
# Challenges Encountered by Midwives When Providing Care to Preterm Babies at Selected Hospitals in the Mopani District of Limpopo Province, South Africa

by

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*Thesis Submitted in Fulfillment of the Requirements for the Degree:*

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# DECLARATION

I, **Thendo Mahwasane**, declare that "**Challenges Encountered by Midwives When Providing Care to Preterm Babies at Selected Hospitals in the Mopani District of Limpopo Province, South Africa**" submitted for the degree **Master in Nursing Science** at the **University of Venda**, has not previously been submitted at this or any other university, and that it is my own work in design and execution and that all references material cited herein have been duly acknowledged.

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# DEDICATION

*This study is dedicated to my late mother, Mutshinyalo Florence Mahwasane, and my beloved aunt, Shonisani Mahwasane.*

# ACKNOWLEDGEMENTS

*First of all I wish to give thanks to the mighty living God for giving me the wonderful opportunity to engage into this research study. In Him I have found wisdom and strength to conduct this study to the end.*

*"I can do all things through Christ who strengthens me"*

***Philippians 4:13***

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# ABSTRACT

**Introduction:** During the provision of care to preterm babies, midwives encounter many problems and challenges which may vary according to the gestational age of the women, condition of the foetus, availability of equipment and resources, and experience of the midwives. In addition, poor working conditions, feelings of insecurity, staff shortage, and lack of support from the management and having to deal with parents who do not comply with the hospital management plan for their babies; all contribute to the problems faced by midwives. The purpose of this study was to determine challenges encountered by midwives when providing care to preterm neonates at selected hospitals in the Mopani District of Limpopo Province, South Africa.

**Methods:** Qualitative research in this study was conducted in a natural setting at the selected hospitals. The target population was the midwives who have been working in maternity wards for at least two years and were on duty during the period of data collection. Non-random purposive sampling was used to select the participants. Data were collected using unstructured interviews, which were tape recorded and transcribed. The six steps as described by Creswell were used for data analysis. Trustworthiness was ensured by using the model of Lincoln & Guba that included credibility, dependability, confirmability and transferability. Ethical principles, namely, permission to conduct the study, informed consent from participants, privacy, confidentiality, autonomy, anonymity and respect were observed.

**Results:** When midwives provide care to preterm babies they often encounter multiple challenges which can be human or material resource related. In his study, midwives were found to perform their duties in the face of multiple challenges, including staff

shortages, which resulted in exhaustion of the available midwives. Nursing a preterm baby is a challenge on its own as these babies are likely to develop clinical problems related to immaturity, e.g., hypoglycaemia, hypothermia, jaundice, sepsis and respiratory distress. Mothers may be traumatised and find it difficult to accept their babies as they are, this leads to lack of cooperation in the care of the neonate and it becomes a problem for the midwives who are directly providing such care. The aforementioned challenges are related to all the four major concepts of human caring as described by Jean Watson which are health, human being, nursing and environment.

**Recommendations:** It is recommended that further research be conducted on the same topic, but in a different setting to generate more knowledge. Policy makers should work together with health care professionals who are directly involved in the care of preterm babies to improve the practice of the contents in the policies.

**Keywords:** challenges encountered, midwives, preterm babies, preterm birth, provision of care

# LIST OF ACRONYMS

| | |
|---|---|
| **ANC** | Antenatal Care |
| **BANC** | Basic Antenatal Care |
| **CoMMiC** | Committee on Morbidity and Mortality in Children Under 5 |
| **DENOSA** | Democratic Nursing Organisation of South Africa |
| **DH** | District Hospital |
| **DHIS** | District Health Information System |
| **DoH** | Department of Health |
| **ELBW** | Extremely Low Birth Weight |
| **EmONC** | Emergency Obstetric Care and Early Newborn Care |
| **ESMOE** | Essential Steps in Managing Obstetric Emergencies |
| **HBB** | Helping Babies Breathe |
| **IMR** | Infant Mortality Rate |
| **KMC** | Kangaroo Mother Care |
| **Kph** | Kgapane Hospital |
| **LINC** | Limpopo Initiative Newborn Care |
| **Lth** | Letaba Hospital |
| **MDT** | Multidisciplinary Team |
| **Mmh** | Maphutha Malatji Hospital |
| **n** | Number |
| **NCPAP** | Nasal Continuous Positive Airway Pressure |
| **NICU** | Neonatal Intensive Care Unit |
| **NNMR** | Neonatal Mortality Rate |
| **O2** | Oxygen |
| **PEP** | Perinatal Education Programme |
| **PPIP** | Perinatal Problem Identification Programme |
| **PROM** | Premature Rupture of Membranes |
| **PTB** | Preterm Birth |

| | |
|---|---|
| **RDS** | Respiratory Distress Syndrome |
| **RHT** | Refusal of Hospital Treatment |
| **SANC** | South African Nursing Council |
| **SDG** | Sustainable Development Goals |
| **SPTB** | Spontaneous Preterm Birth |
| **UNICEF** | United Nations Children's Fund |
| **UTIs** | Urinary Tract Infections |
| **U5MR** | Under 5 Years Mortality Rate |
| **WHO** | World Health Organization |

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# CHAPTER 1

## OVERVIEW OF THE STUDY

### 1.1 Introduction and Background

Within the first month of life, over 1 million babies could be saved each year by ensuring low-cost, lifesaving interventions (Save the Children, 2013:6). Complications of preterm birth are the leading direct cause of neonatal mortality, accounting for an estimated 27% of the almost 4 million neonatal deaths every year, and it acts as a risk factor for many neonatal deaths due to other causes like infections (Lawn, Gravett, Nunes, Rubens, Stanton & GAAPS Review Group, 2010:1). The Saving Babies 2006-2007 Report (Pattinson, 2009:17) found that lack of adequate neonatal facilities were the most common administrative problem that caused deaths amongst preterm babies. The source continues to indicate that inadequate facilities in the neonatal/nursery unit and inefficient management plan were the common avoidable factors that were health system related.

Preterm Birth (PTB) is the significant cause of short and long-term morbidity which increases the demand for neonatal intensive care services. A large number of surviving preterm babies tend to end up with deficits such as blindness, neurological impairment and chronic respiratory distress (Wisanskoonwong, 2012:6). PTB is a critical problem worldwide that needs to be addressed and eradicated. According to WHO (2012:1),15 million babies are born too soon every year and over 1 million children die each year due to complications of PTB. WHO (2012:2) further indicated that there is a gap in the survival rate of preterm babies, depending on which country they are born in.

In low income countries, over 90% of preterm babies die within few days of life while in high income countries, only 10% die and remainder survive. PTB is now the first leading cause of child death after pneumonia (Liu, Johnsons, Cousens, Perin, Scott, Lawn, Rudan, Campbell, Cibulskis, Li, Mathers & Black, 2012:2158) and the first leading cause of newborn deaths (WHO, 2012:01). Midwives play a crucial role in reducing child morbidity and mortality because there is increased focus on the education and development in low-income countries (Thommesen, 2014:1). The author affirmed that every newborn is a newly released action plan to end preventable neonatal deaths.

Midwives should, therefore, have the knowledge and skills about when and how to administer certain drugs and be able to use medical equipment such as an ambubag for resuscitation of the neonates. Neonatal deaths account for 75% of all infant deaths worldwide and 40% of this rate is due to immaturity (Lloyd & Witt, 2013:518). The Saving Children's Report indicated that the three major causes of neonatal mortality are birth complications (23%), severe infections (23%) and complications related to prematurity (35%) (Save the Children, 2013:23).

Over 60% of PTBs occur in Africa and South Asia (WHO, 2012:3), with South Asia and sub-Saharan Africa accounting for half the world's births, more than 60% of the world's preterm babies and over 80% of the world's 1.1 million deaths due to PTB complications. In the results of a study conducted in the United State of America (USA) titled "Behavioural influences on preterm birth: Integrated analysis of the pregnancy, Infection and nutrition study," African-American women were found to be at higher risk for PTBs than the other sub-types (Savitz, Harmon, Siega-Riz, Herring, Dole & Thorp, 2011:1156). According to Lloyd & Witt (2013:518), the highest rates of neonatal mortality are in sub-Saharan Africa. In sub-Saharan Africa, progress in declining of maternal and newborn care has been slower since 1990 as compared to the other regions around the world.

According to Save the Children Report of 2013, sub-Saharan Africa has an estimation of 397,000 of neonatal mortality which is 34 per 1000. The risk for neonatal death due to complications of preterm birth is at least 12 times higher for an African baby than a European baby. Midwives and neonatal nurses experience ethical challenges related to interactions with parents and other health care practitioners. These may be emotional strain, protecting the vulnerable infant, ensuring continuity of treatment, miscommunication and professional disagreement (Strandàs & Fredriksen, 2015:901).

Due to prolonged hospital stay of preterm babies, some parents end up making decisions that nurses disagree with and it becomes a challenge when midwives have to limit parents' involvement in the care for their babies, the source continues. Midwives in Ethiopia were found not to have interest in practicing midwifery because they were assigned to midwifery education by the government; other challenges included inadequate knowledge and skills and lack of staff where approximately 334,000 more midwives were needed globally (Thommesen, 2014:24).

The Perinatal Problem Identification Programme (PPIP) produced reports which highlighted the preventable deaths in South Africa. Every year about 23,000 newborn babies die in South Africa, with an additional estimated 20,000 stillbirths. Fourty-five percent of these babies die from preterm-related complications (UNICEF, 2011:8). In the 2006-2007 Perinatal Care Report of South Africa (2009:25), PTB was found to be responsible for 46% of all neonatal deaths followed by 29.8% of asphyxia.

This observation was also supported by the 2012-2013 Saving Babies Report (Pattinson & Rhoda, 2014:20). Prematurity is one of the causes of perinatal death where the maternal contributory factors are hypertension in pregnancy and placenta abruption, infections and obstetric haemorrhage. In some cases, this is due to not attending antenatal care (ANC) (South Africa Health Review, 2008:118). The

avoidable factors that led to preterm deaths in South Africa included 30.5% of patient- and family associated; 16.2% as health care provider-associated and 10.5% of deaths caused by administrative problems (Pattinson & Rhoda, 2014:24). According to the Committee on Morbidity and Mortality in Children under 5 (CoMMiC) Report (2014:14), infant and under 5 mortality rates in South Africa declined rapidly between 2009 and 2011 and then stabilised in 2012.

The neonatal mortality rate, which accounted for approximately one-third of the under-five deaths, declined more slowly over the period. The slower decline in neonatal mortality is a good indicator that midwives are facing challenges in the management of preterm babies. McNamara (2003:79) emphasised that there are various challenges to the management of preterm labour which may require an individualised approach for different patients, using expert committees or guidelines as the backbone of the management plan.

Pattinson (2003:454) alluded to lack of adequate neonatal facilities in rural areas as one of the challenges in the management of preterm babies; wherein, a woman arrives at the health care institution in an advanced labour where suppressing labour is no longer an option, and mortality may only be reduced by improved neonatal care requiring specific equipment. The prevention of preterm labour is one of the greatest challenges for midwives (Goswami & Sahai, 2014:2042).

According to a study conducted in Limpopo Province in 2003 by UNICEF (2011:8) to ascertain the status and availability of newborn care services and infrastructure, it was found that none of the health facilities had level 2 newborn care units, few nursing staff was trained in newborn care and many health facilities had inadequate equipment to provide standard quality of care to newborns. The factors leading to midwives' challenges as reflected in The Saving Babies 2012-2013 Report were delayed in seeking medical attention which accounted for most immaturity deaths (10.5%), never

initiated ANC (8.8 %), late booking (3.1%), inappropriate response to poor foetal movements (2%), inadequate neonatal care management plan (2%), and not giving antenatal steroids (1.2%) (Pattinson & Rhoda, 2014:24). Midwives could play a major role in the prevention of these factors. When comparing data from the two reports of different years; Saving Babies 2006-2007 and Saving Babies 2012-2013, the avoidable factors which cause neonatal deaths are increasing. Patient-associated factors have increased from 15-30.5% and medical personnel related factors increased from 16-16.2% while administrative factors decreased from 12-10.5% (Pattinson, 2009:27; Pattinson & Rhoda, 2014:24).

The Under 5 Mortality Rate (U5MR) in Limpopo Province has declined significantly over the last 5 years. The province has the second lowest U5MR in the country. Neonatal deaths have overtaken diarrhoea and pneumonia as these diseases have declined (CoMMiC, 2014:139). Infants born preterm are more likely than infants born full-term to die during their neonatal period (first 28 days) and infancy (first year of life), and mortality rates increase proportionally with decreasing gestational age of birth weight (Goswani & Sahai, 2014:2036). The source maintained that there is a higher incidence of perinatal mortality in very preterm babies (61.4%) as compared to moderately preterm babies (22.46%).

This study presented in this thesis was conducted in the Mopani District which is one of the five districts of the Limpopo Province. In January-June 2012, perinatal mortality rate per 1000 in Mopani hospitals were: 59.7 in Maphutha Malatji; 37 in Letaba; 36.1 in Sekororo; 35.6 in CN Phathudi, 44.1 in Kgapane; 34.8 in Nkhensani and 30.9 in Van Velden Hospital (Ntuli, 2012, no pagination). Liu et al. (2012:2151) recommended that child survival strategies should direct resources toward the leading causes of child mortality which are pneumonia and preterm birth complications. Hence, this research focused on determining the challenges encountered by midwives when providing care to preterm babies.

## 1.2 Problem Statement

A research problem is an issue or concern that needs to be addressed. The problem arises from a void in the literature, and conflict in research results in the literature, topics that have been neglected in the literature, a need to lift up the voice of marginalised participants, and real life problems found in the workplace (Creswell, 2014:20).

In March 2016 at Sekororo District Hospital, two preterm twins were delivered at home and then brought to the hospital with severe Respiratory Distress Syndrome (RDS) which was caused by immaturity of the lungs; these babies could not be started on Nasal Continuous Positive Airway Pressure (nCPAP) ventilation to relieve RDS because the hospital only had one nCPAP machine which was in use at that time, so both neonates eventually died due to lack of equipment.

The midwives felt helpless as they could not help the babies and they also realised that lack of equipment for neonatal care is the major leading cause of neonatal mortality due to PTB complications. This indicated that midwives who are providing care to preterm babies encounter many challenges than the one cited. Although researchers have been conducted on preterm birth and their care, very little is known about the challenges that are encountered by the midwives who are caring for these preterm babies.

The study was conducted in Mopani district because according to the report on improving newborn care in South Africa, the perinatal mortality rates from 2006-2009 have decreased in the other four districts of Limpopo Province, but Mopani remained with an upward trend (UNICEF SA, 2011:24). The researcher has focused on the challenges encountered by midwives when providing care to preterm babies as prematurity-related complications were found to be the leading causes of increased perinatal deaths worldwide.

## 1.3 Purpose of the Study

The purpose of this study was to determine the challenges encountered by midwives when providing care to preterm babies at selected hospitals in the Mopani District of Limpopo Province, South Africa.

## 1.4 Objectives of the Study

The objectives of this study were to:

- Explore and describe the challenges encountered by midwives when providing care for preterm babies at selected hospitals in the Mopani District of Limpopo Province, South Africa.
- Identify the clinical problems associated with preterm birth and their management by midwives?
- Determine measures practised by midwives for promoting preterm care and reducing perinatal mortality due to preterm birth complications.
- The results of this research study have added to the already existing knowledge of midwives regarding care of preterm babies and may contribute into the improvement plans of neonatal and maternity care in South Africa.

## 1.5 Research Questions

The research questions of this study were:

- What are the challenges encountered by midwives when providing care for preterm babies at selected hospitals in the Mopani District of Limpopo Province, South Africa?
- What are the clinical problems associated with preterm birth and their

management by midwives?

- What are the measures practised by midwives for promoting management preterm birth?

## 1.6 Significance of the Study

The findings of this study may be beneficial to the midwives, patients and the health system as a whole. In the context of the Sustainable Development Goals (SDGs), in particular Goal 3, which is about promoting good health and well-being, the study may improve neonatal and child health and, ultimately, reduce the child mortality rate and most importantly, perinatal morbidity and mortality rates. The knowledge generated may also be useful to health care practitioners (midwives and doctors) who are directly providing care to pregnant women and preterm babies.

Policies may be developed about preterm birth care, hospitals may be provided with resources to manage preterm babies and further education and training may improve stakeholders' knowledge and skills regarding preterm care. The costs for neonatal intensive care may also be reduced and most mothers may not lose their babies due to complications of prematurity. This, in turn, may also reduce the psychological stress that parents of preterm babies go through due to trauma of delivering a very tiny baby and prolonged hospital stay.

## 1.7 Theoretical Framework

The Theory of Human Caring (philosophy and science of caring) by Jean Watson was developed between 1975 and 1979 (Watson, 2007:131).

Watson views 10 carative factors as a guide for the core of nursing. These factors are as follows:

- Humanistic-altruistic;
- Instilling/enabling faith and hope;
- Cultivation of sensitivity to oneself and other;
- Development of helping-trusting, human caring relationships;
- Promotion and acceptance of expression of positive and negative feelings;
- The systematic use of scientific (creative) problem-solving caring processes;
- Promotion of transpersonal teaching-learning;
- Provision for a supportive, protective, and/or corrective mental, social, and spiritual environment;
- Assistance with gratification of human needs; and
- Allowance for existential-phenomenological spiritual dimensions.

The philosophy and science of caring has four major concepts, namely:

- **Human-being:** Valuable and worthy of care, respect, nurturance, understanding and assistance.
- **Health:** High level of adaptive physical, mental, and social functioning. Importance of health promotion and illness prevention.
- **Environment:** Nurse and patient come together in transpersonal caring-healing moments. Caring is connection with the high-energy of the universe.
- **Nursing:** A human science of persons and human-illness experiences that are mediated by professional, personal, scientific, aesthetic, and ethical human care transactions.

## 1.8 The Interrelationship of Human Caring Theory on the Present Study

The present study focused on the challenges encountered by midwives when providing care to preterm babies, with the main concepts of the title being midwives, provision of care and preterm babies. The theory of philosophy and science of caring includes all the four areas of human caring hence the researcher saw it being more applicable to this study. With the topic of this study, all the major concepts of this theory relate with the main concepts on the title of the present study. The relationship of the theory will be discussed further.

### 1.8.1 Human Being

In this study, a human being referred to as a midwife who was providing care to preterm babies. Midwives encountered many challenges during the management of preterm babies and the prevention of deaths due to prematurity-related complications.

- Some of these challenges may include lack of passion for practising midwifery and caring for preterm neonates. The midwives who have been trained for midwifery without interest may not respond well to emergencies with regard to preterm care and may easily give up when caring for those very tiny premature neonates who change conditions every now and then. Those midwives who have not been in the field for long may feel insecure when they are left alone in the unit without an experienced or senior midwife. This is a challenge because they cannot provide the best quality care to the preterm babies as they fear that everything they do can go wrong. They are faced with the challenge of taking the responsibility of promoting health and prevention of further complications.

- Midwives, just like other nurses, also face the challenge of staff shortage. The babies may be many with very few midwives to provide health care to them. For example, at Sekororo Hospital there are only two midwives who are

allocated full time in neonatal and Kangaroo Mother Care (KMC) unit. When one midwife is on duty, the other midwife is off. And, at times, the midwives have to work extra hours trying to cover up for the shortage in the unit. Shortage of midwives in the neonatal unit is a great challenge which leads to an increased death rate in the unit.

### 1.8.2 Health

Health was referred to the level of adaptive physical, mental, and social functioning of babies who are born prematurely. This included the clinical problems associated with immaturity that pose challenges to midwives who are providing care to these babies.

- Due to the immaturity of their organs, preterm babies face many clinical problems that need to be attended to by the midwives working in maternity wards. These clinical conditions include temperature instability, low blood glucose, RDS, feeding problems and risk of infection. Midwives who lack knowledge and skills on the prevention and management of these conditions encounter challenges as mothers depend on them for assistance.

- Due to insufficient brown fats in their bodies, preterm babies need assistance in maintaining their body temperature. This can be achieved through the use of incubators and KMC which is also known as skin-to-skin contact. The institutions should have enough incubators for the babies who are born prematurely and cannot be nursed in KMC because of their unstable conditions. In cases where babies are too many and there are no more incubators, midwives encounter a challenge of keeping the baby's normal temperature without the use of incubators.

- The instability in the health of premature neonates may cause many challenges for midwives; some of the challenges also lead to deaths that could

have been avoidable if there were enough resources to be used in the care for these babies.

### 1.8.3 Environment

The environment referred to the workplace of the midwives, where the preterm babies were being delivered and nursed, i.e., labour ward, neonatal ward and KMC units and the mothers of the preterm babies.

- The neonatal and KMC units should have good ventilation and room temperatures should be maintained within normal ranges. The units should be kept clean, free from harm and prevent infection as much as possible. Visitors should be limited and if the mother does not understand the rules in the neonatal unit it can affect the care that the baby is receiving. Mothers should be able to cooperate with midwives in the care of their babies.

- Some mothers may complain of prolonged hospital stay and feel that the condition in the neonatal unit is depressing to them. Mothers may want to take their babies home before they are discharged even when they can see that the baby is not yet stable. This causes an ethical challenge for the midwives and, more especially if the mother has made up her mind and is also supported by the family members.

- The neonatal units in Kgapane and Sekororo hospitals are small and the incubators are very close to each other which also increase the risk of cross-infection. The midwives should ensure that the neonatal unit is always clean, free of noise, everyone should scrub their hands with chlorhexidine solution before and after handling the babies to reduce the risk of infections.

- In a small maternity ward, midwives encounter a challenge in the prevention of noise in the neonatal units that is caused by the relatives or the women in

labour wards. Studies have shown that sounds affect both the growing foetus and the developing child, what the baby hears influences not only the development of the structure of the auditory system, but also the organisation of behaviour, sound sleep, and communication with parents (Browne, 2004:6).

- During ANC, women who are at high risk of preterm birth are identified and can be given corticosteroids to speed up lung maturity and prevent respiratory problems due to immaturity of the respiratory organs. Preterm babies delivered by unbooked women tend to have severe respiratory problems than those delivered by women who were attending antennal care because they never received corticosteroids during pregnancy. Booked mothers are screened and treated for conditions that may lead to preterm birth such as preeclampsia, urinary tract infections (UTIs), etc. Mothers who did not attend ANC, fall in preterm labour, it increases the challenges for midwives as they will have to fight with managing the RDS in their babies and sometimes with no sufficient equipment.

- Delay in seeking medical attention during labour is also a challenge to the midwives. Women should report to the health institution immediately when they start suspecting that labour has commenced. The earlier they seek help, the more options for interventions will be available.

- Some mothers may attempt to perform termination of pregnancy at home at the latter gestational age when the foetus is already viable. In cases like this the woman dilates the cervix manually hoping that the foetus will come out dead.

- When the baby is delivered alive it is taken to the hospital where the chances of survival are limited because the baby has already been exposed to cold, and in most cases the baby would be born with extremely low birth weight. In

these cases, the midwives are faced with the challenge of saving the baby and preventing further complications.

### 1.8.4 Nursing

Nursing referred to the care that was being provided to preterm babies by midwives. For midwives to provide quality nursing care to preterm babies, knowledge and skills for management of immaturity-related conditions are needed, for example, knowledge on neonatal resuscitation and special training on neonatal care. Challenges that midwives may face here are lack of transport to move the patient from home to the health care institution or to another referral institution. Senior or experienced midwives are not always available during the care of preterm babies, and if the available midwives are not sufficiently trained on the management of the patients it may affect care that the baby is receiving. Inadequate facilities or equipment in the neonatal unit and insufficient beds in the KMC unit can put a strain on saving the preterm babies.

## 1.9 Definitions of the Main Concepts

The main concepts of this study have been identified, and a conceptual and operational definition for each concept is provided.

### 1.9.1 Care

Care means doing the necessary things for someone who needs help or protection (Macmillan, 2011:107). In this study, care shall refer to the actions of the midwives towards preterm babies in order to improve their health and prevent further suffering.

### 1.9.2 Challenge

Refers to something that needs a lot of skill, energy and determination to deal with or achieve (Macmillan, 2011:117). In this study, challenges shall refer to all the problems that the midwives encounter at work when providing care to preterm neonates.

### 1.9.3 Midwife

According to the South African Nursing Act (Act 33 of 2005), a midwife is a person who is qualified and competent to independently practise midwifery in the manner and to the level prescribed and who is capable of assuming responsibility and accountability for such practice. In this study, a midwife shall refer to any professional nurse registered with South African Nursing Council (SANC) with the qualifications of midwifery, and who has been working in a maternity ward for at least two years.

### 1.9.4 Midwifery

Midwifery refers to a caring profession practised by persons registered under the South African Nursing Act No 33 of 2005, which supports and assists the health care user and, in particular, the mother and baby to achieve and maintain optimum health during pregnancy, all stages of labour and the puerperium (Government Gazette, 2006:6). In this study, midwifery shall refer to the qualifications involving care for a pregnant woman who is at preterm labour and care being provided to babies born prematurely.

### 1.9.5 Neonatal Mortality

Neonatal mortality refers to the death of an infant in the first four weeks of life (Sellers, 2012:759). In this study, this shall refer to the death of newborn babies from the first minute of birth to the time when the baby is 28 days old.

### 1.9.6 Preterm Birth

Preterm birth is defined as birth before 37 completed weeks of pregnancy (Sellers, 2012:278).

### 1.9.7 Provide

Provide means to give someone something that they want or need (Macmillan,

2011:584). In this study, provide shall refer to giving the necessary quality health-care to the preterm babies.

## 1.10 Outline of Chapters

In this study, the outline of the proposed chapters is as follows:

| | |
|---|---|
| **Chapter 1** | Overview of the Study |
| **Chapter 2** | Literature Review |
| **Chapter 3** | Research Methodology |
| **Chapter 4** | Presentation and Discussion of the Findings |
| **Chapter 5** | Summary, Limitations, Recommendations and Conclusion |

## 1.11 Summary

Preterm birth complications are the most common cause of the increased rate of morbidity and mortality in neonates. The prevention of preterm labour is one of the greatest challenges for midwives. The researcher has identified that midwives providing care to preterm babies encounter challenges. Therefore, the purpose of the current study was to determine the challenges encountered by midwives when providing care to preterm babies at selected hospitals in Mopani District of Limpopo Province, South Africa. This chapter has described the objectives, significance of the study, as well as the theoretical framework. Theory of Human Caring as developed by Jean Watson was applied to the study because it includes all the four concepts of caring. Chapter 2 encompasses the literature review.

# CHAPTER 2

# LITERATURE REVIEW

## 2.1 Introduction

The literature review helps the researcher to build on previous knowledge and research. The literature review provides information on the content for the intended research project (Meyer, Naude, Shangase & Nierkerk, 2009:359). It covers the existing knowledge generated from previous research studies conducted about the same title. It is important in giving the researcher information that is already known and what previous researchers would like the next research to be centred on.

This study focused on the challenges faced by midwives when providing care to preterm neonates in selected hospitals in Mopani District, Limpopo Province, South Africa.

The literature review will cover the following contents:

- Risk factors for preterm birth;
- Clinical problems associated with preterm birth and their management by midwives;
- Challenges experienced by midwives when managing preterm birth and preterm babies; and
- Measures practised by midwives for promoting preterm care and reducing perinatal mortality rate due to complications of prematurity.

## 2.2 Risk Factors for Preterm Birth and Management by Midwives

Preterm birth is defined as the onset of labour after/at the gestation of 24 weeks and before 37 completed weeks of pregnancy (NDoH, 2015:101; WHO, 2015:1). WHO (2012:1) further divided preterm birth into sub-categories based on weeks of gestational age: extremely preterm (<28 weeks); very preterm (20 to <32 weeks) and moderate to late preterm (32 to <37 weeks). Preterm birth rate is defined as the percentage of babies born before 37 completed weeks of gestation (Lawn, Gravett, Nunes, Rubens, Stanton & GAAPS Review Group, 2010:2).

The neonate delivered before full-term is said to be viable only when the pregnancy has reached 28 weeks of gestation. Spontaneous preterm labour and Premature Rupture of Membranes (PROM) are associated with higher perinatal mortality and morbidity (Sellers, 2012:282). Spontaneous preterm birth is a multifactorial process, resulting from the interplay of factors causing the uterus to change from quiescence to active contractions and to birth before 37 completed weeks of gestation (WHO, 2012:20)

PTB is a syndrome with many different causes which can be classified into 2 broad subtypes which are spontaneous PTB and provider-initiated PTB (WHO, 2012:20). Sellers (2012:282) mentioned that preterm labour can be induced due to medical reasons such as preeclampsia or uncontrolled gestational diabetes. Other cases occur when labour has started spontaneously without any intervention. There are certain contributing factors that may increase the risk of a woman falling into preterm labour. These include maternal, foetal, obstetrical and iatrogenic factors (Sellers, 2012:279):

- Women who have conceived through assisted conception like In-Vitro Fertilisation (IVF) are more likely to have multiple pregnancies. This is the major reason of PTB in developed countries, half of all twin pregnancies which

reach 20 weeks gestation end preterm, with 10% being born before 28 weeks and another 10% between 28 and 31 weeks, and virtually all triplet pregnancies end preterm (Lumley, 2003:4; McNamara, 2003:79). This is caused by over-distension of the uterus due to multiple pregnancies; singleton pregnancy has a lesser risk of PTB (WHO, 2012:20).

- PTB can be induced in women with medical conditions such as preeclampsia, diabetes, cardiac conditions and antepartum haemorrhage (Sellers, 2012:279). Increases in the use of medically indicated elective delivery for major maternal complications or poor foetal growth are also contributing to increases in preterm birth (Lumley, 2003:5). The worldwide epidemic of obesity and diabetes is likely to become an increasingly important contributor to global preterm birth (WHO, 2012:21). Pregnant women with these condiions are identified by midwives during ANC, those with preeclampsia are given treatment to control blood pressure and midwives also provide antenatal corticosteroids in case a woman falls into PTB.

- The primary risk for preterm delivery in multiparous women is the history of previous preterm deliveries. The risk in the current delivery increases as the gestational age of the previous preterm delivery increases (Pschirrer, Monga & Manju, 2000). The risks of preterm delivery after one or two previous preterm deliveries have been given as 15% and 41%, respectively (Chatterjee, Gullam, Vatish & Thornton, 2007:90).

- In cases such as cervical incompetence or previous cervical surgery or cone biopsy, cervical weaknesses can lead to premature labour due to the increasing pressure of the growing baby. Midwives give corticosteroids drugs to these women as it is a highly effective and safe intervention for reducing neonatal mortality due to RDS (WHO, 2012:50).

- UTIs play an important role in PTB by causing PROM or cervical insufficiency (WHO, 2012:21). PROM is strongly associated with infection of the amniotic membranes contributing to PTB; midwives provide antibiotic treatment for PROM and for treating UTIs. Antibiotics have been shown to delay the onset of labour for up to 48 hours and to reduce neonatal infections if the source persists.

- Causes related to the foeto-placental units include over-distension of the uterus as in multiple pregnancies or polyhydromnios and congenital abnormalities of the newborn (WHO, 2012:21; Sellers, 2012:279).

- Midwives administer magnesium sulphate to women at risk for PTB in order to help protect the baby's brain, reduce rates for cerebral palsy and improve long-term neonatal health outcomes (WHO, 2012:52). Midwives advocate policies for lowering primary Caesarean birth rates and early induction rates, particularly for non-medically indicated reasons.

## 2.3 Clinical Problems Associated with Preterm Birth and Their Management by Midwives

In 2010 more than 15 million babies were born preterm and more than 1 million died during their first month of life due to PTB complications and millions have a lifetime impairment (WHO, 2012:28). Spontaneous preterm labour is a common cause of perinatal deaths. nCPAP and KMC are effective, inexpensive and user-friendly methods to decrease the neonatal death rate in infants born prematurely (Pattinson, 2003:456). Complications of preterm birth arise from immature organ systems that cannot support life in the extra-uterine environment. The risk of acute neonatal illness decreases with gestational age, reflecting the fragility and immaturity of the brain, lungs, immune system, kidneys, skin, eyes and gastrointestinal system (Goswani & Rhoda 2014:2036).

### 2.3.1 Management of Preterm Labour by Midwives

Management of PTB starts with the midwife from the time of confirmation of pregnancy, during labour and after the baby has been delivered. WHO (2015) pointed out that prematurity birth rates can be reduced by providing improved care to women before, between and during pregnancies. Routine ultrasound scanning for all pregnant women is provided (Pattinson & Rhoda, 2014:21). Women at higher risk of preterm delivery can be identified during ANC, based on their obstetric history or current pregnancy complications. These women are then given corticosteroids for the reduction of neonatal mortality (WHO, 2012:49-50). In cases where delivery is imminent, the baby is delivered through slow and gentle fashion and with an episiotomy if the perineum is tight.

When preterm labour has been established, a midwife conducts a diagnostic workout that includes the assessment of any risk factors (Pschirrer & Monga, 2000), medical history, a thorough physical examination, ultrasound assessment of foetal growth, morphology and well-being, together with infectious screening and blood screening (Moutquin, 2003:59).

In a study conducted on ethical issues related to caring for very low birth weight infants; midwives verbalised that it is very challenging to care for extremely preterm babies; and were concerned about the quality of life during their stay in the Neonatal Intensive Care Unit (NICU), and described caring for those babies who are born at around 23 weeks as being horrible (Webb, Passmore, Cline & Maguire, 2014:735). In cases where labour is still in active phase, midwives consider suppressing labour by using tocolytic agents that act by inhibiting uterine contractions, i.e., the use of calcium channel blockers, prostaglandins or salbutamol (Table 2.1). The use of tocolytics provides time for administration of corticosteroids drugs (WHO, 2012:51). WHO (2012) further suggested that the administration of corticosteroids drugs to pregnant women at high risk of preterm birth possibly as early as 23 weeks can reduce the

premature baby's risk of death, respiratory distress and developmental problems. Patient delay in seeking medical attention causes a challenge to midwives as they can no longer suppress labour and the administration of corticosteroids will no longer be effective.

**Table 2.1:** Tocolytic drugs

| DRUG GROUP | DRUG OF CHOICE | DOSAGE AND ROUTE |
|---|---|---|
| **Calcium channel blockers** | Nifedipine (Adalat) | To be used as 1st line treatment. 30 mg orally STAT followed by 20 mg 3 hours later. If there are still contractions, continue with 20 mg 6 hourly per os for 48 hours. |
| **Beta-2 adrenoreceptor antagonists** | Salbutamol (Ventolin) | Administered Intravenously at first, followed by oral therapy. |
| **Prostaglandin synthetase inhibitors** | Indomethacin (Indocid) | To be used as 2nd line treatment after nifedipine. 100 mg suppository 12 hourly for 3 doses. |
| NDoH (2015:102) | | |

Midwives give women who are on preterm labour or have had PROM antibiotics to prevent neonatal early-onset Group B *Streptococcus* sepsis and all women who are at 34 weeks gestation or less are given corticosteroids to speed up the lung maturity (Moutquin, 2003:59). The likelihood of active medical intervention after PTB are affected by perceptions of viability and social and economic factors, especially in those born close to the lower gestational age cut-off used for registration of births and deaths (WHO, 2012:23).

Preterm babies lose heat very rapidly after birth (Fraser, Cooper & Nolte, 2010:750). These babies need simple essential care such as warmth, feeding support, safe oxygen use and prevention of infection which can be achieved by use of chlorhexidine and avoiding sharing of incubators for neonates. Early initiation of breastfeeding is done to prevent hypoglycaemia; for the prevention of hypothermia, extra thermal heat is provided through KMC, overhead heaters or incubators; babies with respiratory

distress are given safe oxygen and monitoring is done (WHO, 2012:64). It is the duty of a midwife to prevent clinical problems associated with prematurity, stable preterm babies are given to their mothers for KMC and midwives explain to mothers KMC application and its importance. NICU midwives often have challenges to their own sense of morality as they struggle to protect the infant from pain and unnecessary discomfort, provide care to the infant and their family, accepting decisions made by parents, and feeling as if parents were not adequately informed about outcomes (Webb et al., 2014:738).

### 2.3.2 Clinical Problems in Neonates Born Prematurely

Premature babies are vulnerable to temperature instability, feeding difficulties, low blood sugar, infections and breathing complications (WHO, 2012:65). About 90% of extremely preterm babies born in high income countries with access to full intensive care survive, whereas only 10% born in low income settings with limited physical and human resources survive and the high survival rate in these babies can be attributed to the emergence of NICUs with sophisticated technology and excellent nursing care (Joseph, 2015:57). Midwives caring for preterm infants receiving mechanical ventilation face many challenges. Important aspects of care they have to carry out include thermoregulation, optimal positioning, airway clearance, stable haemodynamic status, and adequate nutrition for grow and development (Joseph, 2015:57).

#### 2.3.2.1 Hypothermia

Preterm babies are vulnerable to temperature instability (WHO, 2012:65). Heat loss in preterm babies occurs because of preterm infants' low brown fat and immature heat-preserving mechanisms. Hypothermia has been independently associated with increased energy consumption, neonatal cold injury, poor weight gain and susceptibility to infection that may jeopardise the condition of a neonate (Joseph,

2015:62). For preterm babies who are clinically stable, midwives nurse them through KMC which is also known as skin-to-skin contact. KMC originated in low income countries, but it provides high quality, cost-effective care in high income settings as well (Save the Children, 2013:49). Babies are put in KMC to prevent them from getting hypothermia. To prevent hypothermia, midwives use plastic wraps, warm hands and stethoscopes and limit access to the incubators (Joseph, 2015:61).

#### 2.3.2.2 Respiratory Distress Syndrome (RDS)

Goswani & Sahai (2014:2036) defined RDS as a condition characterised by grunting, intercostals retraction, nasal flaring, cyanosis in room air and the requirement of oxygen to maintain adequate arterial oxygen pressure. RDS in preterm babies is due to lung immaturity and lack of surfactant in the alveoli, resulting in collapsing lungs that take extra pressure to inflate (WHO, 2012:64).

The risk of RDS can be reduced by administration of corticosteroids during ANC in women who have been identified to be at risk for PTB, if the source persists. RDS related to prematurity accounts for 15% morbidity in infants born at 34 weeks and 3.2% in those born at 36 weeks (McNamara, 2003:83). About 50% of preterm babies with a gestational age of 24 to 28 weeks may require intubation and mechanical ventilation to maintain extrauterine life.

Administration of surfactant, a natural lipoprotein, into the alveoli may relieve an infant's respiratory distress (Joseph, 2015:57). Midwives face a challenge in deciding whether or not to continue with mechanical ventilation for a long time for preterm babies; this is because prolonged mechanical ventilation in preterm infants presents much morbidity by causing conditions such as volutrauma, barotrauma and retinopathy of prematurity (Joseph, 2015:65). Joseph (2015) further indicates that when treatment is offered to infants with a very low of predictable survival, the decision making becomes hard for the midwives.

#### 2.3.2.3 Poor Feeding

Feeding intolerance is a common problem of preterm neonates. Feeding is ideal for optimum growth and development and prevention of infection in a preterm infant and early initiation of feeding is beneficial to all infants (Joseph, 2015:63). Preterm babies face feeding difficulties because the suck and swallow process only starts at 34 weeks gestation and they need help to feed and are more likely to aspirate (WHO, 2012:64).

#### 2.3.2.4 Sepsis

Newborns are at high risk of acquiring infection; this is due to their immature immune system. They are usually protected from infection through exclusive breastfeeding, and limited contact with other individuals (Essential Newborn Care, 2012:26). Most preterm babies die from neonatal sepsis (WHO, 2012:64). Sepsis is an infection affecting the baby's whole body which may be in the blood or in one or more of the baby's organs; organisms causing sepsis may enter the baby's body during pregnancy, at birth or after the baby is born via skin or an umbilical cord (Save the Children, 2013:46).

According to Save the Children (2013), the cord should be kept clean by using a low cost effective method of cleaning cords with chlorhexidine to save lives of newborns. Risk of infection is higher in extremely preterm neonates because artificial airways bypass the normal filtering of inspired air, thereby fostering microbial growth. Midwives must ensure that all parents and personnel working in the neonatal unit adhere to infection control policies and advocate for preterm babies to ensure their safety and prevent infections (Joseph, 2015:63).

### 2.4 Challenges Experienced by Midwives Managing Preterm Birth and Preterm Babies

There are many different problems and challenges that health care providers face when managing preterm labour and providing care for preterm babies. These

challenges may vary according to the gestational age, the condition of the foetus and will be classified under health care provider-related, patient-related and administrative-related challenges.

### 2.4.1 Health Care Provider-Related Challenges as Perceived by Midwives Globally

McNamara (2003:81) stressed that most challenges in the management of PTB relative to obstetrical practice occur during the antepartum period. The source continues to show that there is a challenge in the management at the limit of viability (gestational age or estimated foetal weight) which requires joint management amongst health care providers and the parents of the baby (Table 2.2).

**Table 2.2:** Limits of viability in premature neonates

| **≤ 22 Weeks**<br>*Not Viable* | **23-24 Completed Weeks**<br>*Varied Outcomes* | **25-26 Completed Weeks**<br>*Most Survive* |
|---|---|---|
| 1. Compassionate care<br>2. No active treatment<br>3. No Caesarean section | 1. Consider expected results at resuscitation<br>2. Limited benefit of Caesarean section for infant<br>3. Potential harm of Caesarean section to the mother | 1. Any required neonatal care<br>2. Caesarean section if indicated |
| McNamara (2003:81) | | |

In this case, information is given to the mother about the condition of the foetus, cause of preterm labour and the possible outcomes for the baby, and parents make therapeutic choices for the required management. The prevention of preterm labour is one of the greatest challenges for obstetricians and much of it also depends on social and economic factors (Goswani & Rhoda, 2014:2042). Midwives just like other nurses, face a challenge of staff shortage when working at the state hospitals. This was evidenced in a study conducted in Cape Town, entitled 'Occupational challenges faced by nursing personnel at a state hospital in Cape Town, South Africa.' (Brophy,

2015:93). Thommesen (2014:73) found the midwives' challenges in providing quality maternal and neonatal care are poor working conditions, feeling of insecurity and frustration at work. Thommesen (2014) revealed that most midwives in Ethiopia started in midwifery without A passion and they do not show urgency in emergency situations.

In a study entitled 'Prolonged mechanical ventilation: challenges for nurses and outcome in extremely preterm babies,' Joseph (2015:61) identified some challenges that nurses face when providing care to babies who are on mechanical ventilation; these include thermoregulation caused by minimal brown fat, body positioning and maintaining patent airways which may be caused by minimal change in position; stable heamodynamics; maintenance of growth and development; prevention of infections; accidental removing of endotracheal tubes for intubation; long-term complications that are due to prolonged ventilation; communication with the family of the baby; and ethical issues.

### 2.4.2 Patient-Related Challenges as Perceived by Midwives Globally

In a study conducted in Europe about 'Ethical decision making for extremely preterm deliveries,' parents appeared to be rarely involved in the decisions about their infants in the context of the very preterm births, both before and after delivery (Garel, Seguret, Kaminski & Cuttini, 2004:398). Not involving the parents in decision making for care of their infants/neonates may cause problems for the health care providers and may affect quality of care provided to the neonate.

And for the mothers to understand the diagnosis and comply with the treatment, they need to be part of decision making team. According to Lasiuk, Corneau & Newburn-Cook (2013:8), parents with preterm babies experience psychological trauma due to being unable to help, hold or care for their babies; protect them from pain, or share them with other family members. Lasiuk et al. (2013) further explained that

breastfeeding, KMC and family-centred practices are meaningful to parents with preterm babies in NICU as it helps them with constructing their role as parents and moderating their sense of helplessness.

Pattinson (2003:453) conducted a study entitled 'Challenges in saving babies-Avoidable factors, missed opportunities and substandard care in prenatal deaths in South Africa.' The results showed that delays in seeking medical attention during labour which is most common in rural areas, poor reporting of reduced foetal movement and women who do not attend ANC frequently and those who attend late are at higher risk of developing complications in pregnancy and during labour.

The Demographic and Health Survey of 1998 indicated that 95% of women attend ANC during pregnancy. It appears that the issue is not about encouraging women to attend ANC, but to persuade them to attend early because most women have their pregnancies confirmed within three months of missing their periods, but they do not book immediately—they initiate ANC months later (Pattinson, 2003:453).

### 2.4.3 Administrative/System-Related Challenges as Perceived by Midwives Globally

There are financial and operational issues that can be challenges in providing care for preterm babies. Brophy (2015:93) reflected on a challenge of lack of resources. It was found that if a hospital's resources are not well managed, the service delivery to patients will be negatively affected. The use of open multi-patient rooms poses a challenge in a manner that it increases the costs of care for preterm babies who are kept in NICU. Prolonged length of hospital stay is one factor that attributes to this increased NICU costs. Complications that increase the length of stay adversely affect costs. However, therapies that reduce the intensity of illness decrease the costs of care. Reduction of length of hospital stay can be achieved by minimising hospital-acquired infections which usually occurs during close contact between patients,

preterm babies in this case and accidentally using the same equipment in infants. The use of private and semi-private rooms for neonates allows for improved care will result in reduced hospital stay and lower costs for NICU. Shortage of nurses in neonatal care is also a challenge (Floyd, 2005:64). Perinatal deaths from spontaneous preterm labour is sometimes caused by lack of adequate neonatal facilities in rural areas wherein the woman arrives to the institution in advanced labour and the baby is delivered shortly thereafter, the opportunity for interventions by suppressing labour and giving corticosteroids is therefore low (Pattinson, 2003:454).

### 2.4.4 Challenges Experienced By Midwives When Providing Care To Preterm Babies In South Africa

A study conducted in two academic hospitals in Gauteng found that most participants working in neonatal units did not have knowledge on the management of pain to neonates and there were also no clear guidelines on this item. This was evidenced when sixty-four percent of respondants reported the absence of a written guideline in the wards they worked in, whilst only 36% had a written pain management guideline (Khoza & Tjale, 2014:5).

The increasing rate of babies born preterm poses a greater challenge for midwives and other health professionals who are directly providing care to these babies. A significant factor that increases PTB is advanced maternal age, advanced maternal age leads to many complications with PTB being the most common; this was found in a study conducted in Dr. George Mukhari Hospital from 1st September to 30th September 2010 (Hoque, 2012:284).

## 2.5 Midwives Promoting Preterm Care and Reducing Perinatal Mortality

Improving the health of mothers and newborns is largely a matter of applying sound health care practices at the appropriate milestones during pregnancy, at birth and after

birth, and through the first 28 days of life (Save The Children, 2013:38).

### 2.5.1 Family Planning Services

Midwives provide family planning services to all women. Effective use of family planning methods can help save the lives of mothers and babies by enabling women to avoid pregnancy when they are too young or too old, and to space their births at intervals that are healthy for them and their babies (Save The Children, 2013:37-38).

Save the Children (2013) further indicated that family planning is one of the most effective ways to reduce maternal and newborn mortality as well as stillbirth. More than 175 million women who do not want to become pregnant are not using effective contraception and over 40% of pregnancies are unplanned.

### 2.5.2 Effective Antenatal Care Services

Antenatal Care (ANC) is defined by WHO (2012:47) as a service delivery platform through which all women can be reached at multiple times during pregnancy with a package of interventions that can prolong a healthy pregnancy and improve maternal and perinatal health. Increasing access to care during pregnancy is an essential step towards addressing the growing problem of preterm birth (WHO, 2012:47).

#### 2.5.2.1 Identifying Women At Risk for PTB

Midwives should take thorough history for all pregnant women on their first visit of ANC. During attending of ANC visits, those women who are at high risk for delivering preterm babies can be identified based on their obstetric history or presenting pregnancy characteristics. These include those women who are having hypertensive disorders of pregnancy, diabetes, and multiple gestation, antepartum haemorrhage, known uterine or cervical abnormalities or previous preterm births (WHO, 2012:49).

#### 2.5.2.2 Administering Corticosteroids

Many preterm babies die from immature lung development. Mothers who have been identified to be at high risk of PTB or already in preterm labour are given corticosteroids to accelerate lung development of the foetus when the baby is still in the uterus and the baby will be less likely to suffer from RDS (Save The Children, 2013:38).

#### 2.5.2.3 Giving Health Education

During ANC, women are given health education about maternal infections and how they are prevented as these infections are a major cause of pregnancy complications such as miscarriages, stillbirths, PTB, and congenital infections and anomalies. Midwives advise women to stop smoking for the prevention of PTB complicated by PROM (WHO, 2012:47).

#### 2.5.2.4 Screening for Infectious Conditions

Screening for HIV, syphilis, gonorrhoea is done and those women who already have one infection are treated and, in case of HIV, they are given antiretroviral drugs for Prevention of Mother-to-Child Transmisssion (PMTCT) (Save the Children, 2013:39). In areas where malaria is endemic, treatment is administered during pregnancy to reduce low birth-weight by 40% (WHO, 2012:47). An estimated 2 million pregnancies are affected by syphilis every year.

One in four of these ends in stillbirths or spontaneous abortion; another 25% result in newborns with a low birth weight or serious infection, both of which are associated with an increased risk of neonatal deaths. The prevention of congenital syphilis is more of a global priority. ANC services include syphilis detection and prevention. Congenital syphilis is a preventable disease, screening is highly cost-effective and the necessary diagnostic and treatment tools are available (Victoria et al., 2010:7).

#### 2.5.2.5 Identifying and Correcting Malnutrition and Nutrition Counselling

During ANC midwives encourage pregnant women to take multivitamin supplements and to gain an adequate amount of weight based on their pregnancy for other health promotion reasons and to reduce risk of PTB (WHO, 2012:49). Good nutrition is important in saving mothers and their babies in a way that prevents high risk pregnancies.

Good nutrition improves the survival rates of mothers and newborns during pregnancy, giving birth, and after the baby is born the mother is able to care for her baby. Underweight mothers tend to have undernourished babies. Women should be counselled on gaining enough weight during pregnancy. It is said that 40% of all women in the developing world suffer from iron deficiency anaemia which is a risk factor for PTB and delivering low birth weight babies (Save the Children, 2013:37).

#### 2.5.2.6 Limpopo Province Initiative for Newborn Care (LINC)

LINC is a provincial programme package established in 2003 to improve the quality of all aspects of newborn care in all districts and regional hospitals in Limpopo Province (UNICEF SA, 2011:12). LINC has developed basic newborn care learning and training materials and suggestions for courses or in-service training (Essential Newborn Care, 2012:23). LINC training has given nurses and doctors skills, knowledge and confidence to recognise, manage and treat small and sick newborns. Before the establishment of LINC, small and sick newborns were nursed in postnatal units together with other newborns that are well.

Newborns who needed special attention in postnatal were often gone unseen because there was no one or any guidelines that were followed in the management of these newborns. UNICEF SA continues to show that the LINC programme has improved the standard of quality newborn care in the Limpopo Province, a referral tertiary facility

built 60 bed structures in 2010, and all districts hospitals now have neonatal units. KMC is practised in all clinics and hospitals. nCPAP are available in all hospitals for use in newborns with RDS (UNICEF SA, 2011:24).

#### 2.5.2.7 Kangaroo Mother Care (KMC)

Midwives encourage mothers of preterm babies to practice KMC. Save the Children (2013:43) referred to KMC as a simple, effective way for mothers to help underweight babies survive the first critical days of life. Preterm and low birth-weight babies are vulnerable to temperature instability (WHO, 2012:65). KMC is care to low birth weight and preterm babies who have been stabilised in standard inpatient care, NICU or high care and now ready to receive care in the kangaroo position with their mothers (Essential Newborn Care, 2012:8).

These babies need special care with warmth. Mothers are taught how to keep their newborns warm through continuous skin-to-skin contact on the mother's chest. This encourages the mother to bond with her baby, and allows the baby to breastfeed at will and it gives the baby energy to produce its own heat (Save the Children, 2013:40). KMC is more effective than incubator care, reducing newborn deaths by 51% amongst preterm babies who were stable, the source continues.

In a phenomenological study entitled 'Skin-to-skin care for dying preterm newborns and their parents,' conducted by Kymre & Bondas (2003:675), skin-to-skin care for dying preterm newborns and their parents was found to be the most preferred practice, understood as a necessary premise in achieving optimal conditions for mutuality. The kangaroo position provides warmth, stability, nutrition and infection prevention to the low birth weight babies, these babies are nursed in KMC units until they are big enough to be discharged from the unit (Essential Newborn Care, 2012:8).

#### 2.5.2.8 Perinatal Education Programme (PEP)

PEP is a free distance learning course for health workers; it is an innovative tool for the improvement of perinatal care. This programme is used for the ongoing updating of health care professionals such as midwives, especially in under-served and under-resourced areas (SA Health Review, 2008:118). Midwives and other nurses who are working in neonatal units should go for in-service training in newborn care such as one week LINC training and be engaged in self-study or an ongoing in-service training programmes at the facility (Essential Newborn Care, 2012:22).

## 2.6 Summary

Preterm birth results in delivery of babies who need special and critical care from midwives because of the immaturity of their body organs. Midwives who are directly providing care to these babies encounter many challenges that make it difficult for them to provide quality care. These challenges are caused by the midwives themselves, colleagues, parents and the system.

Some of the challenges found by previous researchers include lack of passion for midwifery, ethical dilemmas, lack of equipment. Despite all the challenges midwives encounter, they try to provide improved care by practising measures such as provision of family planning and providing effective ANC services. Where women have been identified as being at risk for PTB they are given drugs to reduce the health risks to their babies. Chapter 3 will elaborate on various aspects of the research methodology.

# CHAPTER 3

# RESEARCH METHODOLOGY

## 3.1 Introduction

According to Meyer, Naude, Shangase & Nierkerk (2009:404), research methodology describes how the research will be conducted and it should fully discuss research design, population, sample and sampling method, data collection methods and instruments and data analysis methods. Research approaches, as defined by Creswell (2014:246), are the plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis. It involves the intersection of philosophical assumptions, designs and specific methods.

## 3.2 Qualitative Research Approach

There are three approaches that are used in research. Each approach has its own purposes, methods of conducting the enquiry, strategies for collecting and analysing the data and criteria for judging quality (de Vos et al., 2011:63). A qualitative research approach will be used in this study. The qualitative researcher is concerned with understanding, naturalistic observation and subjective exploration of reality from the perspective of an insider (de Vos, 2011:308).

The aim of qualitative research is to explore, understand, and interpret the research topic. Qualitative research uses more of face-to-face contact with the population and findings cannot be generalised. The findings are only applicable to that research population (Meyer et al., 2009:346). In this study, the qualitative research approach

was used because the researcher sought to explore and understand more about the challenges that midwives who are working in maternity wards encounter when providing care to preterm babies at selected hospitals in the Mopani District of Limpopo Province, South Africa.

The researcher wanted the participants (midwives) to give information on the challenges that each one of them experienced during their practice. It was of importance to use qualitative approach rather than quantitative approach because it focuses more on the participants' views rather than what the researcher knows. The researcher explored all the unknown challenges using face-to-face interviews with the selected population.

## 3.3 Research Design

Research designs are the types of inquiry within qualitative, quantitative and mixed approaches that provide specific direction for procedures in a research study (Creswell, 2014:12).

### 3.3.1 Explorative Research Design

Exploratory research has a basic research goal. The need for exploratory research arises from lack of basic information on a new area of interest, or in order to get acquainted with a situation so as to formulate a problem or develop a hypothesis (de Vos et al., 2011:95). In this study, this design was used in order to gain an insight into and understand the challenges encountered by midwives when providing care to preterm babies at the selected hospitals in the Mopani District of Limpopo Province, South Africa.

### 3.3.2 Descriptive Research Design

The aim of this qualitative research was to describe in detail the challenges

encountered by midwives when providing care to preterm neonates in selected hospitals of Mopani District. A Descriptive research design was used in order to gain more knowledge to accurately describe midwives' challenges during care of preterm babies. The challenges that were observed and found during interviews were described in detail.

## 3.4 Research Setting

Research setting refers to the specific place or places where the data are collected. The decision about where a study is conducted is based on the nature of the research question and the type of data needed to address it (Brink, 2012:59). Qualitative researchers collect data in the field at the site where participants' experience the issue or problem under study (Creswell, 2014:185). In this study, a natural setting which was not altered in any way was utilised during data collection. In a natural setting, the researcher had face-to-face interactions with the participants and also observed how they reacted around their real work setting.

South Africa is one of the countries in sub-Saharan region and it is composed of nine provinces. Limpopo Province is the northernmost province of South Africa. Limpopo Province is divided into 5 districts which are Mopani, Vhembe, Sekhukhune, Waterberg and Capricorn. The study was be conducted in Mopani District (Figure 3.1) which is further divided into 5 sub-districts which are Greater Giyani, Greater Tzaneen, Greater Letaba, Ba-Phalaborwa and Maruleng.

There are 8 hospitals in Mopani District. The 3 hospitals selected are Letaba, Kgapane and Maphutha L. Malatji. Kgapane is located in Greater Tzaneen, Maphutha Malatji in Ba-Phalaborwa and Letaba is in Greater Letaba sub-district. Letaba is a regional hospital; it is a referral hospital for all the other hospitals within the district; there is a new maternity ward which was opened in 2016; there is a Neonatal Intensive Care Unit (NICU), High Care Unit for babies with jaundice and also a KMC unit.

In Maphutha Malatji, there is one neonatal unit with five beds and a KMC unit with three beds. In Kgapane Hospital there is one neonatal unit with 6 beds and 1 KMC unit with 4 beds. Immaturity-related complications remain the most common cause of deaths in South Africa in all levels of hospitals. In the 2006-2007 Perinatal Care Report of South Africa (2009:25), immaturity-related deaths were found to be responsible for 46% of all neonatal deaths followed by 28.9% attributed to hypoxia.

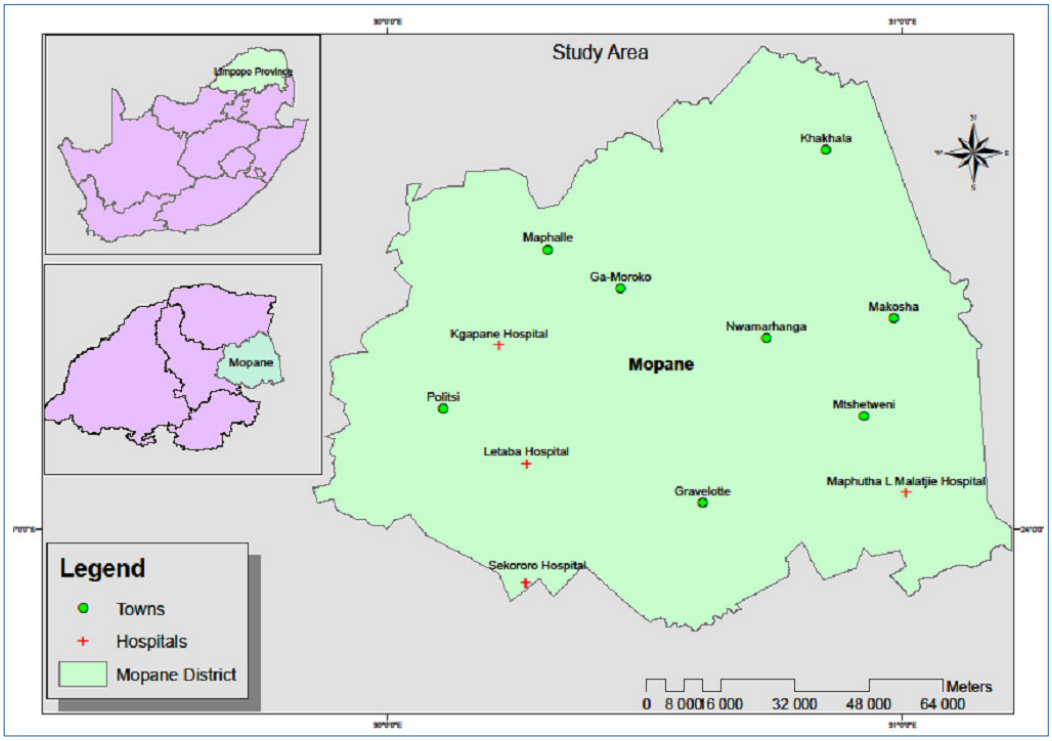


**Figure 3.1:** Map of Mopani District and the selected hospitals

## 3.5 Population

Population is defined as all possible participants who comply with the sampling criteria for inclusion in a research study (Meyer et al., 2009:378). In this study, the target population was the midwives working in neonatal units of the selected hospitals. The accessible population of this study was midwives who were working in neonatal units at the selected hospitals in the Mopani District of Limpopo Province, South Africa, and who were on duty during the period of data collection.

## 3.6 Sampling

In qualitative research, sampling occurs subsequent to establishing the circumstances of the study clearly and directively. The overall purpose of the use of the relevant sampling techniques in qualitative research is to collect the richest data. Rich data means a wide and diverse range of information collected over a relatively prolonged period of time (de Vos et al., 2011:391). Qualitative research uses non-probability sampling.

### 3.6.1 Sampling of Districts and Hospitals

Purposive sampling has been used to select Mopani District amongst the five districts in Limpopo Province. Mopani has been selected because according to the report on improving newborn care in South Africa, the perinatal mortality rates from 2006-2009 have decreased in the other four districts of Limpopo Province, but Mopani remained with an upward trend (UNICEF SA, 2011:24). The selected hospitals are Letaba; Maphutha Malatji and Kgapane.

Letaba has been purposively selected because it is the regional hospital and the referral hospital for all the other hospitals in the district. Maphutha Malatji and Kgapane have been selected because they are the two hospitals with the highest perinatal deaths in the district. In the perinatal mortality rate statistics of January-June 2012, Kgapane Hospital had a mortality rate of 44.1 per 1000, which is the second highest rate following 59.7 per 1000 in Maphutha Malatji Hospital (Ntuli, 2012, no pagination).

In Maphutha Malatji Hospital, 9 babies died in 2014, and DENOSA released the medical statement on 5 June 2014 on these deaths, indicating that the hospital is facing challenges of staff shortages, broken equipment and insufficient resources; and that about 15-20 nurses have resigned and were not replaced (DENOSA, 2014, no pagination).

### 3.6.2 Sampling of Participants

Purposive sampling was used to select the participants of this study. Only those midwives who met inclusion criteria of participating were selected. In purposive sampling, the researcher decides which participants to include based on the characteristics, representativeness or typical attributes of the population (de Vos, 1998:198).

### 3.6.3 Inclusion Criteria

The inclusion criteria were midwives who were working in maternity wards and were able to speak English, Tsonga, Venda and Pedi languages; and who have worked in maternity wards for at least two full years, and would be on duty during the period of data collection. Data were collected from participants who had given their prior consent.

## 3.7 Sample Size

A sample is a small representation of the whole and the most basic considerations in sampling are size and representativeness (de Vos, 2011:73). The sample must have the characteristics of the population and it must be smaller, but not different from the population. Larger samples enable researchers to draw more accurate conclusions and to ensure a workable percentage of feedback from participants (Meyer et al., 2009:378). In this study, the anticipated sample size was at least 20 midwives guided by data saturation, who had been working in maternity ward for at least two years. This enabled the researcher to collect data from those midwives who had experienced the phenomenon to be studied.

## 3.8 Data Collection Methods

The data collection technique used in a research study must be consistent with the problem statement and support the aims and the objectives of the research project

(Meyer et al., 2009:384). In qualitative interviews, the researcher conducts face-to-face interviews with the participants, telephone interviews, or engages in focus group interviews with 6 to 8 interviewees in each group (Creswell, 2014:189-190). The researcher used unstructured interviews which are also referred to as in-depth interview in order to gain a detailed picture of the challenges encountered by midwives when providing care to preterm babies.

Unstructured interviews focuses on understanding the experience of other people and the meaning they make of that experience. It is used to determine individual's perceptions, opinions, facts and forecasts, and their reactions to initial findings and potential solutions (de Vos et al, 2011:348). The unstructured interviews used one central question, which was followed by probing questions that were guided by the participants' responses.

The central question used was: "*During your practice in maternity ward, what challenges have you encountered when providing care to preterm babies?"*

### 3.8.1 Preparing for Data Collection

The University of Venda Higher Degrees Committee (UHDC) approved the research proposal (Annexure A) and ethical clearance for data collection has been obtained from the University of Venda Research Ethics Committee (UVREC) (Annexure B). The researcher requested (Annexure C) and was granted (Annexure D) permission from the Limpopo Province Department of Health to conduct the study at the selected hospitals. In addition, permission for the study has also been obtained from the Mopani District and the selected hospitals (Annexures E-H). Appointments were arranged with the managers of the hospitals and the operational managers of maternity wards for conducting unstructured interviews with one central question and several probing questions to collect data.

### 3.8.2 Collection of Data

In this study, data were collected through unstructured interviews in private rooms at the selected hospitals. Participants were made comfortable and asked to read and sign a consent form (Annexure I) before commencing with the interview. Each interview lasted for an average of 45-60 minutes and were tape recorded and transcribed verbatim. Unstructured interviews with probing questions aided the researcher in maintaining focus of the study (Annexures J and K).

The researcher was able to understand the challenges encountered by midwives during providing care to preterm babies. If there were any misconceptions, participants were directed by the probing questions on the kind of information needed from them and it was also easier to ask them to elaborate their responses to the interview questions. The probing thus deepened the responses to questions and increased the richness of the data being collected. The probing method used was essentially as described by de Vos et al. (2011:345-346):

- **Contradicting.** The researcher aroused further comments by giving a response which was different from what the participant was saying.
- **Linking.** The researcher linked the participant's comments with the information needed by asking questions such as (... so are you saying that there is a challenge of equipment in your hospital?).
- **Showing understanding and allowing time for elaboration.** The researcher let the participant know that her/his comments were understood and allowed the participant to continue giving more data. This was achieved by using comments such as (... I never really thought ...).
- **Acknowledging.** The participants' responses were repeated, but using different words to show the participants that they were being listened to.

- **Direct questions.** More questions were asked to gain an improved understanding and obtain more data. The questions were either from the interview guide or from the responses of the participants.

## 3.9 Data Analysis

Qualitative data analysis is a process of inductive reasoning, thinking, and theorising (de Vos, 2011:399). Data were analyzed using six steps as described by Creswell (2014:196-200). The data focused on all the challenges that the midwives encountered during provision of care to preterm babies in their hospitals, data were analysed and presented through words and tables. Inductive and deductive data analysis method was used. The researcher followed the following steps:

- **Step 1.** Organise and prepare the data for analysis. The researcher listened to the recorded interviews from the audiotape, transcribed and arranged data from audio tape with the written data.

- **Step 2.** Read or look at all the data. In this step the researcher read all the transcribed data and tried to get sense and meanings of the data.

- **Step 3.** Start coding all of the data. Coding is defined by Creswell (2014:241) as the process of organising the material into chunks or segments of texts and assigning a word or phrase to the segment in order to develop a general sense of it. Coding was done using the eight steps provided by Tesch (1990) as follows:

    1. **Get a sense of the whole idea.** The researcher read all the transcriptions carefully and wrote down their meaning as they came to mind.

2. **Pick one interview.** The researcher picked one interview with interesting information and read it through. When reading the researcher asked herself about the actual meaning of each of the responses in the interview.

3. **Cluster together similar topics**. After going through all the interviews the researcher assigned meanings to the responses, and listed all the themes and put together responses with the same meanings under the same theme.

4. **Make a list of themes:** The researcher made a list of the themes and referred back to the transcribed interviews, and allocated abbreviations for each code, i.e., administrative challenges were written as AdCs (administrative challenges) and health care provider challenges as HCpCs (health care providers' related challenges). These codes were written next to each response in the interview.

5. **Find the most descriptive:** The researcher searched for the most descriptive words for all the topics and categorised them accordingly. This was done to reduce the list of the themes. The researcher attempted to use the topics that were in the literature.

6. **Make a final decision:** The researcher made a final decision about the abbreviations for each category and wrote the codes in an alphabetical order.

7. **Put the data belonging to the same category** under codes and start to analyze data. This was achieved by the researcher.

8. **Recode data**, where necessary. The researcher followed through with this step.

- **Step 4.** Use the coding process to generate a description of the setting or people as well as categories or themes for analysis. In this step, the researcher wrote the information about the setting and the participants under each of the major themes.

- **Step 5.** The researcher wrote information under the major themes about what the theme entailed, the findings of the study and supported data by quoting the responses of the participants from the interviews.

- **Step 6.** The last step in data analysis was making interpretation of the findings. Here the researcher wrote about the lessons learned from the study and compared the findings with the information from the literature review and indicated whether the findings were the same with those of the past researches conducted under the same phenomenon or not. Based on the findings, the researcher stated the questions that can be asked and also made recommendations for future research studies (Creswell, 2014:196-200).

## 3.10 Measures to Ensure Trustworthiness

Trustworthiness is a way of ensuring data quality or rigour in qualitative research based on the model of Lincoln & Guba (1985). Qualitative validity means that the researcher checks for the accuracy of the findings by employing certain procedures (Creswell, 2014:247). This model proposes four criteria for developing trustworthiness of a qualitative study: credibility, dependability, confirmability and transferability.

### 3.10.1 Credibility/Authenticity

Credibility alludes to confidence in the truth of the data and the interpretation thereof (Brink, 2012:172). The goal is to demonstrate that the enquiry was conducted in such a manner as to ensure that the subject has been accurately identified and described (de Vos, 2011:420). In this study, the researcher ensured credibility by:

- **Prolonged engagement and persistent observation in the field.** The researcher stayed in the field to conduct interviews for about 45 minutes with each participant and observed the behaviours of the midwives. More interviews were conducted until data saturation occured.

- **Triangulation of different methods.** Credibility was ensured by using different methods for data collection which were unstructured interviews and observation.

- **Peer debriefing.** Data were discussed with a colleague who was not involved in the study, but had understanding of the context.

- **Member checks.** Member checks were done by going back to the midwives who participated to verify data collected from them and confirm that no data were misinterpreted.

- **Data were transcribed** and audio-taped to ensure that no findings were left out.

### 3.10.2 Dependability

This refers to the provision of evidence such that if it were to be repeated with the same or similar participants in the same or similar context, its findings would be similar (Brink, 2012:172).

- Dependability audit was done where the auditor reviewed the whole methodology of the study to check if it were clearly presented.

- The auditor was also given the transcribed data, data from audiotape and analyzed data for review and verifed if any critical data were not analyzed.

### 3.10.3 Confirmability

Confirmability refers to the potential for congruency of data in terms of accuracy, relevance or meaning (Brink, 2012:173).

- The researcher had a confirmability audit done by an experienced supervisor who was not involved in data collection. The supervisor evaluated the accuracy of the data and confirmed whether or not the findings, interpretation and conclusion were supported by the collected data and also gave feedback as to whether additional data needed to be collected.

- Audit trail was done by describing all the steps that were undertaken from the beginning of the study until the reporting of data. All the information regarding what was done during the study is kept, including the sampling methods, signed consent forms, written permission to conduct the study.

- Interviews were conducted until data saturation was attained. The collected data were then compared to an already existing data.

### 3.10.4 Transferability

It refers to the ability to apply the findings in other contexts or to other participants (Brink, 2012:173). In this study, transferability was ensured through a thick description of research methodology. The research setting and the method used for sampling of participants were described and the reasons that transpired them. A future researcher will decide whether they want to apply the findings of this study into other contexts.

## 3.11 Ethical Considerations

Ethics in research refers to a set of moral principles that are used to guide the planning, implementation; evaluation and reporting of any research project and it provides principles, rules and guidelines to the researcher about behavioural

expectations and the expected conduct towards participants in the study, co-researchers, research assistants, fieldworkers, the institution and sponsors (Meyer, 2009:391). The ethics considered in this study were obtaining ethical clearance from Ethics Committee of University of Venda (Annexures A and B), written permission from head of National Department of Health (Annexure D), authorities in the selected hospitals (Annexures E-H), informed consent from participants (Annexure I), privacy, respect and confidentiality.

### 3.11.1 The Quality of the Research

The researcher submitted an application to the Ethics Committee of the University of Venda. The application contained the title, purpose, significance, objectives and the research methodology of the study. The application indicated all the ethical principles that will be considered and the methods of collecting and analysing data. Written letters were submitted to the office of Department of Health for approval to pursue with the study (Annexure C).

Then request letter will be submitted to the managers of Mopani District and managers of the selected hospitals for authorisation and gaining access to collect data in their hospitals. The study commenced after permission had been granted (Annexures A, B, D, E-H). Prior to collection of data, appointments were arranged with the managers and the participants of the maternity wards in the selected hospitals. The results will be published in peer-reviewed journals.

### 3.11.2 Informed Consent

Informed consent means that the participant understands the aims, objectives, data collection methods, duration and participation needed from them (Meyer, 2009:392). The researcher composed a letter of informed consent for participants and included the problem to be studied, purpose, data collection and analysis methods. The letter

included all the necessary information vital for the study (Annexure I). The participants were advised that participating in the study is voluntary, and the instructions were indicated in the consent form that participants could decide if they wanted to participate in the study or not. No participants were pressurised to sign the consent form. Informed consent was signed prior to the interviews.

### 3.11.3 Confidentiality

Confidentiality means that the information collected from the patient is not made available to other people (Meyer, 2009:392). The information collected from the participants were not linked to them in anyway. The recorded data were analyzed by the researcher who will destroy the tapes after the final report has been published. No names were written on the analyzed data.

### 3.11.4 Privacy

Privacy is to keep to oneself that which is normally not intended for others to observe or analyse (de Vos et al, 2011:119). In this study, privacy was maintained by conducting interviews in the private rooms alone with a participant. The researcher asked the relevant authorities to use the manager's office for conducting interviews. Participants were informed about the use of a tape recorder before commencement of the interview and the importance of recording was thoroughly explained to participants. The transcribed interviews were not numbered and no cameras were used in the data collection room.

### 3.11.5 Respect

The researcher respected the norms, values and personal beliefs of the participants. If a participant wanted to withdraw from the study or refuse to give any information, his/her decisions were respected without threatening to give him/her any penalty or making him/her feel that s/he is wrong. The setting for collecting data was also

respected and was not changed in any way because of the study.

### 3.11.6 Autonomy

Autonomy was ensured by giving full and correct information to the participants and explaining to them that particiopating in this study is voluntary, and that they had the right to withdraw from participation even after signing the consent form. No participant was forced to participate and to sign the consent form.

### 3.11.7 Anonymity

Anoymitry means that no one, including the researcher, should be able to identify any subject afterwards (de Vos et al, 2011:120). Anonymity was ensured by keeping the participants' identity unknown. The data collected from all the participants can not be linked with the participants in anyway. No person, including the researcher will be able to identify the respondants afterwards because no names were asked prior conducting the interviews and numbering of the interviews was also not done.

## 3.12 Summary

This chapter described the research approach, design and the methods. A qualitative research approach which is both descriptive and explorative 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 describes the research findings.

# CHAPTER 4

# PRESENTATION AND DISCUSSION OF THE FINDINGS

## 4.1 Introduction

The previous chapter discussed the research methodological process. This chapter will present the findings of the study and discussion thereof. A qualitative research approach which is exploratory and descriptive was used in this study with the aim of determining the challenges encountered by midwives when providing care for preterm babies at selected hospitals of Mopani District of Limpopo Province. The objectives of the study were:

To explore the challenges encountered by midwives when providing care for preterm babies at selected hospitals of Mopani District of Limpopo Province, South Africa; to identify the clinical problems associated with preterm birth and their management by midwives; and to determine measures practised by midwives for promoting preterm care and reducing perinatal mortality due to preterm birth complications. To achieve the objectives, non-probability purposive sampling was used to select 23 participants from the 3 selected hospitals. Only midwives who have been working in maternity ward for at least 2 full years were sampled. Data were collected using unstructured interviews in one of the private rooms at their working place.

The central question used in data collection was:

> *"During your practice in maternity ward, what challenges have you encountered when providing care to preterm babies?"*

Each interview lasted for an average of 45 minutes. Data were collected until saturation was reached. Of the midwives interviewed, 22 were females and 1 was a male because the hospitals selected did not have any male staff allocated in maternity ward. Qualitative data were analyzed following the 6 steps as described by Creswell (2014) and the 8 steps of Teshc's inductive, descriptive open coding technique. During coding of data, 4 themes with sub-themes reflecting the challenges encountered by midwives when providing care for preterm babies emerged and thematic discussions were supported by an existing body of literature and theory of human caring (Philosophy of Human Caring) developed by Jean Watson (Watson, 2007:131).

## 4.2 Presentation and Discussion of the Findings

### 4.2.1 Demography of the Participants

Table 4.1 shows the demographic data of midwives who participated in the study. Females constituted 95.7% of all the participants and males 4.3%. In terms of ethnic groups, 47.8% were Pedi, 39.1% Tsongas, 8.7% Swati and 4.3% Venda. With regard to occupation, 4.3% were operational managers and 95.7% general midwives. Of all the participants, 65.2% had midwifery experience of 5 years and above and the other 34.8% less than 5 years, and none of the midwives had been trained for neonatal intensive care unit (NICU).

According to the age statistics of 2016-12-31 by the SANC, registered midwives aged below 30 yrs were 5%, 30–39 yrs 20%; 40–49 yrs 27%; 50–59 yrs 30% and over 60 yrs 18% (SANC, 2017). The female dominance of the sampled participants is supported by a study conducted on gender and careers which indicated that ICU, operating room and emergency departments were seen as proper places for males to work after graduation, while maternity and paediatric clinics were not seen as fit places for males to work; it is hard for a male to be in a role traditionally perceived as a female's which generates role tension (Akansel, 2008:156).

**Table 4.1:** Demographic data of midwives who participated in the study

| Characteristics | Number | Percentage |
|---|---|---|
| **1. Age (years)** | | |
| 21-30 | 7 | 30.4 |
| 31-40 | 5 | 21.7 |
| 41-50 | 8 | 34.7 |
| 51 and above | 3 | 13 |
| | | |
| **2. Gender** | | |
| Female | 22 | 95.7 |
| Male | 1 | 4.3 |
| | | |
| **3. Ethnic group** | | |
| Pedi | 11 | 47.8 |
| Swati | 2 | 8.7 |
| Tsonga | 9 | 39.1 |
| Venda | 1 | 4.3 |
| | | |
| **4. Occupation/position** | | |
| Midwife | 22 | 95.7 |
| Operational manager | 1 | 4.3 |
| | | |
| **5. Midwifery experience (years)** | | |
| 2 | 2 | 8.7 |
| 3-5 | 6 | 26.1 |
| 5 and above | 15 | 62.5 |
| | | |
| **6. Highest level of education** | | |
| Diploma | 12 | 52.2 |
| Degree | 4 | 17.4 |
| Advanced midwifery | 5 | 21.7 |
| Neonatal intensive care unit (NICU) | 0 | 0 |
| Other | 2 | 8.9 |
| (n=23) | | |

Table 4.2 summarises the acronyms of the three selected hospitals where data were collected.

**Table 4.2:** Acronyms of the three selected hospitals where data were collected

| Hospital | Acronym |
|---|---|
| Kgapane Hospital | Kph |
| Letaba Hospital | Lth |
| Maphutha Malatji Hospital | Mmh |

### 4.2.2 Themes and Sub-Themes Identified from the Data Analysis

The study revealed the challenges that midwives encounter when providing care to preterm babies. Data saturation was achieved related to all four major themes and sub-themes. The results are discussed, supported by verbatim quotations, as well as the literature and the theory of human caring by Jean Watson (Watson, 2007:131).

#### 4.2.2.1 Theme 1: A Description of Facts by Midwives Related to Preterm Conditions and Expected Care

Participants indicated the challenges they face when providing care to preterm babies with regard to complications related to prematurity and how they are expected to care for them. It was evidenced from the interviews that preterm babies experience multiple conditions and midwives encounter challenges when it comes to managing those conditions accordingly. A quotation from **participant E from Lth** supports this:

> *Nursing a preterm baby is challenging because their immature systems cause them to have hypoglycaemia which is related to prematurity. They are fragile and still growing. These babies may develop hypoglycaemia even when they are feeding well and having drips. Low glucose level and low temperatures are common clinical problems that preterm babies have. Babies should be nursed in warm incubators. The hospital is not having enough incubators, and the very little that are available are also not functioning well.*

❖ **Participant G from Lth:**

Indicated how it is not always possible to provide the expected care to preterm babies because of minimal resources through the following quotation:

> *There is only one ventilator machine, four duopaps and two nasal Continuous Positive Airway Pressure (nCPAP) machines; and the Neonatal Intensive Care Unit (NICU) is having eight beds and only very ill babies are admitted in that unit. Most of the babies being admitted are preterm babies with severe respiratory distress syndrome (RDS) and they will need to be assisted by these machines for them to be relieved from RDS. When a preterm baby is not coping on duopap and nCPAP machines, they should be initiated on a ventilator machine, but it is a challenge because the machine is only one. The unavailability of ventilator machine poses a challenge because care for another baby will be compromised.*

Infants born preterm are more likely than infants born full-term to die during their neonatal period (first 28 days) and infancy (first year of life), and mortality rates increase proportionally with decreasing gestational age or birth weight (Goswani & Sahai, 2014:2036). The sub-themes that emerged under theme 1 are discussed below.

#### 4.2.2.1.1 Sub-Theme 1.1: Narratives That Preterm Babies Experience Several Difficulties Which Need Specialised Care

The immaturities of the systems in preterm babies lead to many conditions. Each immature system may have its own complications which need specialised care. Participants indicated that each clinical problem may lead to more complicating conditions, if not managed. This was supported by the following quotations from different participants:

**Table 4.3:** Themes on challenges encountered by midwives providing care for preterm babies

| Themes | | Sub-Themes | |
|---|---|---|---|
| 1. | **A description of facts by midwives related to preterm condition and expected care** | 1.1 | Narratives that preterm babies experience several difficulties which need specialised care |
| | | 1.2 | The need for constant individualised care and monitoring of preterm infants by midwives |
| | | 1.3 | Functional relevant equipment needed for care of preterm infants |
| | | 1.4 | A need for constant training of midwives regarding care of preterm infant |
| | | 1.5 | Importance of a proper structure to house preterm infants which will lead to quality care provision |
| | | 1.6 | The causes of preterm complications and deaths |
| 2. | **Challenges experienced by midwives during provision of care to preterm infants** | 2.1 | Lack of material resources leads to provision of substandard care |
| | | 2.2 | Human resource challenges lead to poor constant monitoring of preterm babies, and physical and psychological stress experienced by midwives |
| | | 2.3 | Lack of constant care leads to complications which are not identified on time |
| | | 2.4 | Lack of continuous neonatal care training viewed as problematic leading to strained relationships amongst health professionals |
| | | 2.5 | Neonatal deaths experienced result in midwives being stressed |

**Table 4.3:** Themes on challenges encountered by midwives providing care for preterm babies (continued)

| Themes | | Sub-Themes | |
|---|---|---|---|
| | | 2.6 | Limited management support experienced by midwives |
| | | 2.7 | Feeding complications experienced during care of preterm infants |
| **3.** | **Knowledge of midwives related to provision of care to preterm infants** | 3.1 | Lack versus existing knowledge related to neonatal care guidelines |
| | | 3.2 | Existing knowledge related to potential and exact problems related to prematurity |
| | | 3.3 | Existing knowledge of alternative care for preterm infants by midwives whilst experiencing shortage of equipment |
| | | 3.4 | Existing knowledge of referral to the next level of care |
| | | 3.5 | Existence of knowledge of care precautions by midwives during management of preterm complications |
| **4.** | **Identified needs and problems of mothers of preterm infants** | 4.1 | Need for counselling for mothers which could lead to compliance during provision of care |
| | | 4.2 | A need for direct supervision of the mother by midwives during their interaction with their infants emphasised |
| | | 4.3 | Mothers' psychological reactions resulted from different aspects outlined by midwives |
| | | 4.4 | Mothers fear and view of preterm infants as abnormal result in lack of bonding |

**Table 4.3:** Themes on challenges encountered by midwives providing care for preterm babies (continued)

| Themes | Sub-Themes |
|---|---|
| | 4.5 Perceived interventions to minimise preterm births and deaths due to complications of prematurity |
| | 4.6 Lack of knowledge by mothers and community members about preterm labour problematic |
| | 4.7 Cultural differences of mothers of preterm babies causing challenges for midwives |

- Participant B from Kph

  *Due to the immaturity of their systems, they have no antibodies to fight off infections. They are very prone to infections. We give them antibiotics to prevent infections. We teach the mothers and other staff members the practice of antiseptic techniques for hand washing with soap and clean water ... rub hands with alcohol and chlorhexidine solution (D-Germ®) before and after handling the baby.*

- Participant A from Lth

  *... because of their systems which are not well developed, premature babies suffer from hypothermia which can result into more serious conditions like hypoglycaemia and respiratory distress.*

- Participant B from Lth

  *Due to immature liver, preterm babies are most likely diagnosed of neonatal jaundice (NNJ) within their first days of life. Babies with NNJ are nursed under phototherapy lamps and should be collected blood daily to see if the condition is healing or not. Their veins are very small and they sometimes disappear and become invisible which makes it hard to collect blood. They also have hydrocephalus which is related to prematurity; therefore, they should be measured head circumference weekly to check if the head is growing larger than it should.*

Preterm babies are vulnerable to temperature instability. These babies need simple essential care such as warmth, feeding support, safe oxygen use and prevention of infection which can be achieved by use of chlorhexidine and avoiding sharing of incubators for neonates (WHO, 2012:64). Immaturity of the infant's immune system and the pulmonary anatomical and physiological features make the newborn at higher risk of infection, the source continues. Jaundice is more common in premature babies since the immature liver cannot easily metabolise bilirubin, and once jaundiced, the preterm baby's brain is at higher risk since their blood-brain barrier is less well

developed to protect the brain (WHO, 2012:113). Preterm babies lose heat very rapidly after birth (Fraser, Cooper & Nolte, 2010:750). Thermo-neutrality may be more difficult to achieve in very low birth weight, preterm infants with their immature or absent thermoregulatory mechanisms.

The evaporative heat loss in preterm infants during the first week of life is said to be high due to the increase in trans-epidermal water losses as a result of their poorly developed epidermis and a relatively large surface area in relation to body weight (Kong, Medhurst, Cheong, Kotsanas & Jolley, 2011:15).

Evaporative skin losses decrease as rapid epidermal maturation occurs by two weeks of life. Reducing trans-epidermal water losses in preterm infants during this period has been recommended to minimise evaporative heat loss and reserve energy for good growth, the source continues.

Kangaroo Mother Care (KMC) should be routinely used in the management of preterm babies; it involves the mother carrying the preterm baby skin-to-skin tight in-between her breasts wrapped with a piece of cloth. This helps to keep the baby warm and encourages breastfeeding and promotes weight gain (Gondwe, Munthali, Ashorn & Ashorn, 2016:1444).

Hyaline membrane disease is a common cause of Respiratory Distress Syndrome (RDS) in the premature infant. RDS is also seen in infants whose mothers had diabetes in pregnancy. RDS is caused by a deficiency of alveolar surfactant, which increases surface tension in alveoli, resulting in microatelectasis and low lung volumes. Mild cases of RDS may respond to the distending pressures of nCPAP, but more severe cases require endotracheal intubation and administration of exogenous surfactant into the lungs (Reuter, Moser & Baack, 2014:424).

#### 4.2.2.1.2 Sub-Theme 1.2: The Need for Constant Individualised Care and Monitoring of Preterm Babies by Midwives

Midwive participants reported that preterm babies need close monitoring as they are always changing condition every now and then and care should not be routine, but individualised.

- Participant A from Kph

> *Preterm babies need to be monitored actively. As midwives, we are bound to be alert about the conditions associated with prematurity.*

- Participant B from Kph

> *We admit lots of preterm babies and they need individualised care as they don't respond the same way in treatment. Each baby will need to be treated according to their current condition, age and weight*

McNamara (2003:79) indicated that there are various challenges to the management of preterm labour which may require individualised approaches for different patients, using expert committees or guidelines as the backbone of the management plan. In the clinical setting, preterm infants of less than 28 weeks gestation are nursed under a radiant warmer which provides unobstructed access for medical and nursing staff to treat and care for these infants (Kong et al., 2011:15).

#### 4.2.2.1.3 Sub-Theme 1.3: Functional Relevant Equipment is Needed for Care of Preterm Babies

Relevant equipment is needed to care for preterm babies. All clinical problems they encounter need specific equipment to manage them.

- Participant A from Kph

> *Relevant equipment need to be available in order in order to provide quality nursing care. Each bed should have a pulse oxymeter to continuously monitor the heart rate and oxygen saturation, but we*

*are having only two and one of them does not function well.*

- Participant B from Kph

*These babies also have a problem of hypothermia, they cannot maintain their own normal body temperature because of lack of brown fats in their system, and they should be nursed inside warm incubators.*

- Participant D from Kph

This participant indicated a situation where equipment for resuscitating were available, but since the preterm babies are too small, they need small sizes of all equipment and these sizes are not always available.

*I once encountered a challenge with a woman who was admitted from home as a self-referral; the woman progressed herself and came in head on perineum. Steroids were not given. The baby was delivered with severe RDS, and needed to be resuscitated. Most preterm babies with extremely low birth weight (ELBW) don't respond to resuscitation and they die within 24 hours of life, but most of those who received both doses of antenatal steroids may survive. These babies may have recurrent apnoeic attacks which cannot be managed by just stimulating; they require resuscitation with bag and mask, there was no size 0 mask when I needed it. Even when they are on continuous oxygen they still suffer from apnoea attacks and should be on apnoeic monitors.*

A need for specific sizes of equipment was also emphasised by:

- Participant C from Lth

*Their feeding tube size gets finished fast from the hospital's pharmacy and will be forced to order from other hospitals.*

- Participant F from Lth

> *There is a problem for suctioning tube for preterm babies, most of the times the pharmacy people will tell you that they are out of stock and you cannot use a bigger size as it will injure the baby.*

Perinatal deaths from spontaneous preterm labour is sometimes caused by lack of adequate neonatal facilities in rural areas wherein the woman arrives to the institution in advanced labour and the baby is delivered shortly thereafter with complications that should be managed by specific equipment (Pattinson, 2003:454).

While most premature babies are born just a few weeks early and can be saved with the right people and simple care, for more extreme premature babies, additional skills, equipment and commodities are critical, ranging from bag and mask and controlled intravenous fluid-giving sets, to nCPAP and surfactant; for babies with RDS, safe monitoring of oxygen saturation is required with pulse oximeter. However, this equipment is often unavailable (Lawn et al., 2013:12).

All newborn units must be equipped with compressed medical air and sufficient air-oxygen blenders. The reasons for the epidemic of retinopathy of prematurity blindness are many and may include increasing survival of premature infants, lack of equipment such as oxygen-blenders and pulse oxymeters that are necessary for safe use of supplemental oxygen in premature infants. Making available oxygen blenders and pulse oxymeters so that infants are exposed to supplemental oxygen may help decrease retinopathy of prematurity (Dutta, Raghuveer, Vinekaar & Dogra, 2016:83).

Equipment is needed in the neonatal unit to assist in the care of newborns in administering oxygen, monitoring oxygenation, to administer feeds and fluids, to monitor vital signs, to provide warmth through an incubator or other sources and to monitor and manage jaundice. Equipment necessary for care of preterm babies are incubators, wall suction unit, transcutaneous bilirubin meter, ventilators, nasal nCPAP,

head boxes, pulse oxymeters, apnoea monitors, oxygen blenders, intravenous infusion controller, resuscitation equipment and feeding equipment (Essential Newborn Care, 2012:18).

#### 4.2.2.1.4 Sub-Theme 1.4: A Need for Constant Training of Midwives Regarding Care of Preterm Babies

All the midwives who are working in maternity ward should undergo specific training that teaches them of preterm birth complications and how they are supposed to be managed. Most midwives are not trained for Limpopo Initiative Newborn Care (LINC) which is necessary for everyone working in maternity ward. Relevant quotations support this notion:

- Participant B from Kph

> *All health care workers who work with sick and small neonates should undergo a special training called LINC (Limpopo Initiative Newborn Care) which provides them with knowledge and skills on the diagnosis and management of different conditions of neonates.*

- Participant B from Lth

> *... there are only general midwives and some of the tasks require skills for neonatal intensive care nursing. We improve our knowledge by undergoing trainings like Essential Management of Obstetric Emergencies (ESMOE), Helping Babies Breathe (HBB), Limpopo Initiative for Newborn Care (LINC) and also conduct teachings amongst ourselves during Wednesdays.*

About 50% of preterm babies with a gestational age of 24 to 28 weeks may require intubation and mechanical ventilation to maintain extra-uterine life (Joseph, 2015:57). All midwives should be constantly trained on how to perform these procedures. Other authors suggested the need for conducting a neonatal resuscitation programme that will provide an opportunity to train and sensitise doctors and nurses regarding the

danger of treating infants with 100% oxygen; and the list of equipment required for neonatal resuscitation training must include an oxygen blender and the programme must include the skills for setting up a blender and adjusting the oxygen concentration during resuscitation (Dutta et al., 2016:82). Health care teams in NICU should be skilled at observing and assessing parent-infant interactions in order to empower parents to respond to their babies' cues to support bonding; educational tools such as the Newborn Behavioural Observation scale are useful for professionals to gain assess these skills (Purdly, Craig & Zeanah, 2015:26).

A study conducted in the United Kingdom indicated that across 9 countries in sub-Saharan Africa and South East Asia, in each country setting and for each cadre of health care provider, there was a significant improvement in knowledge and skills after receiving a short competency-based training package in emergency obstetrics and early newborn care (Ameh, Kerr, Madaj, Mdegela, Kana, Jones, Lambert, Dickinson, White & van den Broek, 2016:10). The authors continued to indicate that nurse-midwives had the lowest pre-training scores and demonstrated the least improvement in key areas of emergency obstetric and early newborn care. These findings show that there is a need for continuous training of midwives in newborn care.

Skills and drills competency-based training in skilled birth attendance, emergency obstetric care and early newborn care (EmONC) is an approach that is successful in improving knowledge and skills; it improves availability and quality of care. A multidisciplinary training approach is used where midwives, medical doctors and clinical officers are trained together by experienced specialists obstetricians, midwives and anaesthetists.

In South Africa, EmONC was adopted to include a substantial module on the management of HIV and intubation as part of the resuscitation module; the package is known as Essential Steps in Managing Obstetric Emergencies (ESMOE), and it is

compulsory for all maternity staff in improving knowledge and skills (Ameh & van den Broek, 2015:1085). The Limpopo Initiative for Newborn Care (LINC) training has given nurses and doctors skills, knowledge and confidence to recognise, manage and treat small and sick newborns; this programme has improved the standard of quality newborn care in Limpopo Province (UNICEF SA, 2011:24).

#### 4.2.2.1.5 Sub-Theme 1.5: Importance of a Proper Structure to House Preterm Babies Which Will Lead to Quality Care Provision

Participants indicated the need for having a conducive structure to nurse preterm babies and how improper structures are leading to more complications in the conditions of the preterm babies and challenges encountered by midwives. The following were quoted with regard to structure to house preterm babies:

- Participant B from Kph

> *The structure is not conducive for care. It is like a one-roomed house with seven beds (four closed incubators and three open incubators). If more than seven babies are admitted, some babies will be on cribs and the room will be congested and overcrowded. The average number of admissions is 20 with preterm babies constituting 50 percent of all admissions. When it is feeding time there will be no space to move around because it will be neonates, mothers and nurses all squeezed in the room; this causes poor ventilation and increases the risk of infection.*

- Participant A from Lth

> *... are still developing they don't need disturbances. The hospital is under construction and it produces too much noise which interrupts normal development. Light disturbs them as well; we cannot keep the lights off because it is needed when working and performing procedures like collection of blood, insertion of drips, etc. The development is also disturbed when we wake them up during feeding hours or when the health care workers want to check them. People can look at them as just tiny babies, but they need to rest.*

- Participant E from Mmh

> *There is no side ward to nurse a very ill preterm baby. When the baby changes condition and requires continuous resuscitation, we do it in front of other mothers; we cannot tell them to go because they will still be feeding their babies. There is no privacy. You need to do everything in front of them. Some mothers focus all their concentration on the ill baby and what we are doing. In cases where resuscitation fails, they also see you removing drips and doing other things. This is frustrating for a midwife and as for them they get traumatised by witnessing the death of another preterm baby.*

According to a study conducted in Limpopo Province in 2003 by UNICEF (2011:8) to ascertain the status and availability of newborn care services and infrastructure, it was found that none of the health facilities in the province had level 2 newborn care units. Thommesen (2014:73) found the midwives' challenges in providing quality maternal and neonatal care are poor working conditions, feeling of insecurity and frustration at work. In Uganda and Malawi, KMC was not promoted and implemented in some health care facilities due to lack of space. Facilities lacked adequate KMC rooms for preterm care. Therefore, it was not practised in these countries and in most low-income countries (Gondwe et al., 2016:1446).

The use of open multi-patient rooms poses a challenge in a manner that it increases the costs of care for preterm babies who are kept in NICU. Reduction of length of hospital stay can be achieved by minimising hospital acquired infections which usually occurs during close contact between patients, preterm babies in this case and accidentally using the same equipment in infants. The use of private and semi-private rooms for neonates allows for improved care which will result in reduced hospital stay and less costs for NICU (Floyd, 2005:64).

While some studies promote the use of multi-bed rooms for nursing preterm babies, the results of another study indicated that staff reported having challenges with regard

to private rooms. These included patient care quality concerns coupled with physical demands associated with staff-patient care assignments to multiple patients in different rooms (staff shortage with high demand of patient care in private rooms); difficulty finding help and compromised interaction with co-workers; inadequate number of utility rooms; and recessed charting work stations located outside patient rooms made it difficult to closely observe patients (Smith, 2016:867; Smith, 2013).

#### 4.2.2.1.6 Sub-Theme 1.6: The Causes of Preterm Complications and Deaths

Apart from the problem of being born with a low birth, preterm babies also have other problems that lead to more serious complications and even deaths to many.

- Participant C from Lth

This midwife outlined some causes of the preterm complications as:

> *... they take long to gain weight due to the condition that they may be diagnosed with during their stay in the hospital. Conditions that are related to prematurity and may cause inadequate weight gain are neonatal jaundice, infection and feeding intolerance. RDS is a common condition in these babies, it is due to immaturity of the lungs and it the most common cause of death in premature babies, more especially in those who were born at less than 1 kg.*

Spontaneous preterm labour and PROM are associated with higher perinatal mortality and morbidity (Sellers, 2012:282). Spontaneous preterm birth is a multifactorial process, resulting from the interplay of factors causing the uterus to change from quiescence to active contractions and to birth before 37 completed weeks of gestation (WHO, 2012:20). The complications of preterm birth arise from immature organ systems that are not yet prepared to support life in the extra-uterine environment. There is a higher incidence of perinatal mortality in very preterm babies (61.4%) as compared to moderately preterm babies (22.46%) (Goswani & Sahai, 2014:2036).

Approximately 1 in 4 extremely premature infants born at 22 to 28 weeks of gestation does not survive the birth hospitalisation; mortality rates decrease with each additional week of completed gestation (Patel, Kandefer, Walsh, Bell, Carlo, Laptook, Sânchez, Shankaram, Van Meurs, Ball, Hale, Newman, Das, Higgins & Stoll, 2015:332).

In England between 2000 and 2011, deaths from extremely premature infants were most frequently attributed to immaturity (83 deaths per 1000 live births), RDS (64 deaths per 1000 live births), and infection (54 deaths per 1000 live births), the source continues. Brain injury in preterm babies is most commonly intraventricular haemorrhage, occurring in the first few days after birth in about 1 in 5 babies under 2 kg and is often linked to severity of RDS and hypotension (WHO, 2012:64).

Many preterm babies die from immature lung development. Mothers who have been identified to be at high risk of PTB or already in preterm labour are given corticosteroids to accelerate lung development of the foetus when the baby is still in the uterus and the baby will be less likely to suffer from RDS (Save the Children, 2013:38). RDS related to prematurity accounts for 15% morbidity in infants born at 34 weeks and 3.2% in those born at 36 weeks (McNamara, 2003:83).

#### 4.2.2.1.7 Summary of Theme 1

Theme 1 presented and discussed the clinical conditions related to prematurity and how those conditions are supposed to be managed by midwives with their knowledge and specific equipment. Due to the immaturity of their organs at birth, preterm babies were reported by midwives to be at high risk of many neonatal problems such as hypothermia, hypoglycaemia, infection, respiratory problems and jaundice; and it has also been revealed that these conditions may progress into more serious complications and even deaths. Survival of preterm babies was found to depend on the level of knowledge and skills of midwives, availability of equipment, their conditions which are due to immaturity and the environment in which they are being cared for.

These findings are supported by the Theory of Human Caring by Watson which defined health as the level of adaptive physical, mental and social functioning of preterm babies which in this study included the clinical problems that the premature babies present with and the expected management by the midwives.

#### 4.2.2.2 Theme 2: Challenges Experienced by Midwives During Provision of Care to Preterm Infants

Theme 2 presents the challenges that the midwives encounter when providing care to preterm babies. These challenges are presented according to the sub-themes that emerged.

During care of preterm babies, midwives encounter many challenges which may be due to human resources, material resources and conditions of the patients they are nursing. Seven sub-themes reflecting these challenges are discussed and supportive quotations provided by participants A and H from Lth.

- Participant H from Lth

> *Staff shortage is affecting the quality of care being provided to the preterm babies. Normally, it should be one midwife with one neonate, but it is not possible to do so because it is always three/two midwives per shift with an average of thirty babies. In situations where a midwife is busy with baby A, and baby start to have aspiration or change condition in any way, you will leave baby A and attend baby B and the baby you left might remain complicating. During resuscitation it is also a problem because you can't assist each other when you are short-staffed because you will all be busy, and there will be no one to call a doctor or to bring other equipment needed.*

- Participant A from Lth

> *Overexpenditure is another problem. If one baby removes tube every now and then it means more tubes are being used for one baby, this*

*is overspending according to the hospital's budget. Normally, feeding tubes must be changed after 6 hours. The size of tubes used in preterm babies are short, they can be finished in dispensary and get to be ordered from other hospitals which is a process that takes long. Prolonged hospital stay also results in overexpenditure because more treatment will be given.*

Nurses or midwives with skills in critical areas such as resuscitation, KMC, safe oxygen management and breastfeeding support are the frontline workers for premature babies (WHO, 2012:73). In a study conducted on ethical issues related to caring for very low birth weight infants, midwives verbalised that it is very challenging to care for extremely preterm babies; and were concerned about the quality of life during their stay in the NICU, and described caring for those babies who are born at around 23 weeks as being horrible (Webb, Passmore, Cline & Maguire, 2014:735). The sub-themes that emerged under theme 2 are discussed below.

#### 4.2.2.2.1 Sub-Theme 2.1: Lack of Material Resources Leads to Provision of Substandard Care

Midwives have a challenge of lack of material resources to use during provision of care for preterm babies. Most of the necessary equipment for using on preterm babies are minimal and those that are available are not functioning well. Midwives indicated:

- Participant D from Lth

*The hospital is having two operating theatres, but there is only one infant warmer (resuscitation table) in theatre which becomes a challenge when there are two Caesarean sections being performed. Sometimes you will have to move with a baby from one operational theatre to the other where an infant warmer is located and along the way the baby will be catching cold and become hypothermic and start having respiratory distress and need oxygen ... the transport incubators used to transport babies from theatre do not have oxygen.*

- Participant J from Lth

  *There is no resuscitation table in the delivery room. After delivery you have to rush out with the baby to where there is resuscitation table.*

- Participant A from Kph

  *There is enough number of incubators, but all of them are not well functional, you do not set the temperature according to the guideline of neonatal care, but should first check the type of an incubator you are dealing with since each incubator has its own problems. Sometimes you can set it to be warm and when you check the baby later, you realise that the baby is hypothermic because the incubator has been cold all along.*

- Participant B from Kph

  *There is only one continuous positive airway pressure (CPAP) machine, which is used in severe respiratory distress. If the CPAP machine is in use and another preterm baby admitted with severe RDS, it becomes a challenge as to what should be done because you cannot remove a baby who is already on CPAP, even if the condition has improved because specific measures should be followed to wean off the baby. In situations like this care for another baby is compromised, and life can be lost.*

- Participant B from Mmh

  *No infusion pump, we use buretterols and dial flows to control and monitor fluid intake for preterm babies, and they are not always available in pharmacy. They are sometimes out of stock. Not using infusion pump when administering fluids may result in giving too much or very little fluids which can lead to complications.*

Midwives are managing patients with inadequate equipment and supplies, whereas they are expected to deliver quality patient care. The Saving Babies Report of 2006-2007 reflected that lack of adequate neonatal facilities were the most common

administrative problem that caused deaths amongst preterm babies (Pattinson, 2008:17). Lack of adequate neonatal facilities in rural areas is one of the challenges in the management of preterm babies; where a woman may arrive at the health care institution in an advanced labour when suppressing labour is no longer an option, and mortality may only be reduced by improved neonatal care requiring specific equipment (Pattinson, 2003:454).

In 2003, many health facilities in Limpopo Province had inadequate equipment to provide standard quality care to newborn babies (UNICEF, 2011:8). Results of the study by Mathebula (2016:61) corroborated that there was lack of equipment and supplies, such as stethoscope, mechanical ventilators, Hb meters, phototherapy lamps and batteries. Infants are being exposed to 100% oxygen when an indigenous underwater bubble CPAP device is used without blending; treating preterm infants with 100% oxygen routinely without adequate monitoring with pulse oxymeter can lead to retinopathy of prematurity (Dutta et al., 2016:81).

When most of the times the problem is with lack of resources, sometimes this is not the case, but it is with the number of resources that one preterm baby uses in a short period that brings about a challenge. Literature indicated that providers felt that the number of resources per preterm infant contributed more to the difficulty in caring for these infants, rather than the availability of such resources (Gondwe et al., 2016:1445).

#### 4.2.2.2.2 Sub-Theme 2.2: Human Resource Challenges Lead to Poor Constant Monitoring of Preterm Babies, and Physical and Psychological Stress Experienced by Midwives

Midwives encounter challenges of staff shortages. Midwives are not sufficient in number to care for the babies resulting to exhaustion, stress and burnout in the available staff. There is also a problem of lack of medical doctors dedicated to

neonatal units. Due to staff shortages, care of preterm babies is affected. The following quotations support this:

- Participant F from Lth

  *Nursing in neonatal intensive care unit should be one-on-one, meaning it should be a midwife with one baby. Due to the staff shortage, one midwife is forced to nurse five babies which is challenging because care will not be of high quality.*

- Participant B from Kph

  *The hospital is short-staffed and we can't monitor these babies accordingly. We end up missing a lot of danger signs when it comes to them complicating ... due to staff shortage, we are exhausted most of the time because we do too much work.*

- Participant A from Kph

  *We are short-staffed. I am unable to check and monitor all babies as required. I'm the only midwife who is allocated full-time in neonatal unit; I should provide care to all the babies in high care unit, KMC unit and another unit where we admit sick babies who come from home. In most of the days I am with either an enrolled nurse or enrolled nursing assistant, but today I am alone for the whole day, and I work office hours. I am supposed to knock off at 16h30, but I cannot go and leave the unit alone. I will have to sacrifice like I always do and remain until 19h00. I am exhausted most of the times because I work overtime. No midwife in neonatal during the weekends, midwives in labour ward and postnatal are the ones who assist whenever there is a problem ... there is only one doctor allocated full time in neonatal unit, but he also assists in other wards. During the weekends there is no doctor. And also when he is on leave, you will have to ask doctors from other wards to come and assist you.*

Midwives, just like other nurses, face a challenge of staff shortage when working at state hospitals (Brophy, 2015:93). Thommesen (2014:24) indicated that there is a challenge of lack of staff and approximately 334,000 more midwives are needed globally. Mathebula (2016:58) showed that shortage of staff, absenteeism, resignation, shortage of doctors and bad staff-patient ratios are the factors that contributed to high perinatal morbidity rates in the Mankweng-Polokwane Hospital Complex. It was indicated that midwives were not satisfied with the high percentage of shortage in their units as they were not capable of managing the workload.

A neonatal unit staffing should be as follows: NICU should have one midwife per patient; a high care unit requires one midwife per two patients, but one per three patients is still acceptable, if there is one midwife and one experienced enrolled nurse for four babies this is also acceptable; there should be a unit manager, but if the unit is small, the manger can form part of the staff complement.

A diploma in NICU or paediatrics is recommended for midwives in neonatal unit and the manager. As a minimum requirement, midwives should undergo training in newborn care such as the one-week LINC training and be engaged in self-study or an ongoing in-service training programme at the facility (Essential Newborn Care, 2012:22).

Midwives experience ethical challenges related to interactions with parents and other health care practitioners. These may be emotional strain, protecting the vulnerable infant, ensuring continuity of treatment, miscommunication and professional disagreement (Strandâs & Fredrikson, 2015:901). NICU midwives often have challenges to their own sense of morality as they struggle to protect the infant from pain and unnecessary discomfort, provide care to the infant and their family, accepting decisions made by parents, and feeling as if parents were not adequately informed about outcomes (Webb et al., 2014:738).

#### 4.2.2.2.3 Sub-Theme 2.3: Lack of Constant Care Leads to Complications Which Are Not Identified in Time

Midwives encountered challenges of being unable to provide close monitoring and care to preterm babies. They describe how lack of constant care results in more serious conditions not identified in time, as supported by the following quotations:

- Participant C from Lth

> *Some of the mothers are not observant. They can stay with a baby in Kangaroo Mother Care (KMC) unit and not notice when the baby changes condition. Preterm babies have a tendency of stopping breathing every once in a while (apnoea attack). If a baby stops breathing, stimulation should be done immediately to remind the baby to breathe again. Some mothers may not notice and the baby may complicate even further and some babies if not found earlier they even die.*

- Participant A from Kph

> *... our hospital does not have apnoeic monitors which are used to monitor the apnoeic attacks, so the baby may stop breathing when we are not around or still busy with other babies and we will not notice the attack immediately. We only find out later that the baby has stopped breathing and usually if apnoeic attack lasts longer without intervention it leads to serious conditions, the baby will need to be resuscitated, meanwhile if we have noticed the attack earlier we would have intervened by just stimulating the baby and avoid more complications.*

Sub-optimal care in many cases contributes to maternal and neonatal deaths and this includes inability of health care providers to recognise and manage complications of pregnancy and childbirth in a timely and effective manner (Ameh et al., 2016:12). This is also supported by the results of the study conducted in Malawi where the service providers described workload as the main limiting factor to properly manage preterm infants; they reported that you may find that they did not sleep the whole night, and

the following morning they are also on duty doing ANC, working in the maternity and other areas, and yet there is a mother with a preterm infant who needs constant supervision, so it becomes difficult for them to care for that preterm baby because they will be tired and having too much work to do (Gondwe et al., 2016:1445).

Before the establishment of LINC, small and sick newborns were nursed in postnatal units together with other newborns that are well. Newborns who needed special attention in postnatal were often gone unseen because there was no one or any guidelines that were followed in the management of these newborns (UNICEF SA, 2011:24). Saving lives and preventing disability from preterm birth can be achieved by simple care such as warmth, cleanliness, breastfeeding and resuscitation, if required. Recognition of small babies and distinguishing which ones are preterm are essential first steps in prioritising care for the highest risk babies (Lawn et al., 2013:4).

#### 4.2.2.2.4 Sub-Theme 2.4: Lack of Continuous Neonatal Care Training Viewed As Problematic Leading to Strained Relationships Amongst Health Professionals

The health care practitioners working in maternity ward are not being trained in programmes that improve standard of care to preterm babies. This is evidenced when a midwife explains what happens when they are working with a health care provider who is not LINC-trained have to provide care to a preterm baby in the absence of those who have been trained. The following quotation supports this:

- Participant B from Kph

> *There is only one midwife who went for CPAP workshop. When that midwife is off and there is a baby who needs CPAP it becomes a problem because the available midwives will have to wait until the doctor arrives ... the full-time neonatal unit doctor, one midwife, enrolled and assistant nurses are LINC-trained. But the other doctors and the midwives working in labour and postnatal are not trained. It becomes a challenge during the weekends and holidays when those*

> *who are trained are not on duty, eg if it's a doctor who is not trained and you have called them to come and assist with a preterm baby, you find that they don't know what to do and when you try to tell them how things are supposed to be done, they will think that you are undermining them and it end up putting a strain on your working relationship.*

There is a challenge in the management at the limit of viability (gestational age or estimated foetal weight) which requires a joint management amongst the health care providers and the parents of the baby (McNamara, 2003:81). Midwives and other health care practitioners who are working with neonates should go for in-service training in newborn care such as the one-week LINC training and be engaged in self-study or an ongoing in-service training programmes at the facility (Essential Newborn Care, 2012:22).

Helping Babies Breathe (HBB) is a comprehensive educational training programme that equips birth attendants for neonatal resuscitation in resource-limited areas. The purpose of HBB is to improve the neonate's first minute of life by providing training and lifesaving equipment for traditional birth attendants (Steele, 2013:225). The author continued that the updated recommendations of the neonatal resuscitation programme call for initial room air resuscitation with oxygen administration with guidance of pulse oxymetry to provide a safe transition to extra-uterine life.

In the Mankweng-Polokwane Hospital Complex, 60.3% of midwives were not LINC-trained in 2015, only 36.5% were trained while 3.2% training status was unknown; and almost half of the registered midwives were not ESMOE-trained (Mathebula, 2016:44). Although midwives are well trained and deliver babies safely in developed countries, this is not necessarily true in developing countries. Factors such as poverty, inadequate care by poorly trained midwives, members of the family or small maternity clinics increase the rates of perinatal mortality (Bravo & Noya, 2014:27).

Studies have demonstrated that CPAP reduces the need for positive pressure ventilation of babies less than 28 weeks gestation, and the need for transfer babies under 32 weeks gestation to NICU. Increasing use of CPAP is a concern. CPAP-assisted ventilation requires adequate medical and nursing skills to apply and deliver safely and effectively, and also necessitates other supportive equipment such as oxygen source, oxygen monitoring device and suction machine (WHO, 2012:69).

#### 4.2.2.2.5 Sub-Theme 2.5: Neonatal Deaths Experienced Result In Midwives Being Stressed

It was indicated that nursing a preterm baby is stressful to the midwives. Participant D from Kph has shown that preterm babies are unpredictable, death is very common and sometimes they do not give you a sign that they are about to change condition.

- Participant D from Kph

> *It is very stressful to care for preterm babies because one minute they are fine and the next minute it's a different story. The mother may leave the baby in a stable condition and two hours later the baby changes condition and die; in cases like this you become worried about the mother, you get stressed as to how are you going to break the news to the mother, this is not easy for the mother to accept what happened.*

According to WHO (2012:28) in 2010 more than 15 million babies were born preterm and more than 1 million died during their first month of life due to complications related to PTB and millions have a lifetime impairment. nCPAP and KMC have been shown to be effective, inexpensive and user-friendly methods to decrease the neonatal death rate in infants born prematurely (Pattinson, 2003:456). Nurses have acknowledged to be having difficulties of communicating with parents who had not been informed about, or were inadequately prepared for the changes to their infant's care; they also reported how it was not easy to have a conversation with parents who were defensive, aggressive or stressed. They also reported to have challenges of communicating with

particular sub-groups of parents, including younger mothers, drug-affected mothers and mothers from different cultural or ethnic groups. Some professionals have acknowledged having feelings of self blame, disengagement and denial. Those who appeared to be at risk of experiencing distress are those who reported least experience of managing patient loss (Wallbank & Robertson, 2013:1096).

Other authors added to experiences of midwives on perinatal deaths, as feeling guilty and ill prepared, had internal conflicts with their own feelings while putting up a brave front for parents. Midwives felt demotivated, overwhelmed, horrible, and like crying. Many of them felt burnt out and a few of them even felt they could leave the profession (Shorey, Andre & Lopez, 2017:34). Findings from two studies agreed on the causes of these emotional stress which included lack of experience in dealing with death, insufficient communication skills, lack of knowledge and training of providing bereavement care, lack of support from colleagues and organisation, and personal feelings of inadequacy in dealing with perinatal deaths (Wallbank et al., 2013:1096; Shorey et al, 2017:35).

#### 4.2.2.2.6 Sub-Theme 2.6: Limited Management Support Experienced By Midwives

Midwife participants viewed the issue of limited support from the management as a challenge because there are problems that you cannot manage; they need to be attended to by the management, for example, the issue of improper structure and lack of equipment.

- Participant A from Kph

> *There is no support system from management, when we tell them about the problems that we are experiencing with regard to the equipment, they just promise to do something about it, but they do not do anything.*

Effective support strengthens relationships within the ward unit and serves to buffer the effects of interpersonal stressors. Lack of support on the other hand, aggravates conflict and emotional and physical strain, the source continued.

One study found that the reason the policy makers had problems that limited them to conduct supervision to health facilities. Some policy makers reported that preterm birth was not an area of focus until recently due to an alarm from the 2012 'Born Too Soon' report on preterm birth. Another explained that there was a little problem on the issue of managing preterm infants at district level resulting in less budgeting towards preterm infants (Gondwe et al., 2016:1446).

The authors further indicated that some policy makers described the attitude amongst health care providers as a problem that hindered them from supporting the care of preterm infants. It was reported that the providers were not willing to learn and did not make use of the available policy documents.

Management should promote in-service training, non-rotation of nurses with skills in neonatal care, and where appropriate the development of a neonatal nurse cadre, as well as rewarding those who work against all odds in hard-to-serve areas (Lawn et al., 2013:12).

#### 4.2.2.2.7 Sub-Theme 2.7: Feeding Complications Experienced During Care of Preterm Babies

Amongst the challenges that midwives encounter when managing the clinical problem associated with prematurity, preterm babies have a common problem of feeding intolerance which can result in many other problems such as poor weight gain and neonatal jaundice. This may include:

- Participant A from Kph

*Preterm babies have a tendency of feeds intolerance where they*

*don't retain feeds, they vomit after eating or don't finish the required amount for the day, and these may affect their weight gain and loss. Babies who can't drink from the cup are fed with feeding tubes; we measure the expressed breast milk and show the mother how to feed. Babies who are in KMC are fed with a cup and direct breast.*

- Participant G from Lth

  *... they have poor suckling reflex and easily get tired when put on breast. During their first days of life, most are fed using feeding tubes ... babies who do not feed well may present with hypoglycaemia.*

- Participant B from Kph

  *... sometimes the mother will be afraid to report when the baby is not feeding well and midwives may not know because they are unable to monitor all the mothers due to short-staffing. They will identify the problem when the baby is not gaining weight. Hypoglycaemia is also common, especially in those babies who are not feeding well ...*

- Participant A from Lth

  *Weight gain is sometimes affected when you start feeds and the baby starts having abdominal distension and feeds need to be omitted. Mothers get stressed when their babies are not gaining weight ... due to prematurity they have slow digestion and can go 3-4 days without passing stools, it is also stressing on the mother ... mothers should hold the babies for at least 30 minutes after feeding to avoid aspiration and vomiting.*

Preterm babies face feeding difficulties because the coordinated suck and swallow reflex only starts at 34 weeks gestation and they need help to feed and are more likely to aspirate (WHO, 2012:64).

Feeding intolerance is a common problem of preterm neonates. Feeding is ideal for optimum growth and development and prevention of infection in a preterm infant and early initiation of feeding is beneficial to all infants (Joseph, 2015:63).

Premature babies benefit from breast milk nutritionally, immunologically and developmentally. Most preterm babies require extra support for feeding with a cup, spoon or another device such as nasal and gastric tubes (Lawn et al., 2013:5).

#### 4.2.2.2.8 Summary of Theme 2

Midwives as the human beings providing care to preterm neonates reported to be having challenges which are related to human and material resources. Staff shortages were ound to be the most critical challenges that midwives are facing. This factor was supported by many authors from different settings. This concludes that staff shortage is not a problem in one area only, but it is a worldwide challenge which causes physical and emotional distress for midwives, leading to compromised care being provided to the patients.

While staffing is a critical problem worldwide, there is also a challenge of lack of training for midwives on different aspects for the management of preterm babies. The present study found that very few midwives were trained for LINC and the use of a CPAP machine which are needed during the care of preterm babies. The essential equipment such as burreterols, infusion pumps, CPAP machines, pulse oxymeters, etc. are insufficient and not functional while some are just not available at all in the facilities where the study was conducted. Minimal equipment and lack of support from the management are the problems amongst many which caused emotional stress for midwives.

### 4.2.2.3 Theme 3: Knowledge of Midwives Related to Provision of Care to Preterm Babies

Theme 3 presents the knowledge that the midwives have with regard to care of preterm babies. The midwives' knowledge and skills are discussed under the sub-themes emerged from theme 3 as presented in Table 4.3.

It was indicated from the interviews with the participants that midwives have minimal knowledge when it comes to provision of care to preterm babies. This is supported by the following quotation:

- Participant H from Lth

> *Almost everything in NICU is operated by machines and they are complicated, you need time to learn how to operate them. Sometimes you even forget how to use them even though you have used the machine before. In case of emergency, you need to be fast to connect the machines.*

- Participant D from Lth

> *...when I have gone to receive a baby from theatre and you find that I went there alone as a midwife, when I have to resuscitate a preterm baby who is flat without breathing, but just the heart rate, it becomes a challenge to me ... I remember weeks back when I received a baby who needed suctioning, I was scared of suctioning because the baby was too small and I thought that suctioning would hurt the baby ...*

Midwives give pregnant women health education about maternal infections and how they are prevented as these infections are a major cause of pregnancy complications such as miscarriages, stillbirths, PTB, and congenital infections and anomalies. Women are also advised to stop smoking for the prevention of PTB complicated by PROM (WHO, 2012:47). Routine ultrasound scanning for all pregnant women is provided (Pattinson & Rhoda, 2014:21).

Women at higher risk of preterm delivery can be identified by midwives during ANC based on their obstetric history or current pregnancy complications. These women are then given corticosteroids for the reduction of neonatal mortality (WHO, 2012:49-50). The sub-themes which emerged are discussed below.

#### 4.2.2.3.1 Sub-Theme 3.1: Lack Versus Existing Knowledge Related to Neonatal Care Guidelines

Midwives lacked knowledge regarding the clinical problems associated with prematurity and how those problems are supposed to be managed. Quotations supporting this are as follows:

- Participant C from Lth

> *Coming across new conditions is challenging, sometimes I panicked because I didn't have sufficient of knowledge and skills to manage such conditions.*

- Participant C from Kph

> *I once delivered a preterm baby at 27 weeks gestation, with the birth weight of 0.85 kg and steroids were given before delivery, the baby cried once after delivery and within that five minutes the baby just stopped breathing, became cyanotic, was having excess secretions from the nostrils and mouth, I didn't know what to do next. Fortunately, an advanced midwife was available and she intervened, the baby was intubated and transferred to neonatal unit. The baby could not be transferred to the high level institution because of the extremely low birth weight.*

- Participant I from Lth

> *HIV exposed babies can be a problem when the mother is not around, because they can't be given formula and there is no clear guideline on how to feed these babies.*

In a study conducted in Ethiopia, midwives were found to be having a challenge of inadequate knowledge and skills which affected the quality of nursing care (Thommesen, 2014:24). Gondwe et al. (2016:1444) conducted a study that found that 63.6% of the health care providers who participated and who were working in health centres and district hospitals reported lack of knowledge of the existing policy protocol documents that could guide them to properly manage preterm infants.

They reported to use knowledge gained through their nursing training period, meetings and workshops; one of them reported that even knowledge gained through workshops was not well utilised in many health facilities because of how service providers were allocated in the hospital wards.

The study conducted in the Chris Hani Health District of Eastern Cape indicated that midwives were able to express their knowledge with regard to effective bag and mask ventilation technique during basic neonatal resuscitation within 'The Golden Minute', which is critical in the mortality and morbidity outcomes of neonates.

However, they were not knowledgeable on the latest information on mastering effective ventilation with bag and mask by squeezing the bag in acceptable 40 breaths per minute to produce gentle respiratory movement of the chest (Ndzima-Konzeka, 2017:65).

#### 4.2.2.3.2 Sub-Theme 3.2: Existing Knowledge Related to Potential and Exact Problems Related to Prematurity

Midwives have knowledge regarding prematurity and they share the knowledge that they have with other multidisciplinary team members. They teach everyone who comes into contact with the preterm babies about techniques to prevent complications in the babies. The following citations support this:

- Participant A from Lth

> *Preterm babies are seen by multidisciplinary team (nurses, doctors, dieticians, physiotherapists, etc.) ... team is taught on practicing antiseptic hand washing before and after handling each baby. They sometimes forget to wash hands, they can handle baby A then move to baby B and so on without washing or disinfecting hands. This increases the risk of cross-infection amongst the babies. Mothers may come in the unit and find that the baby has long been crying, they concentrate more on the baby's cry and go straight to where the*

*baby is lying, forgetting to wash hands ... D-germ (surgical spirits) is put on each bed for spraying on hands before and after handling the baby for infection control.*

- Participant B from Lth

*Neonatal unit does not allow for many visitors, only parents and grandparents are allowed to see the babies and they should stay for a minimal time. Some families will come being ten or more and they will want to get inside all of them, some will tell you that the people from church have come to pray for the baby, and if it's a preterm baby you cannot allow them inside the unit because overcrowding is not allowed as it increases the risk of infection.*

Despite the knowledge that midwives had with regard to prevention of infection in preterm babies, mothers and visitors did not comply with hand washing, cord care was not done 3 hourly, mothers did not change hospital attire on daily basis, there was overcrowding observed by midwives in the units, poor cleaning of incubators and cribs, and poor hand washing after phone answering before touching patients with infectious diseases (Mathebula, 2016:62). When providing care to babies who are on mechanical ventilation, midwives face a challenge of whether to continue with ventilation for longer period or not as they are aware about the long-term complications that are due to prolonged ventilation (Joseph, 2015:61).

When positioning of the premature babies is not properly carried out, damage can be caused due to immaturity of the musculoskeletal system, which can generate body alignment complications, such as neonatal hypertonia. Health professionals should prioritise the standardised positioning of the preterm infant in NICU which consists of body alignment, correct head position to avoid inappropriate lateralisation, stimulation of midline, flexion of upper limbs and lower limb support. This can help in providing greater comfort to the preterm infant during hospital stay and reduce the risk of changes in the motor development in NICU and after hospital discharge (Santos,

Viera, Bertolin, Osaku, Costa & Grebinski, 2017:648,653).

#### 4.2.2.3.3 Sub-Theme 3.3: Existing Knowledge of Alternative Care for Preterm Babies by Midwives Whilst Experiencing Shortage of Equipment

When the available material resources are minimal or not functioning well, midwives practice other measures to manage conditions of the preterm babies. Statements to support this were cited by:

- Participant A from Kph

> *... these babies cannot maintain their own normal body temperature and sometimes even the incubators don't help, in cases like this we will try covering the baby with a plastic, sometimes it helps and sometimes it doesn't.*

A study conducted in Malawi corroborate that the midwives working in tertiary level facilities reported awareness of the existing documents and was already implementing KMC for low birth weight and preterm babies as recommended by national KMC guideline. Service providers in these facilities also reported to advise mothers of preterm infants to breastfeed often and keep the infants warm (Gondwe et al., 2016:1444).

The benefit for plastic wrappings to promote thermal care has been tested only for extremely preterm babies in NICU (Lawn et al., 2013:5). In a study for preterm babies born at 23-33 weeks of gestational age, it was found that the incidence of hypothermia 5 minutes after birth was extremely high and was independently associated with low delivery room temperature, maternal hypertension, maternal hypothermia, lower gestational age and lack of plastic bag/wrap. The use of plastic bag/wrap independently decreased the chance of hypothermia at 5 minutes after birth by 47%, and the use of cotton cap decreased the chance of hypothermia at NICU admission by 45% (de Almeida, Guinsburg, Sancho, Rosa, Lamy, Martinez, Ferrari, de Souza

Rugolo, Abdallah & de Cássia Silveira). Turnbull & Petty (2012:19) concluded that neonates born at less than 30 weeks gestation should be placed in a plastic bag or wrapped at birth, and have their head dried and a hat put on.

#### 4.2.2.3.4 Sub-Theme 3.4: Existing Knowledge of Referral to the Next Level of Care

Midwives have knowledge on the babies who are candidates for referral to higher level institution. It is stressful to have a very ill preterm baby who needs advanced care, but does not meet the minimum requirements for referral.

- Participant A from Kph

This participant cited the following regarding referral of preterm babies:

> *Due to the immaturity of their lungs they also suffer from respiratory distress syndrome (RDS). In this case, they are given oxygen (O2). If the distress is too severe they are transferred to a regional or tertiary hospital for advanced care. With extremely low birth weight (ELBW less than 1 kg) babies, distress can be severe and you will just watch the baby die because they are not the candidates for referral.*

Midwives working in level three hospitals developed a more positive attitude towards the initiation of intervention at an earlier gestational age when compared to midwives without such experience. More communication and exchange of knowledge between level two and level three hospitals might benefit the management of very preterm labour and birth. Midwives at level two hospitals manage the initial care of women and then transfer them to level three hospitals for more advanced care.

The women may return after birth, which makes it important for midwives at level two hospitals to inform mothers about the risks and benefits of treatment related to preterm birth and treatment before they transfer them (Danerek, Masàl, Cuttini, Lingman,

Nilstun & Dykes, 2012:863). It has been shown that transfer to level three hospitals is of significant benefit for the preterm infant because full access to resources of neonatal intensive care was shown to decrease mortality, the authors continued.

According to the results of the study entitled 'Community health workers-A resource for identification and referral of sick newborns in rural Uganda,' communication attributes that the community health workers indicated to be having during role plays regarding referral of sick newborns were: informing the mother that the newborn needs to be referred on the health facility; clearly explaining to the mother why they need to go to the referral care; and clearly explaining to the mother that they need to keep the newborn warm and continue breastfeeding while being taken for referral care (Nalwadda, Guwatudde, Waiswa, Kiguli, Namazzi, Namutumba, Tomson & Peterson, 2013:904).

The best performed attribute was of referring the baby after discovering that the baby has a danger sign, the source maintained. All pre- and postnatal health-care in-patient settings should have staff trained to identify families at economic, social and psychological risk, as well as providing the appropriate referrals; psychologists in NICU are well suited to provide consultative services (Purdly et al., 2015:25).

#### 4.2.2.3.5 Sub-Theme 3.5: Existence of Knowledge of Care Precautions by Midwives During Management of Preterm Complications

Through the interviews conducted, participants indicated their knowledge for preventing some of the complications related to prematurity and challenges that prevent them from practising what they know. This was cited as follows:

- Participant A from Kph

> *We eliminate and reduce infection by washing hands, damp dusting and cleaning the incubators and transfer very sick babies to a level two or three hospital.*

- Participant H from Mmh

> *... mothers enter the unit at regulated times, they wash hands before and after changing nappies. Paper towels for drying hands are sometimes out of stock. We use linens instead which increases risk of infection because one towel will be used by many people.*

Midwives caring for preterm infants receiving mechanical ventilation face many challenges. Important aspects of care they have to carry out include thermoregulation, optimal positioning, airway clearance, stable haemodynamic status, and adequate nutrition for growth and development (Joseph, 2015:57). Another challenge is in deciding whether or not to continue with mechanical ventilation for a long time for preterm babies; this is because prolonged mechanical ventilation in preterm infants presents much morbidity by causing conditions such as volutrauma, barotraumas and retinopathy of prematurity.

The adaptation of a preterm neonate to the NICU environment varies according to his/her ability to change their behaviour in response to a stimulus to achieve a well-regulated balance and to maintain the energy required to sustain life (Santos et al., 2017:653). Midwives take into account the importance of safety and improved quality of care for infants in the delivery room and throughout the NICU stay. They ensure that the first breath of the infant is safe, the airway is protected and secure, and the position and physical behaviours are hourly assessed (Steele, 2013:225-226).

The NICU is a foreign environment to most parents that has its own routines, languages, smells and sounds and it has been described as the realisation of the parents' worst nightmare (Wakely, Rae & Keatinge, 2015:9). The mothers need to be given time to adapt to this environment as it will be new to them. The study conducted in Sweden indicated the attitudes of midwives in relation to the information that should be given to the parents at risk of delivering preterm infant regularly as: the present condition and the well-being of the foetus, anticipated mode of birth, infant's prognosis

in general terms, transfer to NICU and the type of treatment the infant will receive after birth (Danerek et al., 2012:860).

#### 4.2.2.3.6 Summary of Theme 3

According to the human theory by Jean Watson (Watson, 2007:131), nursing is defined as a human science of persons and human-illness experiences that are mediated by professional, personal, scientific, aesthetic and ethical human care transactions. In this study, nursing referred to the care being provided to preterm babies by midwives. The standard of care being provided is influenced by the level of knowledge that midwives possess. Theme 3 discussed the knowledge of midwives with regard to managing preterm babies and the precautionary measures they practised for the prevention of complications related to prematurity.

Midwives reportedly have challenges when managing conditions they nursed before. Though midwives had lack of knowledge in some aspects relating to care of preterm babies, they were also found to be knowledgeable about precautions to prevent infection in preterm babies, which they practised by teaching and educating mothers and other members of the multidisciplinary team on the antiseptic hand washing technique and avoiding overcrowding in the neonatal unit. Midwives had knowledge on the referral of babies to higher levels hospitals and they also practised the use of plastic wrap to prevent hypothermia in preterm babies which has also been proven to be effective by the literature.

### 4.2.2.4 Theme 4: Identified Needs and Problems of Mothers of Preterm Babies

Mothers of the preterm babies have special needs that should be attended to by the same midwives who are providing care to their preterm babies. This becomes a challenge to the midwives as they have to make sure that the mothers are always in good condition despite the conditions of their babies. The sub-themes that emerged

under theme 4 are presented below.

Amongst the problems that the midwives encountered, there are others which are directly caused by the mothers of the preterm babies. This is supported by the following quotations:

- Participant C from Lth

> *Long hospital stay causes the mothers to have grudges amongst themselves. They start fighting. Mothers will want to go home and start abandoning their babies, sometimes they abscond leaving the babies in the hospital, and some over-feed them with the aim of making them gain weight faster just so they can be discharged.*

- Participant A from Kph

> *I have a day 37 preterm baby in the unit born at 0.85 kg (ELBW), current weight is (1.22 kg). Mother reported at the hospital in early labour and was given antenatal steroids to speed up the lung maturity. The baby was born and admitted in neonatal unit. During the first days the mother was too distant, couldn't accept the baby, couldn't change nappies and always had to be reminded of the times to feed the baby. The mother was psychologically stressed. I did continuous counselling on the mother and was also referred to a psychologist several times. She was educated on the condition of the baby and what common clinical problems to look out for and told to report any change noticed in the baby. The mother is now coping well, participates in the management plan of the baby, and the baby is off oxygen and feeds well with no problem.*

Delay in seeking medical attention during labour which is most common in rural areas, poor reporting of reduced foetal movement and women who do not attend ANC frequently and those who attend late were found to be at higher risk of developing complications in pregnancy and during labour and these are the factors that caused challenges in saving babies and reducing prenatal deaths (Pattinson, 2003:453).

Parents' accounts of the experience of parenting a premature infant detail an emotional journey and a need for support during such a traumatic time; early in the experience it appears parents need to adjust to the environment of the NICU before they can focus on the needs of their infant (Wakely et al., 2015:16). The authors continued to indicate that health professionals should consider parents' need to adjust initially to the NICU environment before being able to focus on the needs of their child.

The costs of caring for premature infants after discharge are not just financial, but also emotional. Factors that drive emotional conflicts and undermine parents' involvement include a lack of family-centred care, inadequate communication between staff and unwillingness for staff to alter their work regimen to meet parents' schedules (Purdly et al., 2015:24). The sub-themes which emerged are discussed as follows;

#### 4.2.2.4.1 Sub-Theme 4.1: Need for Counselling for Mothers Which Could Lead to Compliance During Provision of Care

Counselling of the mother of a preterm baby is viewed as an important practice that should be done continuously in order to gain the mother's cooperation and improve the interaction of the mother with her baby. The following quotations support this:

- Participant B from Mmh

> *Mothers of the preterm babies need to be counselled about preterm and be informed about treatment options to gain their cooperation in the management plan of their babies.*

- Participant A from Lth

> *Mothers need counselling from the day of admission. Sometimes a mother can see another baby with the same weight as her baby's being transferred to kangaroo mother care (KMC) unit and hers still having drips, feeding tubes, etc., and start worrying and sometimes end up being psychotic. This is why the mother should be involved in every act for them to understand every management to be executed. Psychological stress in mothers affects breast milk*

*production. Everyone nursing preterm babies should be patient and understand that care should involve the mother.*

- Participant A from Lth

  *Long hospital stay in preterm babies is a big challenge. For example: a preterm baby admitted at 0.9 kg should stay in the hospital and grow until they reach the weight of 1.8 kg. Stay becomes very long because within their first ten days of life, all babies start to lose 10% of the birth weight. Sometimes the baby vomits, may have infection and should be on drip and be given antibiotics. When you nurse the neonate, you should nurse the mother as well. Mothers get bored by staying in the hospital, sometimes the family and friends don't visit them, and you are supposed to act as a midwife and a relative.*

- Participant B from Lth

  *Once the mother stays in the hospital for more than a week, they start thinking of their lives outside the hospital, they will want to go home, they get stressed and stop cooperating with the management.*

- Participant H from Lth

  *After some days of counselling they will reveal to you that they were just scared of being around their babies because they are very small and not easy to hold, they feel like they are hurting them when they hold them.*

- Participant A from Mmh

  *Counselling is done by midwives and mothers of premature babies are also referred to psychologists for further counselling.*

As NICU infants and parents make up the family unit, the emphasis needs to broaden to include better psychosocial support for NICU parents with a goal toward improving developmental outcomes of the infants as well as the family's functioning (Purdy et al., 2015:24). NICU staff should counsel parents about skin-to-skin care when the baby is stable; professionals need to point out the vital role of family members in

supporting breast milk feeding to improve stress, immunity and health outcomes, the source continued.

Parents' confidence in their ability to look after their infant is fragile, as they perceive the infant itself as fragile and easily broken. Health professionals need to empathetically understand that even if the restriction of touch is medically best for the child, this is still distressing for the mother and they need to provide regular reassurance to the mother that their child is developing well and may require help developing confidence with their parenting (Wakely et al., 2015:16).

In a study conducted in Europe about 'Ethical decision making for extremely preterm deliveries,' parents appeared to be rarely involved in the decisions about their infants in the context of the very preterm births, both before and after delivery (Garel, Seguret, Kaminski & Cuttini, 2004:398). Education of mothers regarding the care and progress of their infants; the observation of mothers for psychological symptoms and referrals for psychotherapy and counselling, could enhance the mothers' capabilities to cope with their challenges (Ntswane-Lebang & Khoza, 2010:80).

#### 4.2.2.4.2 Sub-Theme 4.2: A Need for Direct Supervision of the Mother by Midwives During Their Interaction with Their Infants Emphasised

Midwife participants displayed the need for always being around the mothers when they are with their preterm babies. Mothers need close monitoring as some of them do not understand how they should care for their babies. Some mothers of preterm babies feel that the midwives are not doing enough for their babies and that the feeds prescribed are not enough for the baby. This is supported by:

- Participant B from Kph

> *During feeding times, the mothers need to be monitored closely to make sure that they are not under/over-feeding the babies. It is not possible to monitor all the mothers because there is a high shortage*

*of staff. We show the mothers how to feed on the first day, and each morning feeds are being reviewed according to the age and weight of the baby; and each mother should understand and master how much they should feed. Some mothers will feel like they are not doing enough and end up adding more feeds to what has been prescribed and over-feed the baby.*

- Participant C from Lth

*... teenage mothers are still young and not matured. They are not able to take care of their babies, even when you teach them how to feed they don't practice what they have been taught. They forget easily. Their babies are most likely to aspirate because they put them on bed immediately after feeding before feeds can slide down into the stomach. Sometimes if you are not around they put the baby on fowlers position instead of lateral and since preterm babies are more likely to vomit they get choked when they vomit. When you transfer them to KMC unit, they don't practise skin-to-skin care as they were taught, they will either close the baby's nose by breasts or not apply KMC at all.*

Midwives must ensure that all parents and personnel working in the neonatal unit adhere to infection control policies and advocate for preterm babies to ensure their safety and prevent infections (Joseph, 2015:63). The initial interaction between the mothers and their infants occurred under the supervision of the medical staff (Spineli, Frigerio, Montali, Fasolo, Spada & Mangili, 2016:193).

Mothers are closely supervised in the care of their babies. Over time, the mother takes on numerous duties and develops competencies as a real mother for her growing and developing preterm baby. Guided participation is more than telling, teaching, and answering questions; it is bringing the mother completely into the praxis needed to fulfil socially meaningful goals as a mother (Aagaard & Hall, 2008:34).

#### 4.2.2.4.3 Sub-Theme 4.3: Mothers' Psychological Reactions Resulted from Different Aspects Outlined by Midwives

Due to delivering a very tiny baby, mothers of the preterm babies suffers from psychological stress, fear and guilt whenever they are around their babies. When the mother has had a preterm baby previously or have a history of spontaneous abortions, they do not easily accept the present baby if it is a preterm again. They believe that it is a punishment. Midwives indicated how these mothers get these feelings:

- Participant B from Lth

> *Mothers, especially first time mothers who have just delivered a preterm baby become very stressed and traumatised because the baby will be very small with a very low birth weight...mothers of the babies who were referred from other hospitals often don't have visitors because their homes will be far from the hospital. They get lonely and feel alone, they stress more when they see others being visited all the time. And when mothers are stressed, breast milk production is affected, they no longer secret enough milk to feed their babies.*

- Participant B from Kph

> *Prolonged hospital stay is another problem. Preterm babies are discharged at a convenient weight (1.8 kg) to go home. Mothers don't understand, they complain and request to be discharged. They tell you reasons like: I have other kids at home and there is no one to take care of them. Some will even tell you that they want to sign for refusal of hospital treatment (RHT) even after you have counselled them and referred them to psychologists and social workers. In cases like this it becomes a dilemma because patients have that right for RHT and you as a midwife you should do what is beneficial for the health of the patient.*

- Participant A from Lth

> *Preterm babies are fed three-hourly. Those who cannot feed well by cup are fed using feeding tubes. Sometimes a baby can be fed at*

*09h00 via feeding tube, and when the mother comes to give 12h00 feeds she may find that the baby has removed the tube, or the tube came out during vomiting. As a midwife, you will have to re-insert another tube, which is irritating to the mother because mothers think that inserting tubes hurts their babies.*

- Participant D from Kph

  *... for mothers who have experienced miscarriage in more than one pregnancy, it is very stressful to give birth to a preterm baby. The mother gets psychologically affected and ends up blaming herself for not having a child, some mothers will end up saying that maybe they are being punished for the things they once did in the past. Sometimes you'll find that the baby stopped breathing immediately after birth and you've been resuscitating for more than two hours with no success, the mother will beg you to save her baby and it can be very stressful to us as well because we would like to see the baby survive, but the condition is too severe and there is no response even to treatment.*

Parents naturally experience many kinds of stress after the birth of their baby. Stress can be amplified by many factors encountered during their baby's hospitalisation in a NICU, such as baby's appearance and behaviour, exposure to medical lingo, advanced technology and the risk of their baby dying; this stress leads to a variety of reactions, including sadness, fear, anger, grief, depression and helplessness (Purdly et al., 2015:24). Parents of preterm babies experience psychological trauma due to being unable to help, hold or care for their babies; protect them from pain, or share them with other family members (Lasiuk, Corneau & Newburn-Cook, 2013:8).

According to the results of the study conducted in Europe entitled 'Emotional Reactions of Mothers Facing Premature Births: Study of 100 Mother-Infant Dyads 32 Gestational Weeks,' it was found that the maternal traumatic reaction linked to the premature birth does not correlate with the term at birth, but rather with the weight of

the baby. This is witnessed in medical consultations, even a long after the premature birth, because the parents report the weight to indicate severity of the birth and their worries (Eutrope, Thierry, Lempp, Aupetit, Saad, Dodane, Bednarek, De Mare, Sibertin-Blanc, Nezelof & Rolland, 2014:6). Some mothers judge labour complications as a punishment for their sins; thus in the midst of a long and painful labour, they focus on confessing sins instead of seeking medical treatment (Bravo & Noya, 2014:527). In another study, religious beliefs of the mothers were the background of some of their behaviours such as begging and trusting God and seeking help from God. While some mothers viewed preterm babies as God's will, some mothers considered premature babies as a God's punishment for their wrong deeds and behaviours (Arzani, Valizadeh, Zamanzadeh & Mohammadi, 2015:16).

#### 4.2.2.4.4 Sub-Theme 4.4: Mothers Fear and View of Preterm Babies As Abnormal Result In Lack of Bonding

Mothers become afraid of their preterm babies because they are too tiny and they view them as if they are not humans. When mothers are afraid of their babies, they don't want to spend time with them; they do not check on them often, they only come to see their babies when they have been called by the midwives and this result in lack of bonding between the mother and the baby. This is supported by the following quotations:

- Participant B from Kph

> *Mothers of the preterm babies get scared of their babies because they are very small. They look at them as though they are not normal beings. They are afraid to hold and bond with them, change nappies, some if not monitored closely they underfeed them just so they could leave the unit immediately. In some cases the mother will put the baby on bed immediately after feeding, and baby will vomit and aspirate resulting in more serious conditions like choking and respiratory distress.*

- Participant E from Lth

> *When mothers are not accepting that they have given birth to a premature baby, they become stressed and are in denial. They don't participate in the care of their baby. They don't feed the baby well. When you tell them to express breast milk for the baby they deny, they don't express. Sometimes, due to stress, they end up not having sufficient breast milk and this may result in severe hypoglycaemia and neonatal jaundice.*

Mothers of premature infants report high levels of emotional stress than mothers of full-term infants which is associated with deteriorating cycle that disrupts the parent-infant relationship, leading to subsequent impairment in child development; this stress can adversely affect their parenting abilities (Purdy, 2015:24). The parents worry about the viability and future of their premature infants.

The unexpected confrontation with a baby is far from what the parents had anticipated; the shock experienced during a rapid chain of events taking place, an experience of emptiness when the baby is placed in the intensive care unit, the feeling of powerlessness when facing real risk of the infant's death, the invasive treatment are the immediate parental reactions of premature birth and they could have effects on the mother-infant interactions (Eutrope, Thierry, Lempp, Aupetit, Saad, Dodane, Bednarek, De Mare, Sibertin-Blanc, Nezelof & Rolland, 2014:2).

Early in the experience when nursing staff are more responsible for the care of their preterm infants, mothers reported feeling less connected to their infant, but as the infant moves towards NICU discharge, parents take over parental tasks such as feeding and changing nappies and they gradually become more connected to their infants (Wakely et al., 2015:13). Mothers of preterm babies are taught how to keep their newborns warm through continuous skin-to-skin contact on the mother's chest. This encourages the mother to bond with her baby, and allows the baby to breastfeed

at will and it gives the baby energy to produce its own heat (Save the Children, 2013:40).

#### 4.2.2.4.5 Sub-Theme 4.5: Perceived Interventions to Minimise Preterm Births and Deaths Due to Complications of Prematurity

When pregnant women do not report the danger signs in pregnancy, it becomes a problem because that is where all the complications of preterm birth will arise. A mother may have signs of infection and if not reported in time, it may lead to PROM resulting in preterm birth and even more complications of the preterm babies. The interviews revealed the impact of not attending antenatal clinics, late presentation to the hospital during labour and lack of reporting of bad obstetric history. It was revealed that these minimise the opportunities to intervene and prevent preterm labour from progressing. Participants' responded in support this:

- Participant B from Kph

> *Another challenge is with those mothers who present to the hospital in advanced labour and there is no time to intervene by stopping contractions and giving steroids to speed up lung maturity. Their babies will be born with severe respiratory distress and may also have recurrent apnoeic attacks.*

- Participant C from Kph

> *... when a woman is 26 weeks pregnant and comes in advanced labour, self-referral from home, steroids were not given since the woman is not from the clinic, chances of survival for the baby are very slim, the baby is at high risk of severe respiratory distress (RDS), you know there is nothing that you can as a midwife because the mother is already about to deliver. They baby will be born at an extremely low birth weight (ELBW) and is just going to add to the increased rate perinatal mortality.*

- Participant G from Mmh

*I have had a woman who delivered a preterm baby at 32 weeks gestation. On the antenatal card nothing abnormal was indicated on the obstetric history, according to the notes recorded it was her first pregnancy. As I was nursing her baby and interviewing her, she revealed to me that she has had two miscarriages previously and she didn't report this to the midwives who saw her during antenatal care ... she said she didn't want those midwives to know as they were from the same village ... I got mad but had to control my anger ... it became obvious that her preterm delivery was due to her bad obstetric history ... her cervix is incompetent and this could have been prevented if she had provided all the information during ANC.*

- Participant D from Kph

*Unbooked mothers also pose a challenge because they will not be having important antenatal investigations. And usually their HIV status will be unknown or positive and you may find that the woman was not taking treatment during pregnancy. The baby will be delivered with RDS and a very weak immune system which are due to prematurity and HIV.*

Antenatal care is a service delivery platform through which all women can be reached at multiple times during pregnancy with a package of interventions that can prolong a healthy pregnancy and improve maternal and perinatal health and even women at risk for preterm birth are identified during antenatal visits (WHO, 2012:48). Midwives give corticosteroids drugs to these women as it is a highly effective and safe intervention for reducing neonatal mortality due to RDS (WHO, 2012:50).

The factors leading to midwives' challenges as reflected in The Saving Babies 2012-2013 Report were delay in seeking medical attention which accounts for most immaturity deaths (10.5%), never initiated ANC (8.8 %), late booking (3.1%), inappropriate response to poor foetal movements (2.0%), inadequate neonatal care management plan (2.0%), and not giving antenatal steroids (1.2%) (Pattinson & Rhoda, 2014:24).

Prematurity is one of the causes of perinatal death where the maternal contributory factors are hypertension in pregnancy and placenta abruption, infections and obstetric haemorrhage (South Africa Health Review, 2008:118). In certain regions of the world, prenatal labour and postnatal care are ether non-existent or virtually unreachable, obscuring the effects of existing social support or exponentially increasing maternal and infant deaths; availability or lack of care and the cost of transport to distant hospitals are often cited obstacles in obtaining prenatal care or treatment for birth complications (Bravo & Noya, 2014:526-527).

The source continued to corroborate that pregnant women in low and middle income countries deem pregnancy a natural event not requiring medical care, and consider going to the hospitals as a waste of time and travel requirements especially when they are being attended by insensitive staff. This may be the cause of poor reporting of bad obstetric history by the mothers.

Increasing access to care during pregnancy is an essential step towards addressing the growing problem of preterm birth (WHO, 2012:47). Not attending ANC is one of the causes for neonatal deaths due to complications of prematurity (South Africa Health Review, 2008:118). The risk of RDS which is the common cause of deaths in preterm babies can be reduced by administration of corticosteroids during ANC in women who have been identified to be at risk for preterm birth (WHO, 2012:64).

This is also supported by the results of a study conducted on the causes and timing of death in extremely premature infants from 2000 through 2011 which concluded that the frequency of receipt of prenatal glucocorticoids was lower among mothers whose infants died than those whose infants survived (62.0% vs. 87.6%) (Patel et al., 2015:333). Attitudes towards pregnancy often influence the timing at which women seek perinatal care; the health seeking behaviour of pregnant, low socio-economic status, ethnically diverse women in the United States may depend on perceived

availability of social support and quality of medical care (Bravo & Noya, 2014:524). Bravo & Noya (2014:524) found that young, primiparous women of low socio-economic status and varied ethnicity abstained from seeking prenatal care in the context of unplanned pregnancies, available termination procedures or potential problems in disclosing their state. They continued to indicate that unintended pregnancies, high distress and multiple life stressors hindered prenatal care, whereas support from the baby's father, mastery, social support and strong family ties promoted it.

Midwives in Sweden initiated antenatal steroid prophylaxis at 23 weeks gestation. Of 707 live-born infants they had, 591 were given antenatal steroid prophylaxis and only 24% died within one year, compared to infants not given steroid prophylaxis where deaths rate was 68% (Danerek et al., 2012:862).

#### 4.2.2.4.6 Sub-Theme 4.6: Lack of Knowledge by Mothers and Community Members About Preterm Labour Problematic

The community need to be given health education on the causes of the preterm birth and the possible outcomes. They do not know when the pregnancy becomes viable. They think that for as long as the woman has not reached the ninth month of gestation it means that the pregnancy can still be aborted. The following was cited to support this:

- Participant C from Kph

> *... the high rate of preterm births is because of the lack of knowledge of the community. The community is not aware of the causes and prevention of preterm labour. One woman once came to the hospital and said she was having an abortion ... while some women attempt to abort a viable pregnancy at home and when they start bleeding, they are rushed to the hospital where they end up delivering live preterm babies.*

- Participant D from Kph

> *Some mothers will come to the hospital with "I didn't know I was pregnant" attitude. I once had a primigravida woman who was admitted with the cervix being fully dilated, abdomen was an average size, she delivered an alive preterm baby weighing 1.5 k; she was unbooked, no steroids given, delivered with severe RDS; the mother verbalised that she didn't know that she was pregnant and that she was just surprised to see bloody-mucus-like vaginal discharge and experiencing abdominal pains which were not relieved even by painkillers ... family called an ambulance.*

- Participant E from Mmh

> *Babies are discharged at 1.8 kg and should continue with skin-to-skin care at home and follow up at the hospital until the baby reaches the weight of 2.5 kg. Some mothers become reluctant when they get home and not comply with what they were taught on discharge, and when they bring a baby for follow up after two weeks, you find that the baby has lost weight or is still on the same weight they were discharged at, this leads to re-admission.*

In the Saving Babies Report of 2012-2013, the avoidable factors that led to preterm deaths in South Africa included: 30.5% patient- and family-associated; 16.2% health care provider-associated and 10.5% caused by administrative problems (Pattinson & Rhoda, 2014:24). The administrative problems reported were inadequate facilities in neonatal unit (4.4%), inadequate management plan for neonatal care (2.0%) and no accessible NICU bed with ventilator (1.3%); the patient-related factors were: delay in seeking medical attention during labour (10.5%), never initiated ANC (8.8%), booked late in pregnancy (3.1%) and inappropriate response to foetal movements (2.0%).

According to the findings of this report, the patient- and family-associated factors are the highest of all. This may indicate that the mothers and the community as a whole are lacking knowledge on preterm birth and its complications. Low education amongst

the majority of mothers made care for preterm infants difficult because most mothers would not follow instructions from health care providers, but would rather listen to their guardians on caring for their preterm infants (Gondwe et al., 2016:1445). Ensuring that women and communities are informed about home care and enabled to care for their preterm babies in the best possible way is critical. Women groups which offer peer counselling and community mobilisation have been shown to have a significant effect on maternal and neonatal mortality (Lawn et al., 2013:8). Promoting good knowledge among the population and awareness on existing health care facilities services provided should be carried out continuously (Sutan & Berkat, 2014:11).

#### 4.2.2.4.7 Sub-Theme 4.7: Cultural Differences of Mothers of Preterm Babies Causing Challenges for Midwives

Cultural beliefs of the mothers of preterm babies interfere with the hospital management of the babies and present a problem to the midwives. Participants verbalised this during interviews:

- Participant B from Lth

> *Admitting a patient from outside the country is another challenge ... most of them believe in herbal treatment and they will want the family to bring those herbal medications to the hospital to give the preterm babies in secret; they sometimes mix them with breast milk so that nurses do not suspect anything. Some will be applying these medications on the baby's body like its lotion, and nurses will only realise after the baby starts changing condition and complicates. Some babies will even vomit herbals and aspirate from the nostrils. Some will have renal failure and distended abdomen and the mother will report to you when she notices that the baby has not been passing urine for days.*

- Participant H from Lth

> *Another challenge is when the relatives try to sneak in herbal medications knowing that they are not allowed in the hospital ... this*

*is common to those preterm babies who are in KMC unit because midwives are not always there as they station in NICU where there are very ill babies.*

Cultural health beliefs and practices are still strongly practised, especially among developing contries on mother and child care. Healthcare workers need to be sensitive with cultural practice among population they served. Some may be harmful and some may be beneficial to prevent mortality especially among the low birth weight baby. Cultural practice of bathing the baby immediately after delivery was linked with 'ritual pollution' to reduce body odour in later life, but it has been shown to increase the incidence of hypothermia in preterm infants (Sutan et al., 2014:8-9). These authors have concluded that cultural practices have been shown to decrease mortality rate among low birth weight in Aceh population.

The risk for neonatal death due to complications of preterm birth is at least 12 times higher for an African baby than a European baby. In the results of a study conducted in United State of America (USA) titled *"*Behavioural influences on preterm birth: Integrated analysis of the pregnancy, Infection and nutrition study,*"* African-American women were found to be at higher risk for PTBs than the other sub-types (Savitz, Harmon, Siega-Riz, Herring, Dole & Thorp, 2011:1156).

#### 4.2.2.4.8 Summary of Theme 4

The environment in which the midwives are working is challenging as they do not care for the admitted preterm babies only, but for the needs and problems of the mothers of preterm babies as well. Midwives reported the factors that cause the problems to the mothers as long hospital stay and having to take care of a very tiny baby. Long hospitals stay was due to the change in condition of the babies, losing weight as they are expected to lose 10% of their birth weight during the first ten days, and having to stay in the hospital until the baby reaches a convenient weight to be discharged.

During their stay in the hospital, mothers need to be given continuous counselling by midwives and also be referred to psychologists in order to improve their coping mechanisms with the situation of having a preterm baby. It was vital for midwives to supervise mothers during feeding and when they practice KMC to make sure that they are doing correctly what they were taught.

## 4.3 Conclusion

This chapter presented the discussion of the findings of the study. Data saturation was attained when conducting the study. The demographic data of the participants were discussed. The challenges that midwives encountered when providing care to preterm babies were discussed under the four themes formulated and have covered the objectives of the studies. Midwives encounter challenges that are associated to patient and community; human resource challenges that include themselves and other health care professionals; and material resources associated challenges.

Preterm babies suffer from clinical problems which are hypoglycaemia, hypothermia, RDS, jaundice and infection. These problems need specialised care which should be provided by the midwives. The results of this study revealed that midwives experienced challenges with equipment for nursing preterm babies. Hospitals lack adequate equipment necessary for preterm care which includes pulse oxymeter, incubators, oxygen gages, nCPAP machines and apnoea monitors.

Lack of such equipment and the clinical problems resulting from immaturity lead to complications in preterm babies and increase the perinatal mortality and morbidity due to prematurity. Special knowledge and skills are required to be able to nurse preterm babies. Most of the midwives were not trained for LINC programmes which posed a challenge during care of preterm babies. Although midwives lacked knowledge regarding the management of certain conditions related to prematurity, they have also shown to be knowledgeable about the alternative precautions to prevent infection and

hypothermia. Midwives practised the use of plastic wraps to cover the preterm babies in order to reduce the risk of hypothermia, which was shown to be effective and also supported by the literature. Different members from multidisciplinary team (MDT) are involved in the care of preterm babies, this team should work hand-in-hand with the midwives, midwives improves care of preterm babies by teaching every member of MDT about hand washing and the use of surgical spirits to reduce infection within the neonatal unit. Not all members are able to comply with these. Mothers tend to forget to practise what they have been taught and they handle the babies without washing hands.

While care for a preterm baby is challenging to the midwives, mothers of the preterm babies also face difficulties accepting their babies and bonding with them. The problems that the mothers face cause more challenges to the midwives caring for their babies. Mothers feel that their babies are the punishments and they also view their babies as an abnormal being resulting in lack of mother-child-interaction. Midwives tried to decrease morbidity and mortality rates through antepartum and intrapartum interventions.

It is challenging for them to prevent deaths due to prematurity because women do not attend antenatal clinics and some start attending late. Mothers need to be counselled about their babies' condition from the day of admission, counselling should be continuous and psychologists are involved, especially with those mothers who are having trauma due to delivering a very birth weight.

Preterm babies need to be monitored constantly and midwives were unable to do this due to shortage of staff. Burnout and exhaustion in midwives was found to be the result of work overload and also lack of support from the management. The two hospitals visited have poor infrastructure. Units used as nursery and KMC were small in size. The results included the four major concepts of the philosophy of science and

caring (human caring) which are human being, health, environment and nursing as described by Jean Watson. Literature control was provided to support the results of the present study. Chapter 5 will cover the summary of the whole study, limitations, recommendations and conclusion.

# CHAPTER 5

# SUMMARY, LIMITATIONS, RECOMMENDATIONS AND CONCLUSION

## 5.1 Introduction

The previous chapter encapsulated the responses of the midwives with regard to the challenges they encountered during provision of care to preterm babies. Then responses were analysed and discussed in the context of relevant literature and theory of human caring developed by Jean Watson (Watson, 2007:131). This chapter presents the summary, limitations, recommendations and conclusion of the study. The purpose of this study was to determine the challenges encountered by midwives when providing care to preterm babies at selected hospitals in the Mopani District of Limpopo Province, South Africa.

## 5.2 Achievement of the Objectives

The objectives of the study were outlined in Chapter 1 and the results were able to achieve the set objectives. The objectives of the study were to explore the challenges encountered by midwives when providing care to preterm babies at selected hospitals in the Mopani District of Limpopo Province, South Africa; to identify the clinical problems associated with preterm birth and their management by midwives; and to determine the measures practised by midwives for promoting preterm care and reducing perinatal mortality due to preterm birth complications. These objectives were achieved as midwives described challenges they encounter during provision of care to preterm babies; midwives also identified and described the clinical problems associated with prematurity and how they manage them.

They also outlined the measures they practise in their institutions to reduce preterm birth and decrease deaths due to complications of prematurity.

## 5.3 Summary

A qualitative research approach which is descriptive and explorative was used to determine the challenges encountered by midwives when providing care to preterm babies at selected hospitals in the Mopani District of Limpopo Province, South Africa. The inclusion criteria of the study population were all midwives who have been working in maternity ward for at least two full years and were available during the period of data collection. Analysis was done following the six steps as described by Creswell. The description of the chapters in this study is provided in Table 5.1.

## 5.4 Limitations of the Study

The study was conducted in the three hospitals of Mopani District which are Maphutha Malatji, Kgapane and Letaba hospitals. Therefore, the findings may not be applicable to the other hospitals which were not included in this study. Data were collected from the midwives who were on duty during the period of data collection; it was a challenge to recruit the participants as they were busy most of the days and could not take lunch breaks. The interviews were conducted from the participants who gave their consent and interviews were audiotaped. Some midwives were willing to participate in the study, but they did not like the idea of being recorded, even after the researcher has explained to them the importance of recording interviews they still hesitated and believed that the recorded voices will be used against them some time in the future.

## 5.5 Recommendations

On the basis of the findings, it is of great importance to improve the standard of practice of midwives working in maternity wards and develop awareness programmes to educate the community about the causes, prevention and other aspects relating to

preterm birth.

**Table 5.1:** A brief summary of the chapters

| Chapter | Description |
|---|---|
| **1** | The researcher introduced the background of the whole study in chapter 1. The chapter discussed the problem statement, objectives and questions, and the theory of Jean Watson which was applied in the study. The purpose of the study was to determine the challenges encountered by midwives when providing care to preterm babies at selected hospitals in the Mopani District of Limpopo Province, South Africa. The detailed description of the reviewed literature relevant to the study was provided to support the background of the study. |
| **2** | Chapter 2 is detailed description of reviewed literature which focused on the challenges encountered by midwives during provision of care to preterm babies. |
| **3** | Chapter 3 described in detail the research methodology of the study. The methods, designs, settings, ethical considerations and measures to ensure trustworthiness were discussed in this chapter. A qualitative approach which is both descriptive and exploratory was used in this study. The study was conducted in a natural setting which is the workplace of the midwives. Non-probability purposive sampling was used to select 23 participants from the three selected hospitals. Data were collected through face-to-face unstructured Interviews which were audio recorded and transcribed verbatim. |
| **4** | This chapter presented and discussed the results of the study which at the end were found to have achieved the objectives outlined in Chapter 1. The demographic data of participants were discussed here; and the results were presented through the themes and the sub-themes which reflected the challenges encountered by midwives when providing care to preterm babies at selected hospitals in the Mopani District of Limpopo Province, South Africa. The results were presented through the 4 themes:<br>• A description of facts by midwives related to preterm condition and expected care<br>• Challenges experienced by midwives during provision of care to preterm infants<br>• Knowledge of midwives related to provision of care to preterm infants<br>• Identified needs and problems of mothers of preterm infants<br>The described themes were in accordance with the 4 major concepts of the philosophy of science and caring (theory of human caring) which are human-being, health, environment and nursing as described by Jean Watson. |
| **5** | This chapter focuses on the summary, limitation, recommendations and conclusion of the study. |

The standard of care being provided to preterm babies may be improved through training of midwives, staffing and having regular meetings with the policy makers.

### 5.5.1 Recommendations for Ensuring That Midwives Are Able to Provide Expected Care to Preterm Babies

The results of the current study revealed that due to staff shortages, midwives are facing problems of exhaustion and burnout which are due to workload and this has been found to impact on the care being provided to the patients. Midwives are missing a lot of warning signs on the preterm babies because they are unable to do constant monitoring as they are short-staffed. It is recommended that the practice of neonatal nursing and midwifery be improved. This can be done by ensuring that there is enough staff allocated in all units of the maternity ward. The staff should be in accordance with the guidelines which stated that it should be one midwife with one baby in units like NICU (Essential Newborn Care, 2012:22), and there should not be rotation of midwives working with preterm babies. Material resources also need to be made available in all hospitals to promote care to preterm babies. It is also recommended that the management team of the hospitals motivate for more workshops on preterm care in order to equip midwives with more relevant knowledge and skills.

### 5.5.2 Recommendation for Reviewing the Need for Community Education and Developing Strategies for Meeting the Mothers' Needs

The results of the study indicated that midwives encountered challenges with the women who presented to the hospital being in advanced stage of preterm labour where there was no time to intervene by preventing labour from progressing or administering drugs that will prevent the complications of preterm births. Ensuring that the community is aware of preterm births can be a great progress towards reducing the challenges that the midwives encounter when providing care to preterm babies. It is recommended that there should be awareness programmes being conducted on

preterm birth and how to take care of babies born prematurely. All pregnant women whether at risk of preterm birth or not, should be counselled and be given health eduaction on preterm labour and its complications during each ANC visit to ensure that they are emotionally prepared for anything in case they deliver a preterm baby. After preterm birth, continous counselling should be done on mothers to avoid any breakdown as a result psychological trauma.

### 5.5.3 Recommendations for Improving knowledge of midwives

Based on the results of the study, there were situations where the midwives panicked when the preterm babies were changing conditions. This was due to lack of knowledge on management of certain conditions related to prematurity. Therefore, it is recommended that all midwives working in maternity wards undergo training that will equip them with sufficient and updated knowledge on care of pregnant women at risk of preterm birth and the care to be provided to those babies who are born preterm. These programmes must include Essential Management of Obstetric Emergencies (ESMOE), Helping Babies Breath (HBB), Limpopo Initiative for Newborn Care (LINC) and training on when and how to use nasal Continuous Positive Airway Pressure (nCPAP) machine.

### 5.5.4 Recommendations for Policy Makers

Policy makers should work together with the health care professionals who come into contact with the patients. The researcher recommend that policy makers engage in regular meetings with the heath care professionals who are directly providing care to pregnant women and preterm babies. This may help improve the understanding and practice of the guidelines and policies being made; and may enable the midwives and other health care professionals to outline those aspects that need to be clearly defined on the policies with regard to the management of preterm labour and preterm babies thereof.

### 5.5.5 Recommendations for Future Research

Previous research focused more on the experiences and perceptions of the parents of preterm babies; and very little is known about the challenges encountered by midwives when providing care to preterm babies. Therefore it is recommended that more research be conducted on the same topic in different settings to generate more knowledge on the phenomenon.

## 5.6 Conclusion

The results of the study revealed different challenges that the midwives encounter when providing care to preterm babies at selected hospitals in the Mopani District of Limpopo Province, South Africa. Staff shortage and lack of relevant equipment to use when caring for preterm babies were found to be the most critical challenges that the midwives encountered which were experienced by almost all the participants interviewed. Due to inadequate equipment, the standard of care being provided to the preterm babies becomes compromised.

Preterm babies tend to have clinical problems as a result of complications of prematurity which need specialised care by skilled and knowledgeable midwives, using the relevant equipment, and if any of this is lacking, the babies may complicate to deaths leading to burnout and emotional stress as experienced by midwives.

Mothers add to the challenges of midwives when they are psychologically traumatised and not responding to counselling and also when they do not practice what they are being educated on, which was evidenced by sneaking in of herbal medications from home to give to their preterm babies. The findings of the present study were also supported by an already existing literature.

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# ANNEXURE A

## APPROVAL FROM THE UNIVERSITY HIGHER DEGREES COMMITTEE (UHDC)

**UNIVERSITY OF VENDA**

**OFFICE OF THE DEPUTY VICE-CHANCELLOR: ACADEMIC**

TO : MR/MS T. MAHWASANE
SCHOOL OF HEALTH SCIENCES

FROM: PROF J.E. CRAFFORD
DEPUTY VICE-CHANCELLOR: ACADEMIC

DATE : 07 APRIL 2017

**DECISIONS TAKEN BY UHDC OF 23RD MARCH 2017**

Application for approval of Master's research proposal in School of Health Science: **T. Mahwasane (11600398)**

Topic: "Challenges encountered by midwives when providing care to babies at selected hospitals in Mopani District Limpopo Province, South Africa."

| | | |
|---|---|---|
| Supervisor | UNIVEN | Prof. M.S Maputle |
| Co-supervisor | UNIVEN | Ms. K.G Netshisaulu |

**UHDC approved Master's proposal**

**PROF. J.E CRAFFORD**
**DEPUTY VICE-CHANCELLOR: ACADEMIC**

# ANNEXURE B

## ETHICS CLEARANCE CERTIFICATE

RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

NAME OF RESEARCHER/INVESTIGATOR:
**Ms T Mahwasane**

**Student No:**
**11600398**

PROJECT TITLE: **Challenges encountered by midwives when providing care to preterm babies at selected hospitals in the Mopani District of Limpopo Province, South Africa.**

PROJECT NO: SHS/17/PDC/04/1403

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

| NAME | INSTITUTION & DEPARTMENT | ROLE |
|---|---|---|
| Prof MS Maputle | University of Venda | Supervisor |
| Ms KG Netshisaulu | University of Venda | Co-Supervisor |
| Ms T Mahwasane | University of Venda | Investigator – Student |

ISSUED BY:
UNIVERSITY OF VENDA, RESEARCH ETHICS COMMITTEE

Date Considered: March 2017
Decision by Ethical Clearance Committee Granted
Signature of Chairperson of the Committee: .....
Name of the Chairperson of the Committee: Prof. G.E. Ekosse

UNIVERSITY OF VENDA
DIRECTOR
RESEARCH AND INNOVATION
2017 -03- 22
Private Bag X5050
Thohoyandou 0950

University of Venda
PRIVATE BAG X5050, THOHOYANDOU, 0950λ LIMPOPO PROVINCEλ SOUTH AFRICA
TELEPHONE (015) 962 8504/8313 FAX (015) 962 9060
*"A quality driven financially sustainable, rural-based Comprehensive University"*

# ANNEXURE C

## REQUEST TO LIMPOPO PROVINCE DEPARTMENT OF HEALTH TO CONDUCT THE STUDY

P.O. Box 3135
Shayandima
0945
09 February 2017

Limpopo Province Department of Health
Private Bag X9302
Polokwane
0700

To whom it may concern

My name is Thendo Mahwasane. I am a registered student at University Of Venda studying masters of nursing science. I am here by requesting permission to conduct a qualitative research study under the title: Challenges encountered by midwives when providing care to preterm babies at selected hospitals of Mopani District in Limpopo Province, South Africa. I need your approval to continue with the study. The selected hospitals are Letaba, Kgapane and Maphutha L. Malatji. The purpose of the study is to determine the challenges encountered by midwives when providing care to preterm babies. Data will be collected from participants who will give their consent.

Your positive response will be highly appreciated.

Thank you.

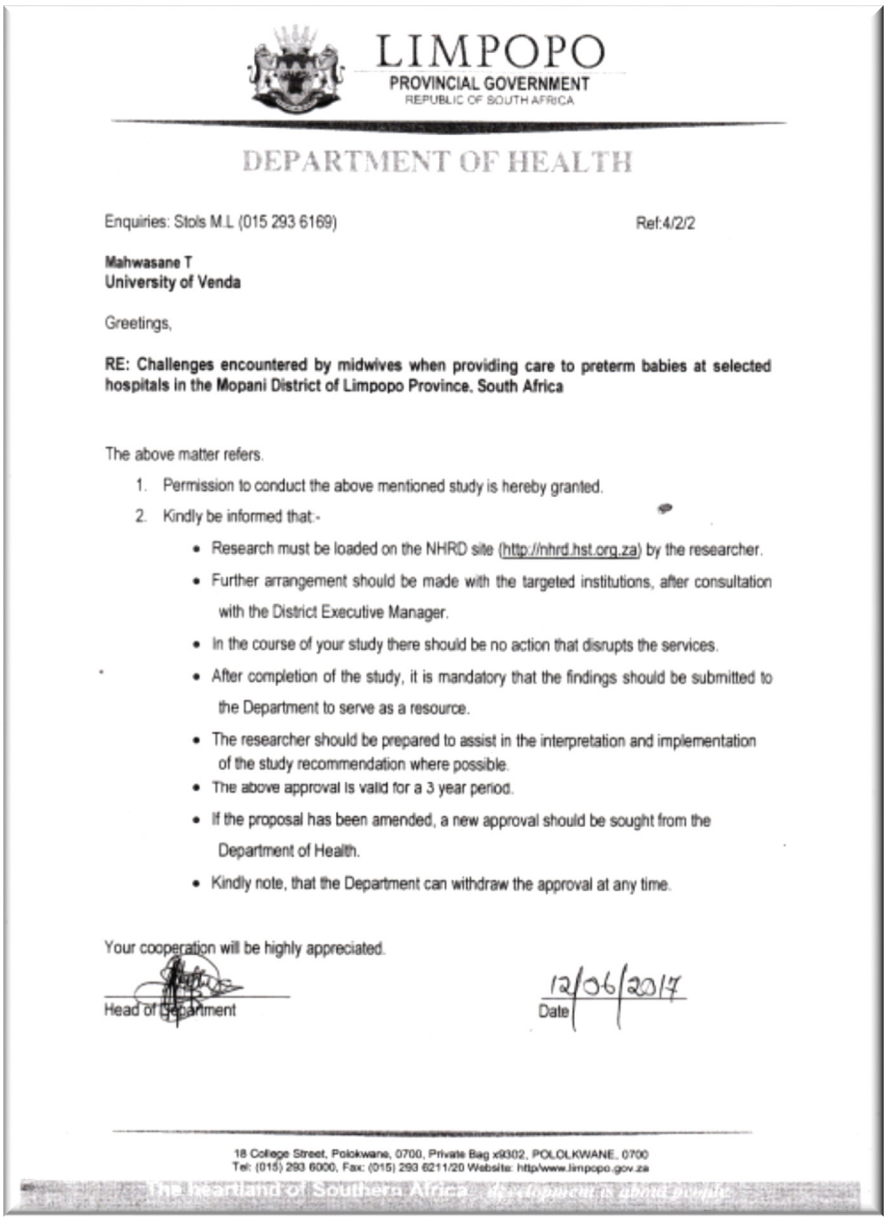
Yours truly
Mahwasane T

_____ _____

Signature Date

# ANNEXURE D

## PERMISSION FROM THE LIMPOPO PROVINCE DEPARTMENT OF HEALTH TO CONDUCT THE STUDY



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH

Enquiries: Stols M.L (015 293 6169) Ref:4/2/2

**Mahwasane T**
**University of Venda**

Greetings,

**RE: Challenges encountered by midwives when providing care to preterm babies at selected hospitals in the Mopani District of Limpopo Province. South Africa**

The above matter refers.

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

Your cooperation will be highly appreciated.

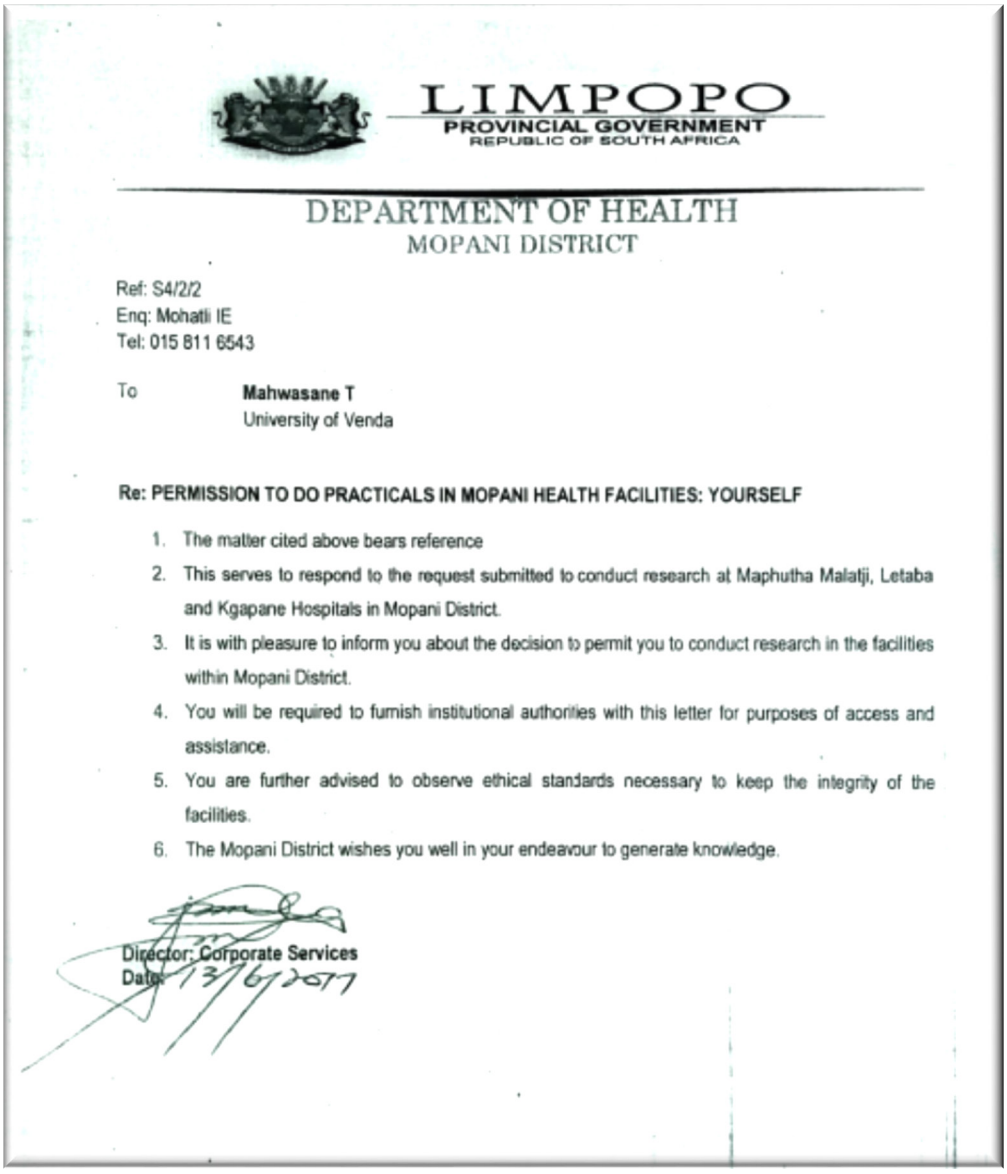
Head of Department

12/06/2017
Date

18 College Street, Polokwane, 0700, Private Bag x9302, POLOKWANE, 0700
Tel: (015) 293 6000, Fax: (015) 293 6211/20 Website: http/www.limpopo.gov.za
The Heartland of Southern Africa - development is about people

# ANNEXURE E

## PERMISSION FROM THE MOPANI DISTRICT HEALTH DEPARTMENT TO CONDUCT THE STUDY



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH
MOPANI DISTRICT

Ref: S4/2/2
Enq: Mohatli IE
Tel: 015 811 6543

To **Mahwasane T**
University of Venda

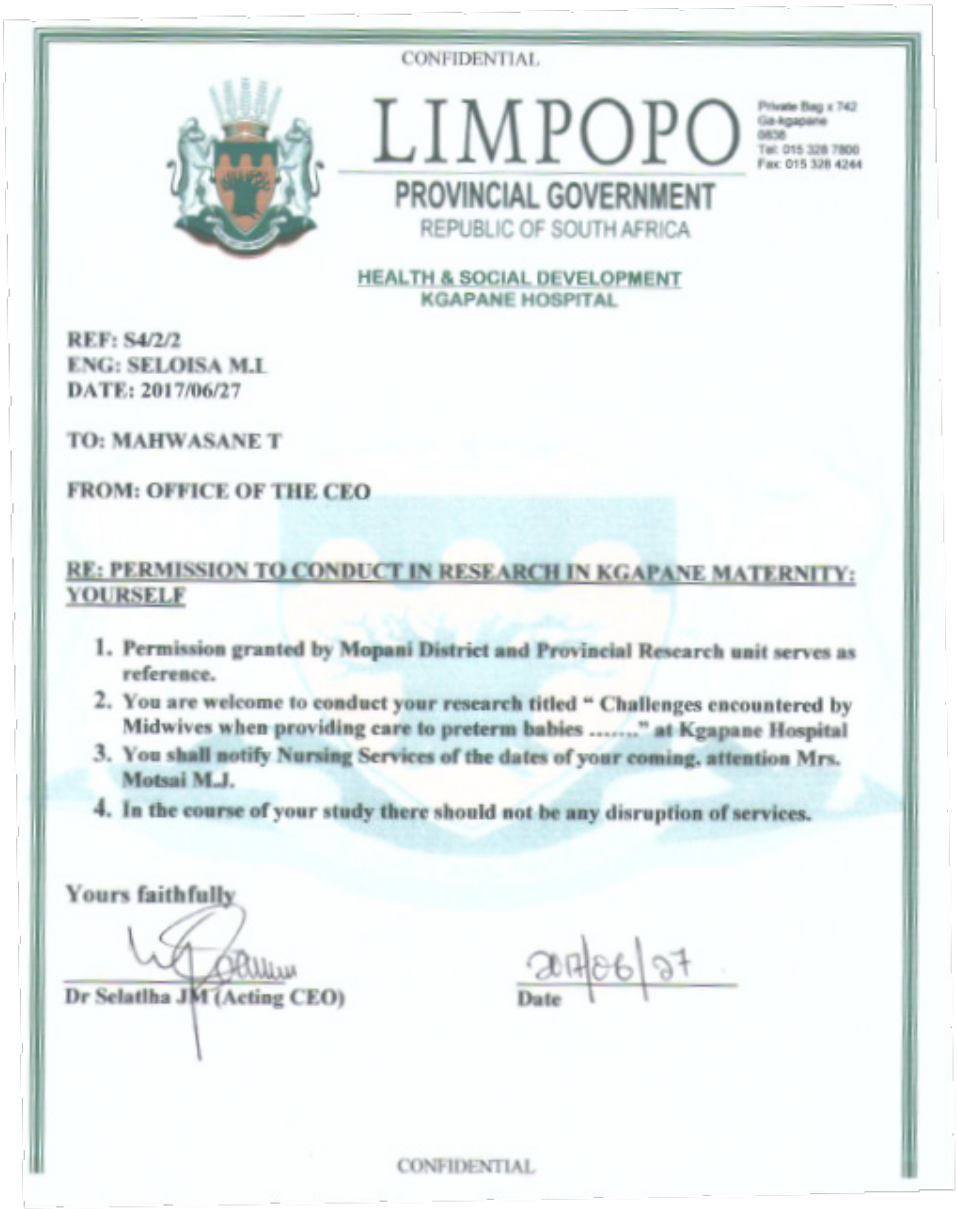
**Re: PERMISSION TO DO PRACTICALS IN MOPANI HEALTH FACILITIES: YOURSELF**

1. The matter cited above bears reference
2. This serves to respond to the request submitted to conduct research at Maphutha Malatji, Letaba and Kgapane Hospitals in Mopani District.
3. It is with pleasure to inform you about the decision to permit you to conduct research in the facilities within Mopani District.
4. You will be required to furnish institutional authorities with this letter for purposes of access and assistance.
5. You are further advised to observe ethical standards necessary to keep the integrity of the facilities.
6. The Mopani District wishes you well in your endeavour to generate knowledge.

Director: Corporate Services
Date: 13/6/2017

# ANNEXURE F

## PERMISSION FROM KGAPANE HOSPITAL TO CONDUCT THE STUDY



CONFIDENTIAL

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

Private Bag x 742
Ga-Kgapane
0838
Tel: 015 328 7800
Fax: 015 328 4244

HEALTH & SOCIAL DEVELOPMENT
KGAPANE HOSPITAL

REF: S4/2/2
ENG: SELOISA M.I
DATE: 2017/06/27

TO: MAHWASANE T

FROM: OFFICE OF THE CEO

RE: PERMISSION TO CONDUCT IN RESEARCH IN KGAPANE MATERNITY: YOURSELF

1. Permission granted by Mopani District and Provincial Research unit serves as reference.
2. You are welcome to conduct your research titled " Challenges encountered by Midwives when providing care to preterm babies ....." at Kgapane Hospital
3. You shall notify Nursing Services of the dates of your coming, attention Mrs. Motsai M.J.
4. In the course of your study there should not be any disruption of services.

Yours faithfully

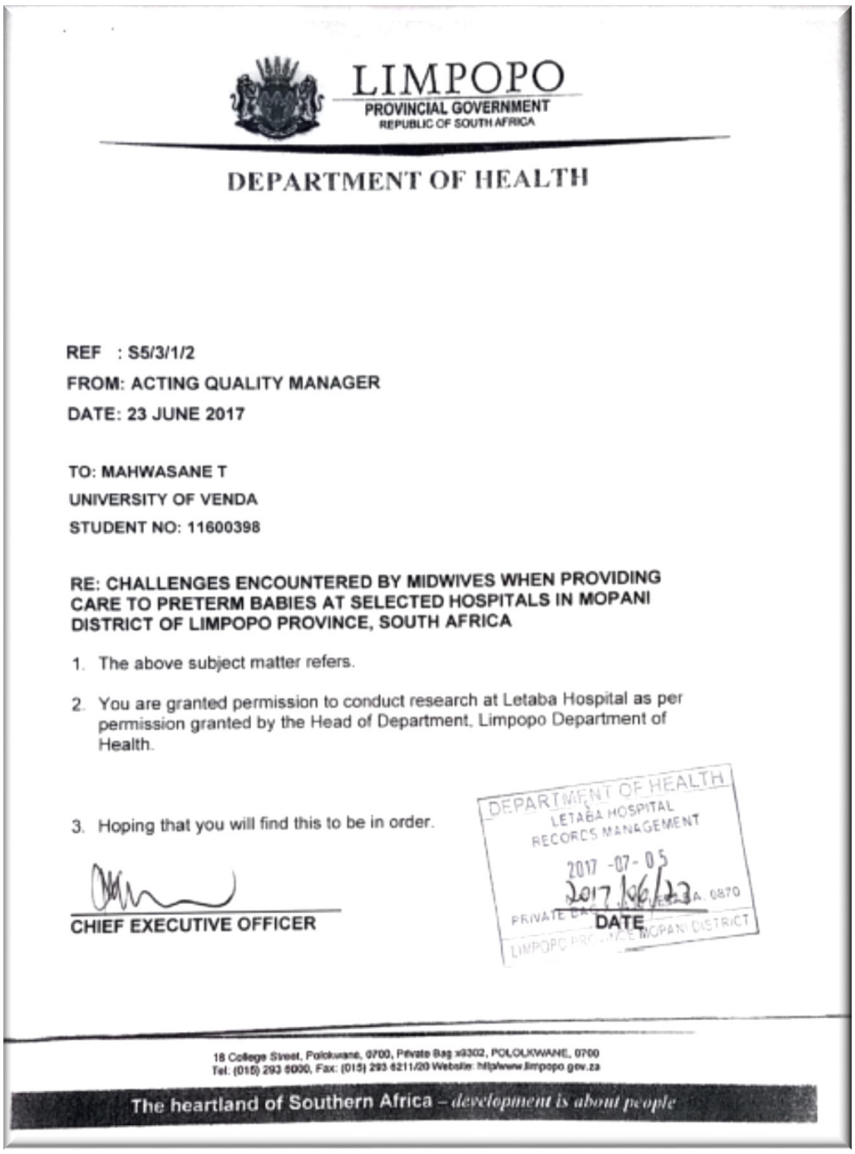
Dr Selatlha JM (Acting CEO)

2017/06/27
Date

CONFIDENTIAL

# ANNEXURE G

## PERMISSION FROM LETABA HOSPITAL TO CONDUCT THE STUDY



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH

REF : S5/3/1/2
FROM: ACTING QUALITY MANAGER
DATE: 23 JUNE 2017

TO: MAHWASANE T
UNIVERSITY OF VENDA
STUDENT NO: 11600398

RE: CHALLENGES ENCOUNTERED BY MIDWIVES WHEN PROVIDING CARE TO PRETERM BABIES AT SELECTED HOSPITALS IN MOPANI DISTRICT OF LIMPOPO PROVINCE, SOUTH AFRICA

1. The above subject matter refers.
2. You are granted permission to conduct research at Letaba Hospital as per permission granted by the Head of Department, Limpopo Department of Health.
3. Hoping that you will find this to be in order.

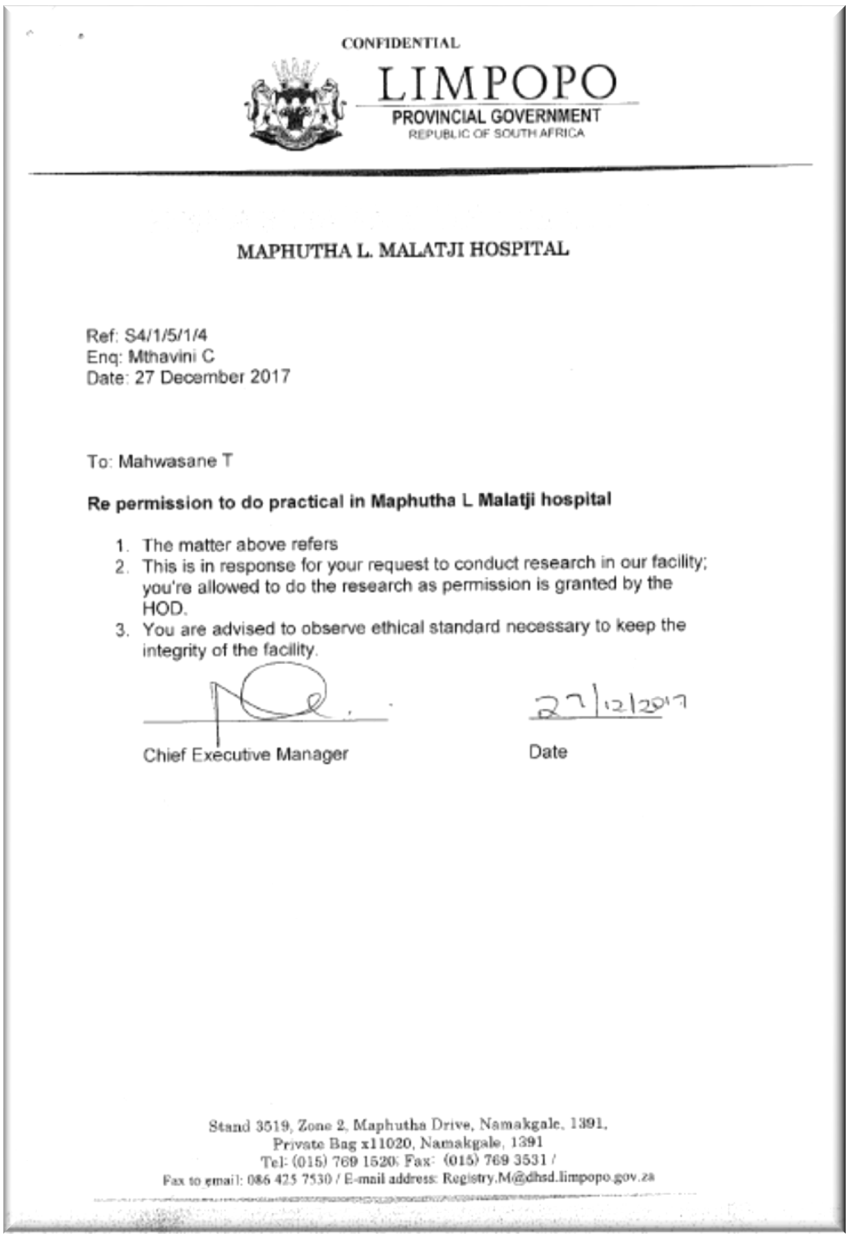
DEPARTMENT OF HEALTH
LETABA HOSPITAL
RECORDS MANAGEMENT
2017 -07- 05
PRIVATE BAG X9370
LIMPOPO PROVINCE MOPANI DISTRICT

CHIEF EXECUTIVE OFFICER
DATE

18 College Street, Polokwane, 0700, Private Bag x9302, POLOKWANE, 0700
Tel: (015) 293 6000, Fax: (015) 293 6211/20 Website: http/www.limpopo.gov.za
The heartland of Southern Africa – *development is about people*

# ANNEXURE H

## PERMISSION FROM MAPHUTHA L. MALATJI HOSPITAL TO CONDUCT THE STUDY



CONFIDENTIAL

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

MAPHUTHA L. MALATJI HOSPITAL

Ref: S4/1/5/1/4
Enq: Mthavini C
Date: 27 December 2017

To: Mahwasane T

**Re permission to do practical in Maphutha L Malatji hospital**

1. The matter above refers
2. This is in response for your request to conduct research in our facility; you're allowed to do the research as permission is granted by the HOD.
3. You are advised to observe ethical standard necessary to keep the integrity of the facility.

Chief Executive Manager

27/12/2017
Date

Stand 3519, Zone 2, Maphutha Drive, Namakgale, 1391,
Private Bag x11020, Namakgale, 1391
Tel: (015) 769 1520: Fax: (015) 769 3531 /
Fax to email: 086 425 7530 / E-mail address: Registry.M@dhsd.limpopo.gov.za

# ANNEXURE I

# Consent Form

Dear participant

My name is Thendo Mahwasane. I'm a student at University of Venda, conducting a research study on challenges encountered by midwives when providing care to preterm babies at selected hospitals of Mopani District in Limpopo Province, South Africa. I need your participation. The purpose of the study is to determine challenges encountered by midwives when providing care to preterm babies with the aim to promote quality of care provided to women and neonates, and being able to develop support system for midwives. This purpose will be accomplished through the following objectives:

**To explore the challenges encountered by midwives when providing care to preterm babies at selected hospitals of Mopani District in Limpopo Province, South Africa.**

Data will be collected through unstructured interviews and the interviews will be tape recorded and transcribed. Please note that participation in this study is voluntary and you have the right to withdraw from participation even after signing the consent form. Your privacy, confidentiality and respect for your norms and values will be maintained. No information will be linked to you any way. And you won't be forced to say things that are not in your real perspective.

Data collected through this study will be remunerated through a research report and an article in an accredited nursing journal.

Yours truly

Mahwasane T_____

**To be signed by the participant:**

I agree to participate in the research study on challenges encountered by midwives when providing care for preterm babies at selected hospitals of Mopani District in Limpopo Province, South Africa.

**Participant's signature**_____ **Date**_____

**Researcher's signature**_____ **Date**_____

# ANNEXURE J

## INTERVIEW GUIDE FOR DATA COLLECTION

The interview will be guided by the one question followed by probing questions as follows:

**During your practice in neonatal unit, what challenges do you encounter when you are providing care to preterm babies?**

- How do you feel about working in neonatal unit and caring for the preterm babies?
- What are the infrastructures related challenges do you encounter?
- What are the administrative challenges?
- What challenges do you encounter caused by patients?
- What are the challenges that you encounter relating to the managers?

# ANNEXURE K

## TRANSCRIPT: INTERVIEW WITH THE FIFTH PARTICIPANT, MIDWIFE LTH A

The researcher introduced herself to the participant; showed the participant a permission letter granted by the hospital; 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 midwife that no names should be mentioned during recordings as this may violate the right of anonymity.

**Researcher:** "Sister, what challenges do you face when you are nursing premature babies?"

**Midwife Lth A:** "Due to their systems which are not well developed, premature babies suffers from hypothermia which can result into more serious conditions like hypoglycaemia and respiratory distress. Preterm babies should be nursed in servo-controlled incubators. The available incubators are not well functional, they need to be checked all the time because you can set the required temperature and they change and becomes too cold or too hot."

**Researcher:** "So the prematurity of these babies' organs lead to them having different clinical problems like respiratory distress and hypoglycaemia as you have mentioned. What other clinical problems do these babies experience that makes caring for them challenging to you?"

**Midwife Lth A:** "They also have a problem of feeding intolerance, you may find that they are failing to finish the prescribed feeds for the day, or they finish feeds but vomits every now and then, this affects their weight gain, if not feeding well the baby will not gain weight instead they will lose or weight remains the same."

**Midwife Lth A:** "Long hospital stay in preterm babies is a common challenge."

**Researcher:** "What causes long stay? How does it become a challenge? Can you explain in detail?"

**Midwife Lth A:** "when the babies are admitted they are seen by multidisciplinary team including nurses, doctors, dieticians, physiotherapists and mothers...Long stay can be due to being handled by multiple personnel; in this case they develop infection."

**Midwife Lth A:** "For example: a preterm baby admitted at 0.9kg or 0.88kg should stay in the hospital and grow until they reach the weight of 1.8kg. Stay becomes very long because within their first ten days of life, all babies start to lose 10% of the birth weight. Sometimes the baby vomits, may have infection and should be on drip and be given antibiotics...Problems like vomiting and infection cause poor weight gain... When you nurse the neonate, you should nurse the mother as well. Mothers get bored by staying in the hospital, sometimes the family and friends don't visit them, and you are supposed to act as a midwife and a relative."

**Midwife Lth A:** "They need to be measured head circumference every week for early detection of hydrocephalus. Weight monitoring is done daily to see if the baby is gaining adequately, if not gaining and feeding well, bloods investigations need to be done to identify the cause. Weight gain is sometimes affected when you start feeds and the baby start having abdominal distension and feeds need to be omitted. Mothers get stressed when their babies are not gaining weight. Due to prematurity they have slow digestion and can go 3-4 days without passing stools, it is also stressing on the mother."

**Midwife Lth A:** "Preterm babies are fed three hourly. Those who cannot feed well by cup are fed using feeding tubes. Sometimes a baby can be fed at 09h00 via feeding tube, and when the mother comes to give 12h00 feeds she may find that the baby has removed the tube, or the tube came out during vomiting. As a midwife, you will have to re-insert another tube, which is irritating to the mother because mothers think that inserting tubes hurts their babies."

**Researcher:** "What are the standard procedures do you practice as midwives to promote care for preterm babies?"

**Midwife Lth A:** "The multidisciplinary team is taught on practicing antiseptic hand washing before and after handling each baby."

**Researcher:** "Okay you teach everyone to wash their hands every time the handle the babies. Do you encounter any challenge with regard to practicing hand washing?"

**Midwife Lth A:** "... they sometimes forget to wash hands, they can handle baby A then move to baby B and so on without washing or disinfecting hands. This increases the risk of cross infection amongst the babies. Mothers may come in the unit and find that the baby has long been crying they concentrate more on the baby's cry and go straight to where the baby is lying, forgetting to wash hands...D-germ (surgical spirit) is put on each bed for spraying on hands before and after handling the baby for infection control. It is also put at the ward entrance so that everyone who comes in disinfects hands. Mothers are advised to wash hands, then change nappy, take it to the bin, come back and repeat the same procedure of washing hands."

**Researcher:** "What happens when they forget to wash hands? What effects does it have to the babies?"

**Midwife Lth A:** "Like I have already said before, the babies will stay longer in the hospital because they will develop infection...Necrotising enterocolitis is a common infection in preterm babies, caused by not washing hands and prolong hospital stay, this condition causes poor weight gain in neonates...and prolonged stay increases the workload for us as the midwives caring for these babies"

**Researcher:** "Are there other challenges that perhaps are the results of long stay? I mean you have mentioned the issue of mothers getting tired of staying in the hospital and wanting to go home, and you also added to say it increases the work load for you."

**Midwife Lth A:** "Prolonged hospital stay also results in over expenditure because more treatment will be given, more equipment will be used in one baby...Over expenditure is a critical problem. If one baby removes feeding tube every now and then it means more tubes are being used for one baby, this is over spending according to the hospital's budget. Normally feeding tubes must be changed after 6 hours. The size of tubes used in preterm babies are short, they can be finished in dispensary and get to be ordered from other hospitals which is a process that takes long."

**Researcher**: "Please tell me about the administrative challenges that you face."

**Midwife Lth A:** "These babies are still developing, they don't need disturbances."

**Researcher**: "What do you mean when you say they don't need disturbance?

**Midwife Lth A**: "They don't need noise. They don't need bright light...The hospital is under construction and it produces too much noise which interrupts with normal development. Light disturbs them as well; we cannot keep the lights off because it is needed when working and performing procedures like collection of blood, insertion of drips, etc. The development is also disturbed when we wake them up during feeding hours or when the health care workers want to check them...People can look at them as just tiny babies but they need to rest."

**Researcher:** "Okay I hear you are saying they do not need to be disturbed by either light or noise, which are the things you cannot avoid because your hospital is under construction and light is needed for routine work. What other challenges do you have in relation to working environment?"

**Midwife Lth A:** "The incubators are available. We are using servo-controlled ones. The problem we have with them is that they are not well functional...you can set the temperature to be average, and it will either become too hot or cold, affecting the condition of the baby. If you don't check them, you may find the baby being hypothermic...hypothermia causes deaths in preterm babies because they are not well matured...they are not well developed."

**Researcher:** "When we were talking about long stay we spoke about mothers longing to go home...what else can you tell me about mothers of these preterm babies? You said when you nurse the baby; you also nurse the mother as well? How do you do that?"

**Midwife Lth A:** "Mothers of the preterm babies need counselling from the day of admission. They becomes traumatised due to delivering a very tiny baby, they become stressed and even develop depression...they need to be cared for as well...its challenging, sometime they fail to co-operate...Sometime a mother can see another baby with the same weight as her baby's being transferred to kangaroo mother care (KMC) unit and hers still having drips, feeding tubes, etc., and start worrying and end sometimes end up being psychotic."

**Midwife Lth A:** "... This is why the mother should be involved in every act for them to understand every management to be executed. Psychological stress in mothers affects breast milk production. Everyone nursing preterm babies should be patient and understand that care should involve the mother. As midwives we should

emphasise hand washing. Mothers should hold the babies for at least 30mintues after feeding to avoid aspiration and vomiting."

**Researcher:** "How do you cope with the work load that increases with prolonged stay?"

**Midwife Lth A:** "We try our best but it is hard ...The hospital is experiencing a problem of staff shortage...we do lot of work...we get exhausted...and another problem is rotation of staff which is also a challenge because some midwives who come to the nursery are not LINC (Limpopo Initiative Newborn Care) trained and some have no love for babies...staff rotation lead to allocation of midwives who do not have interest in neonates and it is a challenge to work in areas you are not passionate of...let alone working with someone who is not interested in what they are doing."

**Researcher:** "You are saying with staffing you are experiencing a challenge of shortage and having to work with midwives not interested in neonates, what other problems have you encountered while working with preterm neonates, something we didn't talk about?

**Midwife Lth A:** "... Uhmm...we have many challenges, most are related to the conditions of the babies that are caused by immaturity of their body organs...conditions such as respiratory distress, babies changes without giving you a sign... uhm yes it is not easy working with these neonates ..."

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

# ANNEXURE L

## CONFIRMATION BY LANGUAGE EDITOR

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01 February 2018

To Whom it May Concern

This serves to confirm that I have edited the language, spelling, grammar and style of the **Master of Nursing Science** thesis by **Thendo Mahwasane**, titled: "**Challenges Encountered by Midwives When Providing Care to Preterm Babies at Selected Hospitals in the Mopani District of Limpopo Province, South Africa**" The manuscript was also professionally typeset by me.

Sincerely Yours

Cert. Freelance Journalism, Dip. Creative Writing, MSc (Medicine), PhD