

Factors Affecting Utilization of Partograph among Obstetric Care Providers in Public Health Care Facilities in Kaduna Metropolis, Kaduna State, Nigeria

Abdullahi I*, Aliyu AA, Olorukooba AA, Babandi ZS.

Department of community medicine, Ahmadu Bello University/Teaching Hospital, Zaria, Kaduna State, Nigeria.

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ABSTRACT

Background: About 810 women died every day from causes related to pregnancy and childbirth in 2017 yielding a total death of 295,000 women. In Nigeria, the trend in maternal mortality has not improved. One of the direct causes of maternal mortality is obstructed labour. Use of partographs by SBAs (skilled birth attendants) has been shown to reduce loss of life by preventing prolonged obstructed labour. Despite this, partographs are still not widely used and even when used it is mostly in tertiary institutions. **Objective:** The study aims to assess factors affecting utilization of partograph among obstetric care providers in the area. **Methodology:** This is a cross sectional descriptive study and the study area is public Hospitals (primary, secondary and tertiary) in Kaduna metropolis. A self-administered closed ended question was used and SPSS version 20.0 was used to analyse data. **Results:** Sixty three point seven per cent of the one hundred and ten respondents said non-availability of the partograph is not a problem in their facilities. More than one third of the respondents, 39.1% said lack of knowledge was the major factor hindering utilization. Knowledge, place of practice and profession of respondents were statistically associated with utilization of the partograph. **Conclusion:** The odd of using the partograph among respondents from hospitals other than tertiary health care facilities was low (AOR=0.048). Hence, this study found that place of practice is a major factor that affects the use of partograph.

Keyword: Partograph, utilization, labour, maternal-mortality

INTRODUCTION

Globally, it was estimated that every day about 810 women died in 2017 as a result of pregnancy and child birth, yielding a total death of about 295,000

women.^[1] Ninety nine Percent of all maternal deaths occur in developing countries and more than half of these deaths occur in Sub-Saharan Africa and almost

*Correspondence: Abdullahi I, Department of community medicine. Email: iabdullahibawa@gmail.com

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one third occur in South Asia.^[2]

There is a wide discrepancy between the maternal mortality ratio in developing countries and that of developed countries. Findings by World health organization (WHO), United Nations children's fund (UNICEF) and United Nations populations fund (UNFPA) showed that women in developing countries, particularly those in Sub-Saharan Africa have a 1 in 16 chance of dying in pregnancy or childbirth as against 1 in 2,800 for women in developed regions of the world.^[3]

Also in 2017, thirteen developing countries accounted for 70 per cent of all maternal mortality in the whole world. The countries with the highest number are India where 136,000 women lost their lives and then Nigeria where 37,000 women died.^[3]

In Nigeria, the prevailing style or pattern of maternal mortality has not improved significantly since 2008. In 2008, the maternal mortality ratio (MMR) was 545/100,000 live births while in 2013 it was 576/100,000 live births and in 2018 it was 512/100,000 live births.^[4] However in the northern part of Nigeria, this value can be as high as 3,200 women per 100,000 live births and it is important to note that this figure is not an exaggeration.^[5]

One of the causes of maternal mortality which is of great concern to us in this research and also a recurring obstetric complication in Nigeria is prolonged obstructed labour. It is a major obstetric problem in sub-Saharan Africa.^[6,7,8] Prolonged or neglected obstructed labour is a major cause of not only maternal mortality but also death of the new-born, stillbirth etc. It causes maternal exhaustion, dehydration and uterine rupture. Obstructed labour results from disproportion between maternal pelvis and foetal presenting part. One of the ways to reduce maternal mortality is by reducing the prevalence of prolonged obstructed labour and one important way to do this is by improving quality of healthcare and to ensure that

deliveries are conducted by skilled birth attendants (SBAs) with the use of partograph.^[9,10] According to WHO, 42,000 of all maternal deaths (8%) are due to obstructed labour.^[10] Again, both the WHO as well as the maternal and neonatal mortality program promote the use of partograph to improve management of labour and to support decision making regarding interventions. When used correctly, the partograph prevents prolonged labour by helping to know when to take actions.

There are convincing reports that the acquisition of the knowledge of partograph and its utilization by skilled birth attendants would result in an impressive fall in the incidence of prolonged obstructed labour including reduction in maternal mortality which is a component of the sustainable development goals.^[11] Despite the fact that the partograph still remains a veritable tool in the management of labour and hence reduction of maternal mortality by extension, this study seeks to find out why its utilization is still poor. Also, the author has observed from literature search that there is dearth of information on the studies that assess the use of partograph among health care providers especially their utilization in this part of the country. Also, the few that was present was in a primary healthcare setting, making this study more encompassing.^[12] Hence, thus the need for this study to assess factors affecting utilization of partograph among obstetric care providers in Kaduna metropolis.

MATERIALS AND METHODS

The ancient city of Kaduna metropolis where the study was conducted has two tertiary health care facilities where deliveries are conducted, five secondary health care facilities and several primary health care centres. Out of all these facilities, five were selected and they include Kawo General Hospital, Sabo General Hospital, Barau Dikko Teaching

hospital, 44 Army Reference Hospital and one primary health centre) were used. in Badarawa. The study was cross sectional descriptive. The study population consisted of all obstetric care providers who are skilled birth attendants who consented to participate in the study in the facilities.

Sample size

The single proportion formula to determine the required sample size for this study was used.

$$N = Z^2 \frac{p(1-p)}{d^2} \quad [10]$$

Some assumptions were considered while calculating the sample size; a 95% probability of obtaining the population proportion of health workers who had knowledge of the partograph, that is 32%^[13], and a 5% margin of error. The minimum sample size required for the study was estimated to be 334 using the above formula. Where n is the sample size, Z is the standard normal deviate set at 1.96, d is the margin of error to be tolerated and p is the estimate of the proportion of our target population. Since the source population was less than 10,000, we use correction factor to estimate the final sample size required.

$$\text{Therefore, } n = \frac{n}{1 + \frac{n}{N}} = \frac{334}{1 + \frac{334}{5777}} = 316 \quad [10]$$

When a non-response rate of 5% was added
 $n = 332$.^[10]

After going to the field for pre study evaluation, we realized our study population was not up to the sample size calculated, so we used the total population (total population sampling) According to Grove, Burns and Gray, the entire population may be the target of a study when the population is small and well defined. Therefore, the

entire population was used as sample size.^[11] A multistage sampling technique was used.

Stage one was selection of one geopolitical zone out of the six geopolitical zones in the country. This was done by simple random sampling technique and the Northwest zone was selected. Stage two was the selection of one state out of the seven states in the zone by simple random sampling technique by balloting was done and Kaduna state was selected. Stage three was the selection of two local government areas in the state which was also done by simple random sampling and Kaduna North and Kaduna South were selected by simple random sampling technique. Stage four was selection of the facilities which was done purposively to include the hospitals in which labour was conducted and partograph was used. Stage five is the selection of respondents and all skilled birth attendants were purposively selected.

A self-administered closed ended questionnaire was adapted from a previous study^[12]. It was modified to obtain information from respondents on their utilization of partograph and factors affecting the utilization. It was pre-tested at a secondary health care facility in Sabon Gari Zaria.

The knowledge of the respondents was assessed using twenty questions and each question carries an equal mark of one. The total marks were divided into three classes. Those who scored less than ten were graded as poor knowledge, those who scored 11 to 15 were graded as fair knowledge and those within 16 to twenty had good knowledge of the partograph.

Data Analysis

Filled questionnaires were checked visually for completeness, coded and entered into Microsoft excel spread sheet. Data was then exported into IBM SPSS version 20.0 for analysis.

Descriptive statistics including frequency, mean and standard deviation were used to summarize variables

while inferential statistics like chi square test was used to test for significance of association between categorical variables with p set at 0.05.

Ethical clearance

Ethical clearance was obtained from the Ethics and research committee of the Kaduna state ministry of health.

Verbal approval was sort and obtained from the heads of departments of the obstetric and gynaecological unit of all study facilities and verbal informed consents from respondents who were assured of the confidentiality of data collected.

RESULTS

Of The one hundred and ten (110) respondents who

were all skilled birth attendants, 90 (81.8%) of them were females, 63 (57.2%) were midwives, 30 (27.3%) of them were doctors and 17 (15.5%) Nurses.

The age of the respondents ranges from 21 to 59 years with a mean age of 35.9 years \pm 2SD. Most of the respondents 69 (62.7%) work in the labour room, and 70 (63.7%) of the respondents work in general hospital.

One third of the respondents (32.7%) run only one person per shift while 38.2% run two per shift and 7.3% of the respondents run five per shift.

The sex of respondents was found to be statistically significantly associated with utilization of the partograph ($p = 0.007$). Knowledge, profession and place of practice of respondents were also found to be statistically significantly associated with the utilization

Table 4: Association between some demographic characteristics and Utilization of Partograph

Sociodemographics	how often is the partograph utilized			df	p value
	Routinely	Others	Total		
Age				1	0.520
Young	62.1%	37.9%	100%		
Middle age	68.6%	31.4%	100%		
Sex				1	0.007
Male	93.8%	6.2%	100%		
Female	58.8%	41.2%	100%		
Knowledge				1	0.000
Fair	30.8%	69.2%	100%		
Good	76.0%	24.0%	100%		
Profession				1	0.000
Midwife	71.8%	28.2%	100%		
Others	25%	75%	100%		
Duration of practice (years)				1	0.964
0-7yrs	64.6%	35.4%	100%		
8yrs above	64.2%	35.8%	100%		
Place of practice				1	0.000
Tertiary	97.1%	2.9%			
Others	47.8%	52.2%	100%		
Current unit of practice				1	0.435
Labour room	67.2%	32.8%	100%		
Others	59.5%	40.5%	100%		
No of staff per shift				1	0.006
One per shift	45.5%	54.5%	100%		
Others	73.5%	26.5%	100%		

of partograph ($p \leq 0.001$). The number of staff per shift was also found to be significantly associated with utilization of partograph. The years of practice of respondents, their ages and their units of practice were not significantly associated with their utilization of the partograph ($p = 0.964$, $p = 0.520$, $p = 0.435$ respectively). Place of practice was found to be significant at multivariate level ($p = 0.005$). However,

profession, sex, number of staff per shift and knowledge were not statistically significant at multivariate level.

The odd of using partograph among obstetric care providers in other hospitals (primary and secondary health care facilities) is lower (AOR=0.048) than those working in tertiary hospitals.

Table 5: Logistic regression on predictors of use of partograph among respondents

p value	UOR	AOR	95% CI	lower	upper
Sex	0.176	0.520	0.172	0.013	2.201
Profession	0.676	0.269	0.693	0.124	3.876
Place of practice	0.005	36.094	0.048	0.006	0.400
No of staff	0.592	0.300	1.327	0.471	3.733
Knowledge	0.084	0.140	2.605	0.881	7.704

Table 1: Socio-demographic characteristics of respondents

Frequency	Percentage (%)	Mean (years)
Age group (years)		
20-29	25	22.7
30-39	46	41.8
40-49	28	25.5
50-59	11	10
Sex		
Male	20	18.2
Female	90	81.8
Total	110	100
Profession		
Nurses	17	15.50
Midwives	63	57.20
Doctors	30	27.30
Duration of practices		
0-3	34	30.9
4-7	17	15.5
8-11	27	24.5
≥ 12	32	29.1
Unit of practice		
Labour room	69	62.7
Post natal ward	13	11.8
Gynae ward	9	8.2
ANC clinic	2	1.8
Family planning clinic	16	14.5
Others (Immunization Clinic and Post Natal Clinic)	1	0.9
Place of work		
Primary health centre	5	4.5
Secondary health centre	70	63.7
Tertiary health centre (44ARH and BDTH)	35	31.8

Table 2: Distribution of number of staff per shift

Number of staff	Frequency	Percentage
1 per shift	36	32.7
2 per shift	42	38.2
3 per shift	18	16.4
4 per shift	6	5.5
5 per shift	8	7.3
Total	110	100.0

Table 3: Correct utilization of partograph by respondents

Correct utilization of partograph	Frequency	Percentage
Should be used every 30 min		
Yes	41	37.3
No	69	62.7
Useful in Every obstetric review		
Yes	103	93.6
No	5	4.5

DISCUSSION

More than half of the respondents were below the age of forty which means they are still very agile. This is similar to the report in a cross-sectional study in Cameroun on knowledge and utilization of partograph where the mean age was 37.9 years^[13]. Considering the age of retirement of workers in this environment to be 60 years, it simply implies that most of the respondents still have a long time

to work and provide obstetric care or services. Consequently, training these health care providers will not be a waste of time nor scarce resources for the state; hence they will spend enough time applying what they will learn. This may in turn improve the pregnancy outcomes in these facilities and by extension may help reduce the maternal and neonatal mortality.

The study revealed that majority of respondents, 81.8% were females and this is equally true in most studies involving midwives/nurses. This could be attributed to the fact that most of the respondents, (57.3%) were midwives and it is a known fact here that most midwives are females because it is widely believed that issues related to child bearing and its care are issues related to women alone. This is also in agreement with the findings of a study in Cameroun where majority of the respondents were females (85.9%).^[13] However, a similar study conducted in Northwest Ethiopia revealed the opposite which showed that more than half of the respondents (57.5%) were males.^[14]

It was further observed that majority of the skilled birth attendants (62.7%) in this study work in the labour room. This is good because the labour room is where the partograph is used. Although the remaining of the respondents were distributed into other units like postnatal ward, ante natal clinic, family planning clinic and so on as seen in the results, they do undergo rotation to labour room at certain time intervals hence, they are expected to know and use the partograph. This finding is similar to what was reported in a similar study in South Africa on partograph which found that 59% of the respondents were from labour room.^[15]

Most of the respondents (63.7%) work at general hospital while 31.8% work at tertiary hospital. Only 4.5% of them work at primary health centres. This may also be considered good for the study as Kaduna metropolis has five general hospitals out of which three were selected for the study. Hence if 63.7% of

the respondents come from general hospital, it is a fair representation of the population of skilled birth attendants in the health facilities in the metropolis.

A large number of the respondents, (81.8%) said the partograph was available in their facilities of which 80.9% said it was used to monitor labour. However, only 59.1% said the partograph was routinely used in monitoring labour. Although almost all the respondents (93.6%) answered in affirmative that the partograph was useful in any obstetric review of women in labour, only a little above half of them (58.2%) affirmed that the partograph was utilized in monitoring every woman in labour. This is higher than what was found in a study conducted in North Shoa Zone of Ethiopia which revealed that although 81.1% of the respondents reported to utilize the partograph in the monitoring of labour, only 40.2% used it routinely for all mothers.^[16]

The findings in this study was impressive compared to what was found in a study conducted in Jimma university specialist hospital, Ethiopia which revealed that only 38.2% of respondents reported the partograph was available in their facilities and only 4.8% of them always used it. Further evaluation of the files of women in labour showed that the partograph was utilized in only 6.9% of the mothers.^[17] The reason for this extremely low level of utilization still remains ambiguous. However, it may be associated with the differences in sample size, hospital policies, set up, study subjects or respondents etc.

The findings on the utilization of partograph in this study is higher than what was found in another study in Nigeria which showed that only 9.8% of the personnel utilize the partograph for labour management.^[18] This low level of utilization may be linked to the fact that majority of the respondents, 42.7% were CHEWs (community health extension workers) and 45.5% were nurses/midwives. This is contrary to what was found in this study which included doctors and

midwives who may have better knowledge of the partograph hence better chances of utilization.

A lot of factors were implicated to influence or hinder the utilization of the partograph. These factors which includes; non availability of the partograph, lack of knowledge of the partograph, too much work load and lack of adequate staff etc, were surprisingly mentioned in different proportions by the respondents. A significant number of the respondents 34.5% said non availability of the partograph is a problem hindering utilization of partograph in their facilities. More than one third of the respondents, 39.1% said lack of knowledge is a hindering factor towards the utilization of the partograph and 57.3% of the respondents mentioned too much work as a factor hindering utilization of the partograph. This was almost similar to what was described in the study conducted in Niger Delta region of Nigeria where a lot of factors were found to be militating against the utilization of the partograph and they include the followings: - Non availability of the partograph (30.3%), shortage of staff (19.4%), lack of knowledge of the partograph (22.2%), inadequate time (8.6%). The study concluded that although there is good knowledge, nurses and midwives poorly utilize the partograph to monitor women in labour because of the above factors.^[19]

In another study conducted in Ethiopia, it was reported that place of work, professional qualification and in-service training were factors associated with the utilization of the partograph.^[16] It was also found that majority of respondents use different monitoring tool to monitor labour rather than the partograph itself and this account for about 52.6% of respondents.

Sex of respondents was shown to affect proper utilization of partograph ($p= 0.007$). Knowledge of respondents, their place of practice and their profession were all significantly associated with proper utilization of partograph ($p < 0.001$). Number of staff per shift was also associated with proper utilization of

partograph ($p= 0.006$). Age and Current unit of practice were not significantly associated with proper utilization of partograph ($p=0.052$ and 0.435 respectively).

After controlling for confounders at the multivariate level using binary logistic regression, place of practice remained significantly associated with utilization of the partograph, unadjusted odd ratio (UOR) of 36.094 and an adjusted odd ratio (AOR) of 0.048, 95% CI: 0.006-0.400 $p =0.005$. This implies that the odd of using partograph amongst obstetric care providers in other hospitals (primary and secondary) is lower than those in tertiary hospitals.

CONCLUSION AND RECOMMENDATION

In spite of the fair availability of the partograph, it was not optimally utilized as only about half of the respondents routinely utilized it while only one third use it correctly. The odd of using the partograph among respondents from hospitals other than tertiary health care facilities was low (AOR=0.048). Therefore, there is need for the state government to strengthen these health facilities with adequate number of staff with appropriate training coupled with periodic re-training on use of partograph in order to reduce this unacceptably high maternal mortality in the study area.

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