medical equipment; they must make sure that they follow the proper protocol so that these equipment survives for a long time”*.

Medical equipment is extensively used in all the aspects of healthcare services, ranging from prevention, screening of diseases, diagnosis, monitoring, therapeutics to rehabilitation, therefore, it is very crucial to follow the equipment’s maintenance schedule to prevent any malfunctioning, (Jamshidi, Rahimi, Ati-kadi & Bartolome, 2014).

4.2.2.5 THEME 5: Measures to efface negative lived experiences of nurses regarding shortage of medical equipment and supplies.

During interviews with the participants the researcher identified that there are many negative lived experiences that nurses encounter both, professionally and personally, therefore, it is necessary to identify the factors that will help alleviate the problem.

➤ Sub-theme 5.1: Maintaining strong teamwork

During data collection the researcher identified that the shortage of medical supplies and equipment in the PHC facilities bring about divisions among the nurses and disrupts their teamwork spirit. Nurses must try at all means to maintain their teamwork even when they come across challenges, this will help them to cope with the negative lived experiences that are brought about by the shortage of medical equipment and supplies.

In support of this, Participant B said: *“We need to stand together as nurses so that we support each other when we encounter problems. We need to be able to work as a team even when we are facing this chronic shortage of medical equipment and supplies”*.

Strong and healthy teamwork in the healthcare facilities has been reported to have positive outcomes in patient care, as well as the work relationship among nurses, doctors, clients and the DoH as a whole, (Rosen, et.al., 2019).

➤ Sub-theme 5.2: Ensuring community awareness of challenges faced by the PHC facilities

The participants reported that the community at large should be involved in some aspects of the challenges that the PHC facilities face. The researcher, for example, realised that all PHC facilities that she visited have clinic committees which consisted of the people from the community; they are informed of the challenges that the facilities are facing so that the

community at large will be made aware. When the community is aware that the facility has shortage of certain medical equipment and supplies, it makes it easy for the nurses when treating the patients, since the latter understand the need for referrals to the hospitals for further management. The community realises that, although, the management of their ailments can be done at a PHC level, this is not possible, due to the shortage of necessary tools to work with at a PHC level.

To support this, Participant D said: *“Sometimes the community takes their frustrations out on nurses because they do not know about the shortages that we are facing as a clinic; they deserve to know that the clinic is facing chronic shortages of medical supplies and equipment”*.

Most PHC facilities have improved communication with the community members that they serve through the clinic committees that were recently introduced by the DoH. These committees are still not available in certain communities, however; they serve as messengers and patients’ advocates between PHC facilities and the clients, (Derek, et.al., 2014).

➤ **Sub-theme 5.3: Improvisation of medical equipment and supplies**

The shortage of medical equipment and supplies has helped the nurses to become creative and therefore develop new nursing techniques and skills. Improvisation, therefore, can be adopted to cope with the shortage. The researcher realised that many nurses have started the act of improvisation in most PHC facilities.

Nurses are educated and talented professionals and they are able to come up with new nursing techniques when they are facing lack of medical equipment and supplies so that they are able to continue working.

Participant H also confirmed the above statement by reporting that: *“Because of lack of the betadine solution for wound dressing for over a period of 1 month, I now know that chloromax eye ointment works faster in healing burn wounds than the betadine that we have been using. There are no complications and I think I will continue using chloromax for burn wounds, it is so effective”*.

The researcher revealed that even though the shortage of medical equipment and supplies in the PHC facilities is creating many problems for the nurses, they are reporting one positive factor about this problem. Developing new nursing techniques and learning new medical management of certain medical condition have proven to be things that nurses

seem to be gaining amidst the problem of shortage in medical equipment and supplies in the PHC facilities.

The global medicine practice is increasingly being standardizing through evidence-based approaches and quality certification procedures, however, in the PHC facilities and emergency rooms necessary improvisational elements remain significant, (Batista, Clegg, Cunha & Giustiniano, 2016).

➤ **Sub-theme 5.4: Department of Health support visits to Primary Health Care facilities**

The DoH must always show support to the nurses because not only does the shortage affect nursing care it also affects the private lives of nurses. Nurses often voice complaints that the DoH does not show support for them when they face challenges, therefore, it is important to show support where it is needed. This will uplift the nurses and they will be encouraged to work even when they are facing challenges, such as of shortage of medical supplies and equipment. The PHC facilities mainly receive their support from the DHS which is still not very visible as reported by the interviewed participants.

Management capacity at the front line is weak, and the development of the District Health System as the key support to PHC is still uneven across the country, thus, causing concerns for the PHC facilities as they are unable to render quality patient care, without strong management team. A strong management team is able to give full support to the PHC facilities that are experiencing problems, thus it is very important for the PHC facilities' nurses to receive support from their supervisors (McKenzie, Schneider, Schaay, Scott and Sanders, 2016).

To support this, Participant A said: *"You know if the DoH shows support to us during difficult times we would see that they are really trying their best, but if we raise our concerns and they just ignore us we even start to think that they enjoy seeing us suffer like this, so please the DoH must pull up their socks and start supporting nurses"*.

Those in authority must visit PHC facilities to show them support, to listen to their grievances so that these are attended to, in time. Sometimes nurses place an order for certain medical equipment and supplies and people who are responsible for delivery may ignore or delay the delivery process deliberately. These are the types of grievances that the stakeholders in authority should attend to and avoid this problem of shortage of medical equipment and supplies in the PHC facilities.

Participant K supported this by arguing that: *“I think the people from the provincial level are also failing us because they only show support at the district level and not at local level”*.

Healthcare workers are unmotivated when DoH authorities do not visit them in their healthcare facilities to show support and supervision. Supportive visits to the PHC facilities will assist the supervisors and healthcare workers to work together in solving problems and improving performance, (WHO, 2008).

4.3 CONCLUSION

This chapter provide a detail interpretation of the raw data which was collected from the participants. A few themes emerged, which were supported by the responses of the participants, existing body of literature, as well as the humanistic nursing theory.

This study confirms that there is a huge shortage of medical equipment and supplies in the PHC facilities in the Makhado Municipality which lead to many negative lived experiences that nurses in the PHC facilities encounter, in their professional and personal lives. This leaves a space for constructive criticism in relation to the responsibility of the DoH, in the provision of essential medical equipment and supplies to the PHC facilities. The most cited culprit was the DoH which is failing to provide enough equipment and supplies for nurses to work with.

CHAPTER 5: SUMMARY, LIMITATIONS, RECOMMENDATIONS AND CONCLUSIONS

5.1 Introduction

The previous chapter consisted of the responses of the registered professional nurses on their lived experiences of nurses from the shortages in PHC facilities. The responses were analysed and discussed in the context of relevant literature and theory of Humanistic Nursing Theory developed by Paterson and Zderad (1995). This chapter presents the summary, limitations, recommendations and conclusion of the study.

The purpose of this study was to explore and describe the lived experiences of nurses regarding shortage of medical equipment and supplies in PHC facilities in Makhado Municipality of the Limpopo Province, South Africa.

5.2 Achievement of the Objective

The objectives of the study were:

- To explore and describe the lived experiences of nurses regarding shortage of medical equipment and supplies in PHC facilities in Makhado Municipality of the Vhembe District.
- To explore and describe the impact of shortage of medical equipment and supplies in PHC facilities on nurses' professional and personal values
- To determine measures to efface negative lived experiences of nurses in PHC facilities.

These objectives were achieved as the registered professional nurses described, comprehensively, their challenges during provision of care to patients when there are shortages. They also described the factors that contribute to the shortages, as well as the measures that can be employed to resolve them and efface their concerns. The objectives were also achieved through the aid of the Humanistic Nursing Theory that was applied to the study. This theory was able to give the researcher an understanding of the nursing profession, the challenges thereof, as well as the measures that can be employed to solve the problem at hand.

The Humanistic Nursing Theory explained four concepts that were applied to this study namely; Meeting, Call and response, Relating, and Presence. The research results explained the concept of meeting of the Humanistic Nursing Theory by describing that the shortage of medical equipment and supplies is disrupted and this makes the patients to lose trust on nursing care.

The concept of call and response of the Humanistic Nursing Theory was identified during interviews when participants stressed the fact that patients who call for help from the PHC facilities are not receiving the kind of response that best address their needs. This is proved when the research results revealed that the shortage of medical equipment and supplies makes it difficult for the nurses to care for patients. More often instead of nurses in the PHC facilities to response to patients by helping them, they refer to hospitals as they lack medical equipment and supplies that are needed to respond to the call more efficiently.

The research results explained the concept of Relating from the Humanistic Nursing Theory by revealing that for this concept to be effective, the nurses must have necessary medical equipment and supplies. Without medical equipment and supplies patients will not receive proper and timeous diagnosis, thus delaying treatment.

The last concept of the Humanistic Nursing Theory is Presence. For this concept to be effective the PHC facility must have adequate supply of the essential medical equipment and supplies that are functional.

In the call and response, meeting and relating stages of the Humanistic Nursing Theory, a patient calls for medical help and the nurse is expected to respond to the call through provision of quality nursing care. Provision of quality nursing care is manifested by proper assessment of the patient's condition using standard quality medical equipment and supplies followed by proper diagnosis resulting in appropriate treatment. However; the response, meeting and relationship is interrupted and sabotaged due to lack of sufficient equipment and medical supplies. Failure to receive expected standard of care by patients, has a negative impact on the image of the nursing profession.

5.3 Summary of the study

This study aimed to explore and describe the lived experiences of nurses regarding shortage of medical equipment and supplies in primary health care facilities in Makhado Municipality Vhembe District, Limpopo Province. A qualitative methodology, phenomenological study design was used. Population in this study was composed of registered professional nurses who work in Primary Health Care (PHC) facilities situated in Makhado Municipality. A nonprobability purposive sampling was used to select participants, and a total of 15 registered professional nurses were sampled; the number of participants was determined by data saturation. A purposive sampling method was used to select the study setting; five Primary Health Care facilities were selected from the Makhado Municipality.

Data was collected through unstructured interviews. Interviews were audio-taped and field notes were taken and the voice recordings were transcribed and inductive coding was used for data analysis, using the computer-assisted qualitative data analysis software (CAQDAS) programmes. Trustworthiness was ensured through credibility, transferability, dependability and conformability. Ethical principles were observed by ensuring that the researcher obtained an ethical clearance certificate, ethical recruitment of subjects, ensuring voluntary participation, informed consent, anonymity and confidentiality. Recommendations were made based on the findings of the main study.

5.4 Summary of main findings

The following main findings emerged from the study:

- Nurses encounter negative lived experiences, both in their professional space and in their personal lives due to shortage of medical equipment and supplies in the PHC facilities in the Vhembe District, Makhado Municipality.
- Nurses also contribute to the shortage of medical equipment and supplies in the PHC facilities as it is reported that they, sometimes, misuse these medical equipment and supplies, and they also submit order forms very late to medical depots and pharmacies.
- Nursing students are not trained properly due to the shortage of medical equipment and supplies.
- Shortage of medical equipment and supplies in the PHC facilities result in knowledge deficits in nurses.
- The nursing profession is devalued by the community members when there is shortage of medical equipment and supplies in the PHC facilities.
- Most malpractice and cases of negligence occur as a result of shortages in medical equipment and supplies.
- The Humanistic Nursing Theory with its four concepts were described and the results of the study proved that the shortage of medical equipment and supplies in the PHC facilities disrupts the process of this theory.
- Patient care is negatively affected when there are shortages of medical equipment and supplies in the PHC facilities.
- Nurses absent themselves from work to de-stress because they reported that the shortage of medical equipment and supplies in the PHC facilities causes them to stress.

- Most nurses migrate to other countries due to the shortage of medical equipment and supplies that prevents them from learning new nursing techniques.
- The shortage of medical equipment and supplies lead to loss of trust from the community members, in the quality of medical care offered at the PHC facilities.
- The shortage of medical equipment and supplies in the PHC facilities put nurses at risk of contracting infectious diseases at work.
- Delayed delivery of medical equipment and supplies also lead to shortage of medical equipment and supplies in the PHC facilities.
- The PHC facilities that have insufficient physical space experience more shortage of medical equipment and supplies as they do not have anywhere to keep stock of equipment and supplies.
- Under-production of medical equipment and supplies by medical manufactures also contribute to the shortage of medical equipment and supplies in the PHC facilities.
- Many medical equipment is available in the PHC facilities but they are non-functional due to lack of appropriate servicing.

5.5 Limitation

The sampling size for this study was relatively small, although, the research method employed, met with the requirements for this study. For this reason the findings of this study cannot be generalised but can be used as a guide for further studies that involve similar themes.

5.6 Recommendations

Nursing education

- Nurses must attend workshops that educate them about proper utilisation of the medical equipment and supplies to avoid shortages.
- Training of nurses regarding ordering of medical equipment and supplies should be reinforced.
- The nursing students must be supplied with necessary medical equipment and supplies for the purpose of quality nursing education.

Nursing clinical practice

- Nurses' responsibility and accountability in avoiding shortage of medical equipment and supplies
- The community must be made aware of the challenges that the PHC facilities are facing by the PHC facility managers informing the clinic committees of the challenges they face.
- The DoH must allocate enough budgets to the PHC facilities for purchasing of medical equipment and supplies and the extension of storage capacity of PHC facilities that have insufficient physical space.
- The logistics personnel responsible for the maintenance and servicing of medical equipment must service the equipment as per protocol to avoid malfunctions.
- The DoH must facilitate timeous procurement of medical equipment and supplies to the PHC facilities by assessing whether the logistics personnel responsible for distribution of medical equipment and supplies follow the designated schedule.
- The DoH must provide enough transport for medical equipment and supplies to the PHC facilities to avoid delay in delivery.
- The DoH must do individual facility support visits so that the Department can identify and solve the challenges that the facilities are facing.
- The manufacturers of medical equipment and supplies must make sure that they produce enough medical equipment and supplies to meet with the demands.

Research

- Extensive studies must be done to explore the lived experiences of nurses regarding shortage of medical equipment and supplies.

Conclusion

This chapter provided a summary of the methods of conduction the study, summary of main findings, limitations, conclusion and recommendation based on the interpreted raw data from participants. The recommendations were made based on the findings.

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ANNEXURE A: Approval letter to conduct research study from University of Venda research ethics committee

ETHICS APPROVAL CERTIFICATE

RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

NAME OF RESEARCHER/INVESTIGATOR:

Ms R Masuwa

STUDENT NO:

11631588

PROJECT TITLE: Lived experiences of nurses regarding shortage of medical equipment and supplies in primary health care facilities in Makhado municipality.

PROJECT NO: SHS/20/PSYCH/12/2011

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

NAME	INSTITUTION & DEPARTMENT	ROLE
Dr KG Nelshisaulu	University of Venda	Supervisor
Prof LH Nemathaga	University of Venda	Co - Supervisor
Ms R Masuwa	University of Venda	Investigator - Student

Type: Masters Research

Risk: Risk to humans, animals, environment, or a sensitive research area

Approval Period: November 2020 – November 2022

The Human and Clinical Trials Research Ethics Committee (HCTREC) hereby approves your project as indicated above.

General Conditions

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, please note the following.

- The project leader (principal investigator) must report in the prescribed format to the REC:
 - Annually (or as otherwise requested) on the progress of the project, and upon completion of the project.
 - Within 48hrs in case of any adverse event (or any matter that interrupts sound ethical principles) during the course of the project.
 - Annually a number of projects may be randomly selected for an external audit.
- The approval applies strictly to the protocol as stipulated in the application form. Would any changes to the protocol be deemed necessary during the course of the project, the project leader must apply for approval of these changes at the REC. Would there be deviation from the project protocol without the necessary approval of such changes, the ethics approval is immediately and automatically forfeited.
- The date of approval indicates the first date that the project may be started. Would the project have to continue after the expiry date: a new application must be made to the REC and new approval received before or on the expiry date.
- In the interest of ethical responsibility, the REC retains the right to:
 - Request access to any information or data at any time during the course or after completion of the project.
 - To ask further questions; Seek additional information; Require further modification or monitor the conduct of your research or the informed consent process.
 - Withdraw or postpone approval if:
 - Any unethical principles or practices of the project are revealed or suspected.
 - It becomes apparent that any relevant information was withheld from the REC or that information has been false or misrepresented.
 - The required annual report and reporting of adverse events was not done timely and accurately.
 - New institutional rules, national legislation or international conventions deem it necessary.

ISSUED BY:

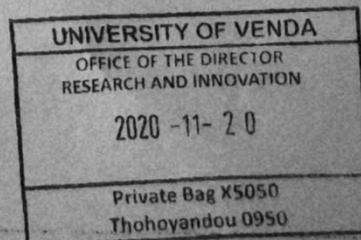
UNIVERSITY OF VENDA, RESEARCH ETHICS COMMITTEE

Date Considered: September 2020

Name of the HCTREC Chairperson of the Committee: Prof MS Mapulle

Signature:

Ms Mapulle



ANNEXURE B: Letter requesting permission to conduct research at makhado municipality primary health care facilities from Vhembe district DoH.

University of Venda (School of Health Sciences)

Private Bag X5050

Thohoyandou

0950

Department of health, Vhembe District Executive manager

Private Bag X5006

Thohoyandou

0950

Dear Sir/Madam

The researcher is a MCUR (Magister Curationis) student at the University of Venda. I am asking for a permission to conduct a research in your PHC facility.

RESEARCH TOPIC: Lived experiences of nurses regarding the shortage of medical equipment and supplies in primary health care facilities in Makhado municipality

RESEARCH PURPOSE: To explore the lived experiences of nurses regarding the shortage of medical equipment and supplies in PHC facilities in Makhado Municipality.

RESEARCH OBJECTIVES

Explore and describe the lived experiences of nurses regarding the shortages of medical equipment and supplies in PHC facilities in Makhado Municipality.


Yours sincerely

Masuwa R



071 5200 603

**ANNEXURE C: Approval letter to conduct a research study from department of health
Vhembe district**

 **LIMPOPO**
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

**DEPARTMENT OF HEALTH
VHEMBE DISTRICT**

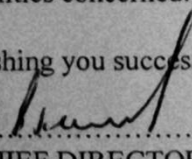
Ref: S5/6
Enq: Muvuri MME
Date: ...06.05.21

Dear Sir/Madam... MASUWA R

Permission to conduct a research on the
“ LIVED EXPERIENCES OF NURSES ”.

1. The above matter refers.
2. Your letter received on the 06.05.21... requesting for permission to conduct an investigation is hereby acknowledged.
3. The District has no objection to your request.
4. Permission is therefore granted for the study to be conducted within Vhembe District. You are expected to submit the results to the District.
5. You are however advised to make the necessary arrangements with the facilities concerned.

Wishing you success in your endeavors.



CHIEF DIRECTOR: DISTRICT HEALTH

18/5/2021

DATE

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

The Department of Health, Vhembe District, is committed to providing quality health services to all people.

ANNEXURE D: Letter requesting permission to conduct research at Makhado Municipality primary healthcare facilities from Limpopo provincial DoH

University of Venda School of health sciences

Private Bag X5050

THOHOYANDOU

0950

Limpopo Department of Health Head Office

Private Bag X9302

Polokwane

0700

Dear Sir/Madam

The researcher is a MCUR (Magister Curationis) student at the University of Venda. I am asking for a permission to conduct a research in your PHC facility.

RESEARCH TOPIC: Lived experiences of nurses regarding the shortage of medical equipment and supplies in primary health care facilities at Vhembe District in Makhado Municipality

RESEARCH PURPOSE: To explore the lived experiences of nurses regarding the shortage of medical equipment and supplies in PHC facilities, in Makhado Municipality.

RESEARCH OBJECTIVES

Explore and describe the lived experiences of nurses regarding the shortage of medical equipment and supplies in PHC facilities in Makhado Municipality.

Yours sincerely



Masuwa R

071 5200 603

ANNEXURE E: Approval letter to conduct research study from Limpopo provincial government DoH



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

Ref : LP_2020_11_044
Enquires : Ms PN Motimele
Tel : 015-293 6028
Email : Phoebe.Mahlokwane@dhsd.limpopo.gov.za

Masuwa Rofhiwa

PERMISSION TO CONDUCT RESEARCH IN DEPARTMENTAL FACILITIES

Your Study Topic as indicated below;

Lived experiences of nurses regarding shortage of medical equipment and supplies in primary health care facilities in Makhado municipality

1. Permission to conduct research study as per your research proposal is hereby Granted.
2. Kindly note the following:
 - a. Present this letter of permission to the institution supervisor/s a week before the study is conducted.
 - b. In the course of your study, there should be no action that disrupts the routine services, or incur any cost on the Department.
 - c. After completion of study, it is mandatory that the findings should be submitted to the Department to serve as a resource.
 - d. The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.
 - e. The approval is only valid for a 1-year period.
 - f. If the proposal has been amended, a new approval should be sought from the Department of Health
 - g. Kindly note that, the Department can withdraw the approval at any time.

Your cooperation will be highly appreciated

A/ Director Research
Dr. Ramalivhana NJ

08/02/2021

Date

Private Bag X9302 Polokwane
Fidel Castro Ruz House, 18 College Street. Polokwane 0700. Tel: 015 293 6000/12. Fax: 015 293 6211.
Website: <http://www.limpopo.gov.za>

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ANNEXURE F: Consent form

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, (Masuwa Rofhiwa), about the nature, conduct, benefits and risks of this study - Research Ethics

Clearance Number: __,

- I have also received, read and understood the above written information (*Participant Letter of Information*) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

I, (Name of Participant).....Date.../...../..... Time..... Signature.....

(Masuwa Rofhiwa) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Masuwa Rofhiwa

Date.....

Signature 

Full Name of Witness (If applicable).....

Date

Signature.....

Full Name of Legal Guardian (If applicable).....

Date.....

Signature.....

ANNEXURE G: Participant information sheet

Title of the Research Study : Lived experiences of nurses regarding the shortage of medical equipment and supplies in primary health care facilities in Makhado Municipality

Principal Investigator/s/ researcher : (Masuwa Rofhiwa, Honours Degree in Nursing Sciences)

Co-Investigator/s/supervisor/s : (Dr Netshisaulu, Doctorate in Nursing Sciences)
: (Prof-Nemathaga, Professor in Nursing Sciences)

You are invited to participate in a study conducted by Masuwa Rofhiwa, a Masters in nursing (MCUR) student from the School of Health Sciences, University of Venda. Your area has been chosen by the researcher for the study.

THE PURPOSE OF THE STUDY

The purpose of the research is to explore the lived experiences of nurses regarding the shortage of medical equipment and supplies in PHC facilities in the Makhado Municipality.

APPROVAL TO RESEARCH

Ethical clearance was sought from the University of Venda, Limpopo Province.

Reason/s why the Participant May Be Withdrawn from the Study: (Non-compliance, illness, and when the participants feels that he/she does not want to go further with the study.

There will be no adverse consequences for the participant should they choose to withdraw)

Remuneration: There will be no monies or any type of remuneration for taking part in this study

Costs of the Study: There are no costs that the participants will be expected to pay.

Confidentiality: The data we collect would not contain any personal information about you. The information from you will remain confidential and will be disclosed only with your permission or as required by law. Your identity will be kept anonymous. No one will link the data you provide to the identifying information you supplied, such as name and address.

Research-related Injury: In this research study there will be no harm related to the research whatsoever and the researcher will ensure the safety and security of all the participants.

RISK OR DISCOMFORT INVOLVED

There are no known risks for you in this study. If you decide to participate, you will be asked to share your ideas and feelings about the lived experiences of nurses regarding the shortage of medical equipment and supplies in your PHC facility. Participation in this study involves the completion of some in-depth unstructured interviews. The interview will take about 60 minutes to complete and you will be audio taped. It will not be possible to provide feedback after the interview. The interview may help in identifying the problem that some people will like to discuss with appropriate executive managers.

BENEFITS AND RISKS

It is my hope that the obtained information will have potential benefits to the participants and communities because every individual is entitled to receive quality primary health care services. Recommendations will be made based on the findings.

PARTICIPANT'S RIGHTS


Your participation is voluntary. You may decide to stop being part of the study at any time. There will be no penalty from your withdrawal from participation. You have the right to ask that any data you would have supplied up to that point, to be withdrawn.

INFORMATION CONTACT

Persons to Contact in the Event of Any Problems or Queries:

(Supervisor and details) Please contact the researcher (071 5200 603), my supervisor (072 6926 926) or the University Research Ethics Committee Secretariat on 015 962 9058. Complaints can be reported to the Director: Research and Innovation, Prof GE Ekosse on 015 962 8313 or Georges Ivo.Ekosse@univen.ac.za

Your signature indicates that you have read and understand the information that is provided above and that you are willing to participate; that you may withdraw your consent at any time and discontinue participation without penalty; that you will receive a copy of this form and that you are not waiving any legal claims.

Signature (researcher)  Date:/...../.....

Participant's name.....Date...../...../..... Signature.....

ANNEXURE H: Transcript- interview with participant B

The researcher introduced herself to the participant; showed the participant a permission letter granted by the University, Provincial DoH and District DoH; provided the participant with an information sheet which included the purpose of the study, objectives, and the ethical consideration. The researcher allowed the participant time to go through the information sheet and also explained the content of the information to make sure that the participant understood everything before signing the consent form. The researcher also explained to the participant that no names will be mentioned during recordings as this may violate the right of anonymity.

Researcher: What are the lived experiences of nurses regarding shortage of medical equipment and supplies in your PHC facility?

Participant B: *“The shortage of medical equipment and supplies create a division amongst the nurses. In this PHC facility, nurses are divided into 2 shifts and mostly these two groups tend to lack teamwork as these shortages take a toll on them; for example, we usually fight and blame each other for the shortages because some will be saying the other shift misused certain supplies and vice versa”*

Researcher: And what do you think are the contributory factors that result in these shortages of medical equipment and supplies?

Participant B: *“Using a lot of gauze during wound dressing is our main challenge here, you will see the nurse using a whole packet of sterile gauze on a single patient for a very small wound dressing, and it is very boring because we end up not having enough gauze to use on other patients or we have nothing at all”.*

Researcher: What are the impact of the shortages of medical equipment and supplies in your facility?

Participant B: *“When we keep on disappointing the patients, they tend to bypass the PHC facilities and seek medical attention from the hospital without being referred, this makes the staff members at the hospital angry at us.”*

Researcher: Are there other challenges that you meet as a result of shortage of medical equipment and supplies?

Participant B: *“The shortage of medical equipment and supplies create a division amongst the nurses. In this PHC facility nurses are divided into 2 shifts and mostly these two groups tend to lack teamwork as these shortages take a toll on them. For example, we usually fight*

and blame each other for the shortages because some will be saying the other shift misused certain supplies and vice versa”.

Researcher: How do these shortages impact on the nursing education?

Participant B: *“Newly qualified nurses who are just fresh from school are perfect example that students in the nursing schools are not receiving quality nursing education due to lack of medical equipment and supplies. They often say that they have not seen certain procedures done but they just have the theoretical knowledge on how it is supposed to be done”*

Researcher: What could be done in order to efface the negative lived experiences of nurses regarding shortage of medical equipment and supplies?

Participant B: “We need to stand together as nurses so that we support each other when we encounter problems. We need to be able to work as a team even when we are facing this chronic shortage of medical equipment and supplies”.

Researcher: “... Okay I have understood your challenges and that will be all for now, thank you very much for your cooperation.”

ANNEXURE I: Proof of editing

PROOF OF EDITING

15 February, 2022

This is to certify that I, Dr P Kaburise, of the English Department, University of Venda, have proofread the dissertation titled - **LIVED EXPERIENCES OF NURSES REGARDING SHORTAGE OF MEDICAL EQUIPMENT AND SUPPLIES IN PRIMARY HEALTH CARE FACILITIES IN MAKHADO MUNICIPALITY-** by **MASUWA ROFHIWA** (student number: **11631588**). I have indicated some amendments which the student has undertaken to effect before the final dissertation is submitted.



Dr P Kaburise (0794927451/ 0637348805; email: phyllis.kaburise@gmail.com)

Dr P Kaburise: BA (Hons) University of Ghana (Legon, Ghana); MEd University of East Anglia (Cambridge/East Anglia, United Kingdom); Cert. Teaching English as a Foreign Language (Cambridge University, United Kingdom); Cert. English Second Language Teaching, (Wellington, New Zealand); PhD University of Pretoria (South Africa)

