

The Utilization of Partograph in Monitoring the Progress of Labour among Nurses and Midwives at Usmanu Danfodiyo University Teaching Hospital Sokoto, Nigeria

Muhammad, Anka Nasiru¹, Adamu, Abdullahi², Abubakar, Faruk Umar³,
Suleman, Abdurrahman Maru⁴, Salisu, Musawa Tajuddin⁵

¹⁻⁵ Department of Nursing Sciences, Faculty of Allied Health Sciences, Usmanu Danfodiyo University, Sokoto, Nigeria.

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ABSTRACT: This study assessed the utilization of partograph in monitoring labor progress among nurses and midwives at Usmanu Danfodiyo University Teaching Hospital, Sokoto. A descriptive cross-sectional research design was utilized, and 60 respondents were drawn as a sample using a purposive sampling technique. A self-administered questionnaire was used for data collection. Data were analyzed using the statistical package for social sciences (SPSS) v22. The study results indicated that 21 (35.0%) of the nurse/midwives were 31-35 years. The majority, 45 (75.0%) of the respondents, are registered nurses and midwives by qualification. Again, 45 (75.0%) of the respondents, accounting for the majority does not receive in-service training. Moreover, the average number of nurse-midwife per shift was three staff per shift. Furthermore, the study indicated good utilization of partograph among the respondents in the health facility. This research also shows that partographs are readily available and are used routinely to monitor pregnant women during labor whenever it was indicated for the patients. Similarly, the result indicated a shortage of staff as the main factor associated with the non-utilization of partograph and adequate staff employment as the primary strategy to improve partograph utilization. Based on the initial results, the study recommends refining the knowledge and skills on the use of partograph among staff, recruiting more healthcare personnel, and reducing staff workload on shifts in the obstetric wards.

KEYWORDS: Partograph, monitoring progress, labour, nurses and midwives, Nigeria

I. INTRODUCTION

Labour is a physiologic sequence during which the products of conception, the fetus, membranes, umbilical cord, and placenta are ejected

outside from the uterus (Kilpatrick & Laros, 2002). The course of labor is an enormous emotive and physiologic achievement for the woman and her support system, and insufficient care through labor results in dangers to the mother and the fetus (Kilpatrick et al. 2002). To avoid complications during birth and for a better result, it is crucial to utilize a simple and efficient partograph procedure (Mathibe, 2009). Partograph is a visual record of progress of birth, maternal and fetal condition, which is plotted against time for intrapartum monitoring (Shinde, Bangal & Singh, 2012 & Machine, 2009). The partograph's main aim was to provide a pictorial presentation of the labor to alert obstetric care providers about deviations in maternal, fetal, and labor (Shinde et al. 2012).

The World Health Organization (WHO) endorses the worldwide utilization of the partograph during birth (WHO, 2013). In terms of significance, the routine usage of partograph is useful to make healthier decisions for the diagnosis and management of prolonged obstructed labor (Shinde et al. 2012). In line with the preceding discussion on partograph, in 2015, global estimates by the WHO indicated that there were 216 maternal deaths for every 100,000 live births and an estimated 99% of these overall maternal deaths happened in developing areas, with sub-Saharan Africa having roughly 66% of the cases (WHO, UNFPA, UNICEF, U.N. & World Bank, 2015).

It is important to note that maternal mortality due to prolonged obstructed labor is preventable, and there are substantial reports that indicated proper utilization of the partograph would lead to a remarkable reduction in the incidence of maternal deaths, which is currently estimated at 8-10% (WHO, et al. 2015). As a result, proper utilization of the partograph in line with the standard procedure, with an intense zeal to act appropriately

allow for well-timed identification and diagnosis of pathologic labor and consequently, guide the healthcare providers in making appropriate decision concerning the necessary interventions (Nyamtema, Urassa, Massawe, Lindmark & Van Roosmalen, 2008). Also, the partograph usage reduces the number of prolonged labors (those longer than 24 hours), the need for augmenting labor with oxytocin, amounts of cesarean section, and the prevalence of infection (Nyamtema et al. 2008). Additionally, the partograph's skilled use can save lives by ensuring that labor is closely observed and that life-threatening problems such as obstructed labor are recognized and treated (Nyamtema, et al. 2008).

Accordingly, the use of skills requires that healthcare personnel is talented in attending to normal labor and birth, carrying out abdominal examinations to determine fetal descent as well as vaginal examinations to determine cervical dilatation, and plotting this data on a graph (Fawole, Adekanle, & Hunyinbo, 2008). Nonetheless, the utmost parameters on the partograph are not monitored. Most healthcare providers do not document the results of the partograph after appraising a woman on labor (Fawole et al. 2008); therefore, the advancement of labor may not be strictly monitored, or the labor monitoring may not translate into actions desired when essential (Kalembo, & Gambo, 2012). Furthermore, trained providers frequently feel that completing the partograph is an extra time-consuming duty, not realizing that performing the procedure to its logical conclusion can save women's lives that require obstetric care (Kalembo et al. 2012). It is crucial to note, without appropriate training of the staff on the basics of the partograph, the technique cannot serve as a tool in making the right decision during labor (Khonje, 2012).

Currently, Nigeria is one of the emerging countries with the second-highest problem of maternal mortality globally. It contributes about 15% of the overall death's annual report, representing 2% of the world population (WHO et al. 2015). The massive challenge to maternal Health with associated maternal wear and tear during labor has remained a perplexing problem in Nigeria, which mirrors the current high mortality rate (WHO et al. 2015). Annually, an estimated 536,000 women and girls pass on due to pregnancy-related complications, childbirth, or puerperium, which accounts for the death of women of reproductive age (WHO, et al. 2015). In Nigeria, maternal mortality percentage continues to be the principal guide to the widening difference in the level of care and reproductive health outcome among the advanced

and advancing nations (Okokon, Adeyemi, Orji, Quinn & Hughes 2014).

In line with the preceding problems, the WHO et al. (2015) reported that more than half of women who pass on annually due to pregnancy-related cases are in the African province, which constitutes an estimated 12% of the world's population and 17% of global deliveries. Similarly, an estimate shows that 289,000 maternal deaths occurred worldwide in 2013, and 99% of the tragedy occurred in developing countries (WHO et al. 2015). Even in the developing world, Nigeria accounts for an estimated 13% of the global maternal death rates annually, with about 36,000 cases occurring due to pregnancy and or childbirth (Okokon et al., 2014).

Several studies have examined the utilization of partograph among healthcare providers (Mercer, Sevar, Sadutshan, 2006, Fawole et al. 2008, Fawole, Adekanle, & Hunyinbo 2010), Fatusi, Makinde, Adeyemi, Orji, & Onwudiegwu, 2008, Lavender, Hart, & Smyth 2009, Magon 2013, Okokon et al. 2014, & WHO et al. 2015). For instance, Fawole et al. (2008), in their study in the southeastern and southwestern geopolitical zones in Nigeria, established that maternal health indices are more favorable in the two preceding zones compared to the northern geopolitical zone of the country. Moreover, a prospective non-randomized study in South-East Asia by Magon (2013) established that the partograph was an indispensable tool in managing labor. Similarly, in a clinical review of intrapartum care at the Tibetan Hospital in North India Mercer, et al. (2006) observed a reduction of postpartum hemorrhage by 50% following the routine use of the partograph in the management of labor. In the same way, Lavender et al. (2009), in their study among women in Nairobi, indicated that although 88.2% of the 1057 patients' records assessed had a partograph, merely 23.8% of the forms had been filled correctly. Another evaluation study in Nigeria by Fatusi et al. (2008) showed that the training program designed to improve partograph utilization emphasized using the partograph procedure for early detection of high-risk pregnancies so that patients could be referred to appropriate healthcare facilities when needed. The study further found that primary health care workers with little or no formal education can be effectively trained to apply the partograph procedure, even though one-time teaching did not show a long-term impact on partograph use.

Additionally, the WHO et al. (2015), in its 1990-2013 report on the trends in maternal mortality in Bayelsa, Nigeria, noted that 93.5% of the obstetric healthcare providers held that partograph was beneficial to the pregnant mothers. Though only

25% used the procedure routinely and that expert recommendations on the maternal and neonatal health program promoted the routine use of the partograph to monitor labor progress in all region settings. Moreover, a study by Okokon et al. (2014) indicated significant gaps in knowledge on the partograph's utilization. Accordingly, the Nigerian Demographic and Health Survey (NDHS) reports for 2008 and 2013 showed that the maternal mortality ratio (MMR) in Nigeria had increased.

It should be noted that despite the crucial contributions offered by the preceding studies, nevertheless, the studies have some shortcomings. The prominent among the previous studies' weakness includes the use of the patients admitted in the secondary, tertiary hospitals alone, limiting the generalization of the result to the universe. Another pitfall of the previous studies is on its use of social contexts of India, Kenya, and Bayelsa, which are different from the social context of the current study. Meanwhile, very few studies have been conducted in Nigeria on the utilization of partograph in monitoring the progress of labor among nurses and midwives. There are few studies on the utilization of partograph to monitor labor progress among nurses in the tertiary healthcare facilities. In fact, to these researchers' knowledge, no study focused on utilizing partograph among nurses and midwives in Usmanu Danfodiyo University, Sokoto. Thus, the current study was conceived to bridge the gap in knowledge concerning the subject matter of partograph in the social context of UDUTH, Sokoto.

II. MATERIALS AND METHODS

The current study utilized a cross-sectional descriptive survey design to assess respondents' perception of partograph utilization in monitoring labor progress in Usmanu Danfodiyo University Teaching Hospital, Sokoto. The nurses and midwives' population in the hospital was 566; however, 60 nurses and midwives at the obstetric

healthcare units in UDUTH, Sokoto were selected as the study sample. This study employed a purposive sampling technique since it will allow the researchers to administer the questionnaires to the accessible respondents. Therefore, a total number of 60 questionnaires was administered to the respondents, which was adopted from the original work of Reenadevi (2013) on the utilization of partograph by midwives in the public hospitals in Kwazulu-natal, Bazirette (2014) on the utilization of partogram among nurses and midwives in Rwaganda health facilities in the eastern province of Rwanda and Solomon, Yigzaw & Desalegn (2013). Moreover, a self-administered questionnaire was adapted from the previous literature comprised of four (4) sections. Section A consists of a demographic characteristic of the respondents, while section B consists of partograph utilization characteristics. Also, section C. consists of the factors associated with the utilization of partograph, and section D focused on strategies for improving the utilization of partograph.

Additionally, to achieve reliability and validity, a pilot test of the measurement instruments was carried out, which led to modifying some items. Again, to maintain an ethical standard in the study's conduct, the respondent's consent was obtained by offering them consent form, which they appropriately filled and signed. Equally, the data were analyzed utilizing the Statistical Packages for Social Sciences (SPSS) software version 22.

III. RESULT

Concerning the age of the study's respondents, Table 1 indicated that most participants were in the age group of 31-35 (35.0%), and the least respondents are within the age ranges of 16-20 (5.0%). Regarding the respondents' qualifications, the majority 45 (75.0%) are registered nurses and registered midwives, and the least respondents, 6 (10.0%), possessed registered nurse qualifications only.

Table 1: Socio-demographic characteristics of the respondents

Variables	Frequency	Percentage
Age		
16-20	3	5.0
21-25	9	15.0
26-30	18	30.0
31-35	21	35.0
36 and above	9	15.0
Qualification		
Registered Nurse	6	10.0
Registered Midwives	9	15.0
Both	45	75.0

In-service training		
Yes	15	25.0
No	45	75.0
If yes, training received		
Emergency neonatal & obstetric care	9	15.0
Advanced life support in obstetric	6	10.0
Years of experience		
1 year	6	10.0
2 years	21	35.0
3 years	27	45.0
Above 3 years	6	10.0
The average number of nurse-midwife per shift		
1 per shift	3	5.0
3 per shift	57	95.0

Additionally, concerning the in-service training, most of the respondents, 45 (75.0%), do not receive in-service training, while the least respondents, 15 (25.0%), received in-service training. Among the respondents who received an in-service training, most 9 (15.0%) received emergency neonatal and obstetric care training, while the least 6 (10.0%) had their training on advanced life support in obstetrics. Furthermore, regarding an average number of nurses/midwives per shift, most of the respondents, 57 (95.0%),

indicated three nurses/midwives per shift, while the least 3 (5.0%) indicated one nurse/midwives per shift.

Moreover, Table 2 indicated the pattern of partograph utilization in the labor ward by the nurses and midwives. In the preceding regard, specifically, concerning the availability of the partograph use, the respondents unanimously confirmed that the procedure is in place at the obstetric unit to monitor patients during labour routinely.

Table 2 Distribution of respondents based on the utilization of partograph

Variables	Frequency	Percentage
Availability of Partograph		
Yes	60	100.0
Partograph is used to monitor patients during labor		
Yes	60	100.0
Frequency of partograph utilization		
Routinely	60	100.0
Partograph used in monitoring every woman in the ward		
Yes	60	100.0
Frequency of partograph utilization during the active phase		
Once/30mins	42	70.0
Once/ Hour	6	10.0
Once/ 4hours	12	20.0
Partograph as a useful tool in the obstetric review		
Yes	60	100.0

Additionally, all the respondents confirmed that partograph was used to monitor every woman on admission who is on labor. Similarly, concerning the frequency of partograph utilization during the

active phase of labor, most 42 (70.0%) indicated applying partograph once every 30 minutes, while the least respondents 6 (10.0%) indicated once every hour.

Furthermore, Table 3 presented the result of factors associated with the utilization of partograph in the labor ward. Specifically, concerning lack of knowledge of the use of partograph, most of the respondents, 39 (65.0%), do not consider the primary factors as impeding

partograph utilization. In contrast, the least 21 (39.0%) feels the lack of knowledge is inimical to its use. Regarding the non-availability, shortage of staff, and time-consuming as factors that influence the use of partograph, 30 (50.0%) respondents are against the primary factors.

Table 3: Factors associated with the utilization of partograph

Factors	Frequency		Percentage	
	Yes	No	Yes	No
Lack of knowledge of the use partograph	21	39	35.0	65.0
Nonavailability of partograph	30	30	50.0	50.0
Shortage of staff	30	30	50.0	50.0
Time-consuming	30	30	50.0	50.0
Lack of trained staff	27	33	45.0	55.0
Using of different monitoring tools	48	12	80.0	20.0
Skill incompetency	45	15	75.0	25.0
Lack of adequate orientation	39	21	65.0	35.0
Negligence of duty	45	15	75.0	25.0
Laziness	33	27	55.0	45.0
Lack of interest	33	27	55.0	45.0
It involves much responsibility	36	24	60.0	40.0

Similarly, with regards to the lack of trained staff, most of the respondents, 33 (55.0%) disagree while the least 27 (45.0%) agree that skill incompetency thwarts the utilization of partograph. Again, most respondents, 45 (75.0%), agree that skill incompetency improves utilization of partograph, while 15 (25.0%) disagree. Additionally, lack of adequate orientation, negligence of duty, laziness, lack of interest, and heavy responsibility were considered as factors associated with partograph utilization by the majority of respondents by 39 (65.0%) against 21 (35.0%), 45 (75.0%) against 15 (25.0%), 33 (55.0%)

against 27 (45.0%) and 36 (60.0%) against 24 (40.0%) respectively.

Table 4 below indicated the perceptions of the respondents on the strategies for improving the utilization of partograph. Precisely, there is an equal proportion between respondents who strongly agree 30 (50.0%) and those who agree 30 (50.0%) that providing necessary resources will improve the utilization of partograph. Also, there is substantial agreement that strategies such as the provision of the partograph chart, employment of adequate staff, and in-service training of nurses/midwives will improve the utilization of partograph in the healthcare facility.

Table4: Strategies for improving the utilization of partograph

Strategies	Frequency	Percentage
Provision of necessary resources		
Strongly agree	30	50.0
Agree	30	50.0
Undecided	0	0
Total	60	100
Provision of partograph chart		
Strongly agree	39	65.0
Agree	21	35.0
Undecided	0	
Employment of		

adequate staff		
Strongly agree	39	65.0
Agree	15	25.0
Undecided	6	10.0
In-service training of nurses/midwives		
Strongly agree	42	70.0
Agree	15	25.0
Undecided	3	5.0
Adequate supervision of nurses/midwives		
Strongly agree	36	60.0
Agree	24	40.0
Undecided	0	0
Integration of management policy and guidelines		
Strongly agree	33	55.0
Agree	27	45.0
Undecided	0	0
Mandatory use of partograph in hand over/taking over		
Strongly agree	36	60.0
Agree	18	30.0
Undecided	6	10.0
Elimination of non-professional task		
Strongly agree	30	50.0
Agree	24	45.0
Undecided	6	5.0

Also, 36 (60.0%) of the respondents strongly agree that the nurses/midwives' adequate supervision is another critical strategy for improving partograph utilization, while the least respondents, 24 (40.0%), agreed. Again, most 33 (55.0%) of the respondents strongly agreed that integrating management policy and guidelines would improve partograph utilization. Also, the proportion of respondents, 36 (60.0%), that strongly agree that mandatory use of partograph in handing over and taking over is a critical strategy in improving the use of Partograph have doubled the number of respondents, 18 (30.0%) who agree; while 6 (10.0%) were undecided. Similarly, concerning the elimination of non-professional tasks as a strategy for improving utilization of partograph, 30 (50.0%) strongly agree with the influence of the preceding approach, while 24 (45.0%) agree, and 6 (5.0%) were undecided

IV. DISCUSSION

The study results indicated that the bulk of the respondents affirmed the abundance of

partograph machines in the ward, which was used for monitoring patients during pregnancy. Most of the respondents contend that partograph was used as the need arises when the active phase of labor started. Again, the majority of the respondents believe that the partograph is beneficial in reviewing obstetric cases. The initial findings are similar to those made by Mercer et al. (2006), who showed that partograph improves the quality of obstetric care through their clinical audit study.

Also, the result of the current study indicated that lack of knowledge of the use of partograph in labor monitoring is a significant factor that impedes its utilization. The initial finding is in line with similar results from the study of Yisma, Dessalegn, Astatkie, Fesseha (2013), who, through utilizing cross-sectional study, affirmed that poor knowledge of the function of both alert line and action line was instrumental in the low utilization of the partograph procedure.

The study result also shows that staff shortage is of little concern in terms of influence on the utilization of partograph. The initial finding is

contrary to the previous result by Ogwang (2009), a cross-sectional study involving the observation method established that low utilization of partogram during labor is mainly due to a shortage of staff in the obstetric units of the healthcare facility.

Furthermore, concerning strategy to improve utilization of partograph, the result of this study indicated that the employment of sufficient staff is one of the major approaches that improve utilization of partograph among nurses and midwives in the obstetric care unit. The findings of the current study are similar to the previous study by Fatusi et al. (2008). A cohort study suggested that the lower cadres of primary health care workers can be trained to use the partogram with satisfactory results. Therefore, such measure contributes to improving maternal outcomes in developing societies with a scarcity of skilled staff. Correspondingly, concerning in-service training, this study's finding showed that on the job training method is an acceptable strategy in improving the utilization of partograph among nurses and midwives at UDUTH, Sokoto. The above strategy is similar to the finding of Mercer et al. (2009), who in their study to estimate the inflow and outflow of health workers in Africa systematically, suggested the need to expand staff training to capture on the job training of staff to meet W.H.O's current target of 2.28 health professionals per 1000 population.

V. CONCLUSION

Based on the preceding discussion, it is imperative to note that this study's result has provided insight into respondents' perceptions in the utilization of partograph in monitoring the progress of labor at Usmanu Danfodiyo University Teaching Hospital Sokoto. The initial findings have contributed to literature concerning this study's subject matter; consequently, this will help make theoretical and practical decisions and review the learning method where essential. The findings of this research will serve as a guide to design appropriate in-service training programs to update staff skills in partograph. Also, this study will serve as a guide to nurses when researching a similar related topic. Again, the information gathered from this research can educate students and the general public on the importance of partograph in obstetric care.

Additionally, despite the contributions presented by this study, the research has some limitations, which encompassed time constraints, limiting the study to a few sample sizes that could be an important cause of bias. Again, the study depends on self-reported data, which might be vulnerable to recall bias. Consequently, this study

recommends that **the** government prioritize more staff's employment that will complement the existing staff shortage at the obstetric wards. Again, the hospital management should plan a teaching program that will be effective to improve the knowledge and skills on the use of partograph among staff and develop strategies that will reduce the workload on the already overstretched shortage staff. As a result of this study's shortcomings, these scholars suggested future research to authenticate the current findings in other healthcare institutions in another state or region by employing qualitative research methods alone or mixed-method research design.

VI. CONFLICT OF INTEREST

There is no conflict of interest among the authors of this study or anywhere else.

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