DETERMINATION OF FACTORS CONTRIBUTING TO FAILURE RATE OF INDUCTION OF LABOUR AT SELECTED HOSPITALS IN MOPANI DISTRICT, LIMPOPO PROVINCE, SOUTH AFRICA.

By

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[redacted]

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DECLARATION

I, Mathebula Fortunate, declare that **"Determination of Factors Contributing to Failure Rate of Induction of Labour at Selected Hospitals, Mopani District, Limpopo Province, South Africa"** is my own work, has never been submitted by me for any degree at any other university institution or this university, and all materials used have been acknowledged both in the text and list of references.

Mathebula Fortunate…….....

Date signed: 13 March 2023

DEDICATION

This study is dedicated to:

- My mother, Faniki Meisie Makhubela, for her love, support, and encouragement and for taking care of my two kids when I was busy and held up with my studies;
- My sisters, Nomsa, Dephcey and Amukelani, for their love, support and taking care of my daughter and my son, when I was busy and held up with my studies;
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ABSTRACT

Induction of labour implies the artificial initiation of regular uterine contractions before the onset of spontaneous uterine contractions with the purpose of achieving a vaginal delivery. The aim of the study was to determine the factors contributing to the failure rate of induction of labour at the Maphutha L. Malatji and Van Velden Hospitals in the Mopani District, Limpopo Province, South Africa. A quantitative, descriptive cross-sectional research method was used to identify the factors contributing to the failure rate of induction of labour. Data were collected using a self-developed questionnaire from 60 Registered Midwives. Ethical clearance was obtained from Turfloop Research and Ethical Committee, Limpopo Province Department of Health Ethics Committee and Hospital management. The Statistical Package for Social Sciences (SPSS, version 24) and descriptive statistics were used to analyse. Therefore, shortage of the staff, bad staff-patient ratio, overcrowding of patient, lack of equipment, workload of staff and poor training of staff are factors contributing to failure rate of induction of labour. The study recommended that all staff should be well trained and 'in-serviced' to be able to use partograph effectively and also to have education training on speciality qualifications.

Key-Words: Factors, Failure Rates, Induction, Labour.

LIST OF ABBREVIATIONS/ACRONYMS

ARM	Artificial Rupture of the Membranes
CTG	Cardiotocograph
CPD	Cephalo-Pelvic Disproportion
CS	Caesarean Section
DOH	Department of Health
FHR	Foetal Heart Rate
IOL	Induction of Labour
IV	Intravenous
MI	Medical Induction
MISS	Medical Interview Statistical Scale
NST	Non-Stress Test
PGE2	Prostaglandin E2
PROM	Prelabour Rupture of Membrane
SI	Surgical Induction
SPSS	Statistical Package for Social Science
VE	Vaginal Examination
WHO	World Health Organisation

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DEFINITION OF CONCEPTS

Factors is a circumstance, fact, or influence that contributes to result (Hawker, 2015). In this study factors refers to an agent that cause induction of labour to fail.

Failure is an instance of not doing something that is expected or lack of success (Hawker, 2015). In this study, failure refers to the unsuccessful process or procedure.

Induction is as the artificial initiation of labour (Sellers, 2018). In this study, induction means is a way of starting labour by use of medication before spontaneous labour started.

Pregnancy is the time during one or more offspring develops inside a woman's womb (Taylor & James, 2014). In this study, pregnancy refers to the period between conception and forty weeks of gestation.

Labour the process whereby the conceptus is expelled and delivered from uterus also known as parturition or confinement (Seller, 2018). In this study, labour refers to the process undergone by pregnant woman before the birth of the baby characterised by pain regular contraction

CHAPTER 1
OVERVIEW OF THE STUDY

1.1 Introduction and Background

Induction of labour is a public and a global obstetrics health issue occurring almost each and every day in the Maternity Units. Induction is defined as the artificial initiation of labour deliberate initiation of uterine contractions prior to their spontaneous onset (Seller, 2018). World Health Organisation (2018) noted high proportion of regarding infant's delivery at term following induction of labour in high-income countries, then in the lower and middle income countries. Thus, induction of labour became more common worldwide with up to 25% of women in developed countries undergone induction of labour, than in the under-developed countries (WHO, 2011).

Consequently, the worldwide incidence of induction of labour ranges from 3% to 30% following the continued rise over the past several decades (WHO, 2018). WHO global survey on maternal and perinatal health showed an overall rate of induction of labour on 9.6% with the highest rates being found in Asia (Sri Lanka with 35.5%) and Latin American countries. Furthermore, he lowest rates of induction of labour reported in African countries (Nigeria 1.4%) (Mateveke, Chipato, Guzh & Mahachi, 2015). The unpublished data of WHO global survey on maternal and perinatal health, showed that induction of labour from 373 health facilities in 24 countries.

The European Perinatal Health Report showed an increased induction rate from 2004 and 2010 in 14 to 18 countries survey. According to the national induction rate in Finland, that is an increase from 17% in 2002 to 22% in 2012 and for Denmark it is an increase from 14%to 26% in the same time frame (Dogl, Vavky & Hrimstad, 2015). In the European countries in 2010, the rate of induction of labour was above 20% ranges from 7-33% according to the European Perinatal Health Report, and according to the Medical Birth Registry of Norway there was an increase from 11% of 1990 to 19% in 2012 (Dogl, 2015).

Major indication of induction of labour are maternal foetal social or combination. Rate of induction of labour vary from region to region, in the United States of America and United Kingdom about 20% of all deliveries are by induction of labour. Induction of

labour is directly relevant to the health related millennium development goals (Bukola, Idi & Metin, 2015). Increasing rate of induction of labour worldwide have led to debates on whether elective induction improves outcomes or simply lead to increased complications and health care (Malende, 2014).

In sub-Saharan African countries, the induction of labour accounted or 44% of deliveries. Oxytocin alone was the most common method (45.9% and 37.5%) with a successful rate over 80% and reduced odds of Caesarean Section (Joshua, Vogel & Metin, 2013). In the study done in Harare Hospital focusing on oral and vaginal Misoprostol, the findings show that 24.9% of women were induced with oral titrated Misoprostol failed. Forty-five percent (45%) had repeat induction with oral titrated Misoprostol and 23.9% of Caesarean Section was done due to failed induction of labour (Mateveke et al., 2015). Induction of labour with goal of achieving vaginal delivery prior to spontaneous onset of labour is recommended when the benefit of delivery outweigh the risk of continuing the pregnancy.

South African also reported an increase implementation of induction of labour with one Gauteng Province tertiary hospitals having 18.8% (Ndove,2017). In South Africa, the rate of induction of labour at regional hospital in Gauteng was reported 9.6% with hypertensive disorder of pregnancy, postdates pregnancy and pre-labour rupture of membranes as main indicators (Malende, Moodley & Kambaran, 2014). In South Africa, the differences of clinical protocol for induction of labour between individual facilities and free maternal health service started in 1994 after the apartheid government. Furthermore, Basic Maternal Care is offered in community health centre and mobile Primary Health Care. A comprehensive maternal care is offered at district and regional hospitals. Specialist intervention is offered in regional and tertiary hospitals through the provision of obstetric care (WHO, 2018).

Limpopo is the northern most province of South Africa and by 2022 has a total population of 6.015million with 1.641million household. The province has a high Human Development Index (HDI) of 0.710, which is the third highest in South Africa (https://www.statista.com>statistics). Ninety percent (90%) of the population in Limpopo lives in rural areas where there is evidence of growing inequality in maternal health care of South Africa (Mothiba, Skaal & Berggren, 2019). According to Ntuli

(2015), the rate of Caesarean Section increases in various districts of Limpopo Province which indicated failure of induction of labour. For example, Mopani District Hospitals reported a total of 89.4% Caesarean Section; Maphutha Hospital 18.8%; Van Velden Hospital 27.4%; Letaba Hospital 28.3%; and Nkhensani Hospital 14.9%, This indicates the failure of induction of labour (Ntuli, 2015) when compared to the Capricorn District Hospitals, such as Polokwane/Pietersburg Hospital (at 36.2%), Mankweng Hospitals (at 17.8%) and Lebowakgomo Hospital (at 19.4%), which recorded 73.4% of Caesarean Sections. The Limpopo District Hospitals performance assessment during 2008-2010 report, demonstrated the rate of Caesarean Section increasing at selected hospitals in the Mopani District, with Van Velden at 25.7% and Maphutha L. Malatji at 21.0%, due to failed induction of labour. According to Ntuli (2015), the rate of maternal mortality increases due to failed induction of labour. Therefore, the focus of this current study is in the selected Mopani District Hospitals.

According to the Mankweng Hospital statistics done in 2019, 10%of Caesarean Section done is due to failure of induction of labour. According to monthly statistics done in both Maphutha L. Malatji Hospital and Van Velden Hospital, 10,5% of Caesarean Section done is due to the failure of induction of labour.

The induction of labour might carry risks for both the mother and the baby, and it should be undertaken as soon as it is deemed necessary regardless of time of day or day of the week, as waiting could lead to foetal demise (Ngene, 2020). Therefore, the researcher identified a gap in provision of obstetric care to pregnant woman, who are induced at selected hospitals Mopani District due to increase rate of failed induction of labour. In the context of this study, the researcher identified factors contributing to failure rate of induction of labour in the Maphutha L. Malatji and Van Velden Hospitals in the Mopani District of Limpopo Province, South Africa.

1.2 Problem Statement

The researcher as Registered Midwife allocated in Maternity Units observed an increased failure rate of induction of labour. The Mankweng Hospital seems to be a low resource setting, where there is a lack of resources in terms of beds and lack of staff, more specifically midwives, as compared to the number of pregnant women who have to be monitored. The adverse event may occur during an obstetric intervention

such as induction of labour. Therefore, induction of labour should be undertaken only when the benefits of early delivery outweigh the risk of continuing the pregnancy.

1.3 Theoretical Framework

This study departed from the theoretic framework of the Goal Attainment of Imogene King (King, 2018). Goal of attainment is the process through which human and other resources are mobilized for the attainment of collective goals and purpose. It describes a dynamic interpersonal relationship in which a patient grows and develops to attain certain goals. Again, it includes a human process of interaction that led to transaction and goal attainment outcome. Goal is developed through the communication and interaction, and within a social system. Client goals are achieved – highlighted by mutually set goals among client and nursing staff (King, 2018).

1.3.1 Goal Attainment

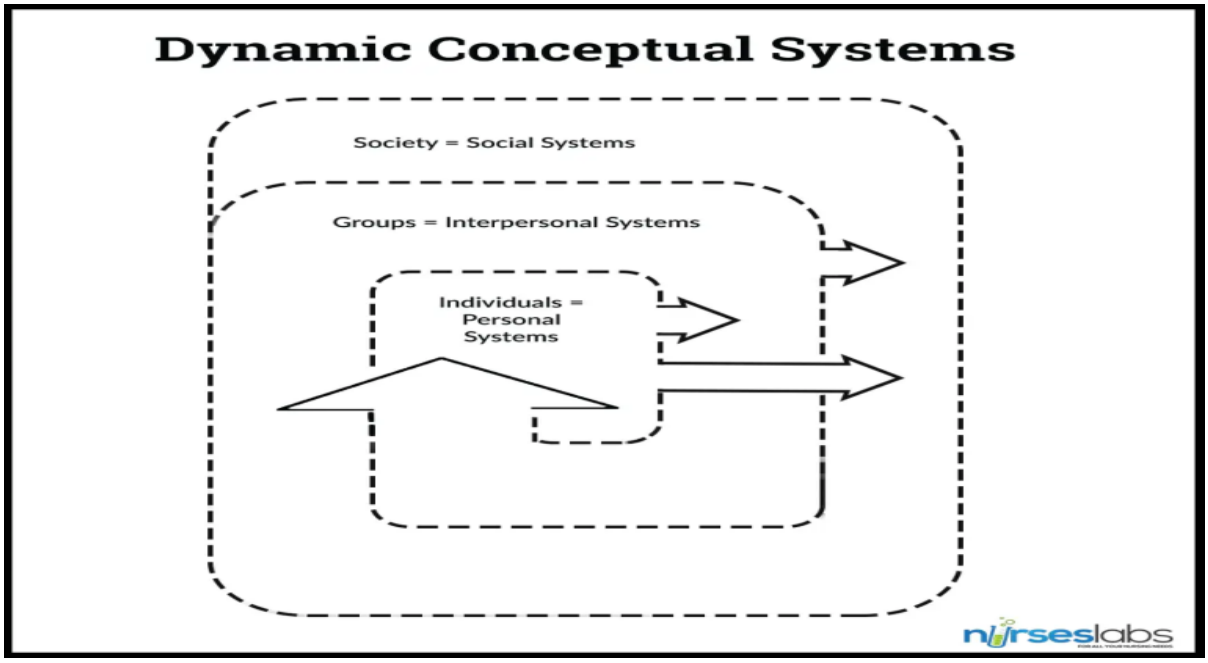

Figure 1.1 Goal Attainment (revised) (Adopted from Imogene King, 2018)

The Goal Attainment guide the researcher throughout the study (King, 2018). The focus of Goal Attainment is the social system (society), interpersonal systems (group) and personal systems (individuals).

- **Personal System**

The personal system is divided into the following concepts of body image, growth and development, perception, self, space, and times. The self is a composite of thoughts and feelings which constitute a midwife's awareness of individual existence. A midwife's self is the sum total of all he can call his. It is distinctive centre of experience and significance self is made up of a midwife's inner world as distinguished from the outer world consisting of all people and things (King, 2018). Growth and development are the process in midwives lives through which they move from a potential for the achievement to the actualization of self. Body image as the way one perceives both one's body and other's reaction to one' appearance (King, 2018). Time as duration between one event and another event (King, 2018). In this study, time refers to the period from where induction of labour stared to delivery.

- **Interpersonal systems**

Huma beings interacting from these: two interacting individuals from a day, midwives and patients and doctor from triad interpersonal so does the complexity of the interactions. Interaction is a process of perception, communication between midwives and environment and between midwife and patient/pregnant woman, represented by verbal and non-verbal behaviours that are goal directed (King, 2018). In this study, interaction refers to nurse and patient act as they affect each other as a way of nurse providing care to patient. Perception is the individual 's representation of image of reality, as awareness of objects persons and events. In this study, perception refers to a patient and nurse's way of perceiving labour pains. Communication is whereby information given from one person either to another directly in face to face meeting or indirectly through telephone, television, or written word (King, 2018).

In this study, communication refers to a way of giving information between health care providers and patient, e.g., nurse /doctor explain some procedure and side effect of treatment. Transaction is a process of interaction in patient and midwife communicate with the environment to achieve goals that are valued goals directed human behaviours (King, 2018). Stress is a dynamic state whereby a human being interacts with the environment to maintain balance for growth, development and performance, which involves an exchange of energy and information between the midwife and the environment for regulation and control of stressors (King, 2018).

- **Social system**

Amore comprehensive interacting system consists of group that make up society, referred to social system. Religious education and health care system as example of social system. The influential behaviour of multi-disciplinary team in health of individual's growth and development is another social system example. Within society system, the concepts of authority, decision making, organisation, power and status system understanding. Power is the capacity to use resources in health to achieve goals. It is the process whereby midwives influence a patient in the induction of labour. It is the capacity or ability of midwife to achieve goals. This occurs in all aspects of life and each midwife has potential power determined by individual resources and the environment forces encountered (King, 2018). Status is the position of midwives to pregnant woman in health organisation and an identified status is accompanied by privileges, duty and obligation.

1.4 Overview of the Literature

1.4 .1 Scope of practice of Register Midwife in South Africa

In this study, the researcher integrates the scope of practice of a Registered Midwife as outline by South African Nursing Council (SANC) Regulation No R.2598 of 30 November 1984 (SANC, 1984). The reason for selecting this legal framework was that the scope of practice that guides the Registered Midwife in South Africa and SANC that acts as a quality assurance body that regulates Midwifery Practice in South Africa and protect public from harm (SANC, 2005). The scope entails scientifically based acts or procedures that apply to Midwifery Practice that relate to mother and child during pregnancy, labour and pueperium.

The SANC describe the competencies of a midwife that provide maternal and childcare that would promote quality life of mother and child starting from antenatal, labour and pueperium (SANC, 1984). A midwife diagnoses the health needs and facilitates optimal physical and mental health of the mother and baby. This achieved through identification and prevention of disease related to pregnancy, labour and pueperium and promotion of health and family planning as well as monitoring the state of mother and baby (SANC, 1984). In addition, midwife prevents complication by managing pregnancy, labour and pueperium and referring the mother to doctor, if the complication is above her scope. The midwife then administers medication and

treatment prescribed by the doctor to prevent such complication to save mother and baby (SANC, 1984). The midwife further assists in operative diagnostic and therapeutic acts for the mother and baby; coordinate the health programme with other health professionals; and advocate for the mother and child to get optimized quality care they need (SANC, 1984). This is done to provide the woman with quality care that include physical, psychological, and spiritual needs during antenatal, labour and pueperium thus promote quality maternal care and labour outcome.

1.4.2 Application of the Scope of Practice of Registered Midwife to the Study

The SANC of Scope of Practice Regulation No R2598 describes the competence of a midwife that provide maternal and child-care that include promote quality of life of mother and child starting from antenatal, labour and pueperium (SANC, 1984). Midwife is expected to apply midwifery related theories or models relevant to care given to pregnant woman from conception till postnatal, period and their new-born babies. These include respecting the views of the pregnant woman, being partner in her care throughout all stages; coaching, mentoring and supporting her; minimizing complications; and promoting quality care, from preconception, antenatal, labour and pueperium. Midwives also need to strive to practise within their level of competence, advocate for patients, protect the human dignity and integrate appropriate midwifery standard to prevent neonatal death due to complication from maternal side.

In addition, the midwife diagnoses the health needs, facilitate optimal physical and mental needs of the mother and baby. This is achieve through identification and prevention of diseases related pregnancy, labour and pueperium and promote of health and family planning, as well as monitoring the state of the mother and baby (SANC, 1984). Likewise, the SANC scope of practice holistic care and use the scientific nursing process is an assertive, problem-solving approach to the identification and treatment of patient's problem. It provides an organizing framework for the practice of nursing and brings the knowledge, judgement and actions that nurses bring to action care. The midwife will administer medication and treatment prescribed by the doctor to prevent such complication to promote quality life of both mother and babies (SANC, 1984).

1.4.3 World Health Organisation Model for Developing Guideline

The researcher selected the WHO guideline which used PICO and GRADES as outline in the Handbook of Guideline Development (WHO 2012). These include Patient Intervention Comparator and Outcome (PICO), identification of priority question and critical outcomes, retrieval of the evidence, assessment and synthesis of evidence, formulation of recommendations, and planning for the dissemination, implementation and evaluation and updating of the guideline. The researcher employed the Grading Recommendations, Assessment, Development and Evaluation (GRADE) approach. The process also includes the constant reviewing and updating following new evidence from research. More literature regarding induction and challenges is discussed in Chapter 2.

1.5 Aim of the Study

The aim of the study was to determine the factors contributing to failure rate of induction of labour at selected hospitals Mopani District, Limpopo Province, South Africa.

1.6 Research Question

What are the factors contributing to the failure rate of induction of labour in the Maphutha L. Malatji and Van Velden Hospitals of the Mopani District, Limpopo Province South Africa?

1.7 Objective of the Study

The threefold objective of the study was to, namely:

- Determine the factors contributing to failure rate of induction of labour at Maphutha L. Malatji and Van Velden Hospitals in the Mopani District, Limpopo Province, South Africa;
- Describe the factors contributing to failure rate of induction of labour at selected hospitals, Mopani Districts, Limpopo Province, South Africa; and
- Identified factors contributing to the failure rate of induction of labour in the Maphutha L. Malatji and Van Velden Hospitals.

1.8 Research Methodology

A quantitative research method was used as an approach that emphasizes the collection of numerical data (Brink, van der Walt & van Rensburg, 2018). The descriptive cross-sectional design was used in this study. In a descriptive cross-sectional design, the researcher should not manipulate any variable or even determine the relationship between variables (Brink et al., 2018). The target population of this study was 60 Registered Midwives allocated in Labour Ward, and Antenatal Ward at the Maphutha L. Malatji and Van Velden Hospitals. Simple Random Sampling was used to select 60 Registered Midwives who participated in this study. Data were obtained from the Registered Midwives through a self–developed questionnaire (Burns & Groves, 2016).

Content Validity was ensured by presenting the questionnaire to experts in the field of the study. Face Validity was ensured by submitting the questionnaire to the statistician and supervisors, to be assessed for its ability to measure what it was supposed to be measure (Goodman & Moule, 2014). Reliability was ensured by conducting a pilot study. The Statistical Package for Social Sciences (SPSS) version 24 for Windows was used to analyse numerical data. Descriptive and inferential statistics were used to obtain frequencies, percentages, Standard Deviations, and measures of central tendency such as median. The details of research methods are discussed in Chapter3.

1.9 Significance of the Study

The study could contribute towards assisting the midwives on the understanding factors that contributing to failure rate of induction of labour in the selected hospitals Mopani District, Limpopo Province, South Africa. The results of this study could have positive impact on the policy and midwives in the selected hospitals.

1.10 Conclusion

This chapter discussed overview of the study. The study was, introduction and background information about failed induction of labour is explained from global context to District Hospital level Limpopo Province. The research problem and the theory background were described. The aim, research question and objectives of the study were outlined. The research methodology with Research Design, population,

sampling, data collection and analysis were summarised. Chapter 2 provides the literature review, Chapter 3 presents the research methodology, Chapter 4 presents the discussion of results and Chapter 5 provides the summary, limitations and recommendation.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

This chapter focuses on the literature relevant to determination of factors contributing to the failure rate of induction of labour at selected hospitals, Mopani District, Limpopo Province, South Africa. The researcher conducted literature review from books, articles, journals, reports, and downloads from Google.

2.2 Purpose of the Literature Review

The literature review aimed at contributing to clearer understanding of the nature and meaning of the problem that has been identified (De Vos, Strydom ,Fouche & Delport, 2021). The literature review creates a foundation based on the existing related knowledge (De Vos et al, 2021). It determines what is already known about the topic so that the researcher can obtain a comprehensive picture of the state knowledge (Brink et al., 2018). The purpose of literature in this study was to obtain information on the factors contributing to failure rate of induction of labour in selected hospitals, Mopani, District, Limpopo Province, South Africa. Literature assisted the researcher to identified factors contributing to the failure rate of induction of labour during pregnancy.

2.3 Pre-Eclampsia

The hypertensive disorders of pregnancy, including chronic hypertensive, gestation hypertension and pre-eclampsia are much concern to clinicians because of the associated adverse foetal and neonatal outcomes (Payne, Magee &Van Dadelszen, 2014). Pre- eclampsia is a condition during pregnancy characterized by high Blood Pressure and proteinuria. It usually occurs after the 20^{th} week of gestation. Pre-eclampsia in pregnancy is known to have adverse effects on the foetal growth through placenta insufficiency and is implicated in a significant proportion of Intrauterine Growth Restriction (IUGR) (Griveli, Dodd & Robinson, 2014). Despite decades of research hypertensive disorders in pregnancy remain the most significant and intriguing unsolved problems in obstetrics.

Hypertension in pregnancy is one of the leading causes of maternal death accounting for 14.77% of maternal deaths in south Africa, due to this induction of labour has been an option for management of patients with gestational hypertension or pre-eclampsia. This is to prevent severe maternal and neonatal complication such as HELLP (Hypertension Elevated Liver Enzymes Low Platelets) syndrome, placental abruption, maternal death, and neonatal asphyxia (Hatel, 2018). Pre-eclampsia is the major cause of foetal death worldwide and is the leading cause of perinatal morbidity (Singh, 2013). Pre-eclampsia complicates approximately 3-5% of pregnancies and remains a major cause of perinatal morbidity (Cleary & Contantine, 2014). Deadelszen, Ansemino, Dumont, Hofmeyr, Magee, Mathai, Sawchuck, Teela, Donnay and Robert (2014) believe that the hypertensive disorder of pregnancy complicates 5%-10% of pregnancy and can lead to serious perinatal morbidity, especially in low and middle income low countries. Raghuraman, March, Hacker, Modest, Wenger, Narcisse, David, Scott and Rana (2014) stated that when preeclampsia is diagnosed, a timely delivery is recommended to optimize health. This study concluded that adequate obstetric care, including optimal timing for delivery in high-risk pregnancies, could improve pregnancy outcomes.

In low-income countries such as Haiti access to perinatal care remains limited, resulting in little screening for pre-eclampsia and missed opportunities for timely delivery. Pre-eclampsia remains one of the leading causes of maternal mortality, complicating an estimated 2-8% of pregnancies worldwide up to 10% in developed countries (Fondjo, Boamah, Fierti, Gyesi & Owiredu, 2019). Pre-eclampsia is pregnancy associated multisystem disorder and however, it is thought to occur in two stages. The first stage encompasses the impairment of foetal trophoblast invasion of the decidual and local placental hypoxia. The second stage is the release of placenta blood related factors into the maternal circulation and aberrant expression of pro-inflammatory, antiangiogenic and angiogenic factors (Fondjo et al., 2019).

According to a study conducted by Hlima (2015), the number of pregnant women suffering from pre-eclampsia in developing countries is not that easily ascertainable but is substantial when compared to the rate of 15-20% in developed countries like United States. Between 40,000 and 80,000 pregnant women die annually from pre-eclampsia and eclampsia. Although magnesium sulphate and anti-hypertensive

therapies can reduce the morbidity and mortality associated with pre-eclampsia, the only cure comes with delivery. Prompt delivery of the baby, preferably by vaginal route, is vital in order to achieve good maternal and neonatal outcomes. Induction of labour is a critical intervention in order to prevent morbidity to both mother and baby (Hillary, Shuchita & Andrew 2014). The Caesarean Section rate is high in cases of severe pre-eclampsia, in preterm pregnancies up to 70% even at term. Many obstetricians prefer delivery by Caesarean Section in women with pre-eclampsia, although this seems to be associated with significant postpartum maternal morbidity. Following induction of labour compared to Caesarean Section, vaginal delivery is feasible option due to low-risk outcomes(Jutta, Christel & Sven, 2020)

2.4 Post-Term Pregnancy

According to the WHO and the American College of Obstetricians and Gynaecologists (ACOG), post-term pregnancy is defined as a pregnancy extending beyond 294 days or 42 weeks measured from the last normal menstrual period, this is known as Naegele's Rule. Post-term pregnancy is the most common indication for induction of labour (Hatel, 2018). Post-term pregnancy is associated with increased perinatal morbidity and mortality and is considered a high-risk condition which requires specialist surveillance and induction of labour (Joep, Aafke & Esteriek, 2014).

Increase foetal mortality from post-term pregnancy could be prevented by induction of labour at term, however both clinicians and patients are concerned about the risks of induction of labour including hyper-stimulation, failed induction and increase Caesarean Section rates post-term pregnancy also associated with increased costs related to antenatal-foetal monitoring induction of labour (Allen et al., 2015). The World Health Organisation (WHO) recommends induction of labour for women who have reached 41 completed weeks of pregnancy without spontaneous onset of labour. Induction of labour rates for high-income countries were 23.4% of deliveries in the United States in 2010; 22.1% of deliveries in England between 2011 and 2012; and 25.4% of deliveries in Australia in 2010. The rate varies for low and middle-income countries.

The WHO Global survey on maternal and perinatal health reported the prevalence of induction of labour in facility deliveries as follows: 4.4% in seven African countries;

12.1% in nine Asian countries; and 11.4% in eight Latin American countries. Induction of labour is specifically recommended to prevent complications of prolonged pregnancy, such as increased perinatal mortality, stillbirth, foetal growth restriction, meconium aspiration syndrome and macrosomia (Kyaw, Malinee, Joshua, Jose, Joao, Ahmet, Eduardo, Suneeta, Pisake and WHO, 2017) .

2. 5 Pre-Labour Rupture of Membrane

Pre-labour rupture of membrane occurs in 8-10% of pregnant woman. Pre-labour rupture of membrane is associated with increased maternal and foetal sepsis, umbilical cord compression and placenta abruptio, leading to *chorioamnionitis*. A cochrane review of 12 trails including 7000 women, showed that active management did not increase rate of Caesarean Section or vaginal births, but decreased the rate of *chorioamnionitis* and endometritis (Hannah, 2014).

Colonization by Group B streptococcus (GBS), streptococcus Agalactiae occurs in 10-30% of pregnant women. GBS is a major cause of neonatal morbidity and mortality. The USA recommended universal screening of GBS between 35and 37 weeks of gestation age with rectovaginal swab specimens and treatment with Penicillin. This has not yet been implemented in South Africa as it is economically viable and there are no studies that address that screening for GBS, has any impact on neonatal morbidity and mortality (Hatel, 2018).

According to the study conducted in Australia including 574 women with PROM and induced only women who were GBS Polymerase Chain Reaction (PCR) positive. Those that were PCR negative were manage as outpatients, with 80.6% of those women either going into spontaneous labour or being induced within 72 hours (Hatel, 2018). A study conducted at Chris Hani Baragwanath Academic Hospital in Soweto, Gauteng Province, South Africa, assessed the incidence of GBS within the population and neonatal and maternal outcomes. The commonly used drugs in PROM include oral Misoprostol, vaginal *Dinoprostone* and Oxytocin (Hatel, 2018).

2.6 Oxytocin

Intravenous Oxytocin is available since 1950s has been the most commonly used as method of induction of labour for women with viable pregnancy and favourable cervix. Oxytocin verse vaginal Prostaglandins was associated with an increase in unsuccessful vaginal delivery within 24 hours (70 % vs 21%). Oxytocin versus intracervical Prostaglandin also had fewer vaginal deliveries (51% vs 35%) and increase in Caesarean Section rate (19% vs 13.7%) (Leduc, Ottawa, Briringer, Toroto & Lee, 2013).

Oxytocin is a hormone secreted by the posterior pituitary gland; it has numerous functions one of which is to cause the myometrial muscles of the uterus to contract (Rimmer, 2014). Exogenous Oxytocin (*Sytocinon*) is given via a slow intravenous drip, with the dose titrated against contractions according to local protocol until regular contraction are established (McCarthy & Kenny, 2013).

2.7 Prostaglandin

Misoprostol is a synthetic Prostaglandin1 analogue in a form of tablet that has been approved and marketed for the prevention and treatment of gastric ulcer associated with the use of non-steroidal anti-inflammatory drugs. Prostaglandins are group of Cyclopentane derivatives (hydrogel polymers) of arachidonic acid. The sample size of the study was 60 but only 48 questionnaires answered and returned, four questionnaires unreturned and eight questionnaires spoiled. and Drugs Administration approved the use of Misoprostol for induction of labour and cervical ripening (vaginally, orally and sublingually) and it is also acts directly on the myocytes of the uterus to increase uterine contractility (Hatel, 2018). Misoprostol has half -life of 20-40 minutes after oral administration with peak serum concentration at 30 minutes and rapid decline by 120 minutes.

Eighty percent of the drug is excreted by the kidney and different dosages have been used across the globe ranging from 25ug to 200ug (Hatel, 2018). Cochrane's review of vaginal Misoprostol for cervical ripening and induction of labour included 121 trails that compare Misoprostol to placebo/no treatment or to other methods. Vaginal Misoprostol was superior to the placebo treatment with reduced failure achieve vaginal deliveries within 24 hours (Leduc, 2013).

Dinoprostone is a synthetic PGE2, analogue used for induction of labour since 1960s, it has a half-life of 4-7 hours. Between 12-28% is absorbed into the circulation and maximum plasma levels are reached within 2-3 hours and drug is still detectable 6-8 hours after administration. Recommendation for the use of the gel form is six hourlies with a cumulative dosage of 1.5mg/24 hours. The side effects of Prostaglandin gel include pyrexia, thermoregulatory effects on the brain, diarrhoea and nausea (Hatel, 2018). According to Mateveke (2015), the rate of failed induction of labour using titrated oral Misoprostol was 24.9%, meaning that 1 in 4 women failed to achieve vaginal delivery in the Harare Hospital regime. ProstaglandinE2 act on the cervix by dissolving the collagen structural network of the cervix.

2.8 Catheter

Foley Ballon Catheter is used for labour induction, and it helps to dilate the cervix. This method is not common as it was once done but is gaining popularity for woman who are not candidate of an induction of labour with medication, example patient with previous Caesarean Section. Evidence has shown that the Ballon Catheter is effective as Prostaglandin in achieving vaginal delivery within 24hours of the started induction of labour and with lower rate of uterine hyper stimulation and Caesarean Section together with infection (Tan, 2015).

According to the study conducted at large tertiary Danish University Hospital between 2007-2014 about woman with prior Caesarean Section undergone induction of labour, with Doubled-Ballon Catheter had vaginal delivery rate of 50.3% compared to 51.7% of woman without previous Caesarean Section but still failed medical induction of labour (Boisen & Fuglsang, 2019). According to Jozwiak, Bloemenkamp and Kelly (2019), comparing induction of labour using Foley Ballon Catheter and vaginal Prostaglandin (PGE2), in woman at term with unfavourable cervix (Bishop Score <6), the primary outcome was Caesarean Section rate. In the group of Foley Ballon Catheter, after insertion of Foley Catheter, woman then had one hour of bed rest with foetal and uterine monitoring. Once the catheter was spontaneously expelled or Bishop Score was 6 or more, *Amniotomy* was done. When the uterine activity was insufficient, an infusion of Oxytocin was given.

In a group of Prostaglandin gel, 1mg PGE2 was administrated then another 1mg after 6 hours. When Bishop Score was 6 or more *Amniotomy* was done and Oxytocin infusion started. In both groups, when cervix remained unfavourable after 48 hours of treatment woman had 1day rest then induction started again. Caesarean Section rate did not differ significantly between the Foley Catheter group (at 23%) and the PGE2 group.

2.9 Membrane Sweeping

Stripping/Sweeping of the membrane is a surgical procedure of inserting a finger in the cervix/ between the tin membrane moving finger gentle in circular motion to induce labour and release of Prostaglandin hormones. It increases rate of spontaneous labour reduce need of medical induction of labour. According to the study done by Kayser (2018), the overall success rate of induction by sweeping of membrane was 60.8%. The study conducted at the King Abdulaziz University Hospital, Jeddah, Saudi Arabia from January 2011 to January 2012, 160 women underwent sweeping of membrane and 90% fall to spontaneous labour (Zamzami, 2013).

In order to avoid medical induction, the NICE guideline currently recommends that a membrane sweep be offered to all nulliparous woman between 40 and 41 weeks of gestation, which has been found to reduce the need for medical induction without significantly increasing other risk (National Institute for Health and Clinical Excellence, 2012; and Rimmer, 2014). Membrane Sweeping (also known as Cervical Sweeping) involves the insertion of a gloved finger through the woman's cervix and rotating it to separate the membrane from the lower uterine segment. This causes the release of Prostaglandins, which stimulates the effacement and dilatation of the women's cervix (McCarthy & Kenny, 2013; and Knoche, Seizer & Smolley, 2018). Where the Membrane Sweeping is not possible due to a closed cervix, massaging the area around the cervix may have a similar effect (National Institution for Health and Clinical Excellence, 2012).

Single centre RCT (n=350) done by Putnam, Magann and Dohert (2014) compares once-weekly Membrane Sweeping and twice-weekly Membrane Sweeping with control in women with an unfavourable cervix (Bishop Score <4) at 39 weeks of gestation. Membrane Sweeping was done according to protocol until 41 weeks, when all women

had not given birth had labour induced. The primary end-point was the proportion of women needing induction at 41 weeks. No significant differences were seen in the proportion of woman admitted induction of labour at 41 weeks. The rates were 34% in the Control Group, 27% in group of once-weekly Membrane Sweeping and 23% in group twice-weekly Membrane Sweeping.

2.10 Artificial Rupture of Membrane

Artificial rupture of membrane is also known as *Amniotomy* process of breaking water by used of amniotic hook as method of induction of labour. In case of high Human Immune Virus (HIV), it is important to leave membrane intact as long as possible to reduce perinatal transmission of Human Immune Virus. According to the study conducted by Dr Lughano Ndove (2014), 6514 deliveries conducted, and 1029 deliveries had induction of labour giving induction rate of 15.8%. A .86 patient included on the study and 8.1% undergone prelabour rupture of membrane. The is a limited rate of artificial rupture of membrane because prolong rupture of membrane increase rate of infection to the mother and foetus, after 6 hours' star to administering antibiotic.

2.11 Parity

Parity is defined as the number of previous viable pregnancies where viability is specific to s country or institution. Nulliparas women were thought to have a highest rate of Caesarean Section, however, studies that concluded this included patient with medical conditions and unfavourable cervices, hence a bias (Hatel, 2018). In an analytical study by Levine Hirshberg and Srinivas (2014), both nullipara and multipara women had increase Caesarean Section rate when induced compared to spontaneous labour. Nullipara women were likely to have a prolonged first stage of labour compared to multipara women were likely to have a prolonged second stage of labour. Multiparous women had higher rate of vaginal delivery than nulliparous women.

2.12 Obesity

The World Health Organization (WHO) defines overweight as a Body Mass Index (BMI) of greater than 25kg/m2 and obesity as a BMI of more than 30kg/m2. In South Africa, 40% of women are obese. According to the Saving Mothers Report, from 2014-2016, obesity was associated with the increased risk of thrombosis, diabetes, macrocosmic babies (>400g), difficulty Caesarean Section, postpartum haemorrhage

(PPH) and post Caesarean Section sepsis. Maternal Body Mass Index can play a role as well, with the increased length of labour and Caesarean Section rates (Wormer, Bauer & Williford, 2022).

2.13 Bishop Score

Cervical status is a determinant factor in the success of induction. The modified Bishop Score is a cervical assessment system that determines the likelihood of a vaginal delivery. It was originally described in multiparous women. Component of Bishop Score include cervical dilatation, effacement, consistency, position and station of presenting part. The higher the Bishop Score, the higher the likelihood of spontaneous or induced vaginal delivery. Simplified scoring system is currently being studied using three factors, namely, dilatation, station and effacement. It has shown to have a better positive and negative predictive value and positive likelihood ratio compared to the Bishop Score using five components (Hatel, 2018). Doctor/midwives calculate your score through a physical exam and ultrasound. cervix can be examined through a digital exam. If Bishop Score is high, it means that there is greater chance that an induction will be successful for the patient. When the score is 8 or above, it is good indication that spontaneous labour would start soon. If an induction becomes necessary, it is likely to be successful. When the score is between 6 and 7 then it is unlikely that labour will start soon. An induction may or may not be successful (Debra, 2017).

2.14 Conclusion

This chapter outlined the evidence regarding the causes and methods of induction of labour, and how it is associated with induction of labour in pregnant women. It also explained on maternal and foetal related factors such as parity, obesity and Bishop Score on how they can contribute to failure of induction of labour. Chapter 3 presents on the methodology used for the study.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on the research method and design that were used to conduct this research study. A quantitative research method was used in this study. A self-developed questionnaire was used to collect data regarding the factors contributing to failure rates of induction of labour at selected hospitals, Mopani District, Limpopo Province, South Africa.

3.2 Study Site

South Africa composes of nine Provinces of which Limpopo Province is one of them. Limpopo Province situated, in the far north of the South African and share borders with the Province of Gauteng, Mpumalanga, and Northwest. It also shares borders with the republics of Botswana in the west, Zimbabwe in the north and Mozambique in the east. South Africa dominated by too much rural area. Limpopo it has five districts, which are, namely, Mopani, Capricorn, Sekhukhune, Vhembe, and Waterberg as well as 24 municipalities. Limpopo Province is the fifth most populated province in the country with a population of 6.015million people by 2022. The Mopani District consists of one regional hospital, which is Letaba; six district hospital, namely, Dr CN Phathudi, Kgapane, Maphutha L. Malatji, Nkhensani, Van Velden and Sekororo Hospitals; one special hospital, viz., Evuxakeni; and 96 clinics.

The Mopani District comprises five local municipalities, which are, namely, Ba-Phalaborwa, Greater Giyani, Greater Letaba, Greater Tzaneen and Moruleng Local Municipalities. The Van Velden Hospital is located in the sub-district of Greater Tzaneen Local Municipality and hospital was selected for the study because majority of sub -district deliveries occur there. Van Velden is situated 21km south of Modjadjiskloof, 3rd Avenue, Arbor Park Tzaneen and 100km east of Polokwane city and is a district hospital. Maphutha L Malatji Hospital is located in the sub-district of Ba-Phalaborwa municipality and the hospital was selected for the study because it is only hospital in Ba-Phalaborwa and the majority of the sub-district's deliveries occur there. Maphutha L. Malatji situated 14.2km south of Kruger National Park and 103.7km via R71 road east of Tzaneen town, on Maphutha drive in Namakgale.

The Van Velden Hospital caters seven of clinics and Maphutha L. Malatji caters 11 clinics. The major study was conducted in all section of maternity (labour, antenatal and postnatal) of Maphutha L. Malatji and Van Velden Hospitals. The services provided include Trauma and Emergency care, Inpatient and Outpatient visits, Paediatrics and Obstetric care. Those hospitals may employ specialist Family Physicians, obstetrician/ gynaecologist and Paediatricians. Functions comprise Antenatal care for high risk woman, antenatal ultrasound services, and treatment of pregnancy problems, including admission to hospital. Comprehensive emergency obstetric care signal functions, namely: magnesium sulphate, intravenous antibiotics, Oxytocin, vacuum delivery, removal of retain placenta, manual vacuum aspiration, neonatal resuscitation, Caesarean Section, and blood transfusion; 24 hours labour and delivery service, including Caesarean Section, regional and general anaesthesia, essential special investigation, postnatal care and postoperative care, contraceptive service including postpartum and elective tubal ligation, Referral Centre for clinics and community health centre in the district, Supervision of clinics and community health centre in the district, referral of complicated problem to regional hospital and tertiary hospitals, counselling and support services and genetics and counselling services.

Figure 3.1: Map of Mopani District

The study was conducted at Maphutha L. Malatji Hospital labour and Antenatal, 5 bedded in labour and 10 ANC bedded and 21 midwives including Operational Manager. The number of deliveries conducted per month both normal vaginal delivery and Caesarean Section ranges between 350 to 450 per month. Van Velden Hospital has 13 bedded for Labour and Antenatal with 15 midwives including Operational Manager. The number of deliveries conducted per month both Caesarean Section and normal vaginal delivery ranges between 300 to 350.

3.3 Quantitative Research Method

In this study quantitative research method was used in order for the researcher to identify factors contributing to failure rate of induction of labour at selected hospital, Mopani District, Limpopo Province South Africa. Quantitative research methods are an approach that emphasizes the collection of numerical data and the statistical analysis of hypothesis proposed by the research (Brink et al., 2018). Quantitative research focuses on a small number of concepts and strives to generalise research results to large contexts (Botma, Greeff, Mulaudzi & Wright, 2017). In the context of this study, the researcher uses the quantitative research method to obtain information about the factors contributing to failure rate of induction of labour. The researcher distributed copies a self-developed questionnaire to Registered Midwives to identify factor contributing to failure rate of induction of labour at selected hospital Mopani District, Limpopo Province South Africa.

3.4 Research Design

Research Design are types of inquiry within, qualitative, quantitative, and mixed method approach that provide specific direction for procedure in a research study (Creswell, 2018). Babbie and Mouton (2021); and De Vos et al., (2021) define Research Design in quantitative context as the step in the process that follows problem formulation and precedes data collection. It is the process of focusing your perspective for the purpose of a particular study. Research Design focuses on the end product and all the steps in the process to achieve the outcome anticipated. According to Babbie and Mouton (2021); and De Vos et al. (2021), Research Design refers to all decisions we make in planning the study. Decision not only about what overall type or design to use, but also about sampling, sources and procedures for data collection

measurement issue and data analysis plan. In this study, the researcher used quantitative, descriptive cross -section design as methodological approach.

3.4.1 Descriptive Research Design

Descriptive design was used in this study. Descriptive design is the design that can be used to determine the frequency with which a particular variable occur (Cormack, 2015). In descriptive design, the researcher must not manipulate any variables and must determine relationship between variables. The researcher searchers for accurate information about characteristics of single subject (Brink et al., 2018). Descriptive design was used to describe the factors contributing to failure rate of induction of labour at selected hospital Mopani District, Limpopo Province, South Africa. In this study, Registered Midwives were used in order to describe the factors contributing to failure of induction of labour.

3.4. 2 Cross-Sectional Research Design

The cross-sectional design involved obtaining data from a cross-section of the population at a point in time, indicating that data are gathered once from a specific sample (Brink et al., 2018; Burns & Grove, 2016). This design is best suited to studies aimed at finding out the prevalence of phenomenon, situation, problem, attitude by taking a cross -section of the population according to Kumar (2016). The cross-section design was used by collecting data from Registered Midwives in the selected hospitals, namely, Maphutha L. Malatji and Van Velden's, Labour and Antenatal Wards.

3.5 Population and Sampling

3.5.1 Population

Population refers to a complete set of persons or objects that possess some common characteristics that is of interest to the researcher (Brink et al., 2018). According to Botma et al., the target population is the entire set or aggregation of objects, persons behaviour or events or any other single unit of a study sometimes called element or sampling units that meet the sampling criteria.

In this study, the target population was 60 Registered Midwives allocated in both the Labour Ward and Antenatal of the Van Velden and Maphutha L. Malatji Hospitals of Mopani District, Limpopo Province, South Africa. The target group was selected

because each met the criteria of this study, which was Registered Midwives with one year and above experience and those who gave consent to participate in the study, allocated in Labour and Antenatal Wards of the Maphutha L. Malatji and Van Velden Hospitals of the Mopani District.

3.5.2 Sampling

Sampling is a process in which representative units of a population are selected for inclusion in a research investigation (Schneider, Whitehead & Elliot, 2017). According to Brink et al. (2018), sample is a subset of a large set selected by the researcher to participate in a research study. Simple Random Probability Sampling was used in this study to ensure that all Registered Midwives have an equal chance of being included in the study. The population of 71 is the whole population that is under study and according to Yamane formula population of 71, at conference level of 95%, the confidence level sample size is approximately 60. The researcher sampled 60 Registered Midwives using Yamane's (1967) formula, for determining the sample size as following:

N=sample size

N=population

E= margin of error (MoE) e==0,05

$$n = \frac{\mathrm{N}}{1+Ne^2}$$

$$n = \frac{71}{1+71 \times 0.05^2}\ n$$

$$n = \frac{71}{1+71 \times\ 0.05)^2}$$

$$n = \frac{71}{1+116\ (0.0025)}$$

$$n = \frac{71}{1.1775}$$

n = 60,29

n = 60

Sample size =60.

The researcher assigned consecutive numbers to units of the population and started at any point on the table of random numbers and read consecutive number in any direction horizontally as guided by Schneider et al., (2017).

3.5.3 Inclusion Criteria

Inclusion criteria were, namely:

- Registered Midwives allocated in Labour Ward and Antenatal Ward of Maphutha L. Malatji and Van Velden Hospitals, Mopani Districts, Limpopo Province, South Africa; and
- Registered Midwives with one year and above experience allocated in Labour and Antenatal Wards at the Maphutha L. Malatji and Van Velden Hospitals, Mopani District, Limpopo Province, South Africa.

3.5.4 Exclusion Criteria

Exclusion criteria were, namely:

- Registered Midwives with less than one -year experience, as well as community services profession nurses allocated on both labour, antenatal and High Care at the Maphutha L. Malatji and Van Velden Hospitals, Mopani District, Limpopo Province, South Africa; and
- Registered Midwives who were on leave during data collection.

3.6 Data Collection

Data collection refers to identification of subject and the precise, systematic gathering of information or data relevant to the research purpose or the specific objectives, question, or hypothesis of the study (Burns & Grove, 2016). A self -developed 4 point Likert Scale questionnaire was used for data collection, and it comprised 125 closed ended question in following sections:

Section A: Socio-demographic data consisting of 11 questions.

Section B: Staffing and workload consisting of 10 questions,

Section C: Material resources consisting of 12 questions,

Section D: Equipment consisting of 13 questions

Section E: Competency consisting of 27 questions,

Section F: Staff capacitation consisting of 8 questions,

Section G: Monitoring and Assessment consisting of 10 questions,

Section H: Indication of induction of labour consisting of 15 questions,

Section I: Method of induction of labour consisting of 14 questions.

The respondents were asked to indicated that they “agree”, “disagree,” “strongly agree,” “strongly disagree”, “never”, “hardly ever”, “sometimes”, “often”, and “always” with one or more statements (Goodman & Moule, 2014).

The questionnaire was delivered to the 60 respondents by the researcher at both Maphutha L. Malatji and Van Velden Hospitals. The respondents completed the questionnaire on their own in a private room in the presence of the contact person. However, the researcher was available in case clarity was needed. Data were collected between October 2021 and April 2022 as Registered Midwives are shift workers. The duration for completion of questionnaire is 30-40 minutes. Questionnaire were completed and returned but and four questionnaires unreturned and eight questionnaires were spoiled as they were incomplete and other respondents tick more than one in a block/one row unsure of the answer.

3.6.1 Pilot Study

The pre-test included experts in the field of the study who are knowledgeable regarding questionnaire construction. The questionnaire was evaluated for Content-Related Validity and Face Validity by experts. The questionnaire was tested on four Registered Midwives; two in the Labour Ward and the other two in the Antenatal Ward. These four did not form part of the study.

A pilot study was performed to:

- Assess the feasibility of the study;
- Correct ambiguous instruction; and
- Determine the required to complete the questionnaire.

3.6.2 Pilot Study Results

All questionnaires were coded and analysed, all questionnaires answered and returned. These four respondents used during pre-testing did not form part of the main study. All respondents were female Registered Midwives, not surprising given that nursing is female dominant. All questions were answered according to the instruction given on the questionnaire; this means that the questionnaire was corrected, and thus has no need be refined. The questionnaire met the feasibility requirement. This is

evidenced by the results found whereby all respondents agree that working condition is not pleasant and overcrowding of patient, nurse-patient ratio is poor due to shortage of staff are factors contributing to induction of labour.

3.7 Data Analysis

Descriptive statistics was used which included a frequency distribution table and percentages of the respondents (Brink et al., 2018). The collected data were coded. Data were capture on Microsoft Office Excel 2010 by the researcher and later the statistician assisted with analysis. The SPSS version 24 was used to analyse data with the assistance of statistician. A total of 60 questionnaires were coded and analysed, but same respondents did not answer according to the question. The cross-tabulation was used to examine whether the variable related. The variables include age, gender, nursing qualification, speciality qualification, work experience, staffing and workload, material resources, equipment, competency, monitoring and assessment, indication of induction of labour and method of induction of labour. Descriptive statistic was used to analyse the data collected from socio-demographic part of the questionnaire (Burns & Grove, 2016). Descriptive statistics was used to examine whether socio-demographic data had an influence on main causes for failure rate of induction of labour.

3.8 Validity

According to Babbie and Mouton (2021) and De Vos et al. (2021), validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration.

3.8.1 Content Validity

Content Validity refers to the degree to which an instrument covers the scope and range of information that is sought (Brink et al., 2018). According to Babbie and Mouton (2021), Content Validity refers to the degree to which a measure covers the range of meanings included within a concept. The researcher based the claim on a literature review when constructing data collection instrument (Brink et al., 2018). Validity of the instrument was ensured by conducting intense literature review on the factors contributing to failure rate of induction of labour. Validity was ensured when the self-developed questionnaire was presented to the study supervisor, the

statistician, and the research committee in the field of study for evaluation of Content Validity of the instrument. All the items of the questionnaire were evaluated (Brink et al., 2018; and Babbie & Mouton, 2021).

3.8.2 Face Validity

Face Validity is a subjective determination that an instrument is adequate for obtaining the desired information. On the surface or face, the instrument appears to be an adequate means of obtaining the desired data (Brink et al., 2018; and De Vos et al., 2021). The questionnaire was submitted to the supervisor, senior degree panel and the statistician to be checked for the ability to measure what is expected to measure. The instrument was checked whether it contained the relevant items to be measured, it had instruction and headings that guided the respondents (Goodman & Moule, 2014).

3.9 Reliability

Reliability refers to the degree to which the research instrument can be depended upon to yield consistent results if used repeatedly over time on the same person, or if used by two researchers (Brink et al., 2018; and De Vos et al., 2021). The reliability of the instrument was established by pre-testing the questionnaire on 4 respondents who would not form/make part of the study (Brink et al., 2018; and De Vos et al., 2011). The pilot study was done to investigate the feasibility of the study and to detect unclear instructions and wording (Brink et al., 2018).

3.10 Bias

Bias is any influence that produces a distortion or misrepresentation of an outcome of a particular finding of a study (Brink et al., 2018). The researcher avoided asking respondents leading question. The participants were determined randomly using random number generator before the study began, to ensure that there is no systemic bias in either group. The researcher ensured the respondents understand all questions and also clarified questions that were not clear to the respondents.

3.11 Ethical Consideration

Ethical clearance was granted by the Medusa Research and Ethics Committee (MREC). Permission to conduct the study was obtained from the Limpopo Province

Department of Health Ethics Committee. Permission to collect data from the Maphutha L. Malatji and Van Velden Hospitals was granted by the hospital management.

- **Informed Consent**

According to Brink et al. (2018), Informed Consent is a respondent voluntarily agrees to participate in a research study in which he or she has full understanding of the study before the study begins. The researcher ensured informed Consent by explaining to the respondents what was going to be investigated, the expected duration of the investigation the possible advantages disadvantages and dangers to the which respondents may be exposed (Brink et al., 2018; and De Vos et al., 2021). The researcher informed the respondents that the information shared between the researcher and respondents is not going to be divulged to anyone who is not involved to the study.

The respondents were informed that they have right to withdraw from the study at any time without being harmed (De Vos et al., 2021). The respondents signed consent form as evidence of granting the researcher permission. The researcher ensured that the signed consent form was treated discretion and stored away in a correct manner so that a particular form easily be found if the needs raised (De Vos et al., 2021). The researcher explained the data collection methods used, namely, questionnaire (Brink et al., 2018).

- **Confidentiality**

Confidentiality is defined as the researcher ‘s responsibility to prevent all data gathered during the study from the being divulged or make it available to any other person (Brink et al., 2018; and LoBiondo-Wood & Haber, 2018). The researcher assured the respondents that the information about the respondents would not be made available to anyone who was not involved with the study by keeping the completed consent form in a locked cupboard together with completed questionnaires. The researcher informed the respondents not to write their surnames, but to put names only on the consent form. The researcher ensured that the names of the respondents were not used on the questionnaire, instead codes were used to trace in case of entry error. The respondents were informed that they had the right to withdraw from the research investigation at any time/point if they wished to.

- **Autonomy**

Autonomy emphasizes the right of an individual to make decisions for him/herself (Verklan & Walden, 2021). Autonomy was ensured by explaining to respondents that they had right to decide whether or not to participate in the study without prejudicial treatment (Botma et al., 2017). The respondents were informed that they had the right to withdraw from the study at any time, to refuse to give information or to ask for clarity about the purpose of the study (Brink et al., 2018). The researcher did not force the respondents to participate in the study, given that respondents are to participate voluntarily (Babbie & Mouton, 2021; and De Vos et al., 2021).

- **Anonymity**

Anonymity means that no one including the researcher should be able to identify any respondents afterwards (De Vos et al., 2021). Anonymity was ensured by keeping the respondent's identity unknown, even to the investigator. The respondents were informed not to write their names on the questionnaire. The respondents were also assured that neither their names nor their hospital names would appear on the research report to avoid revealing any identity. The researcher informed the respondents that the collected data will be entered into the computer using codes. Codes were used during data analysis. A contact person was used during data collection so that the respondents could remain anonymous to the researcher.

- **Privacy**

According to De Vos et al. (2021), privacy is to keep to oneself that which is normally not intended for others to observe or analyse. Privacy was ensured by having session in a private place where there was only the contact person and the respondents, so as to avoid disturbances (Brink et al., 2018; and LoBiondo-Wood & Haber, 2018). The respondents in the Labour Wards and Antenatal Wards of the Maphutha L. Malatji and Van Velden Hospitals complete the questionnaires at different times. The contact person was instructed not to allow discussion between the respondents. The researcher did not used a video recorder, camera or any kind of media during data collection to ensure privacy.

- **Beneficence**

The Principle of Beneficence is grounded on the premises that a person has the right to be protected from harm and discomfort and one should do good and above all no harm (Botma et al., 2017). The Principle of Beneficence was ensured by protecting the respondents from physical and emotional harm and discomfort as Botma et al., (2017) stated. The respondents were informed beforehand about the potential impact of the investigation.

3.12 Conclusion

This chapter discussed on the Research Design, population and sampling method, data collection and analysis Ethical consideration were also discussed. Chapter 4 discusses the results and causes of failed induction of labour.

CHAPTER 4
RESULTS AND DISCUSSION

4.1 Introduction

This chapter discusses the results of data collected from the respondents. Data were analysed using SPSS version 24 with the help of a statistician. Descriptive statistics such as frequencies, percentages and cross tabulation means were used for closed-ended questions. Inferential statistics provided a way for the researcher to look at the data in the study and decide how results could be generalized to the population.

4.2 Presentation of the Results

Data collected were presented with the aid of tables and figures. The following keys were used for tables and figures:

- Maphutha L. Malatji Hospital = MLMH
- Van Velden Hospital = VVH

4.2.1 Section A: Socio and Demographic Data

Socio-Demographic Data included the following items, namely: age, gender, nursing qualification, speciality qualification, unit allocated, work experience of Registered Midwives, number of midwives during day duty, number of midwives during night duty, number of years worked in ANC, High Care and Labour/Intrapartum Units.

4.2.1.1 Age of the Respondents

The age of the respondents ranges from 22 years as the younger respondents, and the older is 59 years old, from both hospitals.

4.2.1.2 Gender of the Respondents

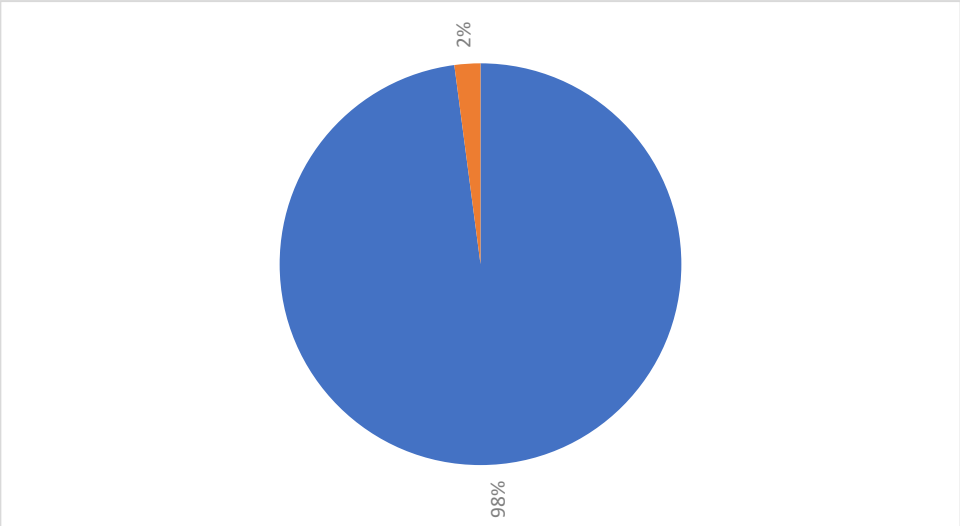

Figure 4.1 Gender of the Respondents

Figure 4.1 gender was studied to ensure that both males and female were included in the study, 98% of the respondents was female and 2% was male. From the Maphutha L. Malatji Hospital, all respondents were female, meaning there was no male respondent. That 2% of male is from the Van Velden Hospital and the remaining percentage is female.

4.2.1.3 Nursing Qualification of the Respondents

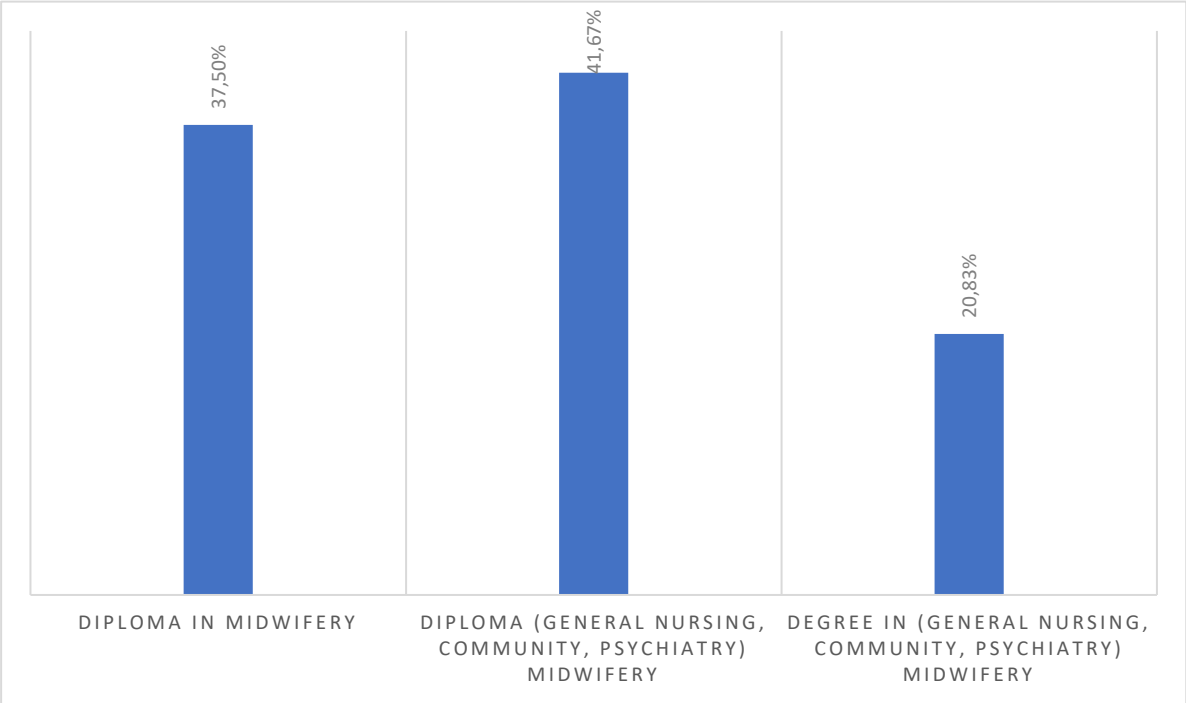

Figure 4.2: Nursing Qualification

Figure 4.2 shows that 37.50% of the respondents from both hospitals obtained a Diploma in Midwifery and 1.67% from both hospitals obtained diploma in (General Nursing, Community Psychiatry) Midwifery, 20.83% from both hospitals obtained Degree in (general nursing, community, psychiatry) Midwifery.

4.2.1.4 Speciality Qualification of the Respondents

Table 4.1: Speciality Qualification of Respondents in Maphutha Malatji and Van Velden Hospitals

Speciality qualification	**Maphutha Malatji**	**Van Velden**
1. Advance Midwifery and Neonatal Science	8.33%	29.16%
2. Diploma in Neonatal Intensive Care Nursing	0%	0%
3. Degree in Neonatal Intensive Care Nursing	0%	0%
4. None	91.33%	70.83%

Speciality qualification was studied to ensure that sample represented all levels of speciality qualifications. A quarter of Registered Midwives from both hospitals obtained Advanced Midwifery and Neonatal Nursing Science (at 37.49%). Maphutha L. Malatji obtained Advance Midwifery Ana Neonatal Nursing Science at 8.33%; and 29.16% was from the Van Velden Hospital. Other speciality qualifications are not obtained from both hospitals 62.51% of Registered Midwives no speciality qualification.

4.2.1.5 Descriptive Statistics

Table 4.2: Descriptive Statistics on Work Experience of Midwives, Number Midwives on Duty During the Day and Night and Number of Years Work in ANC, High Care and Labour Ward

	N	Minimum	Maximum	Mean	Std. Deviation
Work Exp	48	2	37	15.71	10.508
Midwday	48	3	10	6.33	1.642
Midwnight	48	2	3	2.73	.449
Yrs W ANC	48	2	19	6.67	4.096
YRS W H/C	47	0	6	.30	1.159
Yrs W LAB	48	2	19	6.44	4.171
Valid N (listwise)	47				

Table 4.2 indicates that from both hospitals working experience minimum years is 2 and maximum of 37 years of experience and knowledge, total Standard Deviation of 10.508. Number of Registered Midwives during day duty from both hospitals minimum

of 3 and maximum of 10, Standard Deviation of 1.642. Night duty maximum of 3 and Standard Deviation of .446. Years' experience work ANC maximum 19 year mean of 6.67 and Standard Deviation of 4.096. High Care work experience maximum 6 years with means of .30 and Standard Deviation of 1.159. Labour experience minimum 2 and maximum 19 years with mean of 6.44 and total Standard Deviation of 4.171.

4.2.2 Section B: Staffing and Workload

Table 4.3: Staffing and Workload in Maphutha and Van Velden Hospitals

Items	Strongly Agree	Agree	Disagree	Strongly Disagree
1. Working condition is pleasant.	8.3%	25.0%	64.6%	2.1%
2 .I am able to manage workload in the unit working now.	12.5%	75.0%	10.4%	2.1%
3. The ratio of Registered Midwives to the number of patients on induction of labour is poor.	16.7%	75.0%	2.1%	6.3%
4. Registered Midwives on duty always able to cover all work during day duty.	18.8%	52.1%	22.9%	6.3%
5.Number of Registered Midwives on night is enough for effective Midwifery Care.	20.8%	29.2%	37.5%	12.5%
6. The unit where am working now is understaffed.	66.7%	33.3%	0%	0%
7. I cannot cope with the workload.	8.3%	39.6%	47.9%	4.2%
8. Absenteeism was a big problem in unit past 6 months.	6.3%	20,8%	52.1%	20.8%
9. Resignation of midwives in unit was high in the past 6 month.	4.2%	16.7%	25.0%	54.2%
10. Adequate staff was available to do work in the past 6 month.	0%	10.4%	70.8%	18.8%

Table 4.3 indicates that 4 (8.3%) of the respondents indicated that they "strongly agree" to that working condition was pleasant in the Maternity Unit during there working period;12 (25.0%) indicated that they "agree" it was pleasant, 31 (64.4%) "disagree" that the working condition it was pleasant and 1 (2.1%) "strongly disagree". Eight (8) respondents (at 16.7%) indicated that they "strongly agree" that the ratio of Registered Midwives to the number of patient for induction of labour is poor; 36 (75.0%) indicated that they "agree" that the ratio of Registered Midwives to number of patient of induction of labour is poor; 1 (2.1%) "strongly disagree" that the ratio of Registered Midwives and number of patients for induction of labour is poor; and 3 (6.3%) indicated that they "strongly disagree" that the ratio of Registered Midwives to number of patient of induction of labour is poor.

Nine (9) respondents (at18.8%) indicated that they “strongly agree” that Registered Midwives are always able to cover all the work during the day duty; 25 respondents (at 52.1%) respondents indicated that they “agree” that they are always able to cover all the work during the day duty because the total number of Registered Midwives during the day are 8 (eight) per shift; 11 (22.9%) of the respondents “strongly disagree” that they are always able to cover all work during the day duty; and 3 (6.3%) respondents indicated that they “disagree” that they are always able to cover all work during day duty.

Ten (10) respondents (at 20.8%) “strongly agree” that the number of Registered Midwives on night duty is enough for effective Midwifery Care; 14 (29.2%) respondents indicated that they “agree” that the number of Registered Midwives on night duty is enough for effective for Midwifery Care; 18 (37.5%) respondents indicated that they “disagree” that the number of Registered Midwives on night duty is enough for effective Midwifery Care; and 6 (12.5%) respondents “strongly disagree” to the number of Registered Midwives on night duty is enough for effective Midwifery Care; only two (2) Registered Midwives are allocated for night, which is not enough number to care all patient in the unit. Thirty-two (32) respondents (at 66.7%) indicated that they “strongly agree” that the unit working in now is understaffed and 16 (33.3%) respondents indicated that “agree” that the unit working in now is understaffed, no one respondent on the “disagree” and “strongly disagree”. Three (3) respondents (at 6.3%) indicated that they “strongly agree” that absenteeism was a big problem for past 6 months,10 (20.8%) indicated that “agree” that absenteeism was a big problem for past 6 months, 25 (52.1%) “disagree” that absenteeism was big problem for past 6 months and 10 (20.8%) indicated that “strongly disagree” that absenteeism was a big problem for past 6 months.

Only 2 (4.2%) of the respondents indicated that “strongly agree” that resignation of midwives in the unit was high in the past 6 months, 8 (16.7%) of the respondents that “agree” to that resignation of midwives in the unity was high the past 6 months,12 (25,0%) respondents that “disagree” to that the resignation of midwives was high in the unit past 6 months and 26 (54.2%) of the respondents indicated that they “strongly disagree” that the resignation of midwives was high for past 6 month in the unit. Five (5) respondents (10,4%) indicated that “agree” that adequate staff was available to do

the work in the past 6 months, 34 (70.8%) respondents indicated that “disagree” that the adequate staff was available to do work in the past 6 months, 9 (18,8%) of the respondents indicated that “strongly disagree” that the adequate staff was available to do work in the past 6 months. This is supported by high number of respondents “agree” on that midwives and patient ratio poor and also high number of “agree” on unit is understaffed.

4.2.3 Section C: Material Resources

4.2.3.1 Material Resources in Maphutha L. Malatj and Van Velden Hospitals

Table 4.4: Material Resources in Maphutha Malatji Hospital and Van Velden Hospital

Items	Never	Hardly ever	Sometimes	Often	Always
1. Bed linen	0%	0%	4.2%	29.2%	66.7%
2. Gloves	0%	0%	0%	10.4%	89.6%
3. Sanitary pads	0%	0%	0%	6.3%	93.8%
4. Paper towel	0%	2.1%	25.0%	62.5%	10.4%
5. Soap	0%	0%	6.3%	12.5%	81.3%
6. Suturing materials	0%	0%	0%	2.1%	97.9%
7. Urine dipstick	0%	0%	2.1%	2.1%	95.8%
8. Suction catheter	0%	0%	0%	2.1%	97.9%
9. Administration sets	0%	0%	0%	6.3%	93.8%
10. Urine catheters	0%	0%	2.1%	2.1%	95.8%
11. Endo tracheal tubes	0%	0%	6.3%	2.1%	91.7%
12. Urine bags	0%	0%	2.1%	2.1%	95.8%

Table 4.4 indicates that bedlinen was “sometimes” available according to 2 (4.2%) of the respondents, 14 (29.2%) stated that it was “often” available bed linen, 32 (66.7%) of the respondents stated that it was “always” available, 5 (10.4%) of the respondents indicated that glove is “often” available and 43 (89.6%) stated that gloves “always” available. Three (3) respondents (at 6.3%) indicated that sanitary pads are “often” available and 45 (93.8%) stated that sanitary pads are “always” available. Soap is “sometimes” available, 6 (12.5%) stated that soap was often available, 39 (81.3%) indicated that soap was “always” available. About 90% of the respondents shows that the following material “always” available in the unit for induction of labour.

4.2.4 Section D: Equipment

4.2.4.1Availability of Equipment

Table 4.5: Equipment

Items	Never	Hardly Ever	Sometimes	Often	Always
1.Bloodpressure apparatus.	0%	2.1%	0%	2.1%	95.8%
2. Stethoscope.	0%	0%	6.3%	50.0%	43.8%
3. Fetoscope.	2.1%	4.2%	0%	47.9%	45.8%
4. Doptone.	6.3%	8.3%	50.0%	16.7%	18.8%
5. Non-Stress Test Machine.	4.2%	4.2%	4.2%	10.4%	77.1%
6.Cardiotocograph Machines.	0%	0%	2.1%	2.1%	95.8%
7. Suction apparatus	0%	0%	0%	4.2%	95.8%
8.Oxygen Cylinders	0%	0%	0%	0%	100%
9. Cribs	0%	4.2%	6.3%	16.7%	72.9%
10. Delivery packs	0%	0%	0%	0%	100%
11. Episiotomy scissors	0%	0%	6.3%	2.1%	91.7%
12. Vaginal examination packs	0%	0%	4.2%	6.3%	89.6%
13. Paper for Cardiotocograph Machine.	0%	0%	0%	31.3%	68.8%

Table 4.5 shows the responses on the availability of equipment in the unit. "Never", "hardly ever" and "sometimes" were regarded as negative responses, while "often" and "always" were regarded as positive responses. The respondents 2.1% indicated that Blood Pressure apparatus was "hardly ever available" another 2.1% stated that is sometime available and 95.8% indicated that "always available". About 3 (6.3%) of the respondents indicated that stethoscopes "sometime available", 24 (50%) stated that stethoscope often available and 21 (43.8%) stated that "always available".

One (1) respondent (2.1%) indicated that fetoscope "never available"; 2 (4.2%) respondents stated that fetoscope were "hardly ever available", 23 (47.9%) respondents stated that "often available" and 22 (45.8%) stated that fetoscope "always available" in the unit to auscultate the Foetal Heart Rate pattern. Three (3) respondents (at 6.3%) stated that Doptone "never available", 4 (8.3%) indicated that Doptone "hardly ever available", 24 (50%) stated that Doptone "sometimes available", 8 (16.75) stated that Doptone "often available" and 9 (18.8%) stated that Doptone "always available".

About 2 (4.2%) respondents indicated that Non-Stress Test Machine "never available", 2 (4.2%) stated that "hardly ever available"; 2 (4,2%) respondents also indicated that

"sometimes available", 5 (10.4%) stated that "often available" and 37 (77.1%) stated that "always available". One (1) respondent (at 2.1%) indicated that Cardiotocograph Machine "sometimes available"; 1 (2.1%) respondent also stated that "often available" and 46 (95.8%) stated that "always available" in the unity for monitoring. Total of 48 (100%) of the respondents stated that Oxygen Cylinders "always available" in the unit for both mother and child support. Fifteen respondents (15) (at 31.3%) stated that paper for Cardiotocograph Machine "often available"; and 33 (68.8%) stated that paper for Cardiotocograph Machine "always available" for analysis and interpretation of foetal condition.

4.2.5 Section E: Competency

4.2.5.1 Competency of Registered Midwives in Maphutha L. Malatji and Van Velden

Table 4.6: Competency

Items	Not at all	Sometime	Fairly	Good	Very good
1. I am able to utilize Non-Stress Test Machine.	2.1%	0%	0%	16.7%	81.3%
2. I am knowledgeable regarding use of Cardiotocograph Machine.	0%	0%	0%	10.4%	89.6%
3. I am able to utilize ward haemoglobin equipment.	0%	0%	2.1%	10.4%	87.5%
4. I able to measure MUAC to monitor nourishment .	0%	0%	4.2%	22.9%	72.9%
5. I utilize BANC strategy with each and every pregnant woman.	0%	0%	4.2%	18.8%	77.1%
6. I able to analyse NST strip.	0%	0%	2.1%	16.7%	80.9%
7. I able to interpret NST strip.	0%	0%	2.1%	10.6%	87.2%
8. I capable in implementing PMTCT strategy appropriately and timeously	0%	0%	0%	8.3%	91.7%
9. I able to analyse CTG strip.	0%	0%	2.1%	4.2%	92.8%
10. I able to interpret CTG strip accurately.	0%	0%	2.1%	8.3%	89.6%
11. I able to do Intrapartum Resuscitation of the foetus based on the interpretation of CTG .	0%	0%	0%	18.8%	81.3%
12. I able to plot Foetal Heart Rate correctly on the partograph.	0%	0%	0%	6.3%	93.8%
13. I able to plot station of foetal Head on the partograph.	0%	0%	0%	8.3%	91.7%
14. I skilfully in plotting the cervical dilatation on the partograph.	0%	0%	0%	2.1%	97.9%
15. I able to analyse findings plotted on the partograph.	0%	0%	0%	2.1%	97.9%
16. I able to interpret the findings foetal status and maternal status plotted on the partograph.	0%	0%	0%	4.3%	95.7%

17. I able to interpret the progress of labour plotted on the partograph.	0%	0%	0%	4.2%	95.8%
18. I able to give patient oxygen when in labour having foetal distress.	0%	0%	0%	2.1%	97.9%
19. I often resuscitate the newborn babies effectively without complication .	0%	0%	0%	4.2%	95.8%
20. I able to implement Let Baby Breathe Strategy.	0%	0%	0%	8.3%	91.7%
21. I can insert drip without fail.	0%	0%	0%	2.1%	97.9%
22. I know consult my senior when necessary.	0%	0%	0%	6.3%	93.8%
23. I seek senior opinion when meet challenging situations.	0%	0%	0%	6.3%	93.8%
24. I seek for assistance when need arise.	0%	0%	0%	8.3%	91.7%
25. I know when to refer patient to doctor.	0%	0%	0%	2.1%	97.9%
26. I know protocol and guideline that should follow in managing pregnant woman in induction of labour.	0%	0%	0%	2.1%	97.9%
27. I follow protocol and guidelines always when care for high risk patients.	0%	0%	0%	2.1%	97.9%

Table 4.6 indicates that only 1 (2.1%) respondent indicated “not at all”, meaning not able to utilize the Non-Stress Test Machine; 8 (16.7%) respondents indicated that they are “good” on the utilize Non-Stress Test Machine; 39 (81.3%) respondents indicated that they are “very good” at the utilization of Non-Stress Test Machine. Regarding the use of Cardiotocograph, 5 (10.4%) respondents indicated to be “good” at the use of Cardiotocograph Machine; and 43 (89.6%) respondents indicated that they are “very good” at the use of Cardiotocograph Machine. With the analyses of NST, only 1 (at 2.1 %) respondent indicated “fairly” on the analyse the Non-Stress Test strip; 8 (at 16.7%) respondents indicated “good” on the analyse the Non-Stress Test strip; and 38 (at 97.9%) respondents indicated that they are “very good” on the analyse of Non-Stress Test strip; and 1 (at 2.1%) ignored this item.

Regarding interpretation of NST, only 1 (at 2.1%) indicated “fairly” on interpreting the Non-Stress Test strip; 5 (at 10.4%) respondents indicated “good” on interpreting the NST strip; 41 (85.5%) respondents indicated “very good” on the interpret of NST strip and 1 (2.1%) respondent did not answer. About analyses of CTG, 1 (at 2.1%) respondent indicated “fairly” on analysing the CTG strip; 2 (at 4.2%) indicated that “good” on analysing the CTG strip and 45 (93.8%) stated “very good” on the analyse

CTG strip. About interpretation of CTG 1 (2.1%) respondent indicated “fairly” on the interpret the CTG strip accurately, 4 (8.3%) respondents said that they are “good” in the interpret of the CTG strip accurately; and 43 (89.6%) respondents indicated that they are “very good” on the interpret of the CTG strip accurately. Of the Registered Midwives, 9 (18.8%) respondents indicated that they are “good” to do Intrapartum Resuscitation of the foetus appropriately and timeously based on interpretation of the CTG; 39 (81.3%) respondents indicated that they are “very good” to do Intrapartum Resuscitation of the foetus appropriately and timeously based on the interpretation of the CTG.

About plotting of partograph, 3 (6.3%) respondents indicated that to be “good” on the plotting of Foetal Heart Rate correctly on the partograph and 45 (93.8%) indicated that they are “very good” on plot of Foetal Heart Rate correctly on partograph. About plotting, 4 (8.3%)Registered Midwives indicated that they are “good” to plot the station of the Foetal Head on the partograph; and 44 (91.7%) respondents indicated to be “very good” to plot the station of the Foetal Head on the partograph. Only 1 (at 2.1%) Registered Midwife indicated “good” on the skilful in plotting cervical dilatation on the partograph and 47 (97.9%) respondents responded “very good” on the skilful in plotting cervical dilatation on the partograph. Again, only 1 (at 2.1%) Registered Midwife indicated that “good” to analyse the findings plotted on the partograph; and 47 (91.9%) respondents stated that they are “very good” to analyse findings plotted on the partograph.

Four point two percent (4.2%) of Registered Midwives indicated it is “good” to interpret the findings foetal status and maternal status plotted on the partograph; 45 (93.8%) respondents responded “very good” to interpret the findings foetal and maternal status plotted on the partograph, and 1 (2.1%) just ignored this section. Two (at 4,2%) Registered Midwives stated they are “good” at interpreting the progress of labour plotted on the partograph; and 46 (95.8%) respondents responded “very good” to interpret the progress of labour plotted on the partograph. Only 1 (2.1%) Registered Midwife stated “good” at being able to give patient oxygen when in labour having foetal distress; and 47 (97.9%) respondents responded “very good” on to be able to give patient oxygen when in labour having foetal distress. Two (at 4.2%) Registered Midwives stated “good” on often resuscitate the new-born babies effectively without

complications and 46 (95.8%) stated “very good” on the often resuscitate new-born babies effectively without complications. Four (at 8.3%) Registered Midwives stated “good” on to be able to implement Let Baby Breathe Strategy; and 44 (91.7%) respondents stated “very good” on to be able to implement Let Baby Breathe Strategy.

4.2.6 Section F: Staff Capacitation

4.2.6.1 Staff capacitation

Table 4.7: Staff Capacity Maphutha L. Malatji and Van Velden Hospitals

Items	Never	Once	Twice	More	Always
1. In-Service Education in the Unit Working in Now	2.1%	14.6%	60.4%	10.4%	12.5%
2. Maternal Mortality Meetings of Midwifery and Obstetrics Cases	0%	14.6%	47.9%	10.4%	27.1%
3. Perinatal Mortality Rates Meetings in Limpopo Province	64.6%	16.7%	8.3%	2.1%	8.3%
4. National Conferences	87.5%	0%	4.2%	4.2%	4.2%
5. Midwifery Symposia	87.5%	2.1%	4.2%	2.1%	4.2%
6. Midwifery Seminars	89.6%	2,1%	4.2%	4.2%	0%
7.Workshops Related to Midwifery Practice	18.8%	8.3%	50.0%	18.8%	4.2%
8. International Conferences	87.5%	4.2%	4.2%	4.2%	0%

Table 4.7 shows that all respondents, 1(2.1%) indicated that “never” in-service education in the unit working now, 7 (14.6%) indicated that were “once” attended, 29 (60.4%) indicated that they are “twice” attended, 5 (10.4%) indicated that they “more” attended and 6 (12.5%) indicated that they “always” attended. In-Service Training is daily staff development used to guide and develop Registered Midwives to improve Midwifery Care. With regard to the Maternal Mortality Meetings of midwifery and obstetric cases, 7 (14.6%) indicated that they are “once” attend Maternal Mortality Meetings of midwifery and obstetric cases, 23 (47.9%) indicated that they “twice” attend, 5 (10.4%) indicated that they “more” attend and 13 (27.1%) stated that they “always” attend, Maternal Mortality Meetings of midwifery and obstetrics cases is meeting that help to identify mistakes/gaps and make resolution on how to cover identified gaps on providing best Midwifery Care.

Regarding perinatal rate meeting in Limpopo Province, 31 (64.6%) indicated that they “never” attend, 8 (16.7%) indicated that they “once” attend, 4 (8.3 %) indicated that they “twice” attended;1 (2.1%) indicated that they are “more” attended meeting; and 4 (8.3%) respondents responded that “always” attended. With regard to National Conference; 42 (87.5%) indicated that they “never” attend National Conference; 2

(4.2%) stated that the “twice” attend National Conference; 2(4.2%) stated that they “more” attended National Conference; and 2 (4.2%) stated “always” attend National Conference. With regard to Midwifery Symposia; 87.5% of respondents indicated that they “never” attend; 1 (2.1%) indicated that “once” attended; 2 (4.2%) indicated that they “twice” attended; 1 (2,1%) indicated “more” attend; and 2 (4.2%) stated that they “always” attend, Midwifery Symposia improve skills and knowledge of midwives by training them on the new methods of management.

Regarding Midwifery Seminars, 43 (89.6%) indicated that they “never” attend; 1 (2.1%) respondent indicated “once” attend; 2 (4.2%) respondents indicated that they “twice” attend and 2 (4.2%) respondents stated that they “more” attend, Midwifery Seminars. With regard to workshop to Midwifery Practice, 9 (18.8%) respondents indicated that they “never” attend; 4 (8.3%) indicated that they “once” attend; 24 (50%) respondents indicated that they “more” attended; and 2 (4.2%) respondents indicated that they “always” attending. Regarding International Conference, 42 (87.5%) respondents indicated that they “never” attend; 2 (4.2%) respondents indicated that they once attend, 2 (4.2%) respondents indicated that they “twice” attended; and 2 (4.2%) respondents indicated that they “more” attend International Conference.

4.2.7 Section G: Monitoring and Assessment

4.2.7.1 Monitoring and Assessment

Table 4.8: Monitoring and Assessment

Items	Strongly agree	Agree	Disagree	Strongly disagree
1. Maternal condition assessed and monitored before and during induction of labour.	77.1%	14.6%	4.2%	4.2%
2. Bishop Score should be assessed before and during induction of labour.	75%	16.7%	0%	8.3%
3. Bishop Score is re-assessed every 6 hourly during induction of labour.	16.7%	10.4%	54.2%	18.8%
4. Bishop Score should be <6 before induction of labour.	10.4%	6.3%	60.4%	22.9%
5. Bishop Score should be >8 before induction of labour.	72.9%	8.3%	14.6%	4.2%
6. Cervix should be ripen before induction of labour.	77.1%	14.6%	6.3%	2.1%
7. Uterine contractions monitored hourly during induction of labour.	75.0%	6.3%	8.3%	10.4%

8. Uterine contractions monitored 3 times during induction of labour .	8.3%	6.3%	31.3%	54.2%
9. Induce labour more painful than spontaneous labour.	33.3%	6.3%	37.5%	22.9%
10. Non-Stress Test done before commencement of induction of labour.	89.6%	0%	4.2%	6.3%
11. Foetal well-being monitored 30 minutes during induction of labour.	78.1%	33.3%	31.3%	8.3%
12. Fatal well-being monitored hourly during induction of labour.	66.7%	10.4%	8.3%	14.6%
13. Continuous electronical foetal monitoring as described Intrapartum Care, during induction of labour.	37.5%	45.8%	6.3%	10.4%
14. Once Cardiotocograph is confirmed as normal, intermittent auscultation should be used unless there is clear indication.	8.3%	6.3%	22.9%	62.5%
15. Once active labour established , maternal and foetal monitoring should be carried out as described in Intrapartum Care.	72.9%	10.4%	6.3%	10.4%
16. Normal Foetal Heart Rate patterns should be confirmed using electronic foetal monitoring	64.6%	8.3%	16.7%	10.4%

Table 4.8 reveals that 37 (77.1%) of the respondents stated “strongly agree” that maternal condition assessed and monitored before and during induction of labour, 7 (14.6%) respondents stated that they “agree” that maternal condition assessed and monitored before and during induction of labour, 2 (4.2%) respondents stated that they “disagree” that maternal condition assessed and monitored before and during induction of labour and 2 (4.2%) respondents “strongly disagree” that maternal condition assessed before and during induction of labour. About 36 (75.0%) stated that they “strongly agree” that Bishop Score should be assessed before and during induction of labour, 8 (16.7%) stated that they “agree” that Bishop Score should be assessed before and during induction of labour and 4 (8.3%) stated that they “strongly disagree” that Bishop Score should be assessed before and during induction of labour, assessment of Bishop Score helps on determining the favourability of pelvis regarding labour.

About 8 (16.7%) indicated that “strongly agree” that Bishop Score is re-assessed every 6 hourly during induction of labour, 5 (10.5%) “agree” that Bishop Score is re-assessed every 6 hourly during induction, 26 (54.2%) stated that they “disagree” that the Bishop Score is re-assessed every 6 hourly during induction of labour and 9 (18.8%) they “strongly disagree” that the Bishop Score is re-assessed every 6 hourly

during induction of labour, re-assessment of Bishop Score is necessary on identifying gap missed. About 37 (77.1%) reveals that “strongly agree” that cervix should be ripen before induction of labour, 7 (14.6%) “stated agree” that cervix should be ripen before induction of labour, 3 (6.3%) “stated disagree” that cervix should be ripen before induction of labour and only 1 (2.1%) “strongly disagree” that cervix should be ripen before induction of labour, ripping of cervix makes cervix to become more favourable for induction labour to be successful.

About 36 (75.0%) respondents stated that they “strongly agree” that uterine contraction is monitored hourly during induction of labour, 3 (6.3%) respondents “agree” that uterine contraction monitored hourly during induction of labour, 4 (8.3%) respondents stated that they “disagree” that uterine contraction is monitored hourly during induction of labour and 5 (10.4%) respondents indicated that they “strongly disagree” that uterine contraction is monitored hourly during induction of labour. About 43 (89.6%) respondents revealed that they “strongly agree” that Non-Stress Test is done before commencement of induction of labour, 2 (4.2%) respondents stated that they “disagree” that Non-Stress Test is done before commencement of induction of labour and 3 (6.3%) respondents indicated that they “strongly disagree” that Non-Stress Test is done before commencement of labour, NST before induction determine foetal condition about induction to commence or not.

About 18 (37.5%) respondents indicated that they “strongly agree” that continuous electronic foetal monitoring is done as described Intrapartum Care during induction of labour, 22 (45.8%) respondents indicated that they “agree” that continuous electronic foetal monitoring is done as described Intrapartum Care during induction of labour, 3 (6.3%) respondents indicated that they “disagree” that continuous electronic foetal monitoring is done as described Intrapartum Care during induction of labour; and 5 (10.4%) respondents indicated that they “strongly disagree” that continuous electronic foetal monitoring is done as described Intrapartum Care during induction of labour. About 35 (72.9%) of the respondents indicated that they “strongly agree” that once active labour is established, maternal and foetal monitoring should be carried out as described in Intrapartum Care, 5 (10.4%) respondents indicated that they “agree” that once active labour is established, maternal and foetal monitoring should be carried out as described in Intrapartum Care, 3 (6.3%) respondents indicated that they “disagree”

that once active labour established, maternal and foetal monitoring should be carried out as described in Intrapartum Care and 5 (10.4%) respondents indicated they "strongly disagree" that once active labour established, maternal and foetal monitoring should be carried out as described in Intrapartum Care, maternal and foetal monitoring helps to identify any distress between mother and foetus and also indicated Caesarean Section/to stop induction due to distress.

4.2.8 Section H: Indication of Induction of Labour

4.2.8.1 Indication of Induction of Labour

Table 4.9: indication of Induction of Labour

Items	Strongly agree	Agree	Disagree	Strongly disagree
1. Post-term.	91.7%	4.2%	0%	4.2%
2. Pre-labour rupture of membrane.	87.5%	8.3%	0%	4.2%
3. Chronic/gestational hypertension.	87.5%	6.3%	2.1%	4.2%
4. Chronic/gestational diabetes mellitus.	81.3%	4.2%	8.3%	6.3%
5. Intrauterine Growth Restriction.	72.9%	8.3%	6.3%	12.5%
6. Previous intrauterine foetal death.	75.0%	12.5%	6.3%	6.3%
7. *Oligohydramnios*.	62.5%	18.8%	8.3%	10.4%
8. Maternal age.	16.7%	10.4%	50.0%	22.9%
9. Parity.	16.7%	12.5%	47.9%	22.9%
10. Poor obstetric history.	22.9%	29.2%	33.3%	14.6%
11. *Chorioamnionitis*.	27.1%	14.6%	37.5%	20.8%
12. Decrease foetal movement at term .	4.2%	4.2%	22.9%	68.8%
13 .Big baby.	4.2%	0%	4.2%	91.7%
14 .Previous failed induction.	8.3%	8.3%	10.4%	72.9%
15 .Cardiac diseases in pregnancy.	6.3%	2.1%	10.4%	81.3%

Table 4.9 reveals that 44 (91.7%) of the respondents indicated that they "strongly agree" that post-term is indication of induction of labour, 2 (4.2 %) respondents indicated they "agree" that post-term is indication of labour and 2 (4.2%) respondents responded that they "strongly disagree" that post-term is indication of labour. About 42 (87.5%) of the respondents indicated that they "strongly agree" that pre-labour rupture of membrane is indication of labour; 4 (8.3%) respondents indicated that they "agree" that pre-labour rupture of membrane is indication of labour; and 2 (4.2 %) respondents responded that they "strongly disagree" that pre-labour rupture of membrane is indication of induction of labour.

About 42 (87.5%) respondents stated that they "strongly agree" that chronic/gestational hypertension is an indication of induction of labour, 3 (6.3%)

respondents stated that they “agree” that chronic/gestational hypertension is an indication of labour; 2.1% respondents indicated that they “disagree” that chronic/gestational hypertension as indication of labour; and 2 (4.2%) respondents stated that they “strongly disagree” that chronic/gestational hypertension is indication of labour. About 30 (62.5%) of the respondents stated that they “strongly agree” that *oligohydramnios* is an indication of induction of labour, 9 (18.8%) respondents stated that they “agree” that *oligohydramnios* is an indication of induction of labour, 4 (8.3%) respondents responded that they “disagree” that *oligohydramnios* is indication for induction of labour and 5 (10.4%) respondents stated that they “strongly agree” that *oligohydramnios* is an indication for induction of labour.

About 13 (27.1%) respondents stated that they “strongly agree” that *chorioamnionitis* is indication of induction of labour, 7 (14.6%) respondents stated that they “agree” that *chorioamnionitis* is indication of induction of labour, 18 (37.5%) respondents stated that they “disagree” that *chorioamnionitis* is indication of labour and 10 (20,8%) respondents responded that they “strongly disagree” that *chorioamnionitis* is indication of induction of labour. About 2 (4.2%) respondents stated that they “strongly agree” that decrease foetal movement at term is indication of induction of labour, 2 (4.2%) respondents stated that they “agree” that decrease foetal movement at term is indication of induction of labour, 11 (22.9%) respondents stated that they “disagree” that decrease foetal movement at term is indication of induction of labour and 33 (68%) respondents responded that they “strongly disagree” that decrease foetal movement at term is indication of induction of labour.

About 4 (8.3%) respondents stated that they “strongly agree” that previous failed induction of labour is indication for induction of labour; 4 (8.3%) respondents “agree” that previous failed induction is indication of induction of labour; 5 (10.4 %) respondents stated that they “disagree” that previous failed induction is indication of induction of labour; and 35 (72.9%) respondents responded that they “disagree” that previous failed induction is indication of induction of labour, failed induction means that Bishop Score was not favourable for induction of labour and cervix was not ripen.

4.2.9 Section I: Method of Induction of Labour

4.2.9.1 Method of Induction of Labour

Table 4.10: Method of Induction of Labour

Items	Agree	Strongly agree	Disagree	Strongly disagree
1. Surgical method -artificial rupture of membrane.	87.5%	10.4%	2.1%	0%
2. Cervical membranes sweeping.	75.0%	8.3%	16.7%	0%
3. Medical method-Oxytocin.	77.1%	12.5%	8.3%	2.1%
4. Prostaglandins E2.	72.9%	22.9%	0%	4.2%
5. Misoprostol.	75.0%	20.8%	0%	4.2%
6. Oxytocin, Misoprostol and Prostaglandin available in the unit to complete course of induction.	75.0%	14.6%	8.3%	2.1%
7. Amnion hook available to rupture membrane.	45.8%	39.6%	8.3%	6.3%
8. Hydroscopic Dilators used to dilate cervix in the unit to induce labour.	10.4%	4.2%	8.3%	77.1%
9. Oxytocin administrated intravenous for induction of labour.	79.2%	6.3%	8.3%	6.3%
10. Infusion pump used to regulate Oxytocin infusion during induction.	83.3%	12.5%	4.2%	0%
11. Misoprostol administrated oral/vaginal during induction of labour.	52.1%	39.6%	0%	8.3%
12. When administrating next dose for oral Misoprostol , two hourly intervals.	52.1%	41.7%	0%	6.3%
13. Prostaglandin administered per vagina for induction of labour .	45.8%	45.8%	4.2%	4.2%
14. When administering next dose of Prostaglandin, 6 hourly intervals.	66.7%	22.9%	6.3%	4.2%

Table 4.10 reveals that 42 (87.5%) respondents indicated that they “agree” that surgical method artificial rupture of membrane is method of induction of labour; 5 (10.4%) indicated that surgical method artificial rupture of membrane is method of induction of labour; and 1 (2.1%) respondent indicated they “disagree” that surgical method artificial rupture of membrane is a method of induction of labour. About 37 (77.1%) respondents stated that they “agree” that Medical Method Oxytocin is method of induction of labour; 6 (12.5%) respondents stated that they “strongly agree” that Medical Method Oxytocin is method of induction of labour; 4 (8.3%) respondents stated that they “disagree” that Medical Method Oxytocin is method of induction of labour; and 1 (2.1%) respondent indicated “strongly disagree” that Medical Method Oxytocin is method of induction of labour

About 35 (72.9%) of the respondents stated that “agree” that Prostaglandins E2 is method of induction of labour, 11 (22.9%) stated that “strongly agree” that Prostaglandins E2 is method of induction of labour and 2 (4.2%) indicated that “strongly disagree” that Prostaglandins E2 is a method of induction of labour. About Misoprostol, 36 (75%) respondents stated that “agree” that Misoprostol is method of induction of labour; 10 (20.8%) respondents stated that they “strongly agree” that Misoprostol is method of induction of labour; and 2 (4.2%) respondents responded that they “strongly disagree” that Misoprostol is a method of induction of labour. About 36 (75%) respondents stated that they “agree” that Misoprostol is method of induction of labour; 0 (20.8%) stated that “strongly agree” that Misoprostol is method of induction of labour and 2 (4.2%) respondents responded that they “strongly disagree” that Misoprostol is a method of induction of labour.

About 36 (75.0%) respondents responded that they “agree: that Oxytocin, Misoprostol and Prostaglandin are available in the unit to complete course of induction, 7 (14.6%) respondents stated that they “strongly agree” that Oxytocin, Misoprostol and Prostaglandin are available in the unit to complete course of induction, 4 (8.3 %) respondents stated that they “disagree” that Oxytocin, Misoprostol and Prostaglandin are available in the unit to complete course of induction and 1 (2.1%) respondent stated “strongly disagree” that Oxytocin, Misoprostol and Prostaglandin are available in the unit to complete course of induction of labour. About 5 (10.4 %) respondents stated that they “agree” that Hydroscopic Dilator is used to dilate cervix in the unit to induce labour; 2 (4.2 %) respondents stated that they “strongly agree” that Hydroscopic Dilator is used to dilate cervix in the unit to induce labour; 4 (8.3%) respondents stated that they “disagree” that Hydroscopic Dilator is used to dilate cervix in the unit to induce labour; and 37 (77.1%) respondents responded that they “strongly disagree” that Hydroscopic Dilator is used to dilate cervix in the unit to induce labour.

About 38 (79.2%) respondents stated that they “agree” that Oxytocin is administered intravenous for induction of labour; 3 (6.3%) respondents stated that they “strongly agree” that Oxytocin is administered intravenous for induction of labour; 4 (8.3%) respondents responded that they “disagree” that there is Oxytocin intravenous for induction of labour; and 3 (6.3%) respondents stated that they “strongly disagree” that there is Oxytocin intravenous for induction of labour. About 40 (83.3%) respondents

stated that they “agree” that infusion pump is used to regulate Oxytocin infusion during induction; 6 (12.5%) respondents responded that they “strongly agree” that infusion pump is used to regulate Oxytocin infusion during induction; and 2 (4.2%) respondents stated that they “disagree” that infusion pump is used to regulate Oxytocin infusion during induction. About 25 (25.1%) respondents responded that they “agree” that Misoprostol is administrated oral/vaginal during induction of labour, 19 (39.6%) respondents stated that they “strongly agree” that Misoprostol is administrated oral/vaginal during induction of labour; and 4 (8.3%) respondents responded that they “strongly disagree” that Misoprostol is administrated oral/vaginal during induction of labour

About 25 (52.1%) respondents stated that they “agree” that when administering next dose for oral Misoprostol, it must be two hourly interval; 20 (41.7%) indicated that “strongly agree” that the next dose of oral Misoprostol is administered on two hourly interval; and 3 (6.3%) stated that “strongly agree” that administering next dose for oral Misoprostol two hourly interval. About 22 (45.8%) respondents stated that they “agree” that Prostaglandin is administered per vagina for induction of labour; 22 (45.8%) respondents indicated that they “strongly agree” that Prostaglandin is administered per vaginal for induction of labour; 2 (4.2%) respondents stated that they “disagree” that Prostaglandin is administered per vagina for induction of labour; and the other 2 (4.2%) respondents responded that they “strongly disagree” that Prostaglandin is administered per vagina for induction of labour. About 32 (66.7%) respondents stated that they “agree” that when administering next dose of Prostaglandin, it must be 6 hourly interval; 11 (22.9%) respondents stated that they “strongly agree” that when administering next dose of Prostaglandin, it must be 6 hourly interval; 3 (6.3%) respondents responded that they “disagree” that when administering next dose of Prostaglandin, it must be 6 hourly interval; and 2 (4.2%) respondents stated that they “strongly disagree” that when administering next dose of Prostaglandin, it must be 6 hourly interval.

4.3 Discussion of the Results

- **Socio and Demographic data**

The results revealed that the majority of the older Registered Midwives was in the Maphutha L. Malatji Hospital; they have knowledge and skills, but they are no longer

that active. Literature did not reveal that, but it is supported by a study conducted by Voit and Carson (2017) shows that older midwives had wealth of experience, but they struggle with the late nights, long shifts, and physical strain of delivering and caring for babies. The Maphutha L. Malatji Hospital had 100% of female Registered Midwives and the Van Velden Hospital had 98% of female Registered Midwives with 2% of male Registered Midwives, because the nursing profession is dominated by female, Nigidi (2017) agreed. According to the Health Promotion Model, demographic data is regarded as personal factors that are described as biological, psychological, and sociocultural. Moreover, biological factors include age and strength, psychological are self-motivation and perceived health status (Pender et al., 20015).

- **Nursing Qualification**

Both Maphutha L. Malatji and Van Velden Hospitals had 37% of Registered Midwives with Diploma in Midwifery. Diploma in Midwifery is funded by the Department of Health in the nursing schools. In both hospitals, no Registered Midwives had a speciality in diploma/degree Neonatal Intensive Care; in both the Maphutha L. Malatji and Van Velden there were Registered Midwives with Advanced Midwifery and Neonatal Nursing Science. All of the Registered Midwives with Advanced Midwifery were old; the young midwives did not have speciality qualification. This was supported by the Health Promotion Model by Pender et al., (2015) when showing that perceived barriers may influence action in directly by blocking that action or indirectly by decreasing any commitment to act.

- **Staffing and Workload**

The results indicate that working condition not pleasant, poor midwives/staff-patient ratio, number midwives during the night, understaff in the unit, high workload and absenteeism are the factors contributing to the failure rate of induction of labour. The result reveals that Registered Midwives were not satisfied with the high percentage of working condition not pleasant. More than seventy of the respondents indicated that the Registered Midwives-patient ratio is poor. Almost half of the respondents indicated that number of Registered Midwives during the night is not enough for effective Midwifery Care; and more than ninety percent (90%) of the respondents indicated that the units they are working in now are understaff.

More than seventy percent (70%) of the respondents indicated that absenteeism was not a problem and fifty of the respondents indicated that they can cope with the workload and other fifty percent (50%) of the respondents indicated that it cannot cope with the workload, negative responses could implicit quality patient care causing/posing challenges. According to Mudaly (2015), absenteeism in nursing is a concern because it disorganises the work routine, overburden workers that are present, consistently lowering the quality of patient care.

More than eighty percent (80%) of the respondents indicated that resignation was not high in the past 6 month and only eleven percent (11%) of the respondents indicated that the resignation was high for past 6 month. Warmelink (2015) noted that job satisfaction plays an important part in any decision to leave the job. Pender et al.'s (2015) Health Promotion Model states that activity-related affect varies from mild to quite strong and will be cognitively labelled, remembered, and continue to be with thoughts about the particular behaviour. The affect should be considered before the action and after the action (Pender et al., 2015).

- **Provision of Material Resources**

The results show that the following material were often /not always available: bedlinen, paper towel, hand soap, administration set and sanitary pads. This shows that Registered Midwives were not satisfied with provision of material resources. Bed linen and sanitary pads are needed in maternity for quality patient care. Those finding align with the perceived barriers to action in the Health Promotion Model.

- **Provision of Equipment**

The results reveal that there was lack of equipment such as stethoscope, fetoscopes, Non-Stress Test Machine, Doptone, cribs, Blood Pressure apparatus and Cardiotocograph paper. This shows that Registered Midwives manage the pregnant women with inadequate equipment, however, it is expected that quality patient care should be delivered. Matlala and Van der Westhuizen (2014) agree that inadequate equipment and supplies hinders provision of quality patient care, failure rate of inducement of labour results.

- **Staff Competency**

The results on the competency of midwives indicated that there 1 respondent indicated that not at all is not able to utilize the Non-Stress Test Machine. Same of Registered Midwives are just fairly, not good on the utilize, analyses and interpret following such utilize the ward haemoglobin machine, measuring the Mid Upper Arm Circumference, utilize Basic Antenatal Care (BANC) strategy for pregnant women, analyse the Non-Stress Test (NST) strip, the interpretation of NST strip, analyse Cardiotocograph (CTG) strip and also interpretation of CTG strip accurately. Pender's Health Promotion Model (2015), perceived competence or self-efficacy to execute a given behaviour increases the likelihood of commitment to action and actual performance of the behaviour.

- **Staff Capacitation**

The results indicated that almost more than 80% of Registered Midwives never attended the following meeting of midwifery and obstetrics such as Maternal Mortality Meetings, Perinatal Mortality Rates Meetings in Limpopo Province, National Conference, Midwifery Symposia, Midwifery Seminars, workshops related to Midwifery Practice and International Conference. The provision and attending the skilled midwifery and obstetrics meeting is another way of reducing factors contributing to failure rate of induction of labour.

Limited number of Registered Midwives attended midwifery and obstetrics meetings and almost all were older. This shows that management concentrated more on capacitating older midwives than newer ones. The Health Promotion Model by Pender et al., (2015) indicates that perceived self-efficacy, or one's judgement of one's ability to carry out an identified action, relates not to a person's skills but to that person's judgement about what can be accomplished with those skills. Voit and Carson (2017) agree that older midwives are able to mentor and support newer, but they won't be around Maternity Unit forever.

- **Monitoring and Assessment**

The result shows that the following measures the Registered Midwives disagree on monitoring and assess them accordingly, which is, Bishop Score not re-assessed

every 6 hourly, respondents strongly disagree that bishop should be less than 6 before induction of labour, disagree that uterine contraction monitored 3 times during induction of labour, induced labour more painful than spontaneous labour, foetal well-being monitored 30 minutes during induction of labour and once Cardiotocograph confirmed as normal intermittent auscultation should be used unless there is clear indication. National Institute for Health and Care Excellence (2021) agree that Vaginal examination to assess the cervix are needed before and during induction to determine the best method of induction and monitoring progress. The reassess the Bishop Score at appropriate intervals to monitor progress, depended on the method of induction being used and clinical condition of woman (NICE 2008 Amended 2021).

- **Indication of induction of labour**

The result indicates that the following problems are not indication for induction of labour, which is maternal age, parity, poor obstetric history, *chorioamnionitis*, decrease foetal movement at term, big baby, previous failed induction, and cardiac diseases in pregnancy. According to the *Global Library of Women Medicine* (Glowm), induction of labour is indicated when the continuation of pregnancy poses risk to maternal and foetal health.

- **Method of induction of labour**

The results indicate that the following measures were used as methods of induction of labour, namely, Surgical Method-Artificial Rupture of Membrane, Cervical Membrane Sweeping, Medical Method Oxytocin, Prostaglandin E2, Misoprostol, were available in the unit to complete course of induction. But the Hydroscopic Dilator was not used as method of induction. According to NICE 2021, method of induction of labour is determined by cervical condition and Bishop Score. For a woman with Bishop Score of 6 or less, offer induction of labour with *Dinoprostone* as vaginal tablet, vaginal gel or controlled-released vaginal delivery system (NICE 2021).

4.4 Conclusion

This chapter discussed the results of the study and factors contributing to the failure of induction of labour. The result revealed that midwives workload is high, shortage of staff, lack of equipment, and less knowledge are factors contributing to failure rate of

induction of labour. It is also revealed staff capacitation is another way of reducing the failure rate of induction of labour. Chapter 5 discusses the conclusion, limitation and recommendations of the study.

CHAPTER 5
SUMMARY, LIMITATION, RECOMMEDATIONS AND CONCLUSION

5.1 Introduction

The chapter presents the summary, limitation, recommendation, and conclusion of the study. The aim of this study was to determine the factors contributing to the failure rate induction of labour at selected hospitals, Mopani District, Limpopo Province, South Africa.

5.2 Achievement of the Objective

Chapter 1 of the study outlined the objective of the study and researcher managed to achieve the set of objectives. The objective was to determine the factors contributing to failure rate of induction of labour at selected hospital, Mopani District, Limpopo Province, South Africa. This objective was achieved as Registered Midwives identified factors contributed to the failure rate of induction of labour in the Maphutha L. Malatji and Van Velden Hospitals.

5.3 Summary

The descriptive cross-sectional quantitative methods were used to determine factors contributing to the failure rate of induction of labour at selected hospital, Mopani District, Limpopo Province, South Africa. The study population included the Registered Midwives allocated in Labour and Antenatal Unit of the Maphutha L. Malatji and Van Velden Hospitals. Simple Random Sampling was used to ensure that all Registered Midwives had an equal chance of been included in the study. The respondents were randomly selected from the unit Labour and Antenatal.

Questionnaire were used to collect data from Registered Midwives allocated in Labour Ward and Antenatal Unit. Data were collected by the researcher with the aid of the contact person to ensure privacy and confidentiality and avoid bias. Analysis and interpretation of data were presented in frequency tables and graphs. The findings were poor staff capacitation and skills, poor utilization of machine and interpretation and analysis of findings, poor monitoring, shortage of equipment and materials, shortage of staff, overcrowding patients and working condition not pleasant, work overload are factors contributing to the failure rate of induction of labour.

5.4 Limitations of the Study

The study was conducted at the Maphutha L. Malatji and Van Velden Hospitals in Mopani District, Limpopo Province. Therefore, the findings of the study cannot be generalized to other public hospitals situated in Limpopo Province because of less sample size and spoiled questionnaires. The implication of the research may not be applicable to the Registered Midwives working in other units of the Maphutha L. Malatji and Van Velden Hospitals.

5.5 Recommendations

Recommendation is arranged according to the points based on the results presented in Chapter 4. The study revealed that there are still some gaps existing that need to be attended to and subsequently closed.

5.5.1 Labour and Antenatal practice

- All Registered Midwives working in Labour and ANC should attend Maternal and Perinatal Morbidity Review and Audit Meetings. Audit process should highlight the outcomes. This will improve the morale of the Health Care Professionals, which will lead to the improvement of quality patient care.
- Induction of labour should be recorded in maternity and hospital record data collection.

5.5.2 Midwifery Practice

- Midwives should be advised and encouraged to attend maternal and perinatal meetings in the hospital in order to share information and gain knowledge.
- All midwives should monitor pregnant women in labour effectively and utilize partograph effectively.
- Partograph is a tool that indicates the progress of labour.
- All Registered Midwives should be able to utilize CTG and NST Machine effectively.
- All Registered Midwives should be able to interpret and analyse the findings.

5.5.3 Education Training

- The training institution and hospitals should include the importance of maternal audit in undergraduate and postgraduate education programme for health workers of all disciplines.
- Strengthening of short courses and workshops for the enhancement of their knowledge and skills.

5.5.4 Research

- Further research to be conducted on factors contributing to failure rate of induction of labour that can research the large scale so that the results can be generalized.
- Research on the study in which all maternity records, such as partograph and monitoring tools, must be used.

5.6 Conclusion

This chapter outlined the summary of the study, limitations and recommendation. The recommendation focused on labour and antenatal practices, midwifery practise and education training with the hope of improving midwives' skills and knowledge, and also improving ways of reducing failure of induction.

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APPENICES
Appendix A: Ethics Committee Letter

University of Limpopo
Department of Research Administration and Development
Private Bag X1106, Sovenga, 0727, South Africa
Tel: (015) 268 3935, Fax: (015) 268 2306,
Email:anastasia.ngobe@ul.ac.za

TURFLOOP RESEARCH ETHICS COMMITTEE

ETHICS CLEARANCE CERTIFICATE

MEETING: 08 June 2021

PROJECT NUMBER: TREC/97/2021:PG
PROJECT: Title: Determination of Factors Contributing to Failure Rate of Induction-of- Labour at Selected Hospitals, Mopani District, Limpopo Province, South Africa

Researcher:	F Mathebula
Supervisor:	Prof MK Thopola
Co-Supervisor/s:	N/A
School:	Health Care Sciences
Degree:	Master of Nursing Sciences

PROF P MASOKO
CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: **REC-0310111-031**

Appendix B: Letter Request Permission

University of Limpopo
Turfloop Campus
Private Bag x 1106
Sovenga
0727

Limpopo Province
The Department of Health
Private Bag x 9302
Polokwane
0700

RE: REQUEST FOR PERMISSION TO CONDUCT THE RESEARCH STUDY

Dear Sir/Madam

I, Mathebula Fortunate, student for Master of Nursing at University of Limpopo, request for a permission to conduct a research study at Maphutha L. Malatji and Van Velden Hospital. The title of the study is "Factors contributing to failure rate of induction-of-labour in Maphutha L. Malatji and Van Velden Hospital of the Mopani District, Limpopo Province, South Africa". The study will include the Registered Midwives allocated in Antenatal and Labour Ward/Unit.

Hope request will be taken into consideration.

Yours faithfully

Mathebula Fortunate

Signature: _____

Contact: 0783241318 & Email address: mathebulafortunate87@gmail.com

Appendix C: Permission Grating Letter (Department of Health Limpopo)

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

Department of Health

Ref : LP_2021-08-019
Enquire : Ms PF Mahlokwane
Tel : 015-293 6028
Email : Phoebe.Mahlokwane@dhsd.limpopo.gov.za

Fortunate None
PERMISSION TO CONDUCT RESEARCH IN DEPARTMENTAL FACILITIES

Your Study Topic as indicated below**;**

Determination of factors contributing to failure rate of induction-of-labour at selected hospitals, Mopani District, Limpopo Province, South Africa

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

Your cooperation will be highly appreciated

PP Head of Department

13/09/2021
Date

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

Appendix D (1): Permission Granting Letter (Maphutha Malatji Hospital)

MAPHUTHA L MALATJI HOSPITAL
Private Bag X11020, Namakgale 1391
Tel: 0157691520, Fax 0157693531
Enquiry: Mathale B.A
TEL: 015 769 1520
Email: Aletta.Mathale@dhsd.limpopo.gov.za

TO: Mathebula Fortunate

RE: PERMISSION TO CONDUCT RESAEARCH AT MAPHUTHA L. MALATJI HOSPITAL

1. The above matter refers;
2. Kindly be informed that your application to conduct research at Maphutha L. Malatji has been approved. You are further informed that you may start your study as from 04 October 2021 or inform the office head of institution of the date will start in order to prepare the subject required.
3. The hospital would require that the after study you present the findings to us for further improvement of our service
4. Hope the above is been order

NB: Kindly

ıdly note that, the institution will not be liable for any remuneration

Head of Institution

Date: 27/09/2021

Tel: (015) 769 1520; Fax: (015) 769 3531
Stand 3519, Zone 2, Maphutha Drive, Namakgale, 1391, Private Bag x11020, Namakgale, 1391

Appendix D (2): Permission Granting Letter (Van Velden Hospital)

LETTER REQUESTING PERMISSION TO CONDUCT THE STUDY

University of Limpopo
School of Health Sciences Department of Nursing
Private Bag xl 106
Sovenga
0727

September 2021

The CEO
Van Velden Hospital

I Mathebula Fortunate, Master's student from University of Limpopo .1 hereby requesting to be granted permission to collect research data/information from the following topic: The Determination of Factors Contributing the Failure Rate of Induction of Labour at Select Hospitals, Mopani District South Africa.

Information will be collected from Registered Midwives in the Maternity Units (labour and antenatal). The study has been approved by university of Limpopo and Department of Health Limpopo Province.

Hoping my request will be taken into consideration,

Your faithfully

Mathebula Fortunate
Researcher's signature...  23/09/2021
Cell number 0783241318 and Email address:mathebulafortunate87@gmail.com

Appendix E: Consent Form

Statement Concerning Participation in a Research Project

UNIVERSITY OF LIMPOPO (Turfloop Campus) ENGLISH CONSENT FORM

Name of study: Factors Contributing to Failure Rate of Induction-of-Labour in Selected Mopani District, Limpopo Province, South Africa.

I have heard about the aims and objectives of the proposed study and was provided the opportunity to ask questions and was also given adequate time to rethink the issue. The aim and objectives of the study are sufficiently clear to me. I have not been pressurized to participate in any way.

I know that there will be sound recordings and scientific publications that will be electronically available throughout the world. I consent to this if my name will not be revealed. I understand that participation in this study is voluntary and that I may withdraw from it at any time and without supplying reason.

I know that the Medunsa Research and Ethics Committee (MREC), University of Limpopo (Turfloop Campus), have approved this Trial/Study/Project and Limpopo Department of Health. I am fully aware that the results of this study will be used for scientific purposes and may be published. I agree to this, provided that my privacy is guaranteed.

I hereby give consent to participate in this study.

.....	.....
Name of volunteer	Signature of volunteer
.....	.....
Place	Date
…….....	.....
Name of the researcher	Signature of the researcher
.....	.....
Place	Date

Statement by the Researcher

I provided verbal and /written information regarding this study. I agree to answer any future question concerning the study as best as I will able to.

Appendix F: Questionnaire

Factors Contributing to the Failure Rate of Induction-of-Labour in selected hospitals of Maphutha L. Malatji and Van Velden Hospitals of the Mopani District, Limpopo Province, South Africa.

SECTION A: SOCIO AND DEMOGRAPHIC DATA

Note the following before answering the questionnaire below:

- Do not write your name;
- Tick with x in the boxes appropriate to your answer below;
- Try as much as possible to be honest when answering the question; and
- Try to write in numbers where it required.

1.Age

My age	

2. Gender

Male	
Female	

3. Nursing Qualification

1	Diploma in Midwifery	
2	Diploma (general nursing, community, psychiatry) Midwifery	
3	Degree in (general nursing, community, psychiatry) Midwifery	

4. Speciality Qualification

1	Advance Midwifery and Neonatal Science	
2	Diploma in Neonatal Intensive Care Nursing	
3	Degree in Neonatal Intensive Care Nursing	
4	None	

5. Current Unit allocated at

Antenatal Care Unit	
Labour Unit	
High Care	

6. Work experience in years …..
7. Indicate the average number of Midwifery Practitioners during day duty? ……
8. Indicate the average number of Midwifery Practitioners during night duty? …….
9. Indicate the number of years you worked in Antepartum Unit. ……..
10. Indicate the number of years you worked in High Care Unit…….
11. Indicate the number of years you worked in Intrapartum Unit. ……

SECTION B: STAFFING AND WORKLOAD

Please indicate your opinion on the following statements, using the given keys:

1=Strongly Agree 2 = Agree 3 = Disagree 4= Strongly Disagree

		SA	A	D	SD
1.	Working conditions in the Maternity Unit is pleasant.	1	2	3	4
2.	I am able to manage the workload in the unit that I am working now.	1	2	3	4
3.	The ratio of Registered Midwives to the number of patients on induction of labour is poor.	1	2	3	4
4.	Registered Midwives on duty are always able to cover all the work during day duty.	1	2	3	4
5.	The number of Registered Midwives on night duty is enough for effective Midwifery Care.	1	2	3	4
6.	The unit where I am working now is understaffed.	1	2	3	4
7.	I cannot cope with the workload.	1	2	3	4
8.	Absenteeism was a big problem in my unit the past 6 months.	1	2	3	4
9.	Resignation of midwives in my unit was high in the past 6 months.	1	2	3	4
10.	**Adequate staff was available to do the work in the past 6 months.**	**1**	**2**	**3**	**4**

SECTION C: MATERIAL RESOURCES

Please indicate the availability of the following using the key below:

0 = Never 1= Hardly Ever 2= Sometimes 3 = Often 4 = Always

		N	HE	S	O	A
1.	Bed linen	0	1	2	3	4
2.	Gloves	0	1	2	3	4
3.	Sanitary pads	0	1	2	3	4
4.	Paper towels	0	1	2	3	4
5.	Soap	0	1	2	3	4
6.	Suturing materials	0	1	2	3	4
7.	Urine dipsticks	0	1	2	3	4
8.	Suctioning catheters	0	1	2	3	4
9.	Administration sets	0	1	2	3	4
10.	Urine catheters	0	1	2	3	4
11.	Endo-tracheal tubes	0	1	2	3	4
12.	**Urine bags**	**0**	**1**	**2**	**3**	**4**

SECTION D: EQUIPMENT

Please indicate the availability of the following equipment in good working order, using the key below:

0 = Never 1= Hardly Ever 2= Sometimes 3 = Often 4 = Always

		N	HE	S	O	A
1.	Blood Pressure apparatus	0	1	2	3	4
2.	Stethoscopes	0	1	2	3	4
3.	Foetoscope	0	1	2	3	4
4.	Doptone	0	1	2	3	4
5.	Non-Stress Test Machine	0	1	2	3	4
6.	Cardiotocograph Machines	0	1	2	3	4
7.	Suction apparatus	0	1	2	3	4
8.	Oxygen Cylinders	0	1	2	3	4
9.	Cribs	0	1	2	3	4
10.	Delivery packs	0	1	2	3	4
11.	Episiotomy scissors	0	1	2	3	4
12	Vaginal examination packs	0	1	2	3	4
13.	**Paper for Cardiotocograph Machine**	**0**	**1**	**2**	**3**	**4**

SECTION E: COMPETENCY

Please indicate your response to the following statements on your competency:

0 = Not at all 1= Somewhat 2 = Fairly 3 = Good 4= Very good

		N	S	F	G	VG
1.	I am able as a Midwifery Practitioner to utilize the Non-Stress Test Machine.	0	1	2	3	4
2.	I am knowledgeable regarding the use of Cardiotocograph Machine.	0	1	2	3	4
3.	I am able to utilize ward Haemoglobin equipment.	0	1	2	3	4
4.	I am able to measure the Mid Upper Arm Circumference with every patient that I assess to monitor her nourishment.	0	1	2	3	4
5.	I utilize Basic Antenatal Care (BANC) strategy with each and every pregnant woman.	0	1	2	3	4
6.	I am able as a Midwifery Practitioner to analyse the Non-Stress Test (NST) strip.	0	1	2	3	4
7.	I am able as a Midwifery Practitioner to interpret the NST strip.	0	1	2	3	4
8.	I am capable in implementing the Prevention of Maternal to Child Transmission (PMTCT) strategy appropriately and timeously.	0	1	2	3	4
9.	I am able as a Midwifery Practitioner to analyse the Cardiotocograph (CTG) strip.	0	1	2	3	4
10.	I am able as a Midwifery Practitioner to interpret the CTG strip accurately.	0	1	2	3	4
11.	I am able to do Intrapartum Resuscitation of the foetus appropriately and timeously based on interpretations CTG.	0	1	2	3	4
12	I able to plot Foetal Heart Rate correctly on the partograph with each pregnant woman that I assess.	0	1	2	3	4

13.	I am able to plot the station of the Foetal Head on the partograph.	0	1	2	3	4
14.	I am skilful in plotting the cervical dilatation on the partograph.	0	1	2	3	4
15.	I am able to analyse the findings plotted on the Partograph.	0	1	2	3	4
16	I am able to interpret the findings foetal status and maternal status findings plotted on the Partograph.	0	1	2	3	4
17.	I am able to interpret the progress of labour plotted on the partograph.	0	1	2	3	4
18	I am able to give patient oxygen when in labour having foetal distress.	0	1	2	3	4
19	I often resuscitate the new-born babies effectively without complications.	0	1	2	3	4
20	**I am able to implement let the baby breathe strategy.**	**0**	**1**	**2**	**3**	**4**

Please indicate your response to the following statements on your competency:
0 = Never 1=Hardly Ever 2= Sometimes 3 = Often 4 = Always

		N	**HE**	**S**	**O**	**A**
21.	I can insert a drip to patients without fail.	0	1	2	3	4
22.	I know consult my seniors when necessary	0	1	2	3	4
23.	I seek senior opinion when I meet challenging situations	0	1	2	3	4
24.	I seek for their assistance when a need arise	0	1	2	3	4
25.	I know when to refer the patient to a doctor	0	1	2	3	4
26.	I know the protocols and guidelines that I should follow in managing pregnant women on induction of labour	0	1	2	3	4
27.	**I follow Protocols and guidelines always when caring for high risk patients**	**0**	**1**	**2**	**3**	**4**

SECTION F: STAFF CAPACITATION

		Never	**Once**	**Twice**	**More**	**Always**
1	In-Service Education in the Unit You are Working Now	0	1	2	3	4
2.	Maternal Mortality Meetings of Midwifery and Obstetric Cases	0	1	2	3	4
3	Perinatal Mortality Rates Meetings in Limpopo Province	0	1	2	3	4
4.	National Conferences	0	1	2	3	4
5.	Midwifery Symposia	0	1	2	3	4
6.	Midwifery Seminars	0	1	2	3	4
7.	Workshops Related to Midwifery Practice	0	1	2	3	4
8.	International Conferences	0	1	2	3	4

SECTION G: MONITORING and ASSESSMENT

Please answer all question according to the key below:

1=Strongly Agree 2= Agree 3=Disagree 4=Strongly Disagree

	SA	A	D	SD
1. Maternal condition assessed and monitored before and during induction-of-labour.	1	2	3	4
2. Bishop Score should be assessed before and during induction-of-labour.	1	2	3	4
3. Bishop Score is re-assessed every 6 hourly during induction-of-labour.	1	2	3	4
4. Bishop Score should be <6 before induction-of-labour.	1	2	3	4
5. Bishop Score should be >8 before induction-of-labour.	1	2	3	4
6. Cervix should be ripened before induction-of-labour.	1	2	3	4
7. Uterine contraction monitored hourly during induction-of-labour.	1	2	3	4
8. Uterine contraction monitored 3 times during induction-of-labour.	1	2	3	4
9. Induce labour more painful than spontaneous labour.	1	2	3	4
10. Non-Stress Test done before commencement of induction-of-labour.	1	2	3	4
11. Foetal well-being monitored 30 minutes during induction-of-labour.	1	2	3	4
12. Foetal well-being monitored hourly during induction-of-labour.	1	2	3	4
13. Continuous electronic foetal monitoring as described Intrapartum Care, during induction-of-labour.	1	2	3	4
14. Once the cardiograph is confirmed as normal, intermittent auscultation should be used unless there is clear indication.	1	2	3	4
15. Once active labour is established; maternal and foetal monitoring should be carried out as described in Intrapartum Care.	1	2	3	4
16. Normal foetal heartrate pattern should be confirmed using electronic foetal monitoring.	1	2	3	4

SECTION H: INDICATION OF INDUCTION-OF-LABOUR

Following problem are indication of induction-of-labour in your facility/institution:
Please answer all questions.

1=Strongly Agree 2= Agree 3=Disagree 4=Strongly Disagree

		SA	A	D	SD
1.	Post-term	1	2	3	4
2.	Pre-labour rupture of membrane	1	2	3	4
3.	Chronic/gestational hypertension	1	2	3	4
4.	Chronic/gestational Diabetes Mellitus	1	2	3	4
5.	Intrauterine Growth Restriction	1	2	3	4
6.	Previous intrauterine foetal death	1	2	3	4
7.	*Oligohydramnios*	1	2	3	4
8.	Maternal age	1	2	3	4
9.	Parity	1	2	3	4
10.	Poor obstetric history	1	2	3	4
11.	*Chorioamnionitis*	1	2	3	4
12.	Decrease foetal movement at term	1	2	3	4
13.	Big baby	1	2	3	4
14.	Previous failed induction	1	2	3	4
15.	Cardiac disease in pregnancy	1	2	3	4

SECTION I: METHOD OF INDUCTION-OF-LABOUR

The following methods used in your facility for induction-of-labour
Please tick (√) the applicable option according to the key below:

1= Agree, 2=Strongly Agree 3=Disagree 4=Strongly Disagree

	A	SA	D	SD
1.Surgical Method-Artificial Rupture of Membrane	1	2	3	4
2.Cervical Membrane Sweeping	1	2	3	4
3.Medical Method- Oxytocin	1	2	3	4
4.Prostaglandins E2	1	2	3	4
5.Misoprostol	1	2	3	4
6.Oxytocin, Misoprostol and Prostaglandin available in the unit, to complete course of induction	1	2	3	4
7. Amnion Hook available to rupture membrane	1	2	3	4
8. Hydroscopic Dilator used to dilate cervix in the unit to induce labour.	1	2	3	4
9. Oxytocin administer intravenous for induction-of-labour	1	2	3	4
10. Infusion pump use to regulate Oxytocin infusion during induction	1	2	3	4
11. Misoprostol administered oral/vaginal during induction-of-labour	1	2	3	4
12 When are you administering next dose for oral Misoprostol, two hourly intervals?	1	2	3	4
13.Prostaglandin administered per vagina for induction-of-labour	1	2	3	4
14.Wen are administering next dose of Prostaglandin, 6 hourly interval?	1	2	3	4

Appendix G: Statistician's Letter

Appendix H: Editor's Letter

Mr MM Mohlake
PO BOX 544
Sovenga
0727

08 April 2023

To Whom It May Concern

EDITING CONFIRMATION: F MATHEBULA's DISSERTATION

This letter is meant to acknowledge that I, MM Mohlake, as a professional editor, have meticulously edited the main dissertation of Mathebula Fortunate (Student #: 201009429), entitled "Determination of Factors Contributing to Failure Rate of Induction of Labour at Selected Hospitals in Mopani District, Limpopo Province, South Africa".

Thus I confirm that the readability of the work in question is of a high standard.

For any enquiries please contact me.

Regards

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