

Nurse-Midwives Knowledge and Utilization of Partograph in monitoring of labour in tertiary hospitals in Enugu, South-Nigeria

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Abstract:

It is not clear whether knowledge of partograph has influence the management of women in labour by nurse-midwives working in tertiary hospitals, Enugu, Nigeria. Many women in labour do not benefit from the use of partograph in monitoring of normal proceedings of labour despite its importance in reducing maternal and infant mortality. This study examined nurse-midwife's knowledge and utilization of partograph in monitoring of labour in tertiary hospitals in Enugu, Nigeria.

A cross sectional descriptive study with a sample of 96 nurse-midwives working in the reproductive health units of two tertiary hospitals in Enugu metropolis were used for the study. Data were collected using semi-structured questionnaire. Descriptive statistics was used for data analysis. All analyses were performed using IBM SPSS version 20.0 at a 5% level of significance.

Result showed that all the respondents at tertiary hospitals had heard about partograph. Few 40(80%) of the nurse-midwives in UNTH and 32(69.6%) in ESUTH utilized partograph during labour management. Factors that hindered use of partograph were lack of intermittent training of nurse-midwives and non-availability of partograph charts with mean score of 1.19 respectively. The association between the years of working experience and the use of partograph failed to be statistically significant (P = 0.90).

There is need for improvement in knowledge and use of partograph during labour management through continuing education for nurse-midwives, periodic workshops and mandatory hospital policy on use of partograph during management of labour.

Keywords:Nurse-midwives; partograph; labour; tertiary hospitals; Nigeria

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INTRODUCTION

Maternal mortality continues to be a global burden worldwide. Each year more than 200 million women become pregnant and a large number of mothers die as a result of complication in pregnancy or child birth and about 99% of these conditions occur in developing countries (Morgan, 2011). Global initiatives to strengthen policy intervention for maternal mortality started with the safe motherhood initiative in 1987 to raise awareness about the number of women dying each year from complications of pregnancy and child birth. The target was to reduce maternal mortality and morbidity by 50% by the year 2000 but the initiative did not succeed (Morgan, 2011). According to a United Nations Children's Fund (UNICEF) report, the major causes of high maternal mortality rate in Nigeria include haemorrhage, obstructed labour, puerperal infection, malaria and complicated abortions (WHO, 2012). Prolonged labour in the developing world is commonly due to cephalopelvic disproportion (CPD), which may result in obstructed labour, maternal exhaustion, uterine rupture and vesico-vaginal fistula. Protracted labour is more common in primigravida women than in multipara (UNICEF 2012). Margon, (2011) observed that majority of the maternal deaths and complications attributable to obstructed and prolonged labour could be prevented by cost effective and affordable health intervention like the use of partograph. The partograph is a tool developed by Philpott in 1971 and was later modified by the World Health Organization (Mathibe-Neke, Lebeko & Motupa, 2013). Partograph is a valuable appropriate technology use for monitoring the progress of labour as well as maternal and fetal wellbeing. It is an important tool for managing labour that enables the nurse-midwives to record findings during examination on a standardized form which generates a pictorial overview of labour progress and allows for early identification and diagnosis of pathological labour (Fawole, Adekanle & Hunyinbo, 2010).

Leigh (2010) affirmed that the partograph is designed for use in all maternity settings but has a different level of function at different levels of health care. In a primary health centre, the critical

function is to give early warning that labour is likely to be prolonged and that the woman should be transferred to hospital (alert line function). In the hospital setting, moving to the right of the alert line serves as a warning for extra vigilance but the action line is the critical point at which specific management decisions are made. This simple tool aids continuity of care and helps in the early recognition of abnormalities in labour.

A study conducted by WHO between 1990 and 1991 concluded that the partograph was a necessary tool in the management of labour and should be adopted as a standard protocol in managing the labour process. The use of the partograph thus helps the health care provider to ensure that women are being carefully monitored during labour to avoid unnecessary intervention as well as to recognize and respond to complication in a timely manner (Yisma, Dessaleg, Astatkie & Fesseha, 2013). Findings from empirical works indicated that introduction of partograph as standard protocol in some health care facilities in the management of labour have reduced prolonged labour from 6.4% to 3.4%, the proportion of labour requiring argumentation from 20.7% to 9.1%, and still births from 0.5% to 0.3% and enhances maternal and neonatal wellbeing (lavender, Hart & Smyth, 2010, Fawole, Hunyinbo & Adekanle, 2010). This implies that the use of partograph would engender gross reduction in the number of maternal and fetal deaths since abnormally markers in the progress of labour would be identified earlier.

Few studies carried out in Nigeria revealed that the use of the partograph has not been put into use especially in the secondary and primary levels of health care facilities. Few nurse-midwives used the partograph routinely during management of labour despite that they have in-depth understanding of what it is (Umezulike, Onah & Okaro, 2009; Fawole & Fadare, 2010; Opiah, Ofi, Essien & Monjok, 2012). The non-use of the partograph has been attributed to the high maternal and fetal morbidity and mortality reported in most Nigerian healthcare facilities.

When partograph is effectively put to use, it will prevent prolonged and obstructed labour, helps in early recognition of abnormalities of labour and reduce maternal /infant morbidity and mortality. Therefore, this study set to the determine

knowledge and utilization of partograph among nurse- midwives in tertiary hospitals in Enugu.

METHODS

Research design: A descriptive cross-sectional study was carried out in the University of Nigeria Teaching Hospital (UNTH) in Enugu and the Enugu State University Teaching Hospital (ESUTH) in Parklane both in Enugu State, Nigeria. Both hospitals are referral centers for primary and secondary health care facilities within Enugu and its environs. Daily attendance is high because the government employed experts and subsidize the cost of care received in these hospitals.

Population of study: Total sampling technique was used due to the small population of the nurse-midwives working in reproductive health units. The population for the study consisted of 96 nurse-midwives. The two tertiary hospitals- University of Nigeria Teaching Hospital (UNTH) and Enugu State University Teaching Hospital (ESUTH) Parklane have 50 and 46 nurses-midwives respectively working in the reproductive health units as at the time of study

Data Collection and Analysis

Researcher developed structured questionnaire was the instrument used for data collection. The instrument was developed and designed in line with the objectives of the study. In order to establish the reliability of the instrument, 10% of the calculated sample size was administered to ten nurse-midwives working in Nnamdi Azikiwe Teaching Hospital, (NAUTH), Nnewi - Anambra State who have the same characteristics like the study group. Data generated from the pre-test survey was subjected to Cronbach's alpha reliability test. The result of the reliability coefficient .85 indicated that the instrument is highly reliable.

Ethical clearance was obtained from the Ethical Committee, University of Nigeria Teaching Hospital. Permission to carry out the study was granted by the heads of the nursing services unit. Oral consent was obtained from the respondents after the purpose of the study was explained to them. The researcher recruited and trained three

research assistants (RAs) on the purpose of the study and method of administering copies of the questionnaire. The instrument was administered during morning, afternoon and night shifts to nurse-midwives on duty. The copies of the questionnaire were filled and retrieved immediately from the respondents. Data collection lasted for period of one week

The data collected was checked for errors on daily basis. IBM statistical package for social sciences (SPSS) version 20 was used for the analysis. Descriptive statistics was used to analyze data and results were presented in table comprising of frequency and percentage. Pearson's Chi square (χ^2) was used to establish associations between variables and level of significance was set at 5% (0.05).

RESULTS

Table 1: Socio-Demographic Data of Respondents (n=96)

Categories	OPTIONS	UNTH	ESUTH	TOTAL
	Option	Freq (%)	Freq (%)	Freq (%)
Age (years)	Mean	26.98	27.76	27.35
	S.D	4.41	5.33	4.86
	20 -29	2(4.0)	3(6.5)	5(5.2)
	30 - 39	23(46.0)	22(47.8)	45(46.9)
	40 - 49	17(34.0)	15(32.6)	32(33.3)
Gender	50 - 60	8(16.0)	6(13.0)	14(14.6)
	Male	6(12.0)	4(8.7)	10(10.4)
Highest professional qualification	Female	44(88.0)	42(91.3)	86(89.6)
	Registered Nurse/midwife	16(32.0)	14(30.4)	30(31.3)
	RN/RM/ Any other diploma in Nursing	14(28.0)	15(32.6)	29(30.2)
	RN/RM/B.NSC. Nursing	7(14.0)	7(15.2)	14(14.6)
Years of working experience in Reproductive Units	MSc Nursing	13(26.0)	10(21.7)	23(24.0)
	0-1	17(34.0)	16(34.8)	33(34.4)
	2 - 3	21(42.0)	20(43.5)	41(42.7)
	4- 5	4(8.0)	3(6.5)	7(7.3)
	6-7	8(16.0)	7(15.2)	15(15.6)

Table 1 shows the socio demographic data of the respondents; the mean age and standard deviation was comparable for the two hospitals. Majority of respondents were within age bracket of 30-39, for UNTH 23(46%) and ESUTH 22(47.8%) respectively. Majority of respondents are female gender 44(88%) in UNTH and ESUTH 42(91.3%). In terms of professional qualification, majority of respondents acquired the RN/RM certificates in UNTH 16(32%) and ESUTH 14(30.4%) respectively. Majority of respondents have 2-3 years working experience with 21(42%) and 20(43.5%) at UNTH and ESUT respectively.

Figure 1 revealed that all the respondents at UNTH and ESUTH had heard about partograph. At UNTH, 43(86%) and ESUTH 32(69.6%) understood partograph to mean a simple

graphic recoding of progress of labour and salient conditions of the mother and fetus against time in hour

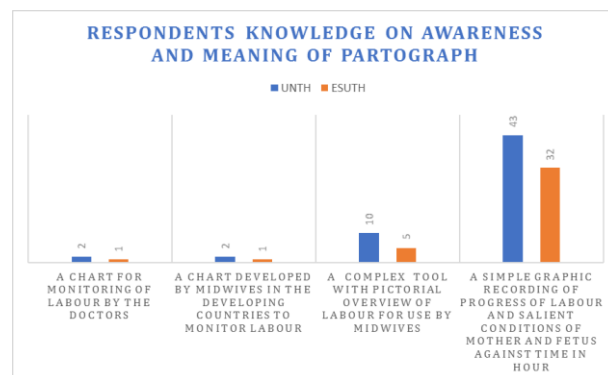


Figure 1: Respondents Knowledge on awareness and meaning of Partograph (n=96)

Table 2: Respondents Knowledge on the key content in Partograph

Categories	UNTH		ESUTH		TOTAL	
	Correct	Incorrect	Correct	Incorrect	Correct	Incorrect
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
4cm cervical dilatation is the ideal time for commencement of Partograph	49(98.0)	1(2.0)	44(95.7)	2(4.3)	93(96.9)	3(3.1)
In a normal progress of labour, the graph/plot on the partograph should fall on the alert line	34(68.0)	16(32.0)	32(69.6)	14(30.4)	66(68.8)	30(31.3)
During the active phase of labour, the woman should dilate at least 1cm per hour	45(90.0)	5(10.0)	42(91.3)	4(8.7)	87(90.6)	9(9.4)
8 hours are allowed for latent phase	42(84.0)	8(16.0)	39(84.8)	7(15.2)	81(84.4)	15(15.6)
In a normal progress of labour, the graph/plot on the partograph should fall on left of alert line	35(70.0)	15(30.0)	34(73.9)	12(26.1)	69(71.9)	27(28.1)
Progress of labour is assessed by the degree of cervical dilatation and descent of the presenting part	50(100.0)	-	46(100.0)	-	96(100.0)	-
In a normal labour, minimum duration of a strong contraction is 30-35 seconds	12(24.0)	38(76.0)	12(26.1)	34(73.9)	24(25.0)	72(75.0)
In a normal progress of labour, the graph/plot on partograph should fall on the right of alert line	18(36.0)	32(64.0)	18(39.1)	28(60.9)	36(37.5)	60(63.5)
The active phase of labour commencement at 3cm cervical dilatation	34(68.0)	16(32.0)	32(69.6)	14(30.4)	66(68.8)	30(31.3)
The partition for contraction is recorded per 10cm	40(80.0)	10(20.0)	38(82.6)	8(17.4)	78(81.3)	18(18.8)
The partograph is one of the tools for implementing safe motherhood.	49(98.0)	1(2.0)	44(95.7)	2(4.3)	93(96.9)	3(3.1)

Table 2 indicates a continuation of midwife’s knowledge of partograph; majority of respondents at UNTH 49(98%) and ESUTH 44(95.7%) correctly identified the ideal time for commencement of partograph. All the respondents at both tertiary hospitals mentioned that progress of labour is assessed by the degree of cervical dilatation and descent of the presenting part. Likewise, 49(98%) of respondents at UNTH and 44(95.7%) at ESUT correctly identified that the partograph is one of the tools to implement the safe motherhood.

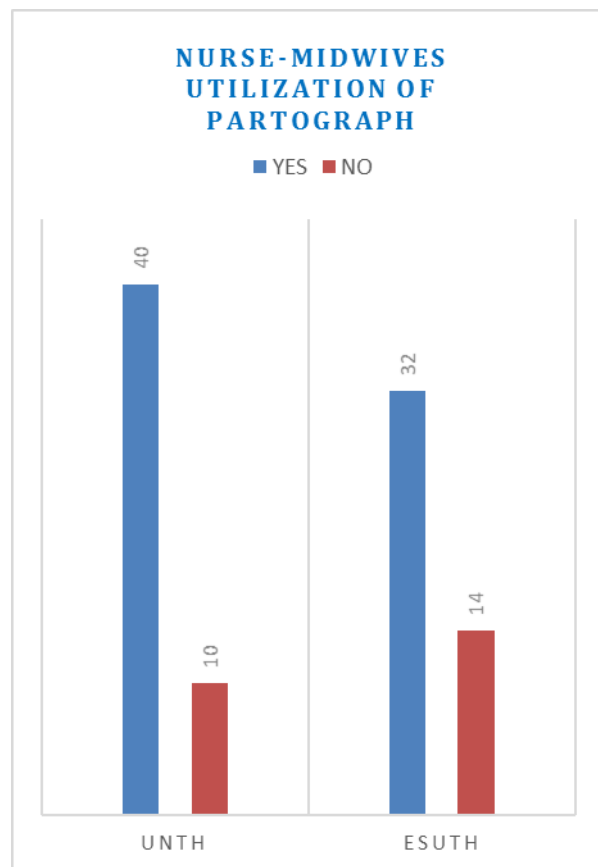


Figure 2: Nurse-midwives Utilization of Partograph

Fig 2 shows that 40(80%) of the nurse-midwives in UNTH and 32(69.6%) in ESUTH used partograph to monitor a woman in labour.

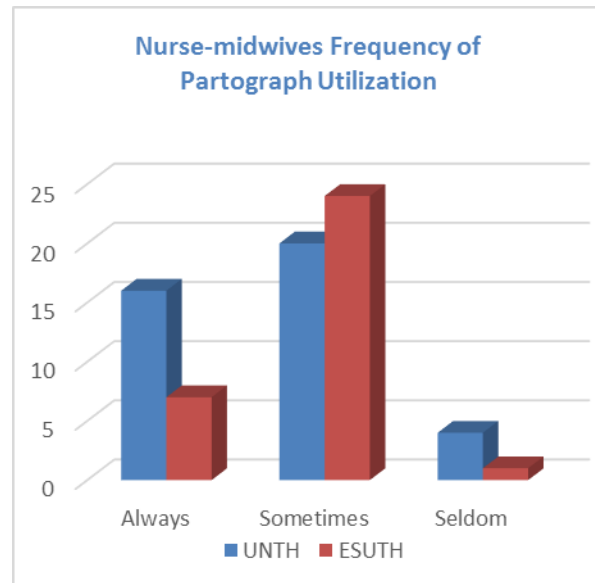


Figure 3: Nurse-midwives Frequency of Partograph Utilization

Figure 3 reveals that 20(27.8%) used it sometimes in UNTH as compared with similar number 24(75%) in ESUTH.

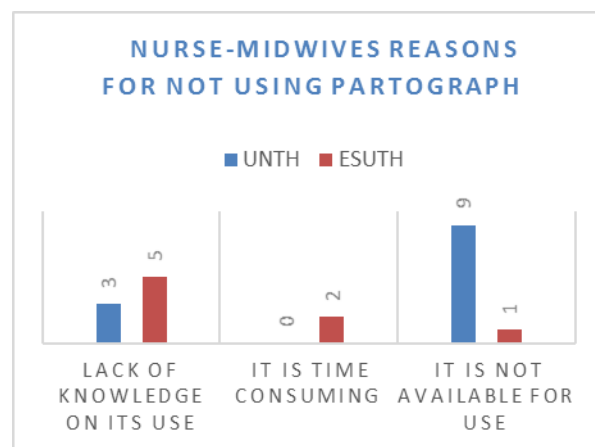


Figure 4: Nurse-mid-wives’ reasons for not using partograph

Figure 4 reveals the reasons for nonuse of partograph 9(37.5) and 5(20.8%) of respondents at UNTH and ESUTH respectively reported that it is not available for use.

Table 3: Extent of Partograph Utilization n = 72

Categories	UNTH (Always)				ESUTH (Always) ESUTH				Mean	S. D
	+(Always)	(Someti mes)	(Rarely)	(Never)	(Always)	(Someti mes)	(Rarely)	(Never)		
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)		
Active first stage	21(52.5)	10(25.0)	6(15.0)	3(7.5)	19(59.4)	7(21.9)	4(12.5)	2(6.3)	1.72	.95
Latent stage	3(7.5)	7(17.5)	26(65.0)	4(10.0)	2(6.3)	5(15.6)	22(68.8)	3(9.4)	2.79	.71
Second stage	4(10.0)	11(27.5)	20(50.0)	5(12.5)	4(12.5)	9(28.1)	15(46.9)	4(12.5)	2.63	.84
Third stage	2(5.0)	4(10.0)	12(30.0)	22(55.0)	1(3.1)	4(12.5)	12(37.5)	15(46.9)	3.31	.83

Table 3 shows the extent to which the nurse-midwives utilized partograph at both tertiary hospitals. At active stage majority of respondents 21(52.5%) at UNTH and similar number at ESUTH 19(59.4%) used it with mean score of 1.72± .95 and at third stage of labour where few 2(5.0) and 1(3.1) always used it in both tertiary hospitals with mean score of 3.31± .83.

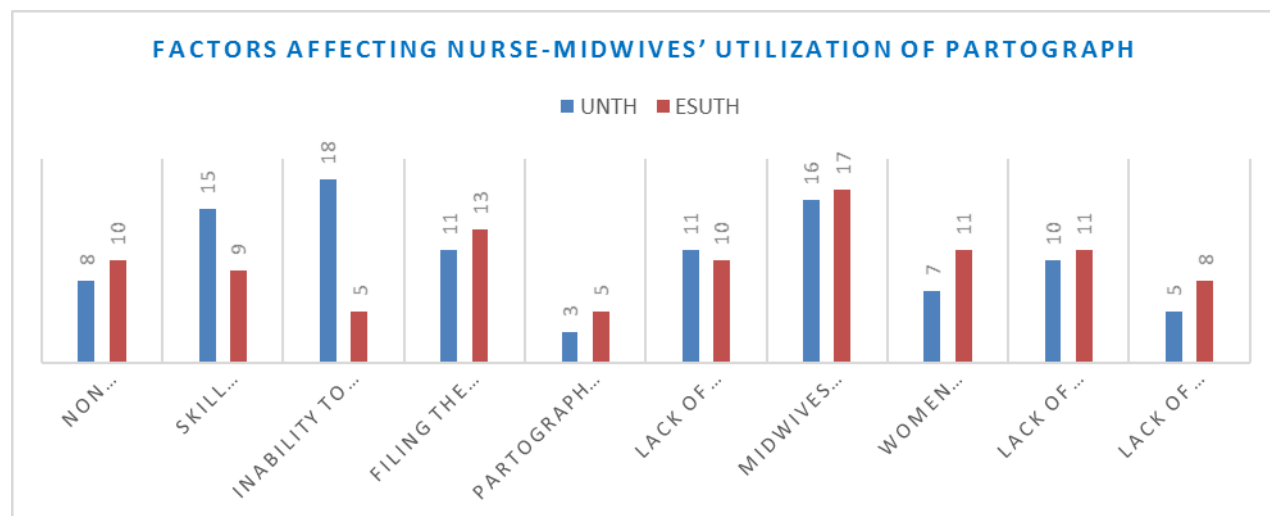


Figure 5: Factors affecting nurse-midwives' utilization of Partograph

Figure 5 reveals the factors that affect nurse-midwives utilization of partograph to include non-availability of partograph charts in labour wards, lack of intermittent training of staff on partograph and lack of adequate orientation to the partograph.

DISCUSSION

The study revealed that the nurse-midwives in the selected tertiary hospitals in Enugu state have above average knowledge of partograph. This may be possibly due to their high educational qualification as most of the respondents are registered nurse-midwives. This is in line with a study conducted among nurse-midwives in Niger Delta region of Nigeria where (84%) of the respondents showed good knowledge of partograph (Opiah, Offi, Essien and Monjok 2012). The average knowledge may also be due to the high population of females to males. The higher percentage of females may be attributed to the nature of the specialty (midwifery), as it deals more on maternal and child health which attracts the interest of females to males. This is in accordance with a study conducted by Fantu, Dereje, Worku and Tadasse (2013) on knowledge and utilization of partograph among health professionals in Amhara Region, Ethiopia. It revealed that females were two times more likely to have good knowledge than the males.

Despite the fact that majority of the respondents 72(75%) claimed to use partograph only 23(31.9%) declared to use it always. This indicates inconsistency and improper utilization of partograph which may be due to non-availability of partograph charts in labour wards. The study is in accordance with similar studies in Africa (Saviola *et al.*, 2009; Opiah *et al.*, 2012; Nunes, Ayres de-campus, Figueiredo & Bernandes, 2013; Yisma *et al.*, 2013). This is in contrast with a study carried out by Fawole, Adekanle and Hunyinbo (2008) on the utilization of the partograph in primary health facilities in south western Nigeria where gross deficiency in the utilization of partograph was discovered. The results revealed that one of the major factors that influences the use of partograph among

midwives in the selected tertiary hospitals are: insufficient partograph charts in the wards. This corroborates previous studies on the problem of non-availability of partograph in health facilities (Ongwang *et al.*, 2009; Opiah *et al.*, 2012)

Although registered midwives usually had formal training on how to use the partograph while in school, the impact of such training was not reflected in their performance; therefore, most of the respondents identified lack of continuous development training/intermittent training of midwives on partograph in the health care facilities. This is in line with similar studies conducted in south- south and south-west of Nigeria where one of major factors that influences the use of partograph was lack of training on partograph. (Fawole *et al.*, 2013; Okokon, Oku, Agan, Asibong, Essien and Monjok, 2014)

Another factor that influenced the use of partograph among midwives is women reporting late in the labour ward with 9cm to 10cm cervical dilatation ($1.81 \pm .39$). This may be due to individual differences as some women may want to endure labour pains at their homes or working place and only goes to the hospital when they are about to put to birth or fully dilated thereby rendering the use of partograph on them by the midwives impossible. It may be pertinent to suggest that pregnant women should be encouraged and educated on the importance of reporting early to the hospital as soon as labour commenced and the need for partograph in assessing their labour.

Skill incompetence in carrying out assessment with partograph by the nurse-midwives ($1.75 \pm .43$) is another factor that influences the use of partograph. Lack of competence in the use of partograph by the midwives may be due to the respondent's years of working experience as most of the respondents have just worked for less than one year which is not enough to make them competent. It is believed that more years of working experience can increase a worker's competence and skill. The years of professional experience of nurse-midwives and their use of partograph was also confirmed by literature (Opiah *et al.*, 2012). Majority of the respondents also stated that filling the partograph is an additional time-consuming task for the inadequate staff. This result, however, shows higher

figure compared with a study done in Nigeria (Opiah et.al, 2012) in which only 8.6% of the respondents indicated it was time consuming.

Implication for Nursing

From the findings of the study, it has revealed that the midwives have an above average knowledge of partograph. This implies that the midwives are convinced on the effectiveness of partograph in the management of labour as it brings to minimum maternal and fetal death.

The utilization of partograph by the midwives is adequate as most of the midwives make use of partograph while few did not. This has an implication on the health institutions to make policies regarding the strict use of partograph by nurse-midwives.

The findings equally show that the major factors that influence the use of partograph among midwives in the selected tertiary hospitals are: unavailability of partograph charts in the wards, lack of training of staff through seminars/workshops on partograph use and women reporting late in the labour ward with 9cm to 10cm cervical dilatation. Therefore, this has an implication for the hospital management to organize seminars for their staff on the partograph and the need for nurse-midwives to stress the importance of arriving at the health care facility (by pregnant women) in time when there are signs of true labour. It ensures strict and monitoring of labour with partograph by the midwife.

It is recommended that periodic workshops and seminars be organized for nurse-midwives and other healthcare providers on the use of partograph in assessment and monitoring of labour. The hospital management should put in place a hospital practice guideline on the use of partograph and also make sure the partograph charts are always provided in labour and maternity units. It is necessary for nurse-midwives to engage in teaching the pregnant women during their antenatal visit on the benefit of reporting on time during labour.

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Conflicts of interests

The authors have not declared any conflict of interests

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