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SCHOOL OF NURSING AND PUBLIC HEALTH

**A Descriptive Analysis of Knowledge and Skills of Midwives in Monitoring Progress of
Labour using a Partograph in Selected Hospitals at eThekweni District in KwaZulu-
Natal**

By

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**Submitted in Partial Fulfilment of the Requirements for the MASTER'S DEGREE IN
MATERNAL AND CHILD HEALTH**

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DECLARATION

I, Nobuhle Witness Ngidi, declare that this dissertation (A Descriptive Analysis of Knowledge and Skills of Midwives in Monitoring Progress of Labour using a Partograph in Selected Hospitals at eThekweni District in KwaZulu-Natal) is submitted to the University of KwaZulu-Natal, Howard College for the Master's Degree in Maternal and Child Health has not previously been presented to any other University, this is my own work in design and execution, and that all material contained herein has been duly acknowledged.

N.W Ngidi

Signature

Date signed.....

DEDICATION

I dedicate this research to the Lord Jesus Christ, who gave me strength, wisdom and courage to carry on with the study to its completion.

Thanks to my parents for bringing me up to where I am today. I would like to thank the whole family for their understanding, patience, caring attitude, and for always supporting and encouraging me never to give up on all the important goals in my life.

This thesis is also dedicated to my late father, Thembinkosi Ngidi, my daughter Abusiswe Wandisa Emihle Mngoma and to all midwives who believe in the richness of care rendered for the promotion of maternal and neonatal health.

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I would like to thank God, the Almighty, for the life that He has given me and for making this study a success.

Thank you very much to my Supervisor, Mrs Pretty Mbeje, for her love, dedication, sacrifice, patience and for showing me the light and giving me the strength to pull through even when it was tough. It is only because of your support and unyielding faith that I have been able to achieve this. Your support is highly appreciated and God bless you.

To Reenadevi Singh, thank-you for providing me with permission to use and adapt the questionnaire used in this research.

Thank-you to the KwaZulu-Natal Department Health Research Committee for granting me permission to conduct this study.

Thank-you to the management of the selected hospitals for granting me the permission to conduct this study in their institutions.

I would like to extend my sincere thanks to the midwives of the selected hospitals, without your co-operation and patience this study would not have been possible.

ABSTRACT

Introduction

Midwives are recognised as principal protagonists in achieving their objectives and therefore priority must be given to ensuring the quality of the education and training of midwives, as well as to making sure that sufficient midwives are trained to meet the needs of the population. If midwives are well trained, properly equipped and supported, this could result in a reduction of maternal and neonatal deaths. The World Health Organisation has advocated the use of the Partograph as a simple technology to be used by obstetricians and midwives to monitor the progress of labour, and to ensure that intervention takes place as soon as necessary to prevent complications such as obstructed labour; leading to prolonged labour, uterine rupture, post-partum haemorrhage and puerperal sepsis.

Purpose of the study

The purpose of this study was to analyse and describe the knowledge and skills of midwives in monitoring the progress of labour using the Partograph in eThekweni District, KwaZulu-Natal.

Methodology

A quantitative descriptive study design was used to describe and analyse the knowledge and skills of midwives in monitoring the progress of labour using the Partograph. A face-to-face recruitment method was used during data collection, as the researcher visited and introduced herself at three selected hospitals. Questionnaires were used to assess the midwives' knowledge and skills regarding the use of the Partograph while monitoring the progress of labour

Sampling and Sampling design

In this study, stratified sampling, then simple random sampling were used in order to get the participants from the population of three selected hospitals (Hospital A, B, and C). Sample size was calculated based on the Confidence level of 97%, the margin of error of 3%, and the variability of 50%, hence the sample size was 200.

Data analysis

The data was checked for completeness and each questionnaire was coded. The researcher used the IBM SPSS STATISTICS 24 to analyse the data. The results were presented in terms of frequencies, using tables and pie chart displays. Descriptive and inferential statistics applied.

Descriptive statistics include: frequency, and means and standard deviations to summarize variables, while inferential statistics (chi-square) also used to test the significance of association between two categorical variables. The level of significance was set at $P < 0.05$.

Ethical consideration

Permission was obtained from the KwaZulu-Natal department of Health Research Committee, as well as the Biomedical Research Ethics Committee at University of KwaZulu-Natal. The researcher also obtained the permission to conduct the study from the Management of the three selected hospitals at eThekweni District. An informed consent was obtained from the participants before distributing the questionnaire.

Results

This study had a population of two hundred and thirty four (234) participants from all three hospitals, two hundred (200) of registered midwives were selected for the sample size of the study from all three selected hospitals. Out of two hundred research instruments distributed, only one hundred and twenty two (122) were completed and returned, making a response rate of 61%. The reasons for this decreased response rate were: some midwives were on annual, sick and maternity leave; others were involved in administrative work or attending women in labour. A number of midwives did not also want to respond to the research instrument. Data from this study revealed that 93.4% (n=114) of participants were females and 6.6% (n=8) males, majority of 97.5% (n= 119) participants were African. The participants' ages ranged from 21 to 65 years, most participants were basic midwives 45.1%, (n=55) with a Diploma in nursing 73.8% (n=90). 36.9% (n=45) of participants had a professional years of experience of less than five years.

Conclusion

The aim of the study was to analyse and describe the knowledge and skills of midwives in monitoring the progress of labour using the partograph. In the final analysis, it was realized that the midwives were highly aware of the use and the effect of the partograph. They know the components of the partograph and its utilization which is within their ability to practice.

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ABBREVIATIONS

AROM	Artificial Rupture of Membranes
BREC	Biomedical Research Ethics Committee
CPD	Cephalo-Pelvic Disproportion
DoH	Department of Health
FHR	Foetal Heart Rate
ICM	International Confederation of Midwives
IMMR	Institutional Maternal Mortality Rate
MDGs	Millennium Development Goals
MMR	Maternal Mortality Ratio
MNCH	Maternal, Newborn and Child Health
MSL	Meconium Stained Liquor
NCCEMD	National Committee on Confidential Enquiries into Maternal Deaths
NMR	Neonatal Mortality Rate
SANC	South African Nursing Council
SROM	Spontaneous Rupture of Membranes
WHO	World Health Organisation

CHAPTER ONE

OVERVIEW OF THE STUDY

1.1. Introduction to the study

The World Health Organisation (WHO) (2010) acknowledges the crucial contribution of midwives to the improvement of health, and the improved outcomes of individuals, families and communities. Acting as individuals, members and co-ordinators of inter-professional teams, midwives bring the people-centred care closer to the communities where they are needed the most, by helping to improve health outcomes and the overall cost effectiveness of the health service. Midwives are crucial people in the health care system as they play an important role in the management of pregnant women. It is therefore important that midwives realise the crucial role they have to fulfil in the lives of pregnant women.

For midwives, it is important to ensure an optimal pregnancy outcome, so that all health care providers rendering care to pregnant women are familiar with the causes of maternal deaths in South Africa, as well as existing strategies in preventing these tragic events. Midwives are essential to promote reproductive health in general, and in particular to assist in the reduction of the very high global maternal morbidity and mortality rate, as well as to help reduce unnecessary high rates of newborn deaths. Midwives are recognised as the principal protagonists in achieving these objectives and therefore priority must be given to ensure the quality of the education and training of midwives, as well as to make sure that sufficient midwives are trained to meet the needs of the population. If midwives are well trained, properly equipped and supported, this could result in a reduction of maternal and neonatal deaths (Sherratt, 2006). Numbers four and five of the Millennium Development Goals (MDG) aimed at reducing child mortality by two thirds and improving maternal health by three quarters between 1990 and 2015. This was a global collaborative effort to significantly reduce the levels of child and maternal mortality and morbidity by the year 2015, by focussing and improving on the monitoring of the progress of women's labour (WHO, 2010).

The WHO (2009) advocates the use of the Partograph as a simple tool to be used by obstetricians and midwives to monitor the progress of labour and to ensure that intervention takes place as soon as necessary to prevent complications such as obstructed labour which can lead to prolonged labour, uterine rupture, post-partum haemorrhage and puerperal sepsis. Midwives' skills and knowledge in monitoring the progress of labour using a Partograph could, therefore, play a significant role in reducing maternal and neonatal deaths.

Mathibe-Neke, Lebeko and Motupa (2013), mention that the Partograph was originally designed and used by Professor Philpott in 1971 in Harare, Zimbabwe, and then later modified by WHO. The Partograph has been used for years globally and is an essential universal graphic tool in monitoring the progress of labour. Midwives initiate a Partograph once the woman has established labour, to monitor the progress of the labour during its active phase, and the Partograph is therefore one of the essential advance modern in obstetric care (WHO, 2015c).

A Partograph is one of the official legal health documents, therefore midwives should keep clear and accurate records of the progress of labour, as governed by the South African Nursing Council (SANC) Rules and Regulations, 2488 of 1990 (SANC,2014). In midwifery practice, a Partograph serves as a warning graph of arising complications during labour as it helps to detect abnormal and prolonged labour. It has been introduced and used globally, with supporting guidelines and adequate in-service training for all midwives to ensure the appropriate plotting of the labour progress and the correct interpretation of the plotted progress (Adesale, Omolola, Adekemi & Audu, 2014).

Adesale et al (2014) further explains that the Partograph does not replace the adequate screening for pregnant women who require immediate interventions; rather, it provides early detection of complications of progress of labour and the prevention of a prolonged labour, which helps reduce the maternal and perinatal morbidity and mortality rates worldwide (Adesale et al ;2014).

1.2. Background of the research

Though it is assumed that women are being monitored and cared for during labour, still women die as a result of complications during pregnancy and childbirth or during the six weeks period following delivery. According to Shinde, Bangal and Singh (2012), childbirth is supposed to be an exciting end of a pregnancy for a pregnant woman and her family.

Thousands of women throughout the world do not experience pregnancy and labour as the exciting event that it is supposed to be but rather as a time of suffering, due to different complications in antenatal care, pregnancy, labour and puerperium, which sometimes even results in the women's deaths. The WHO (2013) mentions that all pregnant women are monitored and cared for during labour, but maternal death reports show that globally each year women die and millions suffer from complications associated with antenatal care, labour and puerperium. The WHO (2015a) has thus designed several approaches, strategies and methods to improve the quality of maternal, newborn and child health. These approaches and strategies include improvement of the skills and knowledge of midwives regarding monitoring the progress of labour, using different tools such as Partographs. Due to the high rate of maternal deaths, a number of initiatives and programmes have been designed to improve maternal, newborn and child health, plus the well-being of all pregnant women and their unborn babies (WHO, 2015b).

In 2000, the international community at the Millennium Summit adopted the eight MDG and the purpose of MDG five, to 'Improve Maternal Health', was to encourage countries to reduce maternal mortality rates (MMR) by 75% between 1990 and 2015. MDGs four and five aimed at reducing child mortality by two thirds and improving maternal health by three quarters between 1990 and 2015. This global collaborative effort to reduce the levels of child and maternal mortality and morbidity significantly by the year 2015, and to improve the knowledge and skills of the midwives in monitoring the progress of labour by using a Partograph could play a significant role in reducing maternal and perinatal deaths worldwide (WHO, 2015b).

According to the WHO (2013), however, the Millennium Development Goal to reduce the maternal mortality ratio by 75 % has not been successful and these deaths still remain a common occurrence. Of this maternal mortality rate (MMR), 99 % of the deaths are reported to occur in developing countries, and half of these deaths occur in Sub-Saharan Africa. In a bid to build on the momentum generated by MDG5, the WHO has laid out a transformative new agenda for maternal health as part of the Sustainable Development Goals (SDGs) whose primary objectives are to reduce the global MMR to less than 70 per 100,000 live births by 2030 (SDG3.1) and that no country should have a MMR greater than 140 per 100,000 live births by 2030.

To achieve these objectives, proven interventions to prevent such deaths, including improving the knowledge of obstetric care providers in midwifery skills should be promoted in order to ensure skilled attendance during labour and delivery of the parturient woman (Sama, Takah, Danwe, Melo, Dingana, & Angwafo, 2017). The SDG framework includes 17 goals and 169 targets developed by the United Nations' Open Working Group on Sustainable Development Goals. (Statistics South Africa, 2015a). Achieving these targets will not be easy, but lessons can be drawn from the experiences with the MDGs. South Africa is well positioned to achieving the maternal SDG goals, as noticed in the gains made on reducing maternal mortality (Statistics South Africa, 2015a).

According to the Southern African Development Community (SADC) Report (2012), the World Health Organisation has estimated about 180-210 million pregnancies every year world-wide, and about 30 million of those pregnancies are in the African Region. It is also estimated that about 20 million women suffer from maternal morbidity, and the Maternal Mortality Ratio (MMR) world-wide is estimated at 400 per 100 000 live births in 2014-2015. Sub-Saharan Africa has an overall estimated MMR of 920 per 100 00 live births and this difference poses a major challenge for Africa to meet the MGD number five (WHO, 2015c). The WHO African Region Report (2014-2015) shows that Sub-Saharan Africa and South Asia contribute to 84 per cent of the global maternal deaths. The countries with the highest MMRs are Sierra Leone with 2 100, Niger and Afghanistan with 1 800, the Chad Republic with 1 500, Somalia with 1 400, Rwanda with 1 300 and Liberia with 1 200 maternal deaths per 100, 000 live births. According to Wakgari, Tessema and Amona (2015), in 2013 there were 210 maternal deaths per 100,000 live births globally, and 60 % of these global maternal deaths were contributed by Ethiopia. Despite the WHO (2015a) recommendations, the Partograph remains poorly used in Ethiopia and in other developing countries. This indicates that midwives do not have skills and knowledge in monitoring the progress of labour using a Partograph. The WHO African Region Report (2014-2015) mentions that the Democratic Republic of the Congo is the third largest country in Africa, with a population of 68 million. It has a high number of maternal mortalities, with a ratio of 540 per 100 000 live births. Uganda has an estimated population of 33.8 million and a maternal mortality rate of 435 per 100 000 live births. The Fistula Care (2013) study reports that Uganda is also one of the low resource countries on the continent where the Partograph is under-utilised and health care providers do not know how to use it (WHO,2013c).

Fistula Care (2013) report further mentions that despite this, Uganda has been making progress in improving maternal health as the MMR has declined by 47 per cent in the past years from 600 maternal deaths per 100 000 live births in 1990 to 43 per cent per 100 000 live births in 2011. The maternal mortality rate is still high, however Uganda still needs to make significant improvements in order to achieve fifth MDG. According to Fistula (2013) the Partograph is not being used and that many of the health care practitioners do not know how to use it properly. In an effort to remedy this, the Ugandan Ministry of Health conducted in-service training on Partograph use for all health care providers in the obstetric departments of that country (Fistula Care, 2013).

Lavender (2013) add, to the Sub-Saharan picture of maternal mortality by stating that the maternal mortality rate also remains high in Kenya, with a mortality rate of 530 per 100 000 live births resulting from prolonged labour. In Kenya, although the Partograph is a simple graphic tool for monitoring the progress of labour, health care workers find it difficult to complete and interpret it.

South Africa's target for Maternal Mortality Ratio (MMR) was 38 deaths per 100 000 live births for 2015, from a baseline of 134/100 000 in 2002. Though significant progress has been made on all goal 5 indicators, none of them have been achieved. The MMR of 141 maternal deaths per 100 000 live births in 2013, is still above the baseline figure (134/100 000) recorded in 2002 (Republic of South Africa, 2015). SANC (2014) in South Africa, nursing and midwifery is governed by the rules and regulations of the SANC Regulation 2488 of 1990, Conditions for Midwifery Practice, as amended which state that a midwife should keep clear and accurate records of the progress of labour. Globally, documentation and record keeping have always been integrated with nursing and midwifery practice.

The Department of Health (DoH, 2012) states that all midwives should use a Partograph when monitoring the progress of labour, however, some midwives in South Africa use the Partograph incorrectly and inappropriately as they only plot the Partograph once the woman has already delivered. These midwives defend this practice by stating that they do not have time to plot the Partograph while a woman is still in labour, due to a shortage of midwives. It is not possible for a midwife to focus solely on one woman and complete all of the documentation at the correct times, as midwives are allocated to care for two or three woman at the same time (Mathibe-Neke et al., 2013).

The DoH (2014) states that all maternal deaths during pregnancy, labour and puerperium are notifiable events in terms of the National Policy Health Act, No.116 of 1996. In South Africa, the Department of Health established a National Committee on Confidential Enquiries into Maternal Deaths (NCCEMD) in 1997 to study and provide recommendations on maternal mortality. The National Committee on Confidential Enquiries into Maternal Deaths appointed by the Minister of Health is responsible for the confidential enquiry into maternal mortality in South Africa. Their first comprehensive maternal death report was published in 1999, the second report covered the period of 1999 to 2001 and the third report covered the period of 2002 to 2004. The fourth report entitled the ‘Saving Mothers Report’ covered the period of 2005 to 2007 (DoH, 2014). The DoH (2012) Tenth Interim Report on Confidential Enquiries into Maternal Deaths in South Africa for the period of 2011-2012 reported a total of 1560 maternal deaths for 2011 and 1426 for 2012. This report covered the maternal deaths that were reported to the NCCEMD and highlighted that institutional maternal mortality rates (iMMR) had decreased in 2012 compared to the 2008 to 2010 report. The comparative summary of iMMRs per province for 2011-2012 in South Africa is illustrate as follows in Table 1.1 below: the Eastern Cape, Free State, Mpumalanga, North West, Northern Cape and .Western Cape had the lowest iMMR below 15 per cent, while Gauteng and KwaZulu- Natal had iMMRs of more than 15 per cent, and KwaZulu-Natal had the highest iMMR of 23.7%.

Table 1. 1: Maternal deaths summary per province for 2011-2012

	LB	Number	iMMR	%
Eastern Cape	116 428	210	180.4	14.3
Free State	47 840	115	240.4	7.8
Gauteng	205 124	257	125.3	17.5
KwaZulu-Natal	192 692	348	180.6	23.7
Limpopo	127 617	210	164.6	14.3
Mpumalanga	74 346	146	196.4	10
North West	57 710	84	145.6	5.7
Northern Cape	20 747	36	173.5	2.5
Western Cape	94 008	60	63.8	4.1
South Africa	936 512	1466	156.5	

The process of maternal death notification and enquiry is aimed at promoting examination of maternal deaths, and it is an indispensable review tool for the quality of care provided at the institutional level. Saving Mothers report on maternal deaths is regarded as a major step towards improving the quality of maternity care. (DoH, 2012).

1.3. Study context

The process identifies the deficiencies in response to pregnancy and its complications, and affords the opportunity to learn from the adverse outcome. Complications of hypertension and obstetric haemorrhage mostly occur during labour and deliveries where midwives represent the greater number of staff members providing maternal care. The most frequent health care provider avoidable factors that were reported as leading to maternal deaths in South Africa were failure to follow standard protocols, poor problem recognition and failure to perform an initial assessment (DoH, 2012).

A study conducted by Wakgari, Tessema and Amona (2015) emphasises the importance of in-service training on how to use and interpret the Partograph correctly, as this will help to reduce prolonged and obstructed labour which is the cause of maternal and perinatal mortality. The World Health Organisation (2015a) recommends that all obstetric health care providers, including midwives, should receive training every three to five years to update themselves, as this in-service training on Partograph usage is essential to improve and provide the proper quality of health care during labour and it will improve intrapartum care. The implementation of the Partograph therefore requires continuous reinforcement in order to eradicate the improper use of the technology in all delivering health care institutions, and effective interventions to improve the knowledge and skill required by midwives when monitoring the progress of labour using a Partograph.

1.4. Problem statement

Fujita, Mukumbuta, Chavuma and Ohashi (2015) mentioned that the use of the Partograph plays a major part in reducing maternal and perinatal mortality rates and it is also essential during the intrapartum care. The problems identified on the proper use and interpretation of the Partograph in other Southern African countries seems to have similar trends in South Africa. Many researchers state that the Partograph although a tool of great value, it is very much under-utilised. Mathibe-Neke, Lebeko and Motupa (2013) found the use of the Partograph was limited, and when used was not correctly used. According to Mathibe-Neke, Lebeko and Motupa (2013), their study conducted in a hospital labour ward in South Africa revealed that the Partograph was poorly used. There was inadequate recording in relation to the observations by the midwives during the auditing of the charts.

This study reveal that there exists poor utilisation of the partograph and questions the midwives' competence and knowledge on the use of the partograph. These authors added that factors contributing to the inappropriate use of the Partograph included a shortage of midwives, and as a result it was not possible for a midwife to focus solely on one woman at a time; instead they had to care for two or three woman at the same time. A lack of in-service training was also identified as a contributing factor, together with a lack of understanding of the skill of plotting and interpretation of the Partograph, as well as a lack of commitment and ignorance by the midwives in the study.

Mathibe-Neke; et al (2013) emphasised the appropriate use of the Partograph in each institution conducting deliveries, as this has been established as necessary by the World Health Organisation. Study done in South Africa by (Mathibe-Neke; et al (2013) revealed that the Partograph was only used on a few patients to monitor the progress of their labour, and when the Partograph was used, it was often incomplete, the findings on the Partograph were also misinterpreted and in some cases the Partograph was only filled in when the woman had already given birth. This is a serious concern as it seems that midwives use the Partograph as a labour management tool instead of as a graphic tool to monitor the progress of labour until delivery. Correct and consistent use of the partograph is considered as an 'early warning system' to detect prolonged labour, cephalo-pelvic disproportion and obstructed labour, which lead to avoidable maternal deaths. It therefore becomes imperative to describe the utilisation of the partograph in KZN.

1.5. Purpose of the study

The purpose of this study is to describe and analyse the knowledge and skills of midwives in monitoring the progress of labour using the Partograph.

1.6. Research objectives

- To describe the midwives' understanding of Partograph usage in monitoring the progress of labour.
- To explore the midwives' knowledge and skills regarding monitoring of the progress of labour by using a Partograph.
- To identify the midwives' perceptions of challenges regarding monitoring of the progress of labour by using a Partograph.

1.7. Research questions

- What is the midwives' understanding of Partograph usage in monitoring the progress of labour?
- What is the midwives' level of knowledge and skills regarding monitoring of the progress of labour using a Partograph?
- What are the midwives' perceptions of challenges regarding monitoring of the progress of labour using a Partograph?

1.8. Definitions of operational concepts

1.8.1. Labour

Dippenaar and da Serra (2013) defines labour as a process of giving birth, in which the products of conception (foetus, placenta and membranes) are expelled from the birth canal. Labour can be preterm or post term, and consists of four stages namely:

- First stage of labour- from onset of labour to full dilatation of the cervix.
- Second stage of labour- commences from the time the cervix is fully dilated up to the delivery of the foetus from the birth canal.
- Third stage of labour- begins from the delivery of the foetus up to the time the placenta and membranes are expelled.
- Fourth stage of labour- is the first hour post-delivery.

Labour is established once there are regular uterine contractions, cervical dilation and a show. In this study normal labour means a spontaneous onset of labour occurring between 37 and 42 weeks' gestation, and completed within 18 hours, leaving both infant and mother in a good condition.

1.8.2. Midwife

A definition of a midwife adopted by the International Confederation of Midwives (ICM) at a council meeting on the 19 July 2005 in Brisbane, Australia, states that a midwife is a registered person who has successfully completed studies in a midwifery programme fully recognised in his/her country, and has acquired the requisite qualifications to be registered and legally licensed to practice midwifery.

The South African Nursing Council (SANC), Act 33 of 2005 defines a midwife in Chapter 2; 30(2) as a person who is qualified and competent to independently practise midwifery in the manner and to the level prescribed, and who is capable of assuming responsibility and accountability for such practice. In this study, midwife refers to a person registered with South African Nursing Council who is qualified to give total midwifery care for maternal and neonatal health during antenatal, labour and delivery, as well as puerperium.

1.8.3. Partograph

A Partograph is a tool used by midwives for the assessment and recording of the progress of labour. Graphic recording should include the foetal condition, the maternal condition and the progress of the labour (Mathibe-Neke et al; 2013). In this study a Partograph refers to the labour graph form provided by the KwaZulu-Natal Department of Health in the maternity case record and it is routinely used by midwives to monitor the progress of labour. It has three sections where observations are recorded on the maternal condition, the foetal condition and the labour's progress.

1.9. Significance of the study

The record of labour is a legal document and observations must be accurately recorded as soon as any event has occurred. An accurate record of the progress of labour provides the basis for making objective decisions as labour progresses or fails to progress. Promoting the appropriate usage of the Partograph can improve the management and progress of labour and lead to proper decision making regarding interventions.

1.10. Conclusion

This chapter consists of introduction to the study, the background of the research, the study context, the problem statement, purpose of the study, research questions, the significance of the study, as well as the research conceptual framework. The next chapter provides a review of the relevant literature that informs the present study.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

The literature review is defined as a summary of research on a topic of interest, often prepared to put a research problem in context. Literature review involves findings, reading, understanding and forming conclusions about the published research and theory on a topic (Pilot & Beck, 2012).

This section will focus on the literature review, which will include in-depth information and the findings of previous studies focusing on the skills and knowledge of midwives in monitoring the progress of labour using the Partograph, how the Partograph is actually used, what aspects are looked at when monitoring the progress of labour and the significance of the Partograph as a necessary tool for monitoring the progress of labour.

2.2. Literature review

According to WHO (2010) midwives are crucial people in the health care system; they play a very important role in the management of pregnant patients and they should realise the important role they have to fulfil in the lives of pregnant women. As midwives it is important to ensure an optimal pregnancy outcome, thus it is important that all health care providers rendering care to pregnant women are familiar with the causes of maternal deaths, as well as existing strategies in preventing these tragic events. Midwives are essential to promote reproductive health in general and in particular to assist in the reduction of the very high global maternal morbidity and mortality rate, as well as to help reduce the unnecessary high rate of newborn deaths. Thus midwives are recognised as a principal protagonist in achieving these objectives and therefore priority must be given to ensuring the good quality of the education and training of midwives as well as to making sure that sufficient midwives are trained to meet the needs of the population. If midwives are well trained, properly equipped, supported and authorised, and if all women deliver with a midwife in a fully functioning facility, one could expect a reduction of maternal, foetal and newborn deaths (Dippenaar & da Serra, 2013).

The World Health Organisation (2010) has therefore advocated the use of the Partograph as a simple technology for use by obstetricians and midwives to monitor the progress of labour, and to ensure that intervention takes place as soon as necessary to prevent complications such as obstructed labour, which can lead to prolonged labour, uterine rupture, post-partum haemorrhage and puerperal sepsis. The World Health Organisation (2013a) reports that there are many constraints; geographical, economic, political and socio-cultural, which lead to either the non-availability or non-utilisation of basic obstetric care which is required to manage obstructed labour satisfactorily. The aim of safe motherhood interventions is to address, directly or indirectly, these constraints. Early detection of abnormal progress and prevention of prolonged labour will help reduce maternal and perinatal mortality, and the WHO asserts that all obstetric complications are preventable with knowledge and skilled use of the Partograph when monitoring the progress of labour.

Yisma, Dssalegn, Astatkie and Fessha (2013) also conclude that the Partograph gives a clear indication for appropriate interventions to deal with complications such as poor progress of labour and prolonged labour; adding that early intervention greatly contributes to the prevention of obstructed labour and other complications including post-partum haemorrhage (PPH) and puerperal sepsis. A study conducted by the WHO (2015c) in South East Asia found that the Partograph is an essential tool in monitoring the progress of labour. Findings reveal that the incidence of prolonged labour was reduced from 6.4 % to 3.4 %, and that of still births from 0.5 % to 0.3%; thus the use of the Partograph contributed to a reduction of maternal and perinatal mortality and morbidity in the region. In a study by Adesala, Omolola, Adekemi and Audu (2014), in Ile-Ife, Nigeria, the maternal mortality ratio was estimated at 545 per 100 000 live births across the country. Despite the introduction of the Partograph by the WHO, these researchers found that Partographs were being filled in incorrectly by midwives.

In a study conducted by Fawole (2011) in Nigeria, the majority of midwives had knowledge of the Partograph, however, the non-availability of Partograph charts in institutions, poor knowledge resulting from a lack of in-service training and staff shortages were contributing factors hindering proper monitoring of the progression of labour using the Partograph. Yisma et al (2013) conducted a study in Addis Ababa, Ethiopia and further reported that only 25 % to 33 % of obstetric care practitioners used a Partograph when monitoring labour progression.

Poor understanding and lack of knowledge were the most common factors that resulted in the low utilisation of the tool, together with the non-availability of pre-printed Partograph charts and workload pressure. Yisma et al (2013) also noted that the utilisation of the Partograph by obstetric caregivers working in the health centres was significantly higher compared to those working in the hospitals. In a study conducted by Abebe, Birhanu, Awoke and Ejigu (2013) in the Amhara Region of Ethiopia, it was revealed that some parameters of the Partograph were not monitored and health care workers did not write their findings on the Partograph immediately after assessing the labouring women. Health care workers in this region did not understand how the Partograph could save the women's lives and they felt that completing the Partograph was unnecessary additional work and time consuming. A published study of Lavender (2013) by the University of Nairobi, Kenya, revealed a significant gap between knowledge and practice regarding the midwives' use of the Partograph when monitoring the progression of labour. Reports showed that of the patients' files audited, 88.2 % of the patients did not have Partographs, and where Partographs were completed, only 23.8 % of them were used and completed correctly.

According to the SADC Report (2012), the WHO has estimated that there are 180-210 million pregnancies world-wide every year, of which about 30 million occur in Africa. It is also estimated that about 20million women suffer from maternal morbidity world-wide, and the yearly MMR is estimated at 400 per 100 000 live births in the rest of the world, while in Sub-Saharan Africa the estimated MMR is 920 per 100 000 live births.

The South African National Department of Health has made an effort to reduce the maternal and perinatal mortality rate, and all maternal deaths occurring antepartum, intrapartum and postpartum are therefore notifiable events. On the 1st of October 1997, the Minister of Health appointed a National Committee on Confidential Enquiries into Maternal Deaths (NCCEMD) in terms of the National Policy Health Act, No.116 of 1999. The NCCEMD is responsible for conducting a confidential enquiry into all maternal deaths in South Africa and has developed a reporting system for all maternal deaths by mean of the 'Saving Mothers Report'. In South Africa the Partograph has been used in all provinces (including KwaZulu-Natal) for many years in an effort to reduce the MMR, but its adoption and adaption is still poor (DoH,2012).

According to the DoH's Tenth Interim Report (2012), each year in South Africa women die and suffer illness and disability because of complications associated with pregnancy and childbirth. This means that a reduction in maternal mortality and morbidity requires more long term efforts within facilities in health systems, communities and society as a whole. A global collaborative effort for the reduction of the maternal and child mortality rate was introduced by the WHO, namely the Millennium Development Goals. Goals four and five of the MDGs are aimed at reducing child mortality and the goal was to reduce child mortality by two thirds and to improve maternal health by three quarters by 2015. Knowledge and skills on the part of midwives in monitoring the progress of labour using the Partograph may play a further significant role in reducing maternal and perinatal deaths worldwide (WHO,2010).

According to Freshwater and Malin-Prothero (2005), maternal death is the death of a woman while pregnant or within 42 days of termination of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. Direct causes of maternal deaths are deaths resulting from obstetric complications of the pregnancy state (pregnancy, labour and puerperium), interventions, omissions, incorrect treatment or from a chain of events resulting from any of the above. Indirect causes of maternal deaths are deaths resulting from previous existing disease or diseases that develop during pregnancy and which were not due to direct obstetric causes, but which were aggravated by the physiological effects of the pregnancy (Snyman, 2007).

2.3. Midwives role in labour period

Aune, Amundeseri and Skaget (2014) mentioned that the midwife has a responsibility of promoting the health and wellbeing of both the pregnant women and the newborn baby, within their families and communities. The midwife conducts births and provides care for the newborn and the mother. This care includes promotion of normal births, prevention and early detection of complications in both mother and foetus, providing access to medical care or other appropriate assistance and where appropriate carrying out of emergency measures (Aune et al; 2014). Midwife provides support, information and guidance during labour to woman, women with the access of continuous presence of midwife during labour are more likely to deliver spontaneously. The relationship between midwife and woman in labour is an important factor in quality of midwifery care (Hoque 2011).

2.4. Labour

Labour is usually diagnosed by a midwife or an obstetrician when there are regular uterine contractions, cervical dilation and a show. About two thirds of deliveries progress normally. In the other third, vigilant monitoring and intervention may be required to prevent maternal and foetal complications.

Kyei (2012) assert that labour is divided into three stages namely: First stage- from the onset of established labour until the cervix is fully dilated; second stage- from fully dilated until the fetus is delivered; and third stage- from the birth of the fetus until delivery of the placenta and membranes, while Dippenaar and da Serra (2013) added fourth stage which is the first hour post-delivery when defining labour.

Dippenaar and da Serra (2013) states the progression of labour and how the progress of the labour can be monitored, namely that: the cervix moves from a posterior to an anterior position; the cervix ripens or softens; the cervix effaces; the cervix dilates; the foetal head rotates, flexes and moulds; and the foetus descends. Monitoring of the progression of labour requires more than just the assessment of cervical dilation and uterine contractions: Progress of labour should include cervical dilation of two cm in four hours, descent and rotation of the foetal head and changes in the strength, duration and frequency of contractions.

2.5. History of the Partograph

Mathibe-Neke, Lebeko and Motupa (2013) report that the Partograph was originally designed and used by Professor H. Philpott in 1971 in Harare, Zimbabwe, and was then later modified by the WHO and introduced internationally in 1987, when the WHO recommended the global use of the Partograph during the Safe Motherhood Conference in Nairobi, Kenya.

The Partograph has been used globally for years, including in developing countries in the African region, and has been an essential tool in monitoring the progress of labour. After the introduction of the Partograph, studies done in Zimbabwe and Malawi revealed that the number of caesarean sections and perinatal mortality decreased (Mathibe-Neke, Lebeko & Motupa, 2013).

A 1994 study conducted by World Health Organization in South East Asia revealed a reduction in the number of cases of prolonged labour and in stillbirth rates and concluded that the Partograph was an essential tool as it improved the quality of the observation of the maternal and foetal condition, add Mathibe-Neke, Lebeko & Motupa (2013).

2.6. Description of the Partograph

Savona-Ventura (2011) define the Partograph as a graphic tool that represents key events during labour and recommend this tool for the routine monitoring of the progression of labour in order to provide an early warning system, should complications arise. The Partograph helps the midwives to identify poor (slow) and early progress in labour, and to initiate appropriate interventions to prevent prolonged and obstructed labour which occurs if there is a disproportion between the dimensions of the foetal presentation and the maternal pelvis during labour.

According to Savona-Ventura (2011), the Partograph does not replace the adequate screening of women on arrival to exclude conditions that require urgent attention or immediate transfer; rather it is designed for the early detection of abnormal labour progression and for the prevention of prolonged labour and thus significantly reduces the risk of postpartum hemorrhage and sepsis, and eliminates obstructed labour, uterine rupture and its sequelae. Obstructed labour is an important cause of maternal and perinatal mortality. Obstructed labour could result in the formation of a fistula and without surgical repair, the physical consequences of fistula are severe-urinary or fecal incontinence (Mathalai, 2009).

Fawole (2011) adds that obstructed labour is also associated with fetal hypoxia, birth trauma and infections resulting in intra-partum or early neonatal deaths and perinatal morbidity. Prevention of obstructed labour is, therefore, an important intervention for reducing maternal and perinatal mortality and morbidity, and for achieving goals four and five of the Millennium Development Goals. As such, the correct use of the Partograph should become the norm at each institution conducting deliveries. All midwives, at all levels are expected to know how to use and interpret a Partograph correctly to reduce obstructed labour and consequently maternal and perinatal mortality.

2.7. Components of the Partograph

According to Dippenaar and da Serra (2013), the Partograph, which is also called a partogram or cervicograph, has been widely accepted as a tool to monitor the progress of labour. This chart is designed for recording at 30 minute intervals, although the time may vary according to institutions or local protocols. There are three main sections where the foetal condition, progress of labour, maternal condition, contractions, urinalysis and treatment administered are recorded.

2.7.1. Foetal condition

According to Dippenaar and da Serra (2013), the process of monitoring the foetal condition on the Partograph falls into four observations, i.e. the foetal heart rate, amniotic fluid, presence of caput and moulding. Foetal heart rate monitoring can be undertaken using intermittent auscultation with a Pinnard stethoscope or a hand held Doppler, and by continuous monitoring using a cardiotocograph (CTG). Foetal heart should be auscultated every 30 minutes in the first stage of labour and should be monitored before, during and after a contraction. The normal foetal heart rate should range between 120 and 160 beats/minute (b/m) without a decrease in rate below 120 b/m or an increase in rate above 160 b/m. Two features of the foetal heart beat should be always be assessed, namely the baseline foetal heart rate, which is the foetal heart rate between contractions and the presence of decelerations and the relation thereof to the contractions. Listening to the foetal heart is an important process where there is a double sound that is more rapid than the adult heartbeat. The maternal pulse is taken when determining the foetal heart, to distinguish between the two. In addition, the continuous electronic foetal heart monitoring cardiotocograph (CTG) is a widely used technique for assessing the foetal status during labour and it is recommended that the mother also be allowed to hear the foetal heartbeat. Dippenaar and da Serra (2013) add the distinction that the Pinnard stethoscope will enable the midwife to hear the actual foetal heartbeat and not the reflected sound waves produced from the cardiotocograph.

2.7.2. Amniotic fluid (liquor)

Amniotic fluid originates from the membranes, particularly from those parts that cover the placenta and the umbilical cord. The secretions are partially controlled by endometrial prolactin and this fluid is already present very early in pregnancy when the trophoblast separates from the dorsal surface of the embryo. During labour, assessment of the membranes and liquor can assist in assessing the foetal well-being and is documented on the Partograph using the universal abbreviations, e.g. (MI) membranes intact, (C) clear liquor, (MSL) meconium stained liquor, (SRM) spontaneous rupture of membranes and (ARM) artificial rupture of membranes. Membranes should not be ruptured artificially unless the cervix is fully effaced and is dilated 3cm or more, and there are regular uterine contractions. This should be accompanied by a reasonable descent of the foetal head. The presence of meconium in the liquor may be an indication of foetal distress resulting from intrauterine hypoxia of the newborn, therefore, continuous foetal heart monitoring using the cardiotocograph (CTG) may be required (Dippenaar & da Serra, 2013).

2.7.3. Caput succedaneum

Caput succedaneum is the accumulation of fluid between the aponeurosis (muscle sheath) and the periosteum (outer covering of the fetal skull bones). It is present at birth and may last for 24 - 36 hours after birth. In vertex presentation, the presenting part (parietal bone is commonly affected and the swelling may cross the sagittal suture and affect both right and left parietal bones. Caput is a significant sign of cephalo-pelvic disproportion (CPD) and its increase may be indicative of prolonged pressure on the foetal head, on the Partograph, caput is recorded as + (Dippenaar & da Serra, 2013).

2.7.4. Moulding

Dippenaar and da Serra (2013) indicate that moulding is the term applied to the change in shape of the foetal head that takes place during its passage through the pelvis. It allows a considerable reduction in the size of the presenting diameter, thus enhancing the passage of the foetal head through the pelvis. Excessive moulding is unacceptable as it is a crucial indicator of foetal distress. Moulding is an important indication of how adequately the pelvis can accommodate the foetal head, and increasing moulding with the head still high in the pelvis is an ominous sign of cephalo-pelvic disproportion.

Moulding is assessed four hourly during the latent phase and two hourly during the active phase of labour, and it is recorded appropriately in the specific spaces on the foetal condition portion on the Partograph as follows:

0.....Separated scalp bones- sutures felt easily

+.....Parietal and occipital bones touching each other

++.....Overlapping bones- overriding but can be separated easily by digital pressure (reducible)

+++.....Severely overlapped bones- overriding and cannot be separated by digital pressure (non-reducible) (Dippenaar & da Serra, 2013).

2.7.5. Progress of labour

According to Dippenaar and da Serra (2013) cervical dilatation and effacement, descent of the presenting part of the foetal head and the frequency, strength and duration of contractions are all utilised to assess the progress of labour. Cervical dilatation, effacement and descent of the presenting part are assessed and recorded on the Partograph four hourly during the latent phase of labour, and two hourly during the active phase of labour; whereas contractions are assessed and recorded hourly during the latent phase and half-hourly during the active phase of labour. The cardiograph developed by Friedman in 1954 is the central feature of the Partograph, providing a clear picture of the progress of the cervix. Cervical dilation, like effacement, is recorded as length in centimeters and assessed by vaginal examination. Dippenaar and da Serra (2013) state that cervical dilatation is plotted as an 'x' on the Partograph, and effacement as a thick line, depending on the length of the cervix. Effacement may occur late in pregnancy or it may not take place until labour begins. In a nulliparous woman, for example, the cervix will not usually dilate until effacement is complete, whereas in a multiparous woman, effacement and dilatation may occur simultaneously.

2.7.6. Uterine contractions

According to Savona-Ventura (2011), uterine contractions are palpated and recorded on the Partograph according to their frequency (number of contractions per ten minutes), duration (the time between the start and end of the contraction) and their intensity (whether the contractions are mild, moderate or strong).

Mild, moderate and strong contractions are all monitored over a ten minute period. Mild contractions last from 10 - 20 seconds, moderate from 20 - 40 seconds and strong contractions last from 40 seconds onwards in a ten minute period. The key below illustrates the three ways in which the duration of contractions is recorded on a Partograph:-

 Dots represent mild contractions of less than 20 seconds in duration.

 Diagonal lines indicate moderate contractions of 20- 40 seconds in duration.

 A solid colour indicates strong contractions of 40 seconds and longer in duration.

2.7.7. Maternal condition

According to Dippenaar and Serra (2013), during the first stage of labour the maternal condition is monitored and recorded on the last section of the Partograph. Blood pressure, pulse, temperature and urinalysis are monitored and recorded every two to four hours in normal labour and more frequently if there is an abnormality, and also monitored hourly during the latent phase and half-hourly during the active phase, whereas urine is monitored four hourly during the latent phase and two hourly during the active phase. Temperature is monitored and recorded four hourly throughout labour. A rise in pulse rate to more than 100 b/m is indicative of anxiety, pain, infections, ketosis or haemorrhage; whereas a rise in temperature to more than 37.2 degrees Celsius is indicative of infection or ketosis. In addition, a rise of the systolic pressure by more than 10mmHg and of the diastolic pressure by more than 15mmHg is indicative of maternal distress or gestational hypertension.

All urine passed during labour should be tested for glucose, ketones and proteins, and a woman should be advised to empty the bladder every hour as a full bladder can interfere with the progress of labour. If the woman fails to pass urine and the bladder is full, a once off catheter should be inserted. The presence of ketones indicates starvation or maternal distress when all available energy has been utilised, whereas glucose may be present following intravenous administration of glucose and the presence of protein may be a sign of infection or may be due to contaminants from the amniotic fluid following the rupture of membranes (Dippenaar & da Serra, 2013).

2.7.8. Treatment

Treatment administered during labour is recorded in the specific space on the partograph, which is just below the recording of the vital signs. Intravenous fluids are only given when indicated e.g. for all high risk mothers with gestational hypertension, gestational diabetes mellitus, anaemia in pregnancy, prolonged labour, twin pregnancy, primigravida and during preparation for caesarean section. Epidural anaesthesia, entonox and pethidine are administered as analgesics, maxolon as an anti-emetics, oxytocin for the augmentation of labour and antibiotics in cases where infection is anticipated (Dippenaar & da Serra, 2013).

2.8. Recommendations for Partograph

The Partograph is being widely used in a number of countries. According to Maphasha, Govender, Motloba, and Barua (2017) use of the partogram should become the norm in institutions conducting births and the correct use of the partogram has become part of the standard protocol for monitoring and managing labour. The Partograph is used to plot the cervical dilatation against time and thus unsatisfactory progress of labour can be identified and managed timeously. Thorough knowledge and consistent use of the Partograph by midwives is critical in the early detection of prolonged labour and prevention of associated complications as it is indicated that the Partograph serves as an early warning system and assists in early decision in the transfer or augmentation of labour (Maphasha et al, 2017).

Orhue, Aziken and Osemwenkha (2012) have found that there is a higher rate of fresh stillbirths in labours with crossed alert line than in normal labours. When alert and action lines were crossed, women had a rate of fresh stillbirths ten times than for normal labour. Women monitored with the two hour action line required more interventions, like more oxytocin augmentation, without improving maternal and fetal outcomes than in the four hour action line. The two hour action line has been criticized of increasing unnecessary interventions. Although the four hour action line was recommended, it is argued that four hours is too long and dangerous omissions may occur which can lead to maternal or fetal death (Orhue et al,2012).

2.9. The reported adherence to such recommendations

According to Udeme, Ita, Thomas, Affiong, Opiah, Essien and Monjok (2014) the use of the partogram has been shown to be beneficial in differentiating abnormal labour progress, and prevention of complications due to obstructed and prolonged labour. Maternal complications associated with obstructed labour are uterine rupture and pressure necrosis of the bladder, which can lead to fistula formation, the most common cause being cephalopelvic disproportion, and the most appropriate intervention is Caesarean section. The foetal complications associated with obstructed labour are cerebral palsy, hypoxic ischaemic encephalopathy and eventually intrapartum-related neonatal deaths.

Udeme et al (2014) further state that a study that was conducted by the WHO between 1990 and 1991 in Indonesia, Malaysia and Thailand indicated that the introduction of Partograph, along with management protocol, improves labour outcomes. The study revealed that the use of a Partograph reduced the number of prolonged labours, the need for argumentation of labour with oxytocin, the rates of caesarean section, asphyxia and infection

2.10. Constraints to the use of the Partograph

As presented earlier in this study, the Partograph is a form on which labour observations are recorded to provide an overview of labour, aiming at alerting obstetrical care providers to deviations in labour progress as well as maternal and fetal well-being. When deviations in labour progress are recognized earlier and corrected, complications are prevented and normal labour and delivery can occur. Findings from the study on knowledge and utilization of the Partograph among midwives in the Niger Delta region of Nigeria, inferred that despite midwives good knowledge of the partogram, there was poor utilization in labour monitoring in both centres. Assessment of utilized partogram charts revealed that only 37.5% in Federal Medical Centres and 32.6% in Niger Delta University Teaching Hospital were properly filled (Opiah, Bola, Ekere and Monjok, 2012). The problem of filling the partogram was also felt in the study conducted by Khonje (2012) in Malawi where by high proportions of incompletely recorded parameters on the partogram were identified. Udeme et al (2014) state that the use of the Partograph is hindered by poor knowledge, lack of the charts in the labour wards, shortage of health care personnel, time-consuming tasks for the low numbers of staff and poor appreciation of its advantages in preventing obstructed labour.

A notable fact in developing countries is that knowledge of the use of the Partograph for labour management is very low among nurses, midwives, and doctors working in the primary and secondary health care levels and private health care centres when compared to tertiary level care. Additionally the general inability of the peripheral hospitals to produce benchmarks on the use of this chart in labour, poor managerial support regarding the procurement of necessary supplies and lack of motivation of the health workers constitute major obstacles in the use of the Partograph (Udeme et al 2014).

2.11. Consequences of non-use of a Partograph

Lavender, Omoni, Lee, Wakasiaka, Watiti and Mathai (2011) mentioned that prolonged labour and obstructed labour are major causes of maternal and new-born morbidity and mortality. Abraham and Berhan (2014) write that prolonged labour is a frequent obstetric problem, and complicates about 20% of deliveries. They can lead to a ruptured uterus, postpartum haemorrhage, infection, obstetric fistula, urinary and faecal incontinence, pain, infertility and foetal injury or death.

Improper use of Partograph during labour was reported to have resulted in missed opportunities to timely diagnose CPD, malpresentations, fetal abnormalities and other causes of obstructed labour. Obstructed labour led to 8% of the maternal deaths worldwide, 11.3% of maternal deaths in Bangladesh, 26.2% in a study in community based in Uganda, 45.5% in hospital based study in Ethiopia, and 36% in Malawi, concluding that a careful assessment of engagement and descent of the presenting part is important to prevent occurrence of obstructed labour (Bayrampour, Heaman, Duncan & Tough, 2012).

In the infant, prolonged obstructed labour may cause asphyxia, brain damage, infection and death. Obstructed labour, with or without ruptured uterus, features among the five major causes of maternal death in almost every developing country, although its relative importance varies from region to region. Nevertheless, it can be said with certainty that abnormally prolonged labour and its effects are important contributors to maternal and perinatal mortality and morbidity worldwide (D0H, 2012). Olierhead and Osrin (2014) describe the Partograph as a chart display of the progress of labour on a chart, where some progress measurements are plotted graphically. The partogram is recommended by WHO, as it helps childbirth healthcare workers to recognise potential problems, and to take appropriate action with a standardised approach, the aim is to manage obstructed labour with less maternal and fetal death and injury.

Competent use of the Partograph can save lives by ensuring that labour is closely monitored and life-threatening complications such as obstructed labour are identified and treated as seen from the literature presented above. It is evident that the Partograph is essential, but many countries are faced with sub-optimal use of the Partograph (Lavender et al, 2011).

2.12. Conclusion

This chapter highlighted reviewed literature on the history, description and components of the Partograph, midwives' role in labour period, recommendations for Partograph, the reported adherence to such recommendations, constraints to the use of the Partograph, consequences of non-use of a Partograph. Reviewed literature indicates that in developing countries, a Partograph is an essential and simple, inexpensive tool used in monitoring woman in labour.

In the next chapter, the research methodology will be discussed. A descriptive quantitative study design is used in this study to describe and analyse the knowledge and skills of midwives in monitoring the progress of labour using the Partograph. The intention is to develop guidelines which will emphasise the importance of the Partograph, how to use it, how to interpret it and also how to act on the findings.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter presents the methodology and research design employed by the study to address the objectives and questions of the study. It begins with a description of the study design, the target population, the study setting, data collection and data analysis. The last section of the chapter discusses the ethical issues related to the study. According to Holloway and Wheeler (2010), research methodology is a process used to collect information and its aim is to give a plan to the research. The purpose of the methodology is to inform the reader on how the study was conducted.

3.2. Research approach

The research approach is a procedural plan used by the researcher to answer questions. Grove, Burns and Gray (2013) define research design as a plan, structure and strategy of investigation to obtain answers to research problems or questions. Research design as the architectural backbone of the study, as it indicates how data will be collected and where the study will take place. It is also viewed as the end results of a series of decisions made by the researcher concerning how the study will be implemented and is the overall plan for obtaining answers to the questions being studied and for handling some of the difficulties encountered during the research process. It is also viewed as the end result of a series of decisions made by the researcher concerning how the study will be implemented. (Burns & Grove, 2009, Pilot & Beck, 2012,)

A quantitative approach was used for this study, as the purpose of this study is to describe and analyse the knowledge and skills of midwives in monitoring the progress of labour using the Partograph in selected hospitals. Quantitative research is conducted to describe new situations, events or concepts in the world. According to Burns & Groove (2009), a quantitative research method is useful in quantifying opinions, attitudes and behaviours, and to find out how the whole population feels about a certain issue. In this method, a researcher is objectively separated from the subject matter and knows in advance what they are looking for.

3.3. Research design

This study adopted a descriptive quantitative research design, which is a class of non-experimental study as its purpose is to observe, describe and document aspects of a situation as it naturally occurs, as well as to serve as a starting point for hypothesis generation or theory development (Polit & Beck, 2012). Boswell & Cannon (2011) state that a quantitative descriptive research approach is a formal, objective, systematic process in which numerical data are utilised to gather information about the world. It emerged from a branch of philosophy called logical positivism, which operates on strict rules of logic, truth, laws and predictions. Wisker (2008) asserts that descriptive research aims to find out more about a phenomenon and to capture it with detailed information. Descriptive study design gives a picture that happens in a natural situation; it may be used to develop theories and to identify problems with current practice, justify current practice, make judgements or determine what other practitioners in similar situations are doing.

3.4. Research setting

Grove, Burns and Gray (2013) describe the setting as the location where the study is conducted. This study was conducted in Maternity Departments and focused mainly on the Labour Wards of selected hospitals in the eThekweni District of KwaZulu-Natal, in a natural setting. The EThekweni District is one of eleven health districts in KwaZulu-Natal. There are sixteen provincial hospitals and eight community health centres situated in this district. District health services are jointly provided by the provincial department of health and the local government authority. EThekweni district is made up of district, regional as well as tertiary hospitals. (<http://www.kznhealth.gov.za/ethekwini.htm>).

The three hospitals chosen which offer maternity services were classified as:

Hospital A- a Semi-private hospital

It is situated in Pinetown, it is a 200 bed Level 1 District hospital and a referral hospital for provincial and municipal clinics. Hospital is owned by St Mary's Catholic Mission Trust and it receiving funding from the Kwa Zulu-Natal Department of Health (KZN DoH) (<http://www.stmarys.co.za/about-us/>).

Services rendered are for both inpatients and outpatients and includes: Trauma and emergency, Internal medicine, Surgery, Orthopaedics, Mental health, Obstetrics and Gynaecology, Paediatrics, Oral health services, Pharmacy services, Medical, Social work, Dietetics, Physiotherapy, Pastoral care support, Radiography, Laboratory, Primary health care, Operational theatre, Occupational health, Optometry, and Mortuary services (<http://www.stmarys.co.za/package-of-service/>). Its catchment areas includes Cato Ridge, Inchanga, Mpumalanga, Hammersdale, shongweni Dam, KwaNgcolosi, Waterfall, Molweni, Gillits, Hillcrest, Stockville, Kloof, Mpola, Isthelimnyama, Mariannahill, Pinetown, Ashley, Wyebank, Clermont and New Germany (<http://www.stmarys.co.za/about-us/>). Clinics referring to Hospital A are: Kloof, Clermont, Pinetown, Molweni, Msunduzi, Waterfall, Ntshongweni, Mpumalanga, Itshelimnyama, Halley Stott, Mpola, Shongweni Dam, Ngcolosi, Wyebank, Fredville and Peaceville as well as Kwadabeka and Hlengisizwe community health centres. Hospital A have an average number of three hundred and sixty two (362) deliveries per month. It refer all complicated maternity cases to R.K Khan Hospital, King Dinuzulu Complex Hospital, King Edward hospital and Inkosi Albert Luthuli Central Hospitals (<http://www.stmarys.co.za/referral-system/>).

Hospital B- a District hospital

Hospital B is situated in Springfield. It offers the following specialised services: orthopaedic spinal surgery, psychiatric, sterilization, Multi Drug Resistant and complicated TB. Other services rendered includes the following: ARV roll-out to TB patients, Casualty Department, Dental Services, Dietetics, Family Planning, General Medical, General Surgical, HCT, Intensive Care, Laboratory, Maternity, Medical Laboratory Services, Medical outpatient department, Occupational therapy, Orthopaedics, Paediatric ward, Pharmacy, Physiotherapy, Psychiatric, Psychological service, Social welfare services, Social worker, Specialist Services, Speech therapy, TB clinic, Theatres, Tuberculosis, Voluntary testing and counselling, X-ray (<http://www.kznhealth.gov.za/kingdinuzuluhospital.htm>). Its catchment areas includes: Newlands East and West, Clare Estate, Overport, Sea cow-lake, Red Hill, Sydenham, Reservoir Hills, Asherville, Westville, Fossa, Morningside, Springfield and Sherwood. Hospital B have a number of four hundred and forty nine (449) deliveries per month and twenty seven (27) of complicate deliveries which some of the are referred to King Edward hospital and Inkosi Albert Luthuli Central Hospital. (http://www.kznhealth.gov.za/kgv/King_Dinuzulu_Hospital_Complex_commitment_charter_2013.pdf).

Hospital C- a Regional hospital

Hospital C is a District and Regional hospital, it is a 1200 bedded facility. It provides District level of care non-specialist services to patients who are referred from local clinics and it provides specialist services to patients referred from District hospitals. Services rendered includes: Antiretroviral therapy, Audiology, Blood transfusion services, Casualty, Comfort Centre, Dental, Medical, Surgical, Heliport, High Care, Infectious Cases, Intensive Care, Neonatal Intensive Care, Obstetric and Gynaecologist services, Occupational therapy, Orthopaedics, Paediatrics, Primary health care, Pharmacy, Physiotherapy, Social worker, Speech therapy, Stoma therapy, Theatre, Trauma, Voluntary testing and counselling, X-ray and Specialist services. Hospital C have an average number of nine hundred and thirty four (943) deliveries per month, and eighty three (83) of complicate deliveries. Complicated deliveries are managed at Hospital C, but severe cases such as Cardiac in pregnancy are referred to Inkosi Albert Luthuli Central Hospital. (<http://www.kznhealth.gov.za/princemshiyenihospital.htm>).

3.5. Population

Grove, Burns and Gray (2013) state that a study population is the electorate from which you select electors to a sample while Polit and Beck (2012) further state that a target population is the entire set of individuals who meet the sampling criteria. The study population included two hundred and thirty four (234) of registered midwives currently working in the Labour Wards of the selected hospitals, who were on duty on the days of data collection. Details of population of this study are in table 3.1.

Table 3. 2: Total number of midwives working in the maternity section of the three hospitals

Name of the hospital	Total No. of midwives	No. of midwives from other maternity wards	No. of midwives in labour ward
Hospital A	44	22	22
Hospital B	50	30	20
Hospital C	140	96	44
Total	234	148	86

3.6. Sampling and Sampling design

Polit and Beck (2012) define sampling as the process of selecting a portion of the population to represent the entire population. The researcher selected registered midwives who were working in labour wards and currently registered with the SANC, and who were willing to participate in the study. Sample size is the number of participants from whom data will be obtained. In this study, stratified sampling, then simple random sampling were used in order to get the participants from the population of three selected hospitals (Hospital A, B, and C). Sample size was calculated based on the Confidence level of 97%, the margin of error of 3%, and the variability of 50%, hence the sample size was 200. The two hundred (200) selected for the sample size of the study were registered midwives from all three selected hospitals. However, only 122 responded to the research instrument, making a response rate of 61%. The reasons for this decreased response rate were: some midwives were on annual, sick and maternity leave; others were involved in administrative work or attending women in labour. A number of midwives did not also want to respond to the research instrument.

3.7. Inclusion criteria

This study included SANC registered midwives who were working in the selected Labour Wards rendering delivery services at the time, who were willing to participate in the study and who were on duty on the day of data collection.

The registered midwives, operational managers and community service (Comm Serve) nurses who were working in labour ward and willing to participate in the study and on duty on the day of data collection were included

Advanced Midwifery student. The latter were included in the study as they were also registered with the SANC and were employed as midwives in their institutions. This was done to get more data as some midwives did not want to participate in the study. A post basic or advanced midwifery student is a midwife who is doing her a clinical nurse specialist in midwifery and who furthers her studies after the basic qualification of general nurse and midwifery and is registered with the South African Nursing Council. They were found in Hospital C labour ward during data collection and they were included in the study after giving consent.

3.8. Exclusion criteria

Four year and One year course student midwives were excluded in the sampling because they are not registered midwives.

All health care providers working in the Labour Wards who were not registered midwives (doctors, enrolled nurses and clerks) were excluded.

Midwives practising in other sections of the Maternity Department (Maternity High Care, Antenatal Ward, Antenatal Clinic and the Postnatal Ward) were excluded.

Midwives who provided delivery services but were not available on the day of data collection (including those who were on leave) were not included in the sampling.

3.9. Research instruments

A structured questionnaire was the research instrument used to assess the midwives' knowledge and skills regarding the use of the Partograph while monitoring the progress of labour. Boswell and Cannon (2011) define a questionnaire as a list of questions where answers are provided to participants, and it is important that questions are clear and easy to understand. The questionnaire used was adapted to suit the context of the study after permission to use and adapt the questionnaires was granted by Mrs Reenavadi Singh. The structured questionnaire used consisted of closed-ended questions. Those questions included demographic information, understanding of the Partograph, knowledge of the Partograph, and the challenges and experiences regarding Partograph use.

3.10. Validity and reliability of the research instruments

According to Polit and Beck (2012) the definition of validity has two aspects: that the instrument actually measures the concept in question, and that the concept is measured accurately. These authors also classifies validity into four major kinds of validity: content validity, face validity, criterion-related validity and construct validity. In this study two of the subtypes were used to validate the instruments used for data collection, namely content validity and face validity Polit and Beck (2012) further state that content reliability is established on the basis of judgements, that is, researchers or other experts make judgements about whether the measure covers the universe of facets that make up the concept.

Validity of the instrument was ensured by conducting literature review, validity was ensured when the self-developed questionnaire was presented to the study supervisor 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. The tool was therefore appropriate and relevant for the sample that was selected, since it was able to measure the concept accurately and align it to the objectives of the study. Face validity refers to whether the instrument looks like it is measuring the target construct (Polit and Beck 2012). The author further explains that although face validity is not considered strong evidence of validity, it is required to persuade people to participate in the study.

Reliability can be established by the consistency of the measure obtained in the use of a particular instrument (Burns and Grove 2009). The tool that was used obtained consistent results with the reliability scale used in Statistical Package for Social Sciences (SPSS version 24). As reflected by Polit and Beck (2012), reliability of the instrument can be established if the instrument measures the same thing more than once and results in the same objectives..

Table 3 2 Content validity of questionnaires

Research objectives	Research questions	Questionnaire number
To describe the midwives' understanding of Partograph usage in monitoring the progress of labour.	What is the midwives' understanding of Partograph usage in monitoring the progress of labour?	7,8,9,10,11,12,13,14 & 15
To explore the midwives' knowledge and skills regarding monitoring of the progress of labour by using a Partograph.	What is the midwives' level of knowledge and skills regarding monitoring of the progress of labour using a Partograph?	16,17,18,19 &20
To identify the midwives' perceptions regarding monitoring of the progress of labour by using a Partograph.	What are the midwives' perceptions regarding monitoring of the progress of labour using a Partograph?	21

3.11. Data collection and the data collection process

Grove, Burns and Gray (2013) assert that it is unethical to collect data without the knowledge of participants. Informed consent to participate in the study was voluntarily given by the participants after they had been made aware of the type of data which was to be collected from them, what purpose it would serve, how they were expected to participate in the study and how directly or indirectly they would be affected by their participation.

An appointment was made with the Operational Manager of each Labour Ward to explain the purpose and the significance of the study, and on the day of data collection the researcher met the participants and explained the objectives of the study and their right to participate or to refuse to give information. A face-to-face recruitment method was used during data collection, as the researcher visited and introduced herself at each of the three selected hospitals. To obtain the required sample, the researcher handed out questionnaires with information sheets and requested consent to participate from both night and day staff. The self-administered questionnaire was handed out to the midwives after explaining the purpose of the study and obtaining their informed consent.

The questionnaires were given to Operational Manager then filled in and subsequently collected after two days for analysis. Confidentiality and privacy was assured and explained to the participants before completing the questionnaire, and they were requested not to include their names. The midwives were asked to read an information sheet and to sign an informed consent form, which described the purpose of the study, promised the subjects confidentiality and indicated that the subjects could stop participating at any time. The researcher distributed the questionnaires by hand to the day staff during tea and lunch breaks, waited for the participants to complete the questionnaires and then collected them immediately once completed. A special box was placed in the duty room for the staff who were on the night shift, and participants were requested to put completed questionnaires in the box for the researcher to collect after two days, to maintain their confidentiality and anonymity. The primary data was collected by the researcher on different days in the three selected hospitals. The respective Operational Managers from the three selected hospitals assisted in motivating the staff to complete the questionnaires, since the problems with the Partograph were of concern to all. Data was collected in different hospitals and it took the researcher two months 23 January –23 March 2017 to complete. The present study was conducted in the Labour Wards of selected hospitals in the eThekweni District of KwaZulu-Natal.

3.12. Data analysis

Data analysis is defined as the systematic organisation and synthesis of research data and, in quantitative studies, the testing of a hypothesis using those data (Polit and Beck, 2012). The purpose of data analysis is to organise, provide structure and elicit meanings from the research data, explain Polit and Beck (2012) further. The data was checked for completeness and each questionnaire was coded. The researcher used the IBM SPSS STATISTICS 24 to analyse the data. The results were presented in terms of frequencies, using tables and pie chart displays. Descriptive and inferential statistics applied. Descriptive statistics include: frequency, and means and standard deviations to summarize variables, while inferential statistics (chi-square) also used to test the significance of association between two categorical variables. The level of significance was set at $P < 0.05$.

3.13. Ethical considerations

When humans are utilised in a study as participants, care must be exercised in ensuring that the rights of those people are protected. Permission to conduct the research was granted by the University of KwaZulu-Natal Biomedical Research Ethics Committee (BREC), the KwaZulu-Natal Department of Health Research Committee and the Hospital Managers of the three selected hospitals at eThekweni District. The midwives also gave their consent to participate in the study after receiving an explanation about the purpose of the research, as detailed in the information sheet. This research took into consideration all ethical issues involving human participation. The ethical principles that guided the research are presented by Holloway and Wheeler (2010) and Pilot and Beck (2012) as follows:

3.13.1. Principle of respect for dignity

The right to self-determination - this means that participants were treated as autonomous agents who were capable of controlling their actions. Participation in this study was voluntary, participants had the right to ask questions, to refuse to give information and to withdraw from the study. Participants in this research were allowed to make a free, independent and informed choice without force. Participants were informed about the option to withdraw from the research at any time and that there would be no punishment for doing so. Participants were then given informed consent forms to sign if they wanted to participate in the study.

The right to full disclosure - in this study the researcher had fully described the nature of the study in an information sheet, which was given to each participant. It gave the background and purpose of the research before signing of the informed consent forms. The information sheet (Annexure 1) was given to clarify that participation in this research was voluntary and that there were no monetary benefits from the research.

3.13.2. Principle of beneficence

The right to freedom from harm and discomfort (non-maleficence) - the researcher had an obligation to avoid and minimise harm in the study, by ensuring that participants were not subjected to unnecessary risk of harm and discomfort.

The right to protection from exploitation - participants were assured that information they provided would not be used against them.

Beneficence imposes a duty on a researcher to minimise harm and maximise benefits. It is the researcher's duty to avoid, prevent, or minimise unnecessary harm in studies with humans (Polit and Beck, 2012). These authors further state that participants have a right to be protected from exploitation and should be assured that their participation or information they might provide will not be used against them. The right to freedom from harm and discomfort was maintained, as participants were not subjected to any risk of harm or injury. The study was reviewed by the Biomedical Research Ethics Committee, and thereafter ethics clearance was granted (Annexure 4). Permission was sought from and granted by the Department of Health (Annexure 7) and the Hospital Managers (Annexure 9, 11 and 13).

3.13.3. Principle of justice

The right to fair treatment - in this study the researcher treated people who declined to participate in a non-prejudicial manner.

The right to privacy - this study was not intrusive and the participants' privacy was continuously maintained. Anonymity was maintained as no names or hospital numbers were used. For the data analysis, only codes were used and not their names. They were reassured that information was to be kept confidential by the researcher and then ultimately destroyed by shredding after publication of the research. Confidentiality and privacy was explained to the participants before they completed the questionnaire, and they were requested not to include their names on the questionnaires. Midwives were asked to read an information sheet, which described the purpose of the study, promised the subjects confidentiality and indicated that they could stop participation at any time. The midwives were then asked to sign an informed consent form.

3.14. Data storage

Data from this study was only used for the purpose of completing this research. The researcher managed the data from collection, translation, data entry, cleaning and analysis. Hard copies were kept in a lockable cupboard, where only the supervisor and the School of Nursing Management would have access. After five years from the time of its storage, the data would be destroyed.

3.15. Conclusion

This chapter highlighted the research approach, research design, the research setting, the population, sampling, sample design, inclusion criteria, exclusion criteria, research instruments, validity and reliability of the study, the data collection process, data analysis, ethical considerations, as well as the data storage.

CHAPTER FOUR

FINDINGS

4.1. Introduction

This chapter presents the results of the current study. to reiterate the research objectives of this study were: (1) to describe the midwives' understanding of Partograph usage in monitoring the progress of labour; (2) to explore the midwives' knowledge and skills regarding monitoring of the progress of labour by using a Partograph; (3) to identify the midwives' perceptions of challenges regarding monitoring of the progress of labour by using a Partograph. Data collected was checked for completeness and each questionnaire was coded. The researcher used the IBM SPSS statistics version 24 package to analyse the data, and the results are presented in terms of frequencies and percentages using tables and graphs. Chi-square test, Kruskal-Wallis Test and Mann-Whitney Test were used in order to establish the association between socio-demographic data and various related to the knowledge and skills of midwives in using Partograph. Furthermore Pearson correlation was used to establish the relationship between different variables.

4.2. Response rate

This study had a population of two hundred and thirty four (234) participants from all three hospitals, two hundred (200) of registered midwives were selected for the sample size of the study from all three selected hospitals. Out of two hundred research instruments distributed, only one hundred and twenty two (122) were responded to and returned, making a response rate of 61%. The reasons for this decreased response rate were: some midwives were on annual, sick and maternity leave; others were involved in administrative work or attending women in labour. A number of midwives did not also want to respond to the research instrument. The distribution of the response rate per hospital is presented in Table 4.1.

Table 4. 1: Distribution of the response rate of midwives in the three different hospitals

	Freq.	%
Hospital A	22	18
Hospital b	21	17.2
Hospital C	79	64.8

The table 4.1 indicates how participants (midwives) were spread across the three hospitals. Out of a total of n=122, Hospital A had 18.0 % (n=22) participants, Hospital B had 17.2% (n=21) participants and Hospital C with the largest distribution of midwives had 64.8% (n=79)

4.3. Demographic data

The results on table 4.2 below indicates that a total of 2.5% (n=3) participants fell in the age group of 21-25 and 61-65 years of age, 13.1% (n=16) fell in the age group of 26-30 years, 16.4% (n=20) were in the age group of 31-35 years, 22.1% (n=27) were in the age group of 36-40 years, 11.5% (n=14) fell in the age group of 41-45, 15.6% (n=19) were in the age group of 46-50, 8.2 % (n=10) fell in the age group of 51-55 and 56-60 years out of a total of n=122 participants. The results show a significant number 93.4% (n=114) of participants were female and 6.6% (n=8) were male from a total of n=122. The study participants were comprised of different race groups: 97.5 % were Africans, 0.8 % (n=1) were Indians, 1.6 % (n=2) were coloureds and there were no white participants in this study.

Regarding the academic qualification, the majority of the participants 73.8 % (n=90) had Diploma in Nursing 25.4% (n=31) indicated that they had a degree in Nursing and only 10.8% (n=1) had a Master's degree in Nursing as their highest academic qualification.

Most participants 45.1% (n=55), were basic midwives 26.2% (n=32) were midwife specialists, 20.5% (n=25) were advanced Midwifery students, 5.7% (n=7) were community service midwives and 2.5% (n=3) were operational managers.

The findings from this study indicated that an average percentage of the participants, 36.9% (n=45) had less than 5 years of experience, 23.0% (n=23) reported to have an experience between 6-10 years. Furthermore, 19.7 % (n=24) of the participants indicated that they had between 11-15 years of experience in the midwifery practice 11.5% (n=14) also indicated that they had between 16-20 years of experience and only (9.0 % (n=11) indicated that they had 21 and more years of experience in the midwifery practice.

Table 4 2 Demographic data

Variables		Frequency	Percentage (%)
Age	< 25	3	2.5
	26-30	16	13.1
	31-35	20	16.4
	36-40	27	22.1
	41-45	14	11.5
	46-50	19	15.6
	51-55	10	8.2
	56-60	10	8.2
	61-65	3	2.5
Gender	Females	114	93.4
	Males	8	6.6
Race	African	119	97.5
	Indian	1	0.8
	Coloureds	2	1.6
Academic qualification	Diploma in Nursing	90	73.8
	Degree in Nursing	31	25.4
	Masters in Nursing	1	0.8
Category in practice	Basic midwife	55	45.1
	Advanced Midwifery student	25	20.5
	Midwife specialist (Advanced midwife)	32	26.2
	Community service midwife (comm serve)	7	5.7
	Operational managers	3	2.5
Years of experience in midwifery	<5	45	36.9
	6-10	28	23.0
	11-15	24	19.7
	16-20	14	11.5
	21 or more years	11	9.0

4.3.1. Partograph usage and monitoring of the labour.

The findings from this study indicated that all midwives 100% (n=122) have used the Partograph previously, and they all reported that the Partograph was used to monitor the progress of labour (Table 4.3).

Table 4. 3: Partograph usage and monitoring of the progress of labour

Variables		Frequency	Percentage (%)
Have you ever used partograph before?	Yes	122	100.0
Is the partograph used to monitor the progress of labour in your unit	No	0	0

4.3.2. Frequency of Partograph usage

In Table 4.4 on the frequency of usage of the Partograph, the results showed that all participants (100%; n=122) reported to use routinely the partograph.

Table 4. 3: Frequency of Partograph usage

Variables		Frequency	Percentage (%)
If yes how often	Routinely	122	100.0
	Rarely	0	0
	Occasionally	0	0

4.3.3. Filling in of the partograph while a woman is still in labour Table 4.5 indicates that 100 % of the participants filled in the Partograph while the woman was still in labour, and there was a zero response rate to the option of ‘after delivery’.

Table 4. 4: Filling in of the Partograph while a woman is in labour

Variables		Frequency	Percentage (%)
In your institution , when do you fill in the partograph	While the woman still in labour	122	100.0
	After delivery	0	0

4.3.4 Diagnosis that can be made through the use of Partograph

As presented in Table 4.6, significantly 93.4% (n=114) responded ‘agree’ that obstructed labour could be diagnosed on the Partograph. Only 3.3% (n=4) responded ‘disagree’ and 3.3% (n=4) responded ‘neither agree nor disagree’. There was a significant majority 96.7% (n=118) who responded ‘agree’ that a diagnosis of prolonged labour could be made on the Partograph. Only 2.5% (n=3) responded ‘disagree’ and 0.8% (n=1) responded ‘neither agree nor disagree’. There was a significant majority 96.7% (n=118) who responded ‘agree’ that poor progress of labour could be diagnosed on the Partograph. Only 2.5% (n=3) responded ‘disagree’ and 0.8% (n=1) responded ‘neither agree nor disagree’. Furthermore, the table 4.6 indicates that regarding the diagnosis of CPD, 95.9 % (n=117) responded with ‘ agree’ that this diagnosis could be made, 2.5 % (n=3) replied with ‘strongly disagree’, while only 1.6 % (n=2) replied that they neither agreed nor disagreed that this diagnosis could be made.

There was a significant majority 73% (n=89) who responded ‘agree’ that foetal distress could be diagnosed on the Partograph. Only 17.2% (n=21) responded ‘disagree’ and another 9.8% (n=12) responded ‘neither agree nor agree’. Most participants 91.8% (n=112) agreed that diagnosis could be made for the need for augmentation of labour whilst 4.1% (n=5) ‘disagree’ and ‘neither agree nor disagree’. The majority of participants 72.9% (n=89) responded ‘agree’ that the need for caesarean section could be diagnosed on the Partograph and 14% (n=17) said ‘disagree’ while the rest 13.1% (n=16) ‘neither agree nor disagree’.

Table 4.6: Diagnosis that can be made through use of a partograph

Diagnoses that can be made through Partograph usage are.....	Strongly disagree		Disagree		Neither agree nor disagree		Agree		Strongly agree	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Obstructed labour	4	3.3	0	0	4	3.3	11	9.0	103	84.4
Prolonged labour	3	2.5	0	0	1	0.8	11	9.0	107	87.7
Poor progress	3	2.5	0	0	1	0.8	12	9.8	106	86.9
CPD	3	2.5	0	0	2	1.6	15	12.3	102	83.6
Foetal distress	10	8.2	11	9.0	12	9.8	19	15.6	70	57.4
Need for augmentation of labour	2	1.6	3	2.5	5	4.1	16	13.1	96	78.7
Need for caesarean section (C/S)	13	10.7	4	3.3	16	13.1	16	13.1	73	59.8

A score was calculated in order to get the overall perception regarding the use of partograph for Diagnosis purposes, and 7 items in the table 4.6 were computed. The responses ranged from 1=strongly disagree to 5=strongly agree. The higher the score is, the more participants have got a positive perception, and the low the score is, the less participant perceive the use of partograph for diagnosis purposes. The minimum score was 7, and the maximum score was 35. The mean score was 31.833, median 34, and the mode was 35.

An average of 50% of the responded had a score of at least 34 which indicated a high positive perception to towards the use of partograph for diagnosis purposes (Figure 4.1).

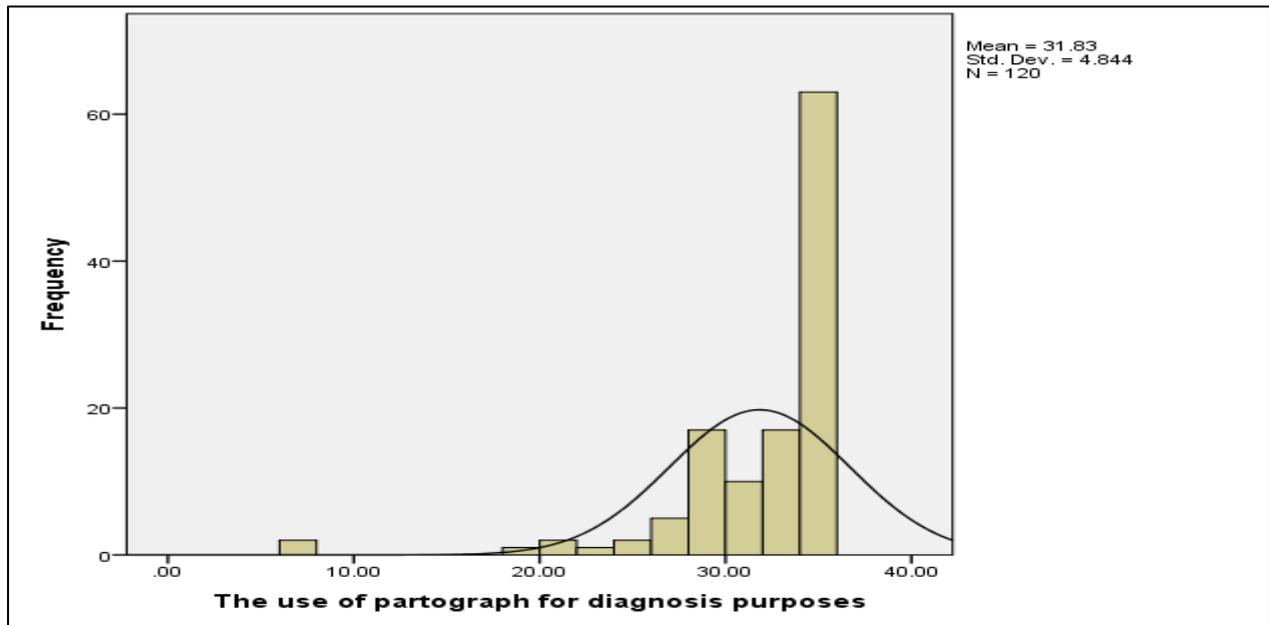


Figure 4. 1: The use of partograph for diagnosis purposes

4.4 Kruskal-Wallis and Mann-Whitney tests

Kruskal-Wallis Test and Mann-Whitney Test were run in order to establish the association between socio demographics and the use of partograph for diagnosis purpose. There was no significant association as displayed in table 4.7.

Table 4. 7: Association between the socio demographics and the use of partograph for diagnosis purpose

	Age group	Gender	Race	Academic qualification	Categories of practice	Years of experience
Use of partograph for diagnosis purpose	X ² =2.943; p=0.938	U=443.5; P=0.960	X ² =0.246, p=0.620	X ² =1.940; p=0.379	X ² =7.840; p=0.098	X ² =2.868; p=0.580

4.4.1 The understanding of the partograph by midwives

The results shown in Table 4.8 above indicate 75.4% (n=92) of participants agreed that a Partograph may be used in decision making for referral decisions in the health centres, while 79.5% (n=97) agreed that it may also be used in the decision making interventions in different institutions. A big percentage of 68.8 % (n=84) of participants acknowledged the use of partograph in the reduction of maternal deaths and maternal morbidity.

96.7% (n=118) agreeing that this tool plays a key role towards reducing neonatal deaths and perinatal morbidity. 90.9% (n=111) of participants agreed that this tool is used to diagnose early complications, 95.1% (n=116) only also assist midwife to make correct interventions for both mother and neonate. 86.9% (n=106) mentioned that Partograph does not replace adequate screening for pregnant women who require immediate intervention A huge percentage of 95.9% (n=117) of participants acknowledge the use of partograph to identify problems in labour, only minimum of 1.6% (n=2) disagree. Participants representing 29.5% (n=36) agreed that, composition of a partograph is seen as difficult, with only 51.6% (n=63) disagree.

Table 4. 8: The understanding of the partograph by midwives

Variables	Strongly Disagree		Disagree		Neither agree nor disagree		Agree		Strongly agree	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
A Partograph may be used in decision making referral decision in health centres	4	3.3	9	7.4	17	13.9	16	13.1	76	62.3
A Partograph may be used in decision making: intervention decision in different institutions	5	4.1	8	6.6	12	9.8	19	15.6	78	63.9
A Partograph will contribute to the reduction of maternal deaths and maternal morbidity	9	7.4	16	13.1	13	10.7	17	13.9	67	54.9
A Partograph will contribute to the reduction of neonatal deaths and perinatal morbidity	2	1.6	0	0	2	1.6	15	12.3	103	84.4
A Partograph is a tool used during monitoring of the progress of labour for early diagnosis of complications	3	2.5	5	4.1	3	2.5	12	9.8	99	81.1
A Partograph is a decision making tool to assist a midwife to make the correct interventions for both mother and neonate	2	1.6	0	0	4	3.3	13	10.7	103	84.4
A Partograph does not replace adequate screening for a pregnant woman who requires immediate interventions	2	1.6	4	3.3	10	8.2	14	11.5	92	75.4
Accurate use of the Partograph leads to improved maternal and neonatal outcomes	2	1.6	1	0.8	2	1.6	22	18.0	95	77.9
A Partograph is used to identify problems in labour	2	1.6	0	0	3	2.5	14	11.5	103	84.4
The composite of a Partograph is seen as difficult	30	24.6	33	27.0	23	18.9	17	13.9	19	15.6

In Figure 4.2 below a score was calculated in order to get the overall understanding of the partograph, the responses ranged from 1=strongly disagree to 5=strongly agree. The higher the score is, the more participants have got a positive perception, and the low the score is, the less participant perceive the overall understanding of the partograph. The minimum score was 10 and the maximum score was 50. The mean score was 43.363, median 46, and the mode was 45. An average of 50% of the responded had a score of at least 47 which indicated a high positive perception to towards an overall understanding of the partograph.

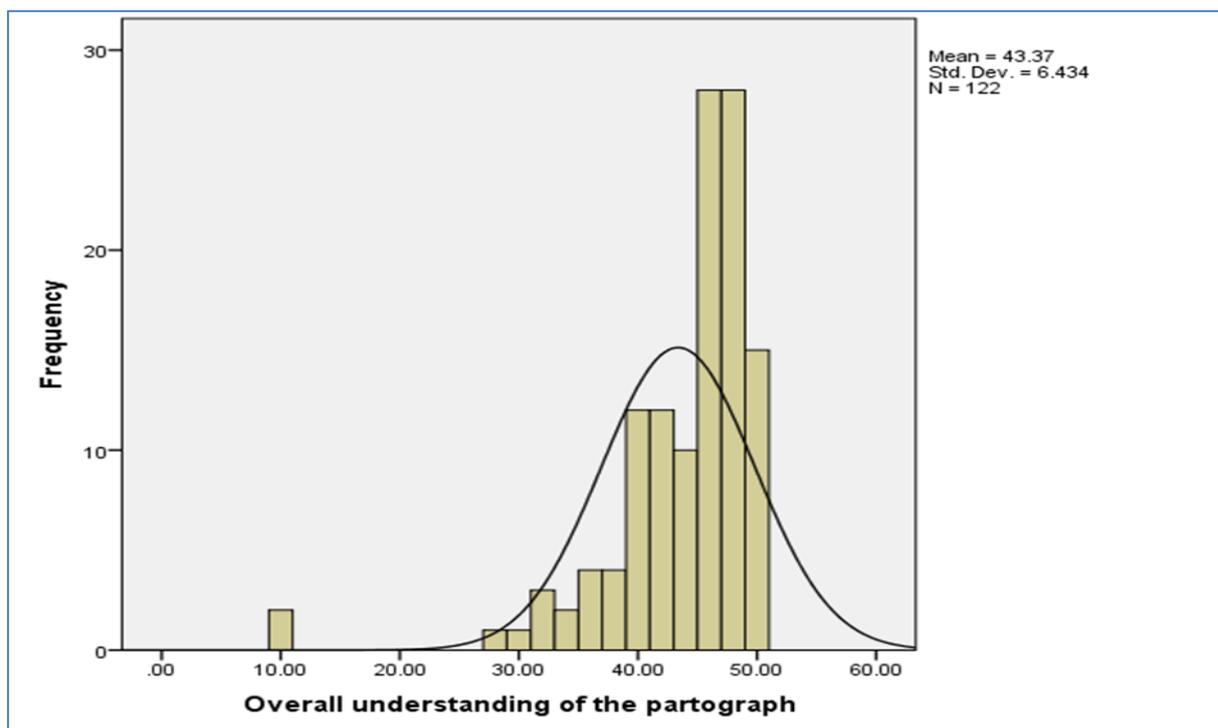


Figure 4. 2: Overall understanding of the partograph

4.4.2 Composition of the partograph

In Table 4.9 as illustrated; 97.6% (n=119) of participants agreed that contents of the partograph includes patient’s details, furthermore 96.7% (n=119) of participants also agreed that type of labour, duration of labour and maternal condition are composition of the partograph. Another 97.5% (n=119) also agreed that latent and active phase medication given also from composition of the partograph. A significant majority of participants 97.6% (n=119) agree that Partograph consist of time of rupture of membranes, risks factors, foetal condition, and progress of labour as well as contractions

Table 4. 9 Contents of the partograph

The Partograph consists of.....	Strongly disagree		Disagree		Neither agree nor disagree		Agree		Strongly agree	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Patient's details (age, parity and gestation)	2	1.6	0	0	1	0.8	8	6.6	111	91.0
Pelvic assessment	3	2.5	4	3.3	1	0.8	13	10.7	100	82.0
Time of rupture of membranes	2	1.6	0	0	1	0.8	9	7.4	110	90.2
Risk factors	2	1.6	0	0	1	0.8	9	7.4	110	90.2
Type of labour (spontaneous or induced)	2	1.6	0	0	2	1.6	10	8.2	108	88.5
Duration of labour	2	1.6	1	0.8	1	0.8	12	9.8	106	86.9
Latent phase and active phase	2	1.6	0	0	1	0.8	10	8.2	109	89.3
Foetal condition	2	1.6	0	0	1	0.8	9	7.4	110	90.2
Progress of labour	2	1.6	0	0	1	0.8	9	7.4	110	90.2
Contractions	2	1.6	0	0	1	0.8	9	7.4	110	90.2
Maternal condition	2	1.6	1	.08	1	0.8	11	9.0	107	87.7
Medication given	2	1.6	0	0	1	0.8	11	9.0	108	88.5

Figure 3 below show that a score was calculated in order to get the overall knowledge of the contents of the partograph. The higher the score is, the more participants have got a positive perception, and the low the score is, the less participant perceive the overall knowledge of the content of the partograph. The minimum score was 12 and the maximum score was 99. The mean score was 58.158, median 60, and the mode was 60. An average of 50% of the responded had a score of at least 60 which indicated a high positive perception to towards an overall knowledge of the contents of the partograph.

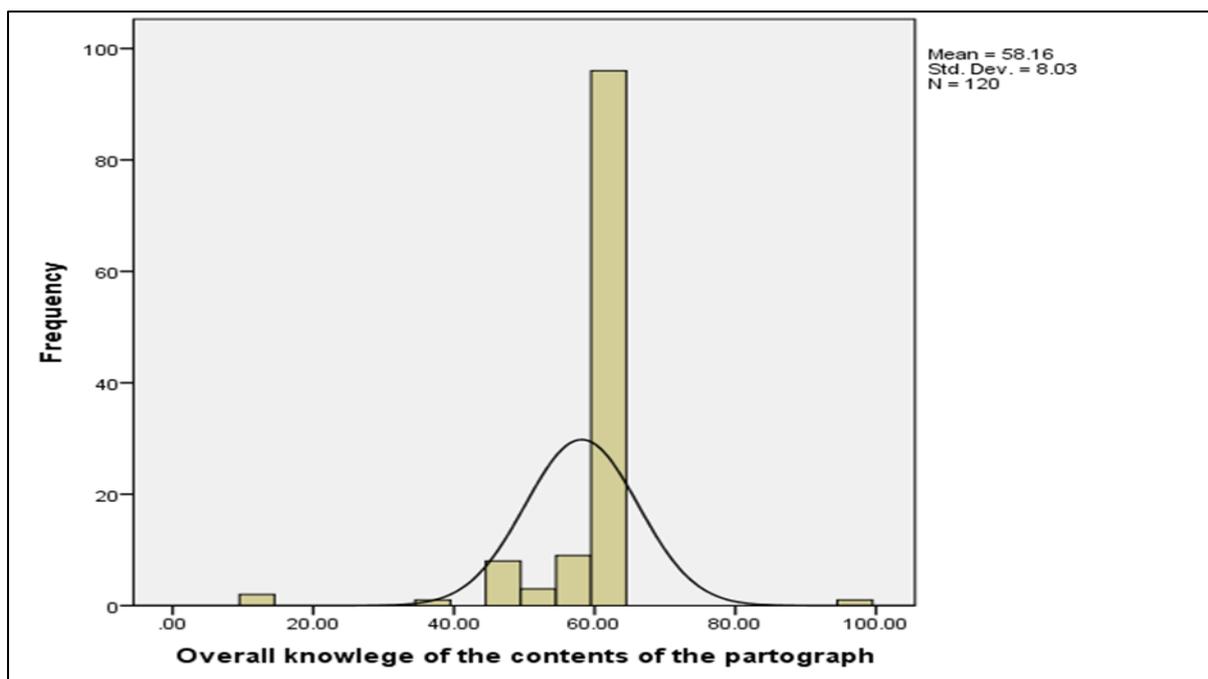


Figure 4. 3: Overall knowledge of the contents of the partograph

4.5 Knowledge of the Partograph

The findings from this study indicated that the participants had different knowledge on the use of the partograph. It was found that they received training on how to use partograph, and in different settings.

4.5.1. Training on Partograph usage

Table 4.10 indicates that 100 % of all participants had received training on the Partograph.

Table 4. 10: Training on partograph usage

<i>Variables</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Have you ever receive training on the partograph	122	100.0
	0	0

4.5.2. Frequency of the training on the partograph

Regarding the frequency of training as illustrated in Figure 4.2, a significant majority of participants reported having updates and in-service training on the use of the Partograph: 44.3 % (n=54) ‘once a week’, 23.0 % (n=28) ‘once a month’, 19.7% (n=24) ‘once in every 6 months’ and 13.1 % (n=16) ‘once a year’.

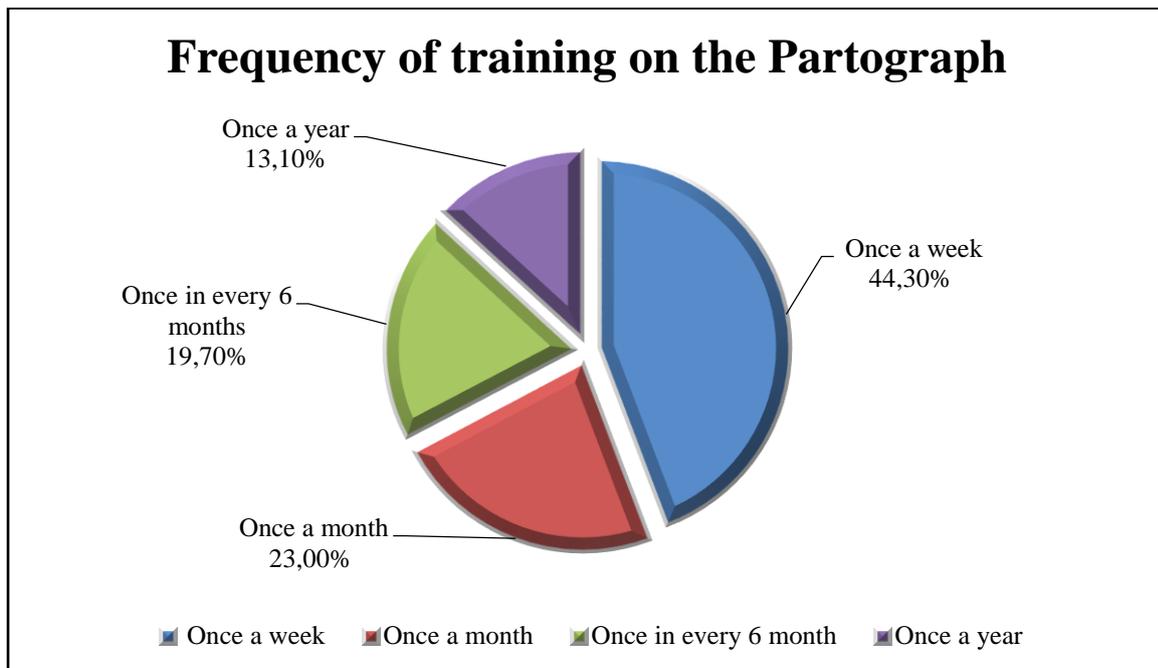


Figure 4. 4: Frequency of training on the Partograph

4.5.3. Place for Partograph training

The findings from this study as illustrated in Figure 4.3; 72.1% (n=88) of the midwives reported receiving in-service training on the use of the Partograph; whereas 27.9 % (n=34) indicated that they received their training in a Nursing College.



Figure 4. 5: The place of the training

4.5.4. Definition of a Partograph by the participants

The results from the table 4.11 show that, midwives studied have already used the partograph previously and 91.8 % (n=108) of them agreed that the Partograph could be defined as a universal tool used to monitor and manage the progress of labour. Out of 122 participants, 95.1% (n=116) knew that the Partograph is an easy, effective, available, inexpensive and the best graphical tool for midwives to use to monitor the progress of labour, while 93.4% (n=114) that Partograph is a graphic tool presenting the events of the progress of labour in plotted form.

Table 4. 11: Definition of a Partograph

Variables	Strongly disagree		Disagree		Neither agree nor disagree		Agree		Strongly agree	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Partograph can be defined as a universal graphic tool used to monitor and manage the progress of labour	3	2.5	3	2.5	4	3.3	17	13.9	95	77.9
Partograph can be defined as a graphic tool presenting the events of the progress of labour in the plotted form	3	2.5	0	0	5	4.1	16	13.1	98	80.3
Partograph can be defined as an easy, effective, available, inexpensive and the best graphical tool for midwives to use to monitor the progress of labour	3	2.5	0	0	3	2.5	21	17.2	95	77.9

A score was calculated in order to get the overall perception regarding the definition of partograph. The responses ranged from 1=strongly disagree to 5=strongly agree. The higher the score is, the more participants have got a positive perception, and the low the score is, the less participant perceive the definition of the partograph purposes. The minimum score was 3, and the maximum score was 15. The mean score was 13.991, median 15, and the mode was 15. An average of 50% of the responded had a score of at least 15 which indicated a high positive perception to towards the definition of partograph (Figure 4.6).

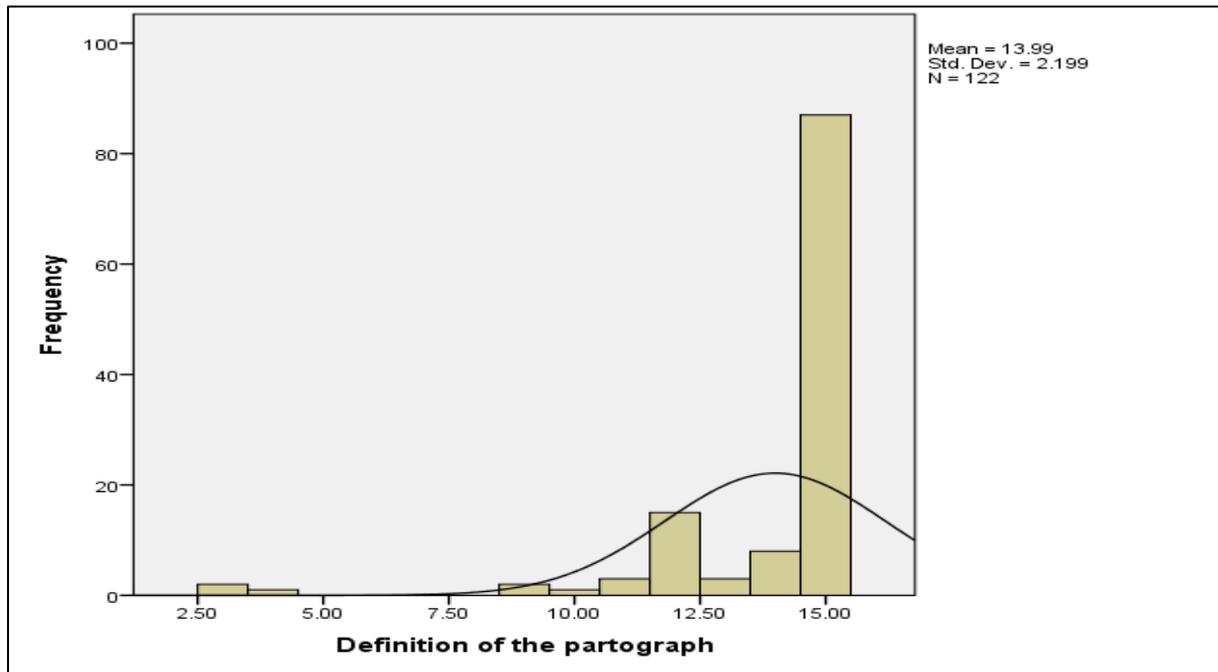


Figure 4. 6: Definition of the partograph

4.5.5. Information to be recorded during active phase of labour

Table 4.12 below showed that 98.4% (n=120) agreed that during active phase of labour two hourly recording is done on caput, moulding, and cervical dilatation as well as on the descent of the head. This table also reveal that 96.8% (n=118) of participants agreed that urine is tested and medications is administered during active phase of labour.

Table 4. 12: Information to be recorded during active phase of labour

During active phase of labour.....	Strongly disagree		Disagree		Neither agree nor disagree		Strongly agree		Agree	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Foetal heart rate recorded half hourly	2	1.6	1	0.8	1	0.8	111	91.0	7	5.7
Amniotic fluids recorded 2 hourly	3	2.5	1	0.8	0	0	109	89.3	9	7.4
Caput recorded 2 hourly	2	1.6	0	0	0	0	111	91.0	9	7.4
Moulding recorded 2 hourly	2	1.6	0	0	0	0	111	91.0	9	7.4
Cervical dilatation recorded 2 hourly	2	1.6	0	0	0	0	111	91.0	9	7.4
Descent of the head recorded 2 hourly	2	1.6	0	0	0	0	111	91.0	9	7.4
Contractions recorded half hourly per 10 minutes	2	1.6	0	0	1	0.8	111	91.0	8	6.6
Maternal pulse recorded half hourly	4	3.3	1	0.8	0	0	109	89.3	8	6.6
Blood pressure recorded half hourly	2	1.6	1	0.8	1	0.8	112	91.8	6	4.9
Temperature recorded 2-4 hourly	2	1.6	0	0	0	0	111	91.0	9	7.4
Urinary output recorded 2 hourly	2	1.6	0	0	0	0	112	91.8	8	6.6
Urine tested for glucose, blood, ketones and proteins	4	3.3	0	0	0	0	110	90.2	8	6.6
Analgesics, medication and intravenous fluids administered are correctly recorded	2	1.6	0	0	2	1.6	110	90.2	8	6.6

In Figure 4.7 below a score was calculated in order to get the information to be recorded on the partograph, the responses ranged from 1=strongly disagree to 5=strongly agree. The higher the score is, the more participants have got a positive perception, and the low the score is, the less participant perceive the information to be recorded on the partograph. The minimum score was 13 and the maximum score was 65. The mean score was 62.925, median 65, and the mode was 65. An average of 50% of the responded had a score of at least 65 which indicated a high positive perception to towards the information to be recorded on the partograph.

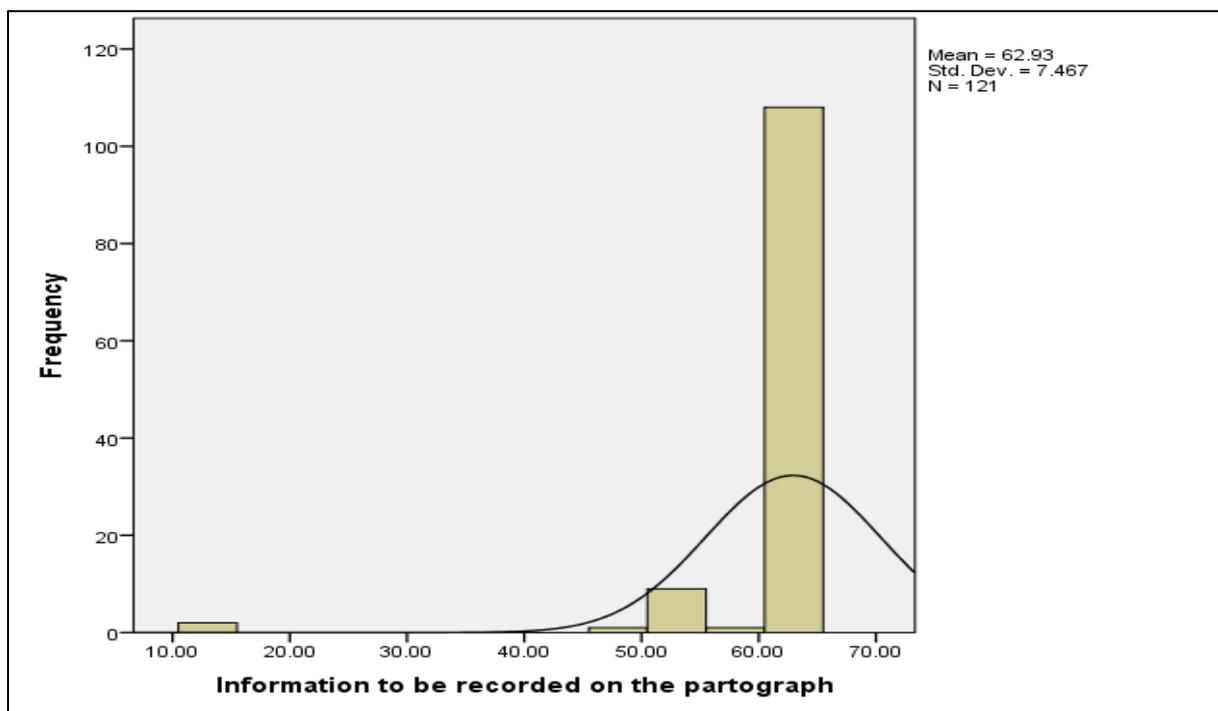


Figure 4. 7: Information to be recorded on the partograph

4.6. The midwives' perceptions of challenges regarding Partograph usage

In table 4.13 midwives agreed 59.1% (n=72) that filling the partograph may be seen as an additional task in busy situation, while 96.7% (n=118) also agreed that insufficient knowledge and lack of understanding of partograph could also results in inappropriate usage, only 76.3% (n=93) agreed that an increased number of students to be facilitated also contributes. Furthermore 46.7% (n=57) agreed that lack of commitment and ignorance also contribute to inappropriate use of the partograph. Finally, majority of participants 92.7% (n=113) agreed that fully dilated patients are one of the contributing factors that limit the partograph use, only 5.9% (n=7) disagree with this.

Table 4. 13: The midwives' perceptions of challenges of Partograph usage

Variables	Strongly disagree		Disagree		Neither agree nor disagree		Agree		Strongly agree	
	Freq	per cent	Freq	per cent	Freq	per cent	Freq	per cent	Freq	per cent
Use of the Partograph occurs more in hospital level facilities and less in clinic level facilities	17	13.9	25	20.5	10	8.2	22	18.0	48	39.3
Filling in of the Partograph is seen as an additional task and midwife may not be able to complete the Partograph in a busy situation	22	18.0	21	17.2	7	5.7	18	14.8	54	44.3
Insufficient knowledge and lack of understanding could result in inappropriate and incorrect use of the Partograph	1	0.8	1	0.8	2	1.6	16	13.1	102	83.6
A pattern of incorrect plotting on the Partograph could result in poor record keeping	3	2.5	2	1.6	2	1.6	35	28.7	80	65.6
An increased number of students to be facilitated contributes to the inappropriate use of the Partograph	11	9.0	11	9.0	7	5.7	23	18.9	70	57.4
Lack of commitment and ignorance by midwives contributes to the inappropriate use of the Partograph	34	27.9	23	18.9	8	6.6	26	21.3	31	25.4
The Partograph is not always used as a communication aid between health workers	14	11.5	28	23.0	25	20.5	13	10.7	42	34.4
Late admission (fully dilated) to the institution is a contributing factor that limits Partograph use	1	0.8	6	4.9	2	1.6	24	19.7	89	73.0

Figure 4.8 below shows that a score was calculated in order to get the challenges in the use of the partograph. The higher the score is, the more participants have got a positive perception, and the low the score is, the less participant perceive the challenges in the use of the partograph. The minimum score was 18 and the maximum score was 40. The mean score was 31.166, median 31, and the mode was 34. An average of 50% of the responded had a score of at least 31 which indicated a high positive perception to towards the challenges in the use of the partograph.

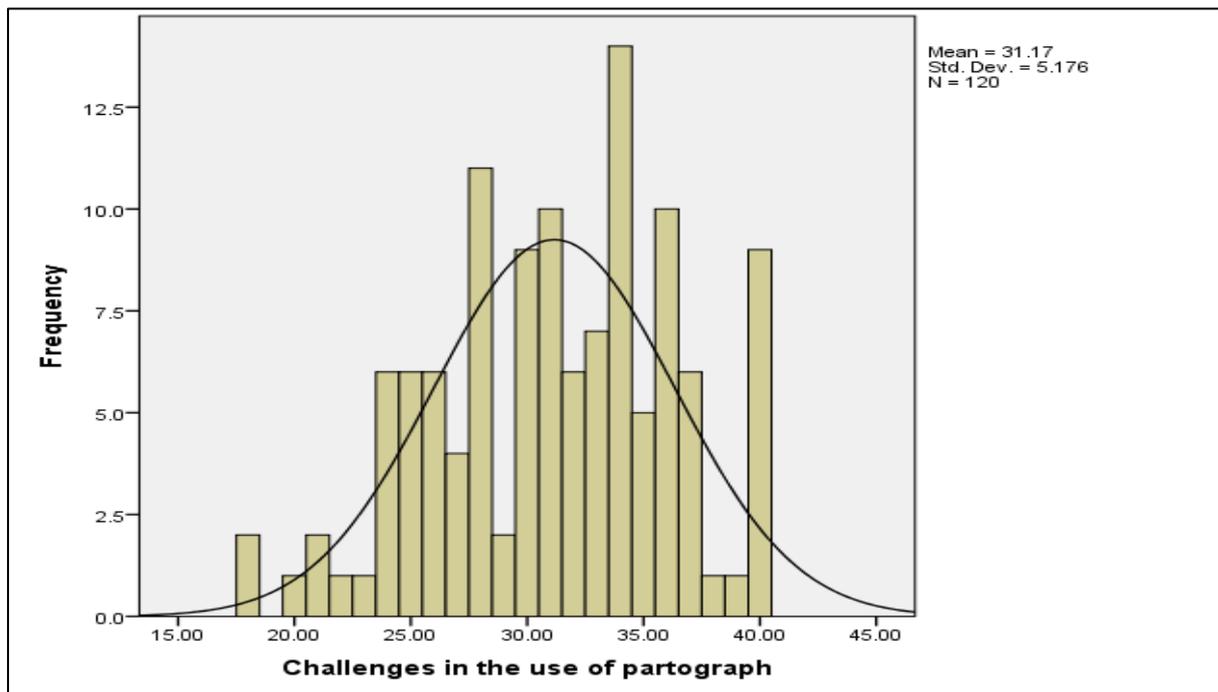


Figure 4. 8: Challenges in the use of partograph

4.7. Conclusion

Chapter four has presented the results from the completed questionnaires that were distributed among the midwives participating in the study. The findings were grouped into demographic data, understanding of a Partograph, knowledge of a Partograph and the midwives' perceptions of challenges regarding the use of a Partograph. The next chapter discusses the results in light of their relevance and how they compare with other relevant researches in the field.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1. Introduction

This final chapter discusses the study's results in relation to the purpose and objectives, as well as the relevant literature reported from different studies. Literature is used where necessary, on findings that emerged from the data analysis. The purpose of this study was to describe and analyse the knowledge and skills of the midwives in monitoring the progress of labour using the Partograph.

In this chapter, discussions of the results are categorised according to the study's specific objectives: to describe the midwives' understanding of Partograph usage in monitoring the progress of labour, to explore the midwives' knowledge and skills regarding monitoring of the progress of labour using a Partograph and to identify the midwives' challenges and experiences when monitoring the progress of labour using a Partograph. Finally, the limitations of the study will be discussed, recommendations made and a conclusion will be drawn from this study's results.

Data from this study revealed that 93.4% (n=114) of participants were females and 6.6% (n=8) males, majority of 97.5% (n= 119) participants were African. The participants' ages ranged from 21 to 65 years, most participants were basic midwives 45.1%, (n=55) with a Diploma in nursing 73.8% (n=90). 36.9% (n=45) of participants had a professional years of experience of less than five years

5.2. Knowledge and skills of monitoring the progress of labour

According to Department of Health (2012) South Africa reported an unacceptably high rate of maternal deaths, and Gauteng province with 17.5% was ranked second to KwaZulu-Natal with 23.7% with maternal deaths. For many years the Partograph has been used as a standard tool for monitoring the progress of labour, and this study determined that the participants generally knew about the Partograph and its role in monitoring the progress of labour. Having stated above the factors contributing to the non-usage of the Partograph, one can conclude that it leads to sub-optimal use of the Partograph and affects the quality of the use of the Partograph during labour.

This could hinder the early detection of complications and the timely interventions that are the most important activities to prevent perinatal mortality and morbidity (Yisma et al., 2013). The findings of this study showed that 75.4 % of the participants agreed that the Partograph could be used to help in decision making; referral decisions in health centres and intervention decisions in different institutions. This was confirmed by Shinde, Bangal and Singh (2012), who urged that usage of a Partograph would enable midwives to monitor the progression of labour in a user friendly, graphic form. These authors added that a Partograph would help midwives to detect abnormalities timeously as it would give warning signs of arising complications.

A Partograph would help in decision making during the progress of labour at first level health facilities and would give these institutions proper referrals and interventions to the next institution. This was consistent with the views of the Fistula Care (2013) report, where it was stated that the Partograph was used to transfer clients to a higher level facility and alerted providers on the need for intervention.

The current study revealed that the midwives perceived that the use of the Partograph occurred more at the hospital level 57.3 % (n=70) and less in clinic level facilities 34.4% (n=42). This was contrary to the study done in Addis Ababa, Ethiopia by Yisma et al. (2013), which revealed that utilisation of the Partograph was higher among obstetric care givers working in health centres compared to those working in hospitals. This may be a result of the fact that the obstetric care givers in the health centres in Ethiopia used the Partograph to identify abnormalities early and arrange referral to the hospitals.

In support of this, another Ethiopian study by Abebe et al. (2013) carried out in the Amhara region also showed that more midwives working in the public health centres had shown good knowledge of the Partograph and declared the use of the Partograph more than their counterparts in the hospitals. This revealed the need in South Africa for further research to be done at the Community Health Centres and Primary Health Centres on the usage of the Partograph.

5.3. Findings

5.3.1. The midwives' understanding of Partograph usage in monitoring the progress of labour

The present study focused on midwives' understanding and the use of a Partograph to gain an insight into how they monitored the progress of labour, since this was crucial to the achievement of the MDGs four and five in South Africa, especially given its high levels of maternal and neonatal mortality. This study indicated that out of n= 122 responses, 100 % of the participants had used a Partograph before and they had used it to routinely monitor the progress of labour in their units while women were still in labour. The results of the study revealed that 100% of participants were familiar with the Partograph. This response is expected, since participants would have used a Partograph at some stage of their training or during their work experience. A significant majority of participants responded correctly to the questions asked on making a diagnosis on the Partograph. The findings revealed that midwives were aware that the diagnoses of prolonged labour 96.7% (n=118), obstructed labour 93.4% (n=114), poor progress of labour 96.7% (n=118), cephalo pelvic-disproportion 95.9% (n=120), foetal distress 73% (n=89), the need for augmentation of labour 91.8 % (n=112) and the need for a caesarean section 72.9 % (n=89) could all be diagnosed using the Partograph.

The findings in this study are favourably to other studies done in and out of South Africa. The Johannesburg study of Mathibe-Neke (2009) reported that there was substandard use of the Partograph, which included the inability to identify complications and therefore delays in referral once complications occur which reputed the current findings. Opiah et al. (2012) on the other hand showed findings in Nigeria that were consistent with current findings where participants had a good knowledge about the Partograph but still made sub-optimal use of the Partograph.

The data in terms of the understanding that the midwives had shown revealed that the majority of the midwives 90.9% (n=111) reported that a Partograph was a tool of decision making in the labour ward, and 68.8 % (n=84) confirmed that the correct use of a Partograph could improve on the reduction of maternal deaths and maternal morbidity, 96.7 % (n=115) also felt that the correct use of a Partograph could improve on the reduction of neonatal deaths and perinatal morbidity.

In line of midwives knowledge on partograph however, study by Opiah et al. (2012) showed that despite midwives good knowledge of the partograph, there was poor utilization in labour monitoring.

5.3.2. The midwives' knowledge and skills regarding monitoring the progress of labour using a Partograph

College and teaching institutions were reported as the primary source of knowledge by the minority 27.9% (n=34) of the participants, and the majority 72.1% (n=88) reported receiving their training through in-service training in their institutions. This finding was supported by the fact that every qualified midwife was exposed to the Partograph training during their midwifery course. A student midwife was required to personally do fifteen deliveries during the course, which entailed monitoring the pregnant woman on the Partograph as one of the core practical outcomes for qualification as a midwife/accoucheur. 96.7 % (n=118) of the midwives from this study reported that insufficient knowledge and lack of understanding could result in inappropriate and incorrect use of the Partograph. Effective use of the Partograph by health care workers requires formal instruction and ongoing in-service training.

The introduction of the partograph and its use should be an organizational (hospital) policy that has to be carried out regardless of prevailing circumstances. This finding is similar to other studies which found support for the relationship between knowledge and the utilization of any relatively new policy Fawole (2011). The researcher went on to assess the knowledge level of midwives on partograph. About 95.1% (n=116) defined partograph as a graphical presentation of labour. This generally indicates that majority of the midwives know what partograph represents. The participants in the study admitted that the use of the partograph could prevent prolonged labour. The study also conforms to that of Opiah et al. (2012), which indicate midwives' good knowledge of the partograph.

5.3.3. The midwives' perceptions of challenges regarding monitoring the progress of labour using a Partograph

Although a significant majority of participants declared that the partograph was routinely used, but there were those participants that detailed some reasons for non-use of the partograph. Clients that came in late for admission or fully dilated were indicated by the greater number of responses. Increased number of students to be facilitated, insufficient knowledge and lack of understanding of the Partograph, busy department and lack of commitment and ignorance were listed as challenges perceived by midwives, as these factors played a huge role in the under-utilisation of the Partograph (Opiah et al, 2012).

Fatusi, Makinde, Adeyemi, Orji, and Onwudiegwu (2008) stated that lack of time as a reason for not completing Partograph. Having stated above the factors for non-usage of the Partograph, one can conclude that it lead to sub-optimal use of the partograph and affects the quality of the use of partograph during labour. This could hinder early detection of complications and timely intervention that are most important activities to prevent perinatal mortality and morbidity (Yisma et al, 2013). The Partograph has been defined as a simple and inexpensive tool which plays an important role in the reduction of maternal and neonatal deaths. Studies from Nigeria reported that care givers were using the Partograph for routine monitoring, but that they were reluctant to use this tool as they had insufficient knowledge and did not fully understand the Partograph (Fawole, 2011).

In the study conducted by Mathibe-Neke, Lebeko and Motupa (2013) in a certain hospital's Labour Ward in South Africa, results revealed that the Partograph was poorly used. There was inadequate recording in relation to the observations made by the midwives during chart auditing. Mathibe-Neke et al (2013) reported that factors contributing to the inappropriate use of the Partograph included a shortage of midwives, as midwives had to care for two or three women at the same time. A lack of in-service training, a lack of understanding of the skill required when plotting and interpreting Partographs, as well as a lack of commitment and ignorance on the part of the midwives was also reported in this regard.

Yisma et al. (2013) reported that only 25 % to 33 % of obstetric caregivers used Partographs during monitoring of the progress of labour. Poor understanding and lack of knowledge were the major contributors to this, but non-availability of pre-printed Partographs and workload pressure were also the cause for the non-utilisation.

5.4. Conclusion of the study

The researcher's conclusions were based on the aim of the study that was to analyse and describe the knowledge and skills of midwives in monitoring the progress of labour using the partograph. In the final analysis, it was realized that the midwives were highly aware of the use and the effect of the partograph. They know the components of the partograph and its utilization which is within their ability to practice.

5.5. Recommendations

The following recommendations are made from the findings of this study:

- Assess use of partograph in other tertiary, secondary and primary level facilities to establish pattern of utilization and documentation which would help if need be, to modify the partograph to suit the local context.
- Establish chart audits and combine them with performance related awards as this may encourage midwives to undertake the completion of Partograph.
- Maternity managers should supervise midwives to ensure appropriate use of the Partograph during monitoring of the progression of labour.
- Conduct a qualitative study which will include observation of the plotting of Partographs, and face-to-face interviews with midwives to identify the in-depth challenges and experiences they encounter.
- Conduct both quantitative and qualitative research of Partographs in the community health centre (CHC) settings, as well as in private hospitals.

5.6. Limitations

The study was conducted in three hospitals in the same health district. Although the hospitals represent different level of care, the findings could not be generalised to hospitals in other districts.

The fact that the researcher was a midwife may have influenced the participants, making the more likely to give the researcher socially desirable responses and reporting what they thought the researcher wanted to hear.

Observation of midwives plotting on the Partograph in the real work situation, as well as face-to-face interviews with the midwives were not undertaken, therefore the challenges and actual practice faced by midwives were not explored in-depth.

The selected hospitals were semi-private, district and regional hospitals only, and midwives working in the primary health care setting were left out.

Due to insufficient data during data collection, the researcher included twenty five Advanced Midwifery students who were doing their Advanced Midwifery Diploma and practising in the selected hospitals, as they were registered midwives in their institutions.

5.7. Conclusion

Chapter five has presented discussion, conclusion, and limitations of the study. The researcher's conclusions were based on the aim of the study was to analyse and describe the knowledge and skills of midwives in monitoring the progress of labour using the partograph. In the final analysis, it was realized that the midwives were highly aware of the use and the effect of the partograph. They know the components of the partograph and its utilization which is within their ability to practice.

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<http://www.kznhealth.gov.za/princemshiyenihospital.htm>

ANNEXURES

Annexure 1: Information Sheet



UNIVERSITY OF
KWAZULU-NATAL
INYUVESI
YAKWAZULU-NATALI

Information Sheet

Dear participant

My name is Nobuhle Witness Ngidi, a nursing student doing a Master's Degree of Nursing: Maternal and Child Health at the University of KwaZulu-Natal, Student number: 208509467. You are kindly invited to participate in a research study titled as: A Descriptive Analysis of Knowledge and Skills of Midwives in Monitoring Progress of Labour using a Partograph in Selected Hospitals at eThekweni District in KwaZulu-Natal. The aim and purpose of this research is to describe and analyse the knowledge and skills of midwives in monitoring the progress of labour in selected hospitals in the eThekweni District in KwaZulu-Natal.

The study involves the answering of questions on the data sheet provided to you, for a period of 20 minutes, by ticking an appropriate answer(s) in the provided box(es). Those questions will include demographic information, understanding of the Partograph, knowledge of the Partograph, and the challenges and experiences regarding the use of the Partograph.

There will be no risks associated with participating in this research study. Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer will not influence the nature of your relationship with the selected hospitals, staff or the University of KwaZulu-Natal, either now or in the future.

All information you supply during this research study will be held in confidence. Your data will be safely stored in a locked facility and only my Supervisor and University of KwaZulu-Natal staff will have access to this information. Confidentiality will be provided to the fullest extent possible by law.

For more information you are welcome to contact my Supervisor at the number provided: Mrs. Pretty N. Mbeje (Lecturer), University of KwaZulu-Natal, School of Nursing and Public Health, Clarence Desmond Building, 4th Floor - Room 415, email: Mbejep@ukzn.ac.za, Tel: 031 2601541, Fax: 0865725200.

This study has been ethically reviewed and approved by the UKZN Biomedical Research Ethics Committee.

In the event of any problems, concerns and questions you may contact the researcher at 208509467@stu.ukzn.ac.za / ngidinw@gmail.com.

I.....have been informed about the study entitled '**A descriptive analysis of knowledge and skills in monitoring progress of labour using a Partograph by midwives in selected hospitals at eThekweni District in KwaZulu-Natal**' by Nobuhle Witness Ngidi, student number: 208509467.

I understand the purpose and procedures of the study. I have been given an opportunity to answer questions about the study and have had answers to my satisfaction. I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any of the benefits that I am usually entitled to. If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at 208509467@stu.ukzn.ac.za / ngidinw@gmail.com

Annexure 2: Informed Consent



UNIVERSITY OF
KWAZULU-NATAL
INYUVESI
YAKWAZULU-NATALI

Consent Form for Research Study

Name of researcher: Nobuhle Witness Ngidi

Student number: 208509467

Title:

A Descriptive Analysis of Knowledge and Skills of Midwives in Monitoring Progress of Labour using a Partograph in Selected Hospitals at eThekweni District in KwaZulu-Natal..

Voluntary Participation: Your participation in this study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer will not influence the nature of your relationship with the selected hospitals, staff or the University of KwaZulu-Natal, either now or in the future.

Withdrawal from the Study: You can stop participating in this study at any time, for any reason. Your decision to stop participating, or to refuse to answer particular questions, will not affect your relationship with staff at the selected hospitals, or the University of KwaZulu-Natal, either now or in the future.

Confidentiality: All information you supply during this research study will be held in confidence. Your data will be safely stored in a locked facility and only my Supervisor and University of KwaZulu-Natal staff will have access to this information. Confidentiality will be provided to the fullest extent possible by law.

Questions about the study: For more information you are welcome to contact my Supervisor at the number provided: Mrs. Pretty N. Mbeje (Lecturer), University of KwaZulu-Natal School of Nursing and Public Health, Clarence Desmond Building, 4th Floor - Room 415, email: Mbejep@ukzn.ac.za, Tel: 031 2601541, Fax:0865725200

Written Consent:

I----- (full names of participant) hereby confirm that I understand the contents of this document and the nature of the research study, and I consent to participating in the research study. I understand that I am free to withdraw from the study at any time, should I so desire.

Signature of participant:

Date:

Annexure 3: Questionnaire



**UNIVERSITY OF
KWAZULU-NATAL**

**INYUVESI
YAKWAZULU-NATALI**

HOWARD COLLEGE CAMPUS

COLLEGE OF HEALTH SCIENCE

SCHOOL OF NURSING AND PUBLIC HEALTH

Name : Nobuhle Witness
Surname : Ngidi
Student number : 208509467
Module : Questionnaire
Topic : A Descriptive Analysis of Knowledge and Skills of Midwives in Monitoring Progress of Labour using a Partograph in Selected Hospitals at eThekweni District in KwaZulu-Natal..
Research Supervisor : Mrs. Pretty Mbeje
Course : Master's Degree in Nursing: Maternal and Child Health (course work)

Questionnaire

Instructions for the participants

The following questions will have sections A, B and C. Please answer all questions. The following questions will ask about your socio-demographic data, understanding of the Partograph, knowledge of the Partograph and challenges and experiences regarding use of the Partograph. Please tick ✓ the appropriate answer(s) below in the box(es).

The questionnaire will take approximately 20 minutes of your time.

SECTION A: DEMOGRAPHIC DATA

1. What is your age?

21-25 2 3 4 5 6
46-50 51-55 56-60 61-65

2. What is your gender?

Female Male

3. What is your ethnicity/race?

African Indian White
Other (please specify)

4. What is your highest academic qualification?

Diploma in nursing Degree in nursing Masters' in nursing
Other (please specify)

5. What is your category in your practice?

Basic midwife Midwife Specialist (Advanced Midwife) Comm Serve
Other (please specify)

6. How many years of experience in midwifery?

< 1 years < 5 years 6-10 years
11-15 years 16-20 years 21 or more years

SECTION B: UNDERSTANDING OF PARTOGRAPH

7. Have you ever used a Partograph before?

Yes No

8. Is the Partograph used to monitor the progress of labour in your unit?

Yes No

9. If yes, how often it is used?

Routinely Rarely Occasionally

10. In your unit when do you fill in the Partograph?

While the woman is still in labour After delivery of the baby

11. Please tick the appropriate response regarding the diagnosis that can be made using a Partograph

	Strongly disagree	Disagree	Neither agree nor disagree	Strongly agree	Agree
Obstructed labour					
Prolonged labour					
Poor progress of labour					
Cephalo-pelvic disproportion					
Foetal distress					
Need for Augmentation of labour					
Need for Caesarean section					

12. A Partograph may be used in decision making:

	Strongly disagree	Disagree	Neither agree nor disagree	Strongly Agree	Agree
Referral decisions in health centres					
Intervention decisions in different institutions					

13. Please tick the appropriate response regarding the Partograph

Partograph....	Strongly disagree	Disagree	Neither agree nor disagree	Strongly Agree	Agree
Will contribute in reduction of maternal deaths and maternal morbidity					
Will contribute in reduction of neonatal deaths and perinatal morbidity					
Is a tool used during monitoring of the progress of labour for early diagnosis of complications					
Is a decision making tool to assist a midwife to make correct interventions for both mother and neonate					
Does not replace adequate screening for pregnant woman who requires immediate interventions					

14. Please tick the appropriate response

	Strongly disagree	Disagree	Neither agree nor disagree	Strongly agree	Agree
The accurate use of the Partograph leads to improved maternal and neonatal outcomes?					
The Partograph is used to identify problems in labour					
The composite of the Partograph is seen as difficult					

15. The Partograph consists of the following information

	Strongly disagree	Disagree	Neither agree nor disagree	Strongly agree	Agree
Patient's details (age, parity and gestation)					
Pelvic assessment					
Time of rupture of membranes					
Risk factors					
Type of labour (spontaneous or induced)					
Duration of labour					
Latent and active phase					
Foetal condition					
Progress of labour					
Contractions					
Maternal condition					
Medication given					

SECTION C: KNOWLEDGE OF PARTOGRAPH

16. Have you ever received training on the Partograph?

Yes No

17. If yes, please indicate how often the training is done in your institution

Once a week
 Once a month
 Once in every 6 months
 Once a year

18. If yes, where have you been trained on the Partograph?

College in-service training

19. Partograph can be defined as.....

	Strongly disagree	Disagree	Neither agree nor disagree	Strongly agree	Agree
A universal graphic tool used to monitor and manage the progress of labour.					
A graphic tool presenting the events of the progress of labour in a plotted form					
An easy, effective, available, inexpensive, and the best graphical tool for midwives to use to monitor the progress of labour used					

20. During the active phase of labour.....

	Strongly disagree	Disagree	Neither agree nor disagree	Strongly agree	Agree
Foetal heart recorded half hourly					
Condition of amniotic fluid recorded 2 hourly					
Caput recorded 2 hourly					
Moulding recorded 2 hourly					
Cervical dilatation recorded 2 hourly					
Descent of the head recorded 2 hourly					
Contractions recorded half hourly per 10 minutes					
Maternal pulse recorded half hourly					
Maternal blood pressure recorded half hourly					
Maternal temperature recorded 2- 4 hourly					
Urinary output recorded 2 hourly					
Urine tested for glucose, blood, ketones and proteins.					
Analgesics, medication and intravenous fluids administered are correctly recorded					

SECTION D: THE MIDWIVES' PERCEPTIONS OF CHALLENGES. REGARDING PARTOGRAPH USAGE

	Strongly disagree	Disagree	Neither agree nor disagree	Strongly agree	Agree
Use of the Partograph occurs more in hospital level facilities and less in clinic level facilities.					
Filling the Partograph is seen as an additional task and midwife may not be able to complete the Partograph in a busy situation.					
Insufficient knowledge and lack of understanding could result in inappropriate and incorrect use of Partograph					
A pattern of incorrect plotting on a Partograph could result in poor record keeping					
An increased number of students to be facilitated contributes to inappropriate use of the Partograph					
Lack of commitment and ignorance by midwives contributes to the inappropriate use of the Partograph					
The Partograph is not always used as a communication aid between health workers					
Admission late (fully dilated) to the institution is a contributing factor that limits Partograph use					

Annexure 4: UKZN BREC (Biomedical Research Ethics Committee) Ethical approval



18 January 2017

Ms NB Ngidi (208509467)
Discipline of Nursing
School of Nursing and Public Health Medicine
Health Sciences
ngidinw@gmail.com

Title: A descriptive analysis of knowledge and skills in monitoring progress of labour using a partograph by midwives in a selected hospital in EThekweni District in KwaZulu-Natal.
Degree: M Nursing
BREC REF NO: BE574/16

EXPEDITED APPLICATION

A sub-committee of the Biomedical Research Ethics Committee has considered and noted your application received on 11 October 2016.

The study was provisionally approved pending appropriate responses to queries raised. Your response received on 16 January 2017 to BREC letter dated 11 November 2016 have been noted by a sub-committee of the Biomedical Research Ethics Committee. The conditions have now been met and the study is given full ethics approval and may begin as from 18 January 2017.

This approval is valid for one year from 18 January 2017. To ensure uninterrupted approval of this study beyond the approval expiry date, an application for recertification must be submitted to BREC on the appropriate BREC form 2-3 months before the expiry date.

Any amendments to this study, unless urgently required to ensure safety of participants, must be approved by BREC prior to implementation.

Your acceptance of this approval denotes your compliance with South African National Research Ethics Guidelines (2015), South African National Good Clinical Practice Guidelines (2006) (if applicable) and with UKZN BREC ethics requirements as contained in the UKZN BREC Terms of Reference and Standard Operating Procedures, all available at <http://research.ukzn.ac.za/Research-Ethics/Biomedical-Research-Ethics.aspx>.

BREC is registered with the South African National Health Research Ethics Council (REC-290408-009). BREC has US Office for Human Research Protections (OHRP) Federal-wide Assurance (FWA 678).

The sub-committee's decision will be **RATIFIED** by a full Committee at its next meeting taking place on 14 February 2017.

We wish you well with this study. We would appreciate receiving copies of all publications arising out of this study.

Yours sincerely

Professor Joyce Tsoka-Gwegweni
Chair: Biomedical Research Ethics Committee

cc: supervisor: ngidinw@ukzn.ac.za
cc: postgraduate administrator: postgraduate@ukzn.ac.za

Biomedical Research Ethics Committee
Professor J Tsoka-Gwegweni (Chair)
Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000

Telephone: +27 (0) 31 260 2486 Facsimile: +27 (0) 31 260 4609 Email: brec@ukzn.ac.za

Annexure 5: Good Clinical Practice (GCP) certificate



Zertifikat **Certificado**
Certificat **Certificate**

Promouvoir les plus hauts standards éthiques dans la protection des participants à la recherche biomédicale
Promoting the highest ethical standards in the protection of biomedical research participants



Certificat de formation - Training Certificate
Ce document atteste que - this document certifies that
Nobuhle Witness Ngidi
a complété avec succès - has successfully completed
Good Clinical Practice (GCP)
du programme de formation TRREE en évaluation éthique de la recherche
of the TRREE training programme in research ethics evaluation



October 6th, 2016
CID : cN6tD0Ks1

Professeur Dominique Sprumont
Coordinateur TRREE Coordinator



Ce programme est soutenu par - This program is supported by :
European and Developing Countries Clinical Trials Partnership (EDCTP) (www.edctp.org) - Swiss National Science Foundation (www.snf.ch) - Canadian Institutes of Health Research (<http://www.cihr-irsc.gc.ca/2591.html>) -
Swiss Academy of Medical Science (SAMSARMSAMW) (www.samw.ch) - Commission for Research Partnerships with Developing Countries (www.kfp.ch)

[REV : 20140328]

Annexure 6: Request letter to the KwaZulu-Natal Health Research Committee

D 516 Kwadabeka Township

P.O Clernaville

3602

01 September 2016

The Research Committee Chairperson

The Health Research and Knowledge Management Component

Private Bag X 9051

Pietermaritzburg

3201

Dear Dr E. Lutge

Request letter to conduct a research study.

I am currently registered as a Masters' nursing student in Maternal and Child Health at the University of KwaZulu-Natal. The proposed title for my study is '*A Descriptive Analysis of Knowledge and Skills of Midwives in Monitoring Progress of Labour using a Partograph in Selected Hospitals at eThekweni District in KwaZulu-Natal..*'. '

I hereby request permission to conduct a research study in the Labour Wards of the purposely selected hospitals which offer maternity services, that is:

- **Prince Mshiyeni Memorial Hospital**
- **King Dinizulu Hospital Complex**
- **St Mary's Hospital Marrianhill**

Data collection will require the midwives working in the Labour Wards to complete a questionnaire. Participation is voluntary and informed consent will be obtained from all participants. Confidentiality and anonymity will be maintained at all times.

Please also find attached copy of my research proposal.

It would be greatly appreciated if you could forward me your response.

For more information you are welcome to contact my Supervisor, Mrs. Pretty N. Mbeje (Lecturer), University of KwaZulu-Natal, School of Nursing and Public Health, Clarence Desmond Building, 4th Floor - Room 415, email: Mbejep@ukzn.ac.za, Tel: 031 2601541, Fax:0865725200

Yours faithfully

Nobuhle Witness Ngidi (Researcher)

Contact No: 0738215004

Email: ngidinw@gmail.com/ 208509467@stu.ukzn.ac.za

Annexure 7: Approval letter from the KwaZulu-Natal Department of Health



health

Department:
Health
PROVINCE OF KWAZULU-NATAL

Physical Address: 330 Langalaba/le Street, Pietermaritzburg
Postal Address: Private Bag X9051
Tel: 033 395 2605/ 3189/ 3123 Fax: 033 394 3782
Email: hrkm@kznhealth.gov.za
www.kznhealth.gov.za

DIRECTORATE:

Health Research & Knowledge
Management

HRKM Ref: 424/16
NHRD Ref: KZ_2016RP35_208

Date: 4 January 2017
Dear Ms NW Ngidi
UKZN

Approval of research

1. The research proposal titled '**A descriptive analysis of knowledge and skills in monitoring progress of Labour using a Partograph by Midwives in a selected Hospitals at EThekweni District in KwaZulu-Natal**' was reviewed by the KwaZulu-Natal Department of Health.

The proposal is hereby **approved** for research to be undertaken at King Dinuzulu Hospital Complex, Prince Mshiyeni and St Mary's Hospital, Marianhill.

2. You are requested to take note of the following:
 - a. Make the necessary arrangement with the identified facility before commencing with your research project.
 - b. Provide an interim progress report and final report (electronic and hard copies) when your research is complete.
3. Your final report must be posted to **HEALTH RESEARCH AND KNOWLEDGE MANAGEMENT, 10-102, PRIVATE BAG X9051, PIETERMARITZBURG, 3200** and e-mail an electronic copy to hrkm@kznhealth.gov.za

For any additional information please contact Mr X. Xaba on 033-395 2805.

Yours Sincerely

Dr E Lutgé

Chairperson, Health Research Committee

Date: 06/01/17.

Fighting Disease. Fighting Poverty. Giving Hope

Annexure 8: Request letter to the ST Mary's Hospital Mariannhill

D 516 Kwadabeka Township
P.O Clernaville
3602
01 September 2016

The Chief Executive Officer
St Mary's Hospital Mariannhill
Private Bag 16
Ashwood
KwaZulu-Natal
3605
Dear Sir/Madam

Request letter to conduct a research study.

I am currently registered as a Masters' nursing student in Maternal and Child Health at the University of KwaZulu-Natal. The proposed title for my study is 'A Descriptive Analysis of Knowledge and Skills of Midwives in Monitoring Progress of Labour using a Partograph in Selected Hospitals at eThekweni District in KwaZulu-Natal.. '.

I hereby request permission to conduct a research study in the Labour Ward of your institution which offers maternity services.

Data collection will require the midwives working in the Labour Ward to complete a questionnaire. Participation is voluntary and informed consent will be obtained from all participants. Confidentiality and anonymity will be maintained at all times.

Please also find attached copy of my research proposal. It would be greatly appreciated if you could forward me your response.

For more information you are welcome to contact my Supervisor Mrs. Pretty N. Mbeje (Lecturer), University of KwaZulu-Natal, School of Nursing and Public Health, Clarence Desmond Building, 4th Floor - Room 415, email:Mbejep@ukzn.ac.za, Tel: 031 2601541, Fax:0865725200

Yours faithfully
Nobuhle Witness Ngidi (Researcher)
Contact No: 0738215004
Email: ngidinw@gmail.com/ 208509467@stu.ukzn.ac.za

Annexure 9: Approval letter from the St Mary's Hospital Marianhill



ST. MARY'S HOSPITAL
MARIANHILL

Practice No.: 5706386

Office of the Chief Executive Officer

Private Bag X16; Ashwood; KwaZulu Natal; South Africa; 3605
Tel: 27 31 717 1184; Fax: 27 31 700 3375; E-mail: drbtbuthelezi@stmarys.co.za

TO	: MS. N.W. NGIDI: MASTER'S DEGREE STUDENT: UNIVERSITY OF KWAZULU-NATAL
FROM	: DR B.T. BUTHELEZI: CHIEF EXECUTIVE OFFICER: ST. MARY'S HOSPITAL MARIANHILL
DATE	: 05 SEPTEMBER 2016
RE	: APPROVAL OF RESEARCH PROPOSAL TITLED 'A DESCRIPTIVE ANALYSIS OF KNOWLEDGE AND SKILLS IN MONITORING PROGRESS OF LABOUR USING A PARTOGRAPH BY MIDWIVES IN SELECTED HOSPITALS AT ETHEKWINI DISTRICT IN KZN'

Dear Madam

Your e-mail dated 05 September 2016 anent the above-cited matter has reference.

Your request is hereby approved provided that you can furnish us with the letter of approval from the UKZN Research Ethics Committee.

Your final report must be posted to: Office of the CEO; St. Mary's Hospital; Private Bag X 16; ASHWOOD; 3605 and an electronic copy should be forwarded via e-mail to: drbtbuthelezi@stmarys.co.za

Kind regards


DR B.T. BUTHELEZI
CHIEF EXECUTIVE OFFICER
ST. MARY'S HOSPITAL MARIANHILL



Annexure 10: Request letter to the Prince Mshiyeni Memorial Hospital

D 516 Kwadabeka Township

P.O Clernaville

3602

01 September 2016

The Chief Executive Officer
Prince Mshiyeni Memorial Hospital
Private Bag X 07
Mobeni
4060

Dear Dr S. Tshabalala

Request letter to conduct a research study.

I am currently registered as a Masters' nursing student in Maternal and Child Health at the University of KwaZulu-Natal. The proposed title for my study is 'A Descriptive Analysis of Knowledge and Skills of Midwives in Monitoring Progress of Labour using a Partograph in Selected Hospitals at eThekweni District in KwaZulu-Natal.. '.

I hereby request permission to conduct a research study in the Labour Ward of your institution which offers maternity services.

Data collection will require the midwives working in the Labour Ward to complete a questionnaire. Participation is voluntary and informed consent will be obtained from all participants. Confidentiality and anonymity will be maintained at all times.

Please also find attached copy of my research proposal. It would be greatly appreciated if you could forward me your response.

For more information you are welcome to contact my Supervisor Mrs. Pretty N. Mbeje (Lecturer), University of KwaZulu-Natal, School of Nursing and Public Health, Clarence Desmond Building, 4th Floor - Room 415, email: Mbejep@ukzn.ac.za, Tel: 031 2601541, Fax:0865725200

Yours faithfully
Nobuhle Witness Ngidi (Researcher)
Contact No: 0738215004
Email: ngidinw@gmail.com/ 208509467@stu.ukzn.ac.za

Annexure 11: Approval letter from the prince Mshiyeni Memorial Hospital



health

Department:
Health
PROVINCE OF KWAZULU-NATAL

DIRECTORATE: Senior Medical Manager

Mangosuthu Highway, Private Bag X 07
MOBENI
Tel: 031 907 8317/8304 Fax: 031 906 1044 Email: myint.aung@kznhealth.gov.za
www.kznhealth.gov.za

Prince Mshiyeni Memorial
Hospital

Enquiry: Dr M AUNG
Ref No: 31/RESH/2106
Date: 13/09/2016

TO: Ms. Nobuhle Witness Ngidi

RE: LETTER OF SUPPORT TO CONDUCT RESEARCH AT PMMH

Dear researcher;

I have pleasure to inform you that PMMH has considered your application to conduct research on **"A descriptive analysis of knowledge and skills in monitoring progress of Labour using a Partograph by Midwives in a selected Hospital at EThekweni District in KwaZulu-Natal."** in our institution.

Please note the following:

1. Please ensure that you adhere to all the policies, procedures, protocols and guidelines of the Department of Health with regards to this research.
2. This research will only commence once this office has received confirmation from the Provincial Health Research Committee in the KZN Department of Health.
3. Please ensure this office is informed before you commence your research.
4. The institution will not provide any resources for this research.
5. You will be expected to provide feedback on your findings to the institution.

Should the following requirements be fulfilled, a Permission/ Approval letter will follow.

- Full research protocol, including questionnaires and consent forms if applicable.
- Ethical approval from a recognized Ethic committee in South Africa

Thank you.

MYINT AUNG

Senior Medical Manager & specialist in Family Medicine
MBBS, DO(SA), PGDip in HIV (Natal), M.Med.Fam.Med (natal)
Tel: 031 9078317
Fax: 031 906 1044
myint.aung@kznhealth.gov.za

Fighting Disease, Fighting Poverty, Giving Hope

Annexure 12: Request letter to King Dinuzulu Hospital Complex

D 516 Kwadabeka Township

P.O Clernaville

3602

01 September 2016

The Chief Executive Officer
King Dinuzulu Hospital Complex
PO Box Dormerton
4015

Dear Dr R. Naidu

Request letter to conduct a research study.

I am currently registered as Masters' nursing student in Maternal and Child Health at the University of KwaZulu Natal. The proposed title for my study is '**A descriptive analysis of the knowledge and skills in monitoring progress of labour using a Partograph by midwives in selected hospitals at eThekweni District in KwaZulu-Natal**'.

I hereby request permission to conduct a research study in the Labour Ward of your institution, which offers maternity services.

Data collection will require the midwives working in the Labour Ward to complete a questionnaire. Participation is voluntary and informed consent will be obtained from all participants. Confidentiality and anonymity will be maintained at all times.

Please also find attached a copy of my research proposal.

It would be greatly appreciated if you could forward me your response.

For more information you are welcome to contact my Supervisor Mrs. Pretty N. Mbeje (Lecturer), University of KwaZulu-Natal, School of Nursing and Public Health, Clarence Desmond Building, 4th Floor - Room 415, email: Mbejep@ukzn.ac.za, Tel: 031 2601541, Fax:0865725200

Yours faithfully
Nobuhle Witness Ngidi (Researcher)
Contact No: 0738215004
email: ngidinw@gmail.com/ 208509467@stu.ukzn.ac.za

Annexure 13: Approval letter from the King Dinuzulu Hospital Complex

From:KDHC MANAGEMENT

To:0865076249

24/11/2016 09:40

#600 P.002/002



health

Department:
Health
PROVINCE OF KWAZULU-NATAL

DIRECTORATE:

Physical Address: 75 R.D. Naidu road, Sydenham
Physical Address:PO Dornerton, 4015
Tel: 031 242 6000 Fax: 031 2099586
Email address:shamin_maharaj@kznhealth.gov.za
www.kznhealth.gov.za

King Dinuzulu Hospital Complex

Enquiries: Dr S.B. Maharaj
22/11/2016

Ms N Ngidi
Researcher
University of KwaZulu Natal

**RE: PERMISSION TO CONDUCT RESEARCH AT KING DINUZULU HOSPITAL COMPLEX-A
DESCRIPTIVE ANALYSIS OF KNOWLEDGE AND SKILLS IN MONITORING PROGRESS OF
LABOUR USING A PARTOGRAPH BY MIDWIVES IN A SELECTED HOSPITALS AT
ETHEKWINI DISTRICT IN KWAZULULU- NATAL.**

I have pleasure in informing you that permission has been granted to you by King Dinuzulu Hospital Complex to conduct a research study in Labour Ward-KDHC.

Please note the following:

1. Please ensure that you adhere to all policies, procedures, protocols and guidelines of the Department of Health with regards to this research.
2. This research will only commence once this office has received confirmation from the Provincial Health Research Committee in the KZN Department of Health.
3. Please ensure that this office is informed before you commence your research.
4. Neither the District Office nor KDHC will provide any resources for this research.
5. Your attention is drawn to the maintenance of confidentiality with respect to patient's records/files.
6. You will be expected to provide feedback on your findings to KDHC.

Yours sincerely

**DR S.B. MAHARAJ
MEDICAL MANAGER**

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Annexure 14: Permission to Use A Questionnaire



From: Nobuhle Ngidi [mailto:ngidinw@gmail.com]

Sent: Monday, June 06, 2016 2:07 PM

To: Reena.singh@hotmail.co.za; Nokuthula Sibiya; Zanele Muriel Zondi

Subject: Permission to use tool

My name is Nobuhle Ngidi, a Master's nursing student doing Master's degree in Nursing- Maternal and Child Health, at the University of KwaZulu Natal. The title for my study is " 'A Descriptive Analysis of Knowledge and Skills of Midwives in Monitoring Progress of Labour using a Partograph in Selected Hospitals at eThekweni District in KwaZulu-Natal.. '.

I hereby requesting a permission to adapt, modify and use the Questionnaire from your study " A descriptive of the utilisation of the partograph by midwives in the public hospitals in the uMgungundlovu District, KwaZulu-Natal" for my project.

For more information you welcome to contact my Supervisor Mrs Pretty Mbeje at 031 2601541, email: Mbejep@ukzn.ac.za

I would be greatly appreciated if you could forward me your response

Thank you.

Nobuhle Ngidi



Dear Nobuhle

Please accept my apology for the delayed response. I thought Reena, as the principal investigator for the study had responded to your request. Reena, please respond to Nobuhle. Otherwise, as your supervisor, I do not have the problem with Nobuhle using the tool you developed but you still need to respond to her.

Sent from Windows Mail

From: nokuthula Sibiya

Sent: Monday, June 6, 2016 4:53 PM

To: Nobuhle Ngidi

Cc: Reena.singh@hotmail.co.za

Reena Singh <reena.singh@hotmail.co.za>

6/7/16

to me
nokuthula

Dear Nobuhle Ngidi

This is the first time I am seeing your request. I do not have a problem with you using and modifying the Questionnaire. I wish you all the best with your studies and hope that your study will contribute to making a difference in midwifery practice.

Thank you.

Warm Regards

Mrs. Reena Singh

(Campus HoD - Midwifery Nursing Science)
Edendale Nursing Campus

Nobuhle Ngidi <ngidinw@gmail.com>

6/8/16

to Reena
nokuthula

Thank you so much

Annexure 15: Letter of editing



Pauline Fogg
54 Grundel Road
Carrington Heights
Durban
4001
074 782 5234

21 April 2017

Letter of Editing

This report serves to state that the mini-dissertation submitted by Nobuhle Witness Ngidi, in partial fulfillment of the requirements for the Master's Degree in Maternal and Child Health, has been edited.

The mini-dissertation was edited for errors in syntax, grammar, punctuation and the referencing system used.

The edit will be regarded as complete once the necessary changes have been effected and all of the comments addressed.

Thank-you for your business.

A handwritten signature in black ink that reads "P. Fogg". The signature is written in a cursive, slightly slanted style.

Pauline Fogg