

KNOWLEDGE AND UTILIZATION OF PARTOGRAPH AMONG NURSES/MIDWIVES IN SELECTED HOSPITALS IN MAIDUGURI, BORNO STATE

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ABSTRACT

Partograph is a tool or a chart that is used to monitor labour. It provides a pictorial view of the progress of labour. It has three parts; the fetal part which records the fetal heart rate, liquor, and moulding, the maternal part contains information on the maternal pulse, temperature, blood pressure and urinalysis, and the progress of labour which includes the descent of the head, cervical dilatation and uterine contractions. Proper usage of the partograph as recommended by the World Health Organization (WHO) will enable the nurse/midwife to detect any labour that is not progressing well and allow for prompt intervention or timely referral. The objective of the study is to assess the knowledge and utilization of partograph among nurses/midwives in selected hospitals in Maiduguri, Borno State. This paper employed descriptive cross sectional study among nurses/midwives working in the study area. The study considered the nurse/midwives' knowledge on proper utilization of partograph. One research hypothesis was tested at 0.05 level of significance. A sample size of 138 nurse/midwives was used, and 416 files were audited. Data was collected using self-administered questionnaire and a checklist for the sampled file was used. The study employed descriptive and inferential statistics. The descriptive statistics (charts, frequency and percentage) was used to analyze the research questions while inferential statistics (Chi-square) was used to test the hypothesis. The result of the study revealed a significant relationship between knowledge on partograph and its utilization among nurses/ midwives with $p < 0.05$, $df=1$ ($\chi^2=51.435$, 74.580). Nurses/midwives were knowledgeable on partograph and they utilize partograph. The researcher recommended that there is need for periodic training of nurses/midwives on the use of partograph in the study area.

Key Words: Knowledge, Utilization, Partograph.

1.1 INTRODUCTION

Globally, about 830 women die daily from pregnancy or childbirth related complications which can be prevented (World Health Organization, 2015). Of the 830 daily maternal deaths, 550 occurred in sub-Saharan Africa and 180 in Southern Asia, compared to 5 in developed countries. Maternal mortality is a health indicator that shows very wide gaps between rich and poor, urban and rural areas, both between countries and within them. Ninety-five percent of all maternal deaths occur in Asia and Africa. Less than 1% occurs in developed regions, and only 4% in the Latin America and Caribbean region (WHO, 2015). Maternal mortality is higher in rural areas among poorer and less educated communities (WHO, 2015). The maternal mortality ratio in developing countries in 2015 was 239 per 100 000 live births versus 12 per 100 000 live births in developed countries. There are large disparities between countries, but also within countries (WHO, 2015). According to the Nigerian Demographic Health Survey (2013), maternal mortality ratio is 576: 100,000 live births. Two regions, sub-Saharan Africa and South Asia, account for 88 per cent of maternal deaths worldwide. Sub-Saharan Africans suffer from the highest maternal mortality ratio-546 maternal deaths per 100,000 live births, or 201,000 maternal deaths a year. This is two thirds (66 per cent) of all maternal deaths per year worldwide. South Asia follows, with a maternal mortality ratio of 182, or 66,000 maternal deaths a year, accounting for 22 per cent of the global total. Furthermore, regional and global averages tend to mask large disparities both within and between countries (UNICEF, 2015).

One-third of all global maternal deaths are concentrated in two populous countries with Nigeria ranking second after India between 2014 and 2015. In Nigeria the maternal mortality rate is 560 /100,000 births and a woman's chance of dying from pregnancy and childbirth in Nigeria is 1 in 13 (UNICEF, 2015). Available report has shown that about 800 women die in every 100,000 live births. Maternal mortality rate in early 1990's was 1350/100,000 live births, in 1995 1250/100,000 live births was recorded. In 2000 there was 1170/100,000 live births, 946/100,000 in 2005, 867/100,000 in 2010, and in 2015 maternal mortality ratio was 814/100,000 live births (WHO, 2015). The above trend shows that maternal mortality ratio in Nigeria is on the decline from 1990-2015. However, the figure still remains high compared to what is obtained in developed nations.

This maternal mortality rate is observed to be worse in rural areas when compared to the urban areas and varies from one geographical zone to another with the highest prevalence in Northeastern Nigeria; 1549/100,000 live births and northwest; 1026/100,000 as compared to the Southeast with 286/100,000 and Southwest with 165/100,000 (UNICEF, USAID, WHO, 2015). The maternal mortality ratios in these different geopolitical zones in Nigeria shows that the North East zone has the highest mortality rate of 1549/100,000 live births, compared to 165/100,000 live births in the South West Zone- an almost ten-fold difference. The figures for childhood mortality

in Northeast zone shows that neonatal mortality is considerably high with 43/1,000 live birth. Infant, child and under five mortality are 77, 90 and 160/1,000 live births respectively (NDHS, 2013). UNICEF (2015) also reported that Northeast and Northwest have the highest neonatal and under five mortalities. Northwest has 269/ 1,000 live births, Northeast 260, Southwest 176 and Southeast 103/1,000 live births (UNICEF, 2015).

Maternal death is caused either by complications that develop directly as a result of pregnancy, delivery or the postpartum period, in other words a “direct obstetric death”, or due to an existing medical condition, i.e. an “indirect cause” (National Primary Health Care Development Agency; NPHCDA, 2014). Several avoidable factors contribute to these deaths; socio-economic and cultural factors (especially related to household or family level), factors relating to accessibility of health facilities by pregnant women with pregnancy/labour complications, factors around quality of health care which includes timeliness in receiving care at the health facilities (NPHCDA, 2014). One of the major direct cause of maternal mortality is obstructed labour which usually results from neglected prolonged labour. In prolonged labor, the labor does not progress normally making the woman experience serious complications such as obstructed labour, dehydration, maternal exhaustion, atonic postpartum haemorrhage, obstetric fistulas and rupture of the uterus (Baafor and Samuel, 2015). Prolonged labor may also contribute to maternal infection or haemorrhage and to neonatal infection (USAID). In Borno State, North Eastern Nigeria, Chama, Mairiga, Geidam, and Bako (2010) reported high maternal rate of 1600/100,000 live births. Local strategy for tackling this maternal mortality shows that Borno State government has a policy on free maternal health care but the program is not officially gazette, poorly funded and reaches only few women. Several international development partners are in Borno State but are increasingly concerned by the lack of official policies and the inadequate budgetary allocation for addressing the high maternal mortality rate (Chama et al, 2010). Most of the maternal deaths can be prevented through skilled care at birth (WHO, 2015), hence the need to monitor women in labour using partograph.

Partograph is a graphical record of the progress of labour, it monitors both the mother and fetus and their salient conditions (WHO, 2015). The partograph has three parts; the fetal part which records the fetal wellbeing such as the fetal heart rate, moulding and liquor, the maternal part which contains information on the mothers’ condition and the record of the progress of labour which is used to observe the progress of labour and contains parameters such as the cervical dilatation, descent of the fetal head and uterine contractions.

Various studies have been conducted on partograph as a labour monitoring tool with the following findings: a study done in Northwest Ethiopia on knowledge and attitude of obstetric care givers on partograph and its associated factors in East Gojjam zone revealed that obstetric care givers had good knowledge about partograph and their

attitude towards partograph was favourable (Zelellw, Tegegne, and Getie, 2016). Another study in Tamale Metropolis on knowledge and attitude of midwives on the use of partogram showed that midwives had inadequate knowledge on the proper use of partogram as some of the partogram were inadequately filled and also inadequate staffing and extra workload were some of the factors that militated against the effective use of partogram (Konlan, Kombat, Wuffele and Bapuah 2016). Nwaneri, Ehimere, Okafor, Ezenduka and Emeh conducted a study on the evaluation of factors affecting the utilization of partograph by nurses/midwives in Primary /secondary health facilities in Enugu metropolis revealed that lack of knowledge of the partograph impeded its utilization and also inability to interpret findings correctly after assessment with the were some of the factors affecting utilization. A number of literatures have been conducted on partograph both within and outside Nigeria. However, extensive literature search shows that there is no study conducted on the utilization of partograph in northern Nigeria, or even if there such studies, they were not published. It is essential to determine partograph utilization in northern Nigeria and more specifically in Borno State given that Northeast Nigeria has the highest maternal mortality rate.

The presence of a skilled attendant at birth is important and there is the need for the skilled attendant to have this labour monitoring tool; the partograph. The knowledge the nurse/midwife has on the partograph is essential in effective usage of the partograph. It is therefore imperative for the nurse/midwife to have a full understanding of the partograph to be able to effectively monitor women in labour. The perception of the paragraph as a labour monitoring tool will influence the nurse/midwives' utilization of the partograph. A positive perception will facilitate its utilization while a negative perception will hinder it, same goes for attitude of the nurses/midwives. Utilization of partograph to monitor all women in labour will save the life of both the mother and baby. However, this is only achievable when the partograph is properly utilized as recommended by WHO. From the foregoing, this study sought to assess the perception and utilization of partograph among nurses and midwives in selected hospitals in Maiduguri, Borno State.

1.2 STATEMENT OF THE PROBLEM

The process of labour is associated with risks and dangers which can be life threatening for both the mother and the baby and hence the need for adequate intrapartum care. Skilled care before, during and after childbirth can save the lives of women and newborn babies (WHO, 2015). It is particularly important that all births are attended by skilled health professionals, as timely management and treatment can make the difference between life and death for both the mother and the baby (WHO, 2015).

The partograph was recommended by WHO as a tool for monitoring the progress of a woman in labour in order to reduce the maternal mortality (Ogunfowokan, Irinoye, Olowokere & Onipe, 2014). Partograph as recommended by WHO has been implicated to be very important in early detection of any deviation from normal during labour and prompt management. It offers health care providers with a pictorial overview of labour to identify early and detect any deviation from normal during labour. Adequate knowledge on partograph and its utilization to properly monitor women in labour will significantly reduce maternal mortality.

The maternal mortality ratio in developing countries in 2015 was 239 per 100 000 live births versus 12 per 100 000 live births in developed countries. In Nigeria, maternal mortality rate is 560 deaths per 100,000 live births and an estimated 40,000 maternal deaths (14%) (WHO, 2014) with the North Eastern zone having the highest maternal mortality rate of 1,549/100,000 live births, as compared to 165/100,000 live births in the South West zone- an almost 10-fold difference (WHO, UNICEF, 2015).

Maiduguri the Borno state capital is one of the northeastern states, and as shown above the northeast has the highest maternal mortality rate. It has been observed that not all women in labour are monitored using partograph in some hospitals in Maiduguri and this could add to the high maternal mortality rate recorded in this geopolitical zone. The perception of the nurse/midwife whether positive or negative and her knowledge on how to properly use the partograph will determine the extent of its utilization. Hence, this study assessed the perception and utilization of partograph among nurses and midwives in selected hospitals in Maiduguri, Borno State.

Maternal mortality is still unacceptably high illustrating that goal 5 of the MDGs has not been met. A new date has been set under Sustainable Development Goals. One target under Sustainable Development Goal 3 is to reduce the global maternity mortality ratio to less than 70 per 100 000 births, with no country having a maternal mortality rate of more than twice the global average between 2016 and 2030. This is achievable only through close monitoring of pregnancy and subsequently labour/childbirth using the partograph.

1.3 OBJECTIVES OF THE STUDY

To assess the level of knowledge on the utilization of partograph in monitoring labour among nurses/midwives in the selected hospitals in Maiduguri

1.4 SIGNIFICANCE OF THE STUDY

According to WHO, the use of partograph is effective in reducing complications from childbirth (WHO, 2010). Therefore, findings of this study highlighted the factors influencing the utilization of partograph.

This study gave the true picture on the perception and the extent of utilization of partograph among midwives. Findings gave an insight to health policy makers on ways of instilling good management practices with a view to improving the quality of care rendered to women in labour. It also depicted factors influencing the use of partograph among midwives which in turn allowed for necessary intervention by the policy makers on how to do away with the barriers to partograph utilization.

In addition, this study also formed the basis for further research and has added to the body of knowledge on utilization of partograph in the Northern part of the country. Findings of this study also contributed to adequate knowledge on intervention programs on maternal and child health in Borno State and Nigeria at large.

In essence findings of this study gave room for adequate intervention. With adequate intervention the number of maternal deaths in Maiduguri will be reduced which will result to reducing the global maternity ratio to less than 70 per 100 000 births, with no country having a maternal mortality rate of more than twice the global average between 2016 and 2030 as contained in the Sustainable Development Goal 3.

1.5 Scope of the Study

This study assessed the perception and utilization of partograph among nurses/midwives in Maiduguri. The research work was confined to the three selected hospitals (State Specialist Hospital, Umoru Shehu Ultra modern Hospital and Mamman Shuwa Memorial Hospital) and nine primary health care centres. It is limited to practicing nurses/midwives in these hospitals.

2.1 REVIEW OF RELATED LITERATURE

2.2 EMPIRICAL REVIEW

2.2.1 Midwives Knowledge of Partograph

Partograph when used appropriately to monitor labour will reduce maternal mortality and morbidity. However, adequate knowledge is required for the proper use of partograph to effectively reduce the maternal and infant mortality rates. Study have shown that health professionals in Ethiopia have poor knowledge of assessment with partograph (Abebe et al, 2013). Yisma, Dessalegn, Astatkie and Fesseha (2013) conducted a study on knowledge

and utilization of partograph on obstetric care givers in public health institutions of Addis Ababa, Ethiopia and opined revealed that knowledge about the partograph was fair as only 96.6% (189) correctly answered a question on the component of partograph. Findings also revealed that only 53.3% (104) and 82.6% (161) correctly explained the function of the alert and action lines respectively. It was recommended that emphasis should be given on pre-service and on the job training on the use of partograph as knowledge was fair. This study is in consonance with those of Markos and Bogale (2016) who conducted a facility based cross-sectional study on the knowledge and utilization of partograph among health care professionals in public health institution of Bale zone, south east Ethiopia and their findings revealed that study participants had poor and good knowledge of 38.5% and 61.5% respectively on partograph which in turn translates to more than half of the respondents having a good knowledge of partograph. Periodic on-the job training on partograph to improve nurses and public health officers knowledge on partograph was recommended.

A cross-sectional study conducted in North Shoa zone of Central Ethiopia on knowledge of partograph and its associated factors among obstetric care providers reveals that they have good knowledge of partograph which was acquired through practice and on the job training (Wakgari, Tessema and Amano, 2015). This implies that having good knowledge on the partograph will result to proper usage which in turn will lead to a reduction in the maternal and infant mortality rates. Findings of the above study is in contrast with that conducted on the assessment of knowledge and utilization of the partograph among health professionals in Amhara region of Ethiopia. It revealed that knowledge on the components of partograph was very poor, and that only 29% of the partograph were properly filled. Also, females had more knowledge than males. One of the recommendation by the researchers is periodic on the job training be given to obstetric care providers with more emphasis on males (Abebe, Birhanu, Awoke, and Ejigu, 2013). Sama, Takah, Danwe, Melo, Dingana and Angwafo III (2017) conducted a study on knowledge and utilization of partograph: a cross-sectional study among obstetric care givers in urban referral public health institution in northwest and southwest Cameroon found that the obstetric care givers had poor knowledge on partograph. Burama, Kao, Gua and Lin (2013) conducted a study on partograph use among midwives in the Gambia with findings showing that midwives have good knowledge of the partograph.

Opiah, Ofi, Essien and Monjok (2012) in their studies on the knowledge and utilization of partograph among midwives in the Niger Delta region of Nigeria found that midwives had good knowledge of partograph as some were properly filled. This is in contrast with what is obtained in University of Calabar Teaching Hospital, Calabar as it was found that inadequate knowledge on the different parts of partograph especially the cervicogram affects its use (Agan, Akpan, Okonkon, Oku, Asibong, Opiah, Essien and Monjok, 2014). A study on the evaluation of knowledge and utilization of partograph in primary, secondary and tertiary care settings in Calabar, South-South

Nigeria revealed that workers in General Hospital had higher level of knowledge on the partograph than those in the Teaching Hospital (Okokon, Oku, Agan, Asibong, Essien and Monjok, 2014) Also, nurses/midwives are significantly more knowledgeable on partograph than non-obstetric care givers (Okokon et al, 2014). This finding is similar with a study that was conducted in University of Calabar Teaching Hospital, Nigeria by Agan, Akpan, Okokon, Oku and Asibong (2014). Findings of studies above conducted outside and within Nigeria has shown the different levels of knowledge on partograph. It is therefore necessary to assess midwives' level of knowledge on the partograph because it is only when midwives' have sound grasp of the partograph that they will be able to effectively utilize it. Nonetheless, studies have reported that knowledge of partograph is better in health workers with professional qualifications and those in tertiary settings (Gans-Lartey, O'Brien, Gyekye&Schopflocher (2013); Mothapo, Maputle&Shilubane (2014).

Moreso, Asibong et al (2014) conducted a cross-sectional descriptive study in general hospitals Calabar, Nigeria and opined that 70.8% of the respondents had good general knowledge of the partograph but lacked in-depth knowledge of its component parts.

2.2.3 Midwife's utilization of partograph

Poor management of labour, prolonged labour, obstructed labour and other factors such as haemorrhage, sepsis are the leading causes of death in Sub-Saharan Africa. Nigeria is ranking second after India in maternal mortality (WHO, 2015). The partograph is a labour monitoring tool for recording details of intrapartum care graphically by trained health care professionals to allow for early identification of problems and prompt intervention (Adesola, Omolola, Adekemi and Audu, 2014). Studies conducted on partograph have shown that the partograph when used can be highly effective in reducing prolonged labour and its complications for both mother and newborn (Adesola et al, 2014). It has been reported that only 25% to 30% of surveyed care givers use partograph to monitor labour routinely (Yisma, Dessalegn, Astatkie and Fesseha, 2013). Extensive literature search reveals that the Southwest and Southeast geopolitical zones have witnessed remarkable research on partograph use (Udeme, et al, 2014). The same goes for the South south geopolitical zone. Fawole et al (2008) reported that the partograph is not commonly used to monitor Nigerian woman in labour despite its affordability.

A study conducted in Ile-Ife, Nigeria on partograph utilization at three levels of health care delivery shows that partograph was not used at primary and secondary health care maternity units (Adesola et al, 2014). Findings also showed that only few (30.9% and 53.9%) charting of moulding and blood pressure respectively were correct (Adesola et al, 2014). Factors militating against the utilization of partograph were health care centers under study

having poor staff strength, non-availability of the partograph and lack of detailed knowledge were reported by Okokon et al 2014.

A study on partograph showed that 112 (57.3%) of obstetric care givers reportedly utilized partograph to monitor labour in public health institutions (Yisma et al, 2013). It was also found that partograph utilization was significantly higher among obstetric care givers working in health centres (67.9%) compared to those working in hospitals (Yisma et al, 2013).

In the Niger Delta Region study showed that there was poor utilization of the partograph in monitoring women in labour in Federal Medical Center (FMC) and Niger Delta University Teaching Hospital (NDUTH) (Opiah et al, 2012). Also found in this study was that the utilization of the partograph is directly related to staff strength. Partograph use was very low as shown in the study conducted by Abebe et al, 2013 as only 36.2% of the reviewed delivery charts had the partograph plotted and attached. In addition, the trend of plotting properly components of the partograph was very low with such values; 17 out of 58. It was also observed that there was no significant difference between the type of facility; hospital or health centre and partograph utilization.

Chaturvedi, Upadhyay, De Costa and Raven (2015) in their study on implementation of the Partograph in India's JSY cash transfer programme for facility births found that training not supporting correct use of partograph, partograph are used rarely and retrospectively, it can be useful but are not feasible. Nyamtema, Urassa, Massawe, Massawe, Lindmark and Van Roosmalen (2008) in a study on partogram use in the Dar es Salaam perinatal care study found that duration of labour was not recorded in 50% of partograms reviewed, and also temperature, pulse and blood pressure were not recorded in 47-76% of partograms. This is in contrast with findings of Burama et al (2013) that 78% of midwives use partograph which is actually good. From the foregoing, it is pertinent to carry out a research in Maiduguri to determine whether midwives use the patograph to monitor women in labour as recommended by WHO more so that Maiduguri been one of the north eastern states where maternal and infant mortality is high (NDHS, 2015).

2.3 Theoretical framework

Imogene King's Goal Attainment theory will be utilized in this study.

Goal Attainment Theory

The theory states that “Nursing is a process of action, reaction and interaction by which the nurse and client share information about their perception in a nursing situation”. Imogene King views nursing as a process of human interactions between the nurse and client whereby each perceives the other and the situation, and through communication, they set goals, explore means and agree on means to achieve goals. The theory has the following propositions:

- If perceptual accuracy is present in nurse-patient interactions, transaction will occur.
- If the nurse and patient make transactions, the goal or goals will be achieved.
- If the goal or goals are achieved, satisfaction will occur.
- If the goal or goals are achieved, effective nursing care will occur.
- If transactions are made in nurse-patient interactions, growth and development will be enhanced.
- If role expectations and role performance as perceived by the nurse and patient are congruent, transaction will occur.
- If role conflict is experienced by either the nurse or the patient (or both), stress in the nurse-patient interaction will occur.
- If a nurse with special knowledge communicates appropriate information to the patient, mutual goal setting and goal achievement will occur.

Assumptions of Goal Attainment theory includes the following:

- The focus of nursing is the care of the human being.
- The goal of nursing is the health care of both individuals and groups.
- Human beings are open systems interacting with their environment constantly.
- The nurse and patient communicate information, set goals mutually and then act to achieve those goals.
- Patients perceive the world as complete person making transactions with individuals and things in the environment.
- Transaction represent a life situation in which the perceiver and the thing being perceived are being encountered.

Major concepts in the theory are:

Action: a sequence of behaviors involving mental action to recognize the presenting conditions and an effort to exert control over the situation. It also involves a physical action to begin activities related to those conditions and actions seeking to achieve goals.

Reaction: the sequence of behaviors described in the actions.

Interaction: process of perception and communication between person and environment and between two persons represented by verbal and nonverbal behaviors that are goal directed.

Transaction: goal-directed human behaviors.

In addition, there are three interacting systems in the theory of Goal Attainment. These are the personal system, the interpersonal system and the social system.

Personal system: The theorist views each individual as a personal system. King specified the concepts of body image, growth and development, perception, self, space and time to comprehend humans as a personal system.

Interpersonal system: these are formed by interaction between human beings. The complexity of the interaction increases with increased number of interacting individuals. King specified the concepts of communication, interaction, role, stress and transaction to further explain the interpersonal system.

Social systems: this refers to a more comprehensive interacting system that consists of groups. King further explained the social system with the concepts of authority, decision making, organization, power and status.

3.1 MATERIALS AND METHODS

This is a quantitative descriptive cross-sectional study which included a retrospective document review to ascertain the extent of utilization of partograph in selected hospitals of Maiduguri. Two categories of population was utilized in this study. The first population were all nurses/midwives working in the selected health facilities who are 146. Furthermore, the case files of mothers who delivered through Spontaneous Vaginal Delivery (SVD) between January, 2012 to December, 2016 were retrieved and assessed in order to ascertain the extent of partograph utilization in these selected hospitals. The total population of nurses/midwives working in the antenatal, post-natal and labour units of the selected hospitals and PHC were studied. This is because of the small population involved.

Fisher's minimum sample size determination formula was used to select case files of women who had spontaneous vagina delivery, (SVD) in the study facilities.

$$\text{Sample size} = \frac{n}{1 + \left(\frac{n}{N}\right)}$$

where $n = \frac{Z^2 [p(1-p)]}{d^2}$

z = test statistic (1.96) at 95% confidence interval

p = true proportion of factor in the population or expected frequency value = 0.50

d = maximum difference between sample or value of $\alpha = 0.05$

$$\begin{aligned} n &= \frac{Z^2 [p(1-p)]}{d^2} \\ &= \frac{(1.96)^2 [0.50(0.50)]}{(0.05)^2} \\ &= \frac{(1.96)^2 [0.50(0.50)]}{(0.05)^2} \\ &= \frac{(3.8416)(0.25)}{0.0025} \\ &= 384.16 \end{aligned}$$

Therefore, $n = 384$

Since Sample size = $\frac{n}{1+(\frac{n}{N})}$

where $n = 384$

N (Total number of files for the selected hospitals and PHCs in Maiduguri) = 17,875

Then $\frac{384}{1+(\frac{384}{17875})} = 375$

Adjusting calculated sample size for non- response rate using the formula by Bambgoye (2014)

$n = \frac{\text{total sample size}}{1-0.1}$

$n = \frac{375}{0.9} \quad n = 416$

Therefore, the required minimum number of files reviewed for this study is 416 for the three

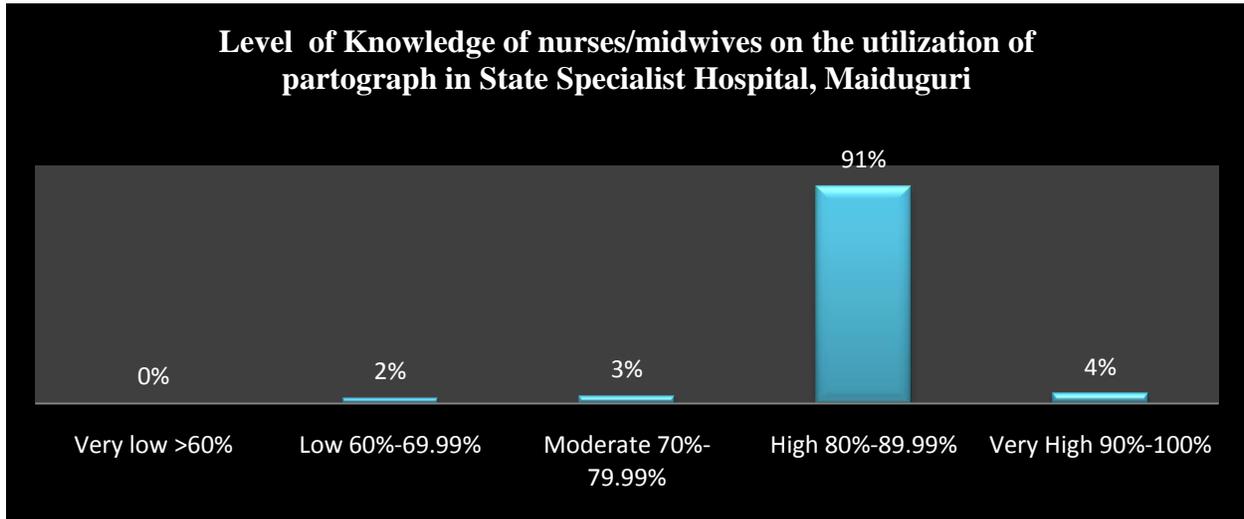
Total population of midwives who met the inclusion criteria and are willing to participate in the study were used as sample for the study. In addition, systematic random sampling was used to select files i.e. the case files of women who had SVD during the study period were picked at random until the required number was obtained.

Two instruments were used in data collection: self-structured questionnaire and a checklist. The self-structured questionnaire contains 5 sections and 51 items. Section A which is the demographic variables is made up of 7 items. Section B contains items 8-25 and elicits information on midwives' knowledge of partograph. Section C contains items 26-31 and elicits information on factors influencing partograph utilization. Section D elicits information on perception of midwives of partograph use and contains items 32-42 and lastly Section E contains items 43-51 and elicits information on attitude of nurses and midwives towards partograph use.

Furthermore, the checklist for ascertaining utilization of partograph was used to obtain information from the files of women who delivered through spontaneous vaginal delivery in the secondary and primary health care facilities between 2012- 2016. This checklist contains detailed information of all the parts of the partograph.

Face and content validity of the instrument was established by presenting the instrument to the project supervisor to assess and certify that the items are relevant to the area of research to which they are designed. Contributions from maternal and child health researchers was sought for to ensure clarity, appropriateness in relation to language and that the instrument covers all relevant aspects, is able to elicit information that answered research questions and achieve the study objectives. To ascertain its suitability for testing the formulated hypotheses, the services of a reputable statistician was employed to illuminate the questionnaire. Test retest method was used to ascertain the reliability of instrument. This was done by administering the instrument to 30 midwives in Umoru Shehu Ultra-Modern Hospital Maiduguri who were not part of the respondents for the main study. The second questionnaire was administered two weeks after the first. The scores on the first test was correlated with the scores on the retest and be used to estimate the reliability of the test using Pearson product moment correlation coefficient. Cronbach alpha coefficient with values ranging from 0.00; much error and 1.00; no error guided the researcher in determining the amount of error. A reliability coefficient of 0.80 was acceptable for the study. This is to ensure that the content of the instrument is reliable before administering it to the study population. The study employed descriptive and inferential statistics for data analysis with the aid of SPSS version 20. All statistical analysis was done at 0.05 level of significance.

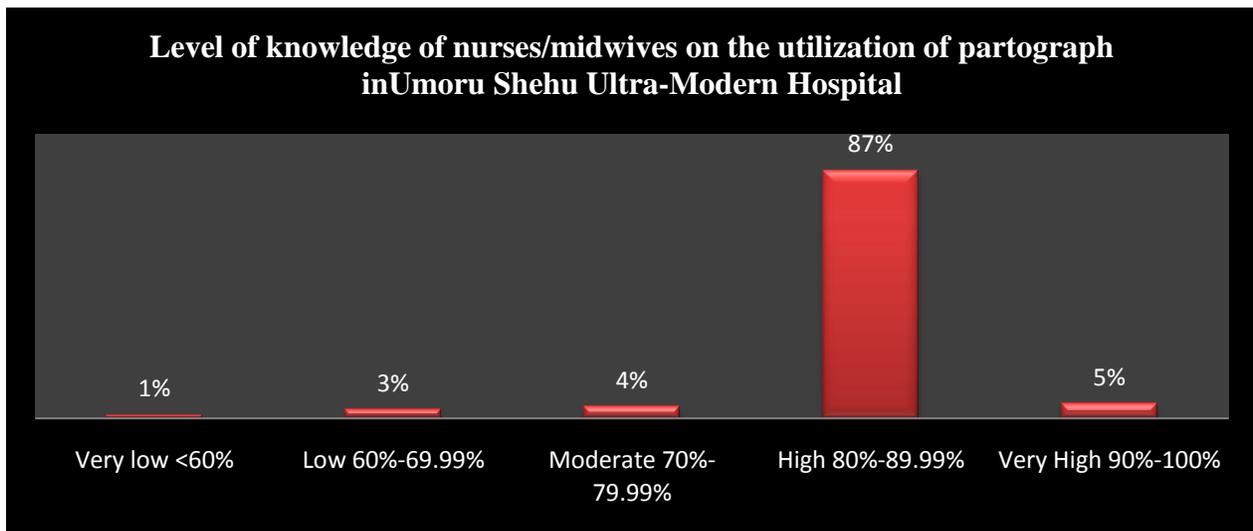
Research Question One: What is the level of knowledge on the utilization of partograph in monitoring labour among nurses/midwives in the selected hospitals in Maiduguri?



Source: Field survey, 2018

Figure 4.1: Level of Knowledge of nurses/midwives on the utilization of partograph in State Specialist Hospital, Maiduguri

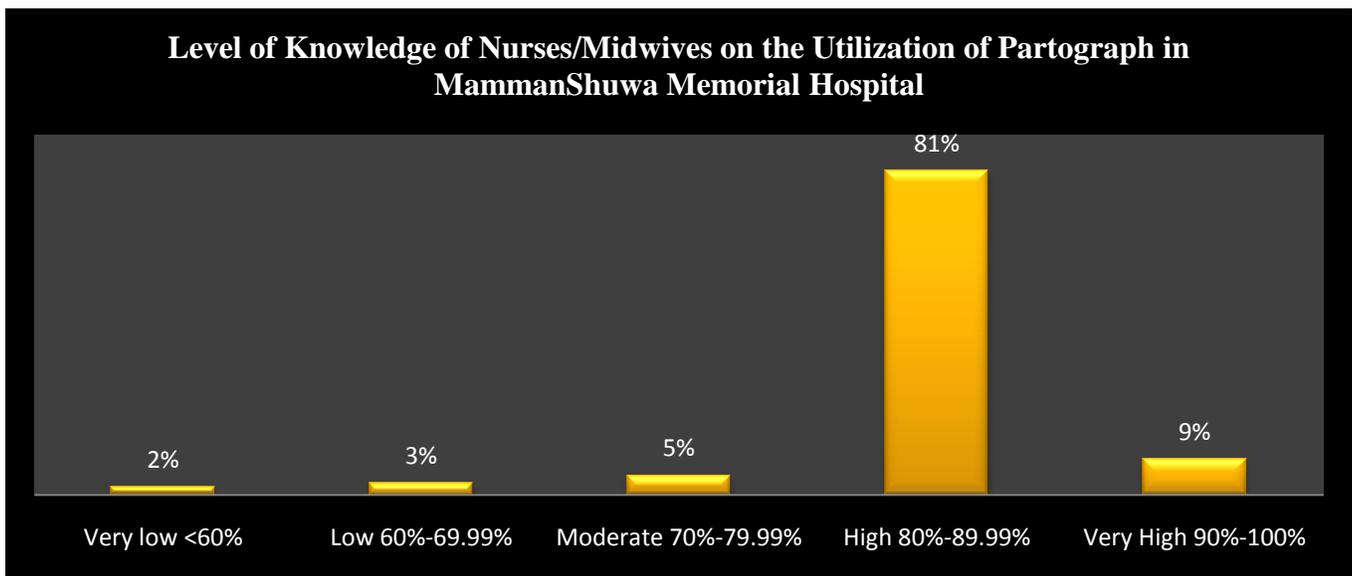
Figure 4.1: Shows the level of knowledge of nurses/midwives on the utilization of partograph in State Specialist Hospital Maiduguri. High level recorded 91%, very high recorded 4%, moderate recorded 3%, low recorded 2% and very low recorded 0% respectively. It can be inferred that there was a high (91%) level of knowledge on the utilization of partograph in monitoring labour in State Specialist Hospital Maiduguri.



Source: Field survey, 2018

Figure 4.2: shows the level of knowledge of nurses/midwives on the utilization of partograph in Umoru Shehu Ultra-Modern Hospital.

Figure 4.2: Shows the level of knowledge of nurses/midwives on the utilization of partograph in Mamman Shuwa Memorial Hospital. High level recorded 87%, very high recorded 5%, moderate recorded 4%, low recorded 3% and very low recorded 1% respectively. It can be deduce that there was a high (87%) level of knowledge on the utilization of partograph in monitoring labour in Mamman Shuwa Memorial Hospital. It can be concluded that there was a high (87%) level of knowledge on the utilization of partograph in monitoring labour in Umoru Shehu Ultra-Modern Hospital.



Source: Field survey, 2018

Figure 4.3: Level Knowledge of Nurses/Midwives on the Utilization of Partograph in MammanShuwa Memorial Hospital.

Figure 4.3: Shows the level knowledge of nurses/midwives on the utilization of partograph in Mamman Shuwa Memorial Hospital. High level recorded 81%, very high recorded 9%, moderate recorded 5%, low recorded 3% and very low recorded 2% respectively. This means that there was a high (81%) level of knowledge on the utilization of partograph in monitoring labour in MammanShuwa Memorial Hospital.

Hypothesis (H₀): There is no significant relationship between knowledge on partograph and its utilization among nurses/ midwives in the selected hospitals in Maiduguri.

Table 4.1 Result of Pearson Product Moment Correlation on Relationship between Knowledge on Partograph and its Utilization among Nurses/ Midwives in Maiduguri Hospitals

Variable	n	Chi-square	df	P-value
Knowledge of Partograph	318	51.435	1	0.000
Utilization of Partograph	138	74.580	1	0.000

Source: SPSS version 23 outputs

The result in table 4.1 indicates a significant relationship between knowledge on partograph and its utilization among nurses/ midwives in the selected hospitals in Maiduguri. This is because the probability value ($P = 0.001$) is less than alpha ($\alpha = 0.05$) level of significance at a Chi index= (51.435, 74.580), sample size ($n= 138$) and degree of freedom (1) respectively. Hence, the null hypothesis which states that there is no significant relationship between knowledge on partograph and its utilization among nurses/ midwives in the selected hospitals in Maiduguri is hereby rejected at 0.05 level of significant. Meaning there was a significant relationship between knowledge on partograph and its utilization among nurses/ midwives in the selected hospitals in Maiduguri ($P < \alpha 0.05$).

3.2 DISCUSSION OF MAJOR FINDINGS

1. What is the knowledge level of midwives on the utilization of partograph in monitoring labour in selected hospitals in Maiduguri?

The first finding revealed a high level of knowledge on the utilization of partograph in monitoring labour in selected hospitals in Maiduguri. This finding supports a study conducted by Yisma, Dessalegn, Astatkie and Fesseha (2013) who examined the knowledge and utilization of partograph on obstetric care givers in public health institutions of Addis Ababa, Ethiopia and opined revealed that knowledge about the partograph was fair as only 96.6% (189) correctly answered a question on the component of partograph. Findings also revealed that only 53.3% (104) and 82.6% (161) correctly explained the function of the alert and action lines respectively. It was recommended that emphasis should be given on pre-service and on the job training on the use of partograph as knowledge was fair. This study is in consonance with those of Markos and Bogale (2016) who conducted a facility based cross-sectional study on the knowledge and utilization of partograph among health care professionals in public health institution of Bale zone, south east Ethiopia and their findings revealed that study participants had poor and good knowledge of 38.5% and 61.5% respectively on partograph which in turn translates to more than half of the respondents having a good knowledge of partograph. Periodic on-the job training on partograph to improve nurses and public health officers knowledge on partograph was recommended.

Opposing this finding is a study conducted by (Wakgari, Tessema and Amano, 2015) who assessed the knowledge and utilization of the partograph among health professionals in Amhara region of Ethiopia. It revealed that knowledge on the components of partograph was very poor, and that only 29% of the partograph were properly filled. Also, females had more knowledge than males. The high level of knowledge among nurses/midwives may be as a result of workshops attended by such nurses/midwives and also their educational preparation.

Hypothesis (H₀): There is no significant relationship between knowledge on partograph and its utilization among nurses/ midwives in the selected hospitals in Maiduguri.

The second finding revealed a significant relationship between knowledge on partograph and its utilization among nurses/ midwives in the selected hospitals in Maiduguri ($P < \alpha 0.05$). This finding is in line with a study conducted by Opiah, Ofi, Essien and Monjok (2012) in their studies on the knowledge and utilization of partograph among midwives in the Niger Delta region of Nigeria found that midwives had good knowledge of partograph as some were properly filled. This is in contrast with what is obtained in University of Calabar Teaching Hospital, Calabar as it was found that inadequate knowledge on the different parts of partograph especially the cervicogram affects its use (Agan, Akpan, Okonkon, Oku, Asibong, Opiah, Essien and Monjok, 2014). A study on the evaluation of knowledge and utilization of partograph in primary, secondary and tertiary care settings in Calabar, South-South Nigeria revealed that workers in General Hospital had higher level of knowledge on the partograph than those in the Teaching Hospital (Okokon. Oku, Agan, Asibong, Essien and Monjok, 2014) Also, nurses/midwives are significantly more knowledgeable on partograph than non-obstetric care givers (Okokon et al, 2014).

3.3 CONCLUSION

For many years, the partograph has been used as a standard for monitoring obstetrical labour. The main reason for using the partograph in monitoring labour is the assumption that it would guide in early identification of problems during labour, and hence assist to take appropriate action that can lead to reduction in complications birth. The proper use of partograph is an essential procedure in midwifery care, and also helps in clinical decision-making during labour.

Based on the findings of this study, it was concluded that the major factors in the nurses/midwives that impede the utilization of partograph in Maiduguri hospitals includes inability to interpret findings correctly after assessment with the partograph and that partograph is an additional time consuming task for the inadequate staff. Majority of the nurses/ midwives opined that the major factors that facilitate their utilization of the partograph

among others in monitoring the progress of labour includes provision of necessary resources such as partograph in the labour wards, employment of adequate staff and in-service. The study also revealed a high knowledge of partograph in Maiduguri hospitals. Statistical tests showed a significant relationship between knowledge and its utilization among nurses/ midwives. The results on the utilization of the partograph showed that significantly majority of respondents had used partograph. The results also show that, agreed that partograph is one of the tools for implementing safe motherhood.

In sum, a significant percentage of midwives in the selected health facilities have better knowledge of the partograph and why it is necessary to use it in the management of labour. However, despite work load of nurses and midwives in this study, a large percentage of participants were reported to appropriately complete the partograph. Nurses and midwives' years of professional experience as well as having received training on managing pregnant mothers in labour, were found to be both predictors for the likelihood for the proper use of partograph.

3.4 RECOMMENDATIONS

In the light of the above findings, the following recommendations are made:

1. Periodic workshops and seminars should be organized for nurses and midwives on the use of partogram in assessment and monitoring of labour and all registered nurses and midwives should always renew their knowledge through continuous education.
2. In collaboration with health facilities, the Ministry of Health needs to put in place practical guidelines on the use of partograph and also make sure the charts are properly used in all labour and maternity units.
3. Federal and Borno State Government should recruit more nurses/midwives to reduce the work load of nurses/midwives in Maiduguri Hospitals to ensure proper utilization of partograph for monitoring labour.

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