Knowledge, Attitude and Practice of nurse-midwives on the use of partograph in health care centres of Bhutan

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ABSTRACT

Introduction: World Health Organization recommends using partograph to reduce maternal and neonatal deaths due to obstetric complications. Proper utilization of partograph by health care providers was noted to be good when it is associated with better knowledge and a positive attitude towards partograph. There is a paucity of scientific study about knowledge, attitude and practice on the use of partograph among healthcare providers in Bhutan. Therefore, this study aimed to assess the knowledge, attitude and practice of nurse-midwives on the use and completeness of partograph in seven hospitals and one Basic Health Unit grade I. **Methods:** A descriptive study was carried out from September 2017 to February 2018. Non-probability sampling method was used to survey all nurse-midwives who attended deliveries in the selected health facilities using a standard semi-structured questionnaire. All partographs filled three months before the data collection was selected purposefully and reviewed using a checklist. **Results:** A total of 96 participants consisting of 66 (68.8%) females and 30(31.3%) males consented for the survey. Good knowledge of partograph was reported among 48(50%) of the participants with a mean score of 12.1 (SD: ± 1.52). Attitude on the usage of partograph was found to be favorable with a median of 42 (range 32-48). Partograph usage was reported by 86 (89.6%) while only 10.4% reported having received in-service training on partograph. Out of 426 partographs reviewed, only 68 (16.0%) were found to be complete. **Conclusions:** Despite the encouraging findings on the use of partograph, completeness of the partograph was very low. This study therefore, recommends the reinforcement of knowledge and practice through periodic continuous medical education and auditing of the partographs.

Keywords: Attitude; Completeness; Knowledge; Partograph; Practice.

INTRODUCTION

Childbirth is a natural phenomenon. Yet, everyday women die from preventable causes related to pregnancy and childbirth. In 2017, the global point estimate of maternal death was 211 and 9.2% of which was due to direct obstetric causes[1]. Maternal and neonatal deaths were found to be highly associated with prolonged and obstructed labor[2,3]. The reported causes of maternal deaths in Bhutan were postpartum hemorrhage (43%), sepsis (11%), and obstructed labor (4%)[4]. These complications can be reduced through close monitoring of women in labor using partograph[5–7]. Partograph, instituted by the WHO in 1987, especially for underdeveloped and developing countries, serves as an early warning system. The partograph provides a pictorial presentation of fetal and maternal wellbeing, and the progress of labor[7]. Despite the emphasis on the use of partograph to monitor the progress of labor, a gap persists in its proper utilization. The utilization of a partograph is determined by the level of knowledge, attitude and practice of health care professionals[8–10]. Complete documentation of partograph is essential for monitoring the progress of labor and its outcome[11,12]. However, completeness remains a concerning issue. Furthermore, to the best of our knowledge, there is a paucity of scientific research regarding the assessment of knowledge, attitude and practice on the use of partograph by healthcare professionals of Bhutan. We believe that understanding the level of knowledge, attitude and practice on the use of partograph can help support the status of documented partographs for interventions, better the outcome of labor and promote maternal and child wellbeing.

Therefore, the purpose of this study was to assess the knowledge, attitude and practice of the partograph and its completeness.

METHODS

This descriptive study was conducted in hospitals in the western region of Bhutan from September 2017 - February 2018. The

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study sites were selected based on the volume of deliveries and shorter travel distance. We included seven hospitals and one BHU-I. Hence, non-probability sampling technique was used.

All the nurse-midwives who attended deliveries were surveyed using self-administered semi-structured questionnaires. There were a total of 96 nurse-midwives at the time of data collection. Nursing students, nurses on attachment duties and those who did not attend deliveries were not included in the study. The already validated data collection tool was adapted before data collection[10]. Retrospective review of partographs filled up three months before the survey was done. The partographs were assessed for its completeness using a checklist based on four components: Personal information of laboring woman, fetal wellbeing, the progress of labor and maternal wellbeing.

Each variable of interest was scored on the 'yes' and 'no' scales. Each correct knowledge question (18 in total) earned one point, while incomplete, incorrect, or not attempted were scored zero. Respondents who scored 0-6 were categorized as having poor knowledge, whereas those that scored 7-12 and 13-18 score as having fair and good knowledge, respectively. 12 questions on attitude were assessed on a 5-point Likert scale and the overall attitude was scored using median. The attitude was scored as favourable if the total scores ranged between 30-48 (indicating positive attitude towards the usage of partograph). An unfavourable attitude was considered if the scores ranged between 12-30, minimum score being 12. Variables on practice (17 in total) were dichotomized and counted for their frequency. The questions on practice were what the participants reported on the usage of the partograph. The completeness of the partograph using the completeness checklist was reported in terms of its completeness in counts and percentages. Data entry and analysis were performed using SPSS for Windows (V22.0: IBM Corporation, Armonk, NY, USA).

The Research Ethics Board of Health, Ministry of Health, approved the conduct of this study (vide no. REBH/Approval/2017/030).

RESULTS

Characteristics of nurse-midwives
Table 1 shows that 68.8% of the participants were females and 70.8% of them were in the age range of 25-35 years. Sixty-three (65.6%) had the professional qualification of General Nurse Midwife. Regarding clinical experiences, 80(83.3%) had a clinical experience of fewer than 10 years while 10 (10.4%) of them had clinical experience ranging from 15-20 years.

Knowledge on Partograph
The knowledge about the partograph was assessed through 18 items measured on the 'yes' and 'no' scale. Among 96 nurse-midwives, 95 (99.0%) knew what was a partograph while 95.8% reported that a partograph should be used during labour. As evident from Table 2, they lacked knowledge on desired frequency (61.1%) and duration of uterine contractions (33.3%)

Table 1. Demographic characteristics, Professional qualifications and number of year of service among the nurse-midwives in seven hospitals and one BHU-I* in Bhutan from September 2017 - February 2018 (*n*=96)

Characteristics	Number (%)
Sex	
Male	30 (31.2)
Female	66 (68.8)
Age in Years	
Below 25	14 (14.6)
25-35	68 (70.8)
35-45	13 (13.6)
More than 45	1 (1.0)
Professional qualification	
Assistant Nurse	20 (20.8)
General Nurse midwives	63 (65.6)
Bachelor's Degree	11 (11.5)
Master's Degree	2 (2.1)
Numbers of years in services	
Less than 10	80 (83.3)
10-15	4 (4.2)
15-20	10 (10.4)
More than 20	2 (2.1)

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for normal labour and the function of the alert line. Although 100% of the participants reported that the progress of labour is assessed by the degree of cervical dilatation and descent of the presenting part, 13.6% of participants reported not knowing if prolonged labour refers to more than 12 hours of labour. Overall, 50% of them had a good knowledge on partograph with a median score of 12.5 (Min-Max: 10-16), while 50% scored fair. There was no difference between the knowledge on partograph among males and females as shown in Table 2.

Attitude on the utilization of partograph
All the participants (100%) had a favorable attitude towards the partograph with a median score of 42 (Min-Max: 32 - 48). 87.5% strongly agreed that they used partograph daily in their practice, as evident from Table 3. However, only 49 % reported being very confident in the use of the partograph. Although the majority (80.2%) knew the importance of using a partograph, 76% reported that a partograph is not necessary to monitor the progress of labor.

Utilization of partograph
As illustrated in Table 4, all the participants reaffirmed the availability of partograph at all times in their ward/unit. Although 97.9% reported using partograph to monitor women in labour, 2.1% (2 participants) felt that it was not necessary to use

Table 2. Knowledge on the assessment of labour using partograph among the nurse-midwives in seven hospitals and one BHU-I in Bhutan from September 2017 - February 2018 (*n*=96)

Characteristics	*n* (%)
Do you know what partograph is?	
Yes	95 (100.0)
When is a partograph used?	
Before labor	4 (4.2)
During labor	92 (95.8)
In the normal progress of labor:	
The graph on the partograph should fall to the left of the alert line	
Yes	64 (66.7)
No	31 (32.3)
Don't know	1 (1.0)
The graph/plot on the partograph should fall on the alert line (*n*=95)	
Yes	55 (57.9)
No	38 (40.0)
Don't know	2 (2.1)
During labor:	
Three contractions in every minute are normal	
Yes	38 (39.6)
No	58 (60.4)
Minimum duration of a strong contraction is 40 seconds (n=94)	
Yes	64 (66.7)
No	32 (33.3)
Progress of labor is assessed by degree of cervical dilatation and descent of presenting part	
Yes	96 (100.0)
Labor is prolonged when it lasts more than 12 hours	
Yes	82 (85.4)
No	13 (13.6)
Don't know	1 (1.0)
Final knowledge score	
Poor (0-6)	0 (0.0)
Fair (7-12)	48 (50.0)
Good (13-18)	48 (50.0)

Total knowledge score	Mean±SD	*p*-value
Male (*n*=30)	12.53±1.76	0.082
Female (*n*=66)	12.64±1.41	

Table 3. Attitude on the utilization of partograph among the nurse-midwives in seven hospitals and one BHU-I in Bhutan from September 2017 - February 2018 (*n*=96)

Components	*n* (%)
You use partograph daily in your practice	84 (87.5)
Partograph is useful for reducing maternal deaths	77 (80.2)
Partograph is not useful for reducing maternal morbidity	45 (47.4)
Partograph reduces neonatal deaths	69 (72.6)
Neonatal morbidity can be reduced by using partograph	50 (52.6)
Efficiency of professionals attending women in labor can be increased by use of partograph	55 (57.9)
To improve the quality of care for women in labor using partograph is mandatory	83 (86.5)
I am very confident to use partograph	47 (49.0)
If one has served as a midwife for long, they will be able to plot partograph completely and accurately	54 (56.8)
I think partograph is not necessary to monitor the progress of labor	73 (76.0)
I wish there was no such thing as a partograph, a document that consumes lots of our time	67 (69.8)
Partograph can be filled up during anytime of the labor	40 (41.7)
Total knowledge score	Median = 42.00 (min-max:32.00-48.00)

partograph in all women in labour, the reason being that some women may be in the latent phase of labor or are having false labor pain. Majority (97.9%) reported that they start plotting the partograph when the cervix is four centimeters dilated. However, 2.1% (2 participants) reported that they start plotting partograph when the cervix is eight centimeters dilated. Majority of the participants mentioned that they can deduce and interpret abnormal partograph findings. 51.0% participants reported having received training on usage of partograph. However, 52.1% reported receiving such training only during their educational preparation while 10.4% had received in-service training.

Completeness of partograph
A total of 426 partographs were assessed from all eight health care centers. Of the four components assessed, maternal information received the least attention as evident from Table 5. Only 17.8% had complete maternal information and 10.8% were left blank. Fetal wellbeing was completely assessed in 26.3% of the assessed

Table 4. Practice on the use of the partograph among the nurse-midwives in seven hospitals and one BHU-I in Bhutan from September 2017 - February 2018 (*n*=96)

Practice component	*n* (%)
Is partograph available in your labor ward at the present time?	
Yes	96 (100.0)
No	0 (0.0)
I use partograph during labor in	
Less than 25% of pregnant women I attend to	0 (0.0)
25-50%	1 (1.0)
50-75%	1 (1.0)
75-99%	8 (8.3)
100%	86 (89.7)
When do you start plotting partograph?	
1. When cervix is four centimeters dilated	94 (97.9)
2. When cervix is eight centimeters dilated	2 (2.1)
Which of the following assessment can you make with the partograph?	
1. Obstructed labor	74 (77.1)
2. Prolonged labor	95 (99.0)
3. Poor progress of labor	95 (99.0)
4. Insufficient uterine contraction	92 (95.8)
5. Suspected fetal distress	94 (97.9)
6. Abnormal fetal heart rate	91 (94.8)
7. Satisfactory progress of labor	87 (90.6)
8. Need for augmentation of labor	83 (86.5)
9. Need for caesarean section	71 (74.0)
10. Dehydration in the mother	80 (83.3)
Have you ever received training on partpgraph?	
Yes	49(51.0)
No	47(49.0)
Training during their educational preparation	50(52.1)
In-service training on partograph	10 (10.4)

Table 5. Completeness of the partograph in seven hospitals and one BHU-I in Bhutan from Septemper 2017 – February 2018 (*n*=426)

Personal Information	N (%)
Name	
Yes	372 (87.3)
No	54 (12.7)
Parity	
Yes	374 (87.8)
No	52 (12.2)
Ruptured membrane	
Yes	184 (43.2)
No	242 (56.8)
Overall completeness of personal information	
Complete	76 (17.8)
Incomplete	304 (71.4)
Not recorded	46 (10.8)
Fetal heart rate recorded every 30 minutes	
Yes	363 (85.2)
No	63 (14.8)
Amniotic fluid	
Yes	297 (69.7)
No	129(30.3)
Moulding	
Yes	235(55.2)
No	191(44.8)
Overall completeness of fetal wellbeing	
Complete	112(26.3)
Incomplete	302(70.9)
Not recorded	12(2.8)
Cervical dilatation	
Yes	422(99.1)
No	4(0.9)
Descent of head recorded at every per vaginal examination	379(89.0)
Yes	47(11.0)
No	
Uterine contraction recorded every 30 minutes	
Yes	358(84.0)
No	68(16.0)
Overall completeness of the progress of labor	
Complete	249(58.5)
Incomplete	174(40.8)
Not recorded	3(0.7)
Maternal pulse recorded every 30 minutes	
Yes	216(50.7)
No	210(49.3)
Maternal blood pressure	
Yes	382(87.7)
No	44(10.3)
Maternal temperature	
Yes	321(75.4)
No	105(24.6)
Over all completeness of the maternal wellbeing record	143(33.6)
Complete	258(60.6)
Incomplete	25(5.9)
Not recorded	
Overall completeness of the partograph	
Complete	68(16.0)
Incomplete	330(77.5)
Not recorded	20(4.7)
Referred	8(1.8)

partographs; the components that were missed or incomplete included fetal heart rate, amniotic fluid status and fetal head moulding. Labor progress was better recorded as compared to other components with 58.5% of the assessed partographs being complete. The components that received less attention were the record of uterine contractions every 30 minutes and descent of the presenting part at every vaginal examination. Although 33.6% of the partographs had complete maternal wellbeing components, maternal pulse and the body temperature recordings were not paid much attention to. Overall, the completeness of the partographs was found to be only 16.0%.

DISCUSSION

A total of 96 nurse-midwives attending deliveries were recruited for the survey on knowledge, attitude and practice of partograph. In addition, a total of 426 partographs were reviewed for its completeness.

The findings on knowledge in this study suggest that overall, nurse-midwives have a good knowledge regarding the partograph. Out of 96 nurse-midwives, 50% of them had 'good knowledge' and 50% had 'fair knowledge' which is significantly higher than what was reported in Addis Ababa (39.0%)[10], Cameroon (29.6%)[9], and Samdrup Jongkhar (7.1%)[11] although, slightly lower than the ones reported by a study carried out in Northwest Ethiopia (56.1%)[13]. These differences in knowledge could be due to study settings, knowledge assessment tools that were used, level of training on partographs that were received, extent of knowledge gained during their education, number of years in service and their qualifications. This may also imply that having 'fair to good knowledge' does not ensure adequate knowledge on the partograph and its completeness. For instance, 100% of the participants in this study knew that the progress of labour was determined by cervical dilatation and descent of the presenting part, however it is concerning to note that they are not able to correctly report the desired frequency and duration of uterine contractions, function of the alert line and the definition of prolonged labour.

Attitude is another factor that enhances knowledge and usage of the partograph. Although attitude towards using partograph was found to be favourable (Score of 42), 76% of them reported that partograph is not necessary to monitor the progress of labour and only 49% reported being confident in the use of partograph. Favourable attitude towards using partograph is comparable to the study in Ethiopia[13]. Utilization of partograph was reported as high (89.7%) by the participants which is in line with the study done in Ethiopia[10,15]. However, some participants (2.1%) expressed that a partograph is not necessary to be used in all the women in labour. With only 10.4% receiving in-service training on partograph, this could have had an impact on its utilization in Bhutan[11]. Majority of the participants (89.7%) reported utilizing partograph to monitor women during labour and start plotting partograph once the cervical dilatation is 4 cm and above (97.9%), yet inconsistency in actual utilization could be noticed from the review of the filled partographs, similar to the findings of a study carried out in Nigeria[15]. The factors responsible for the mismatch between what is reported and what is done in actual practice needs to be explored further. Out of 426 partographs assessed, 16.0% was found to be complete, 77.5% was incomplete, 1.8% was referred to higher centers and 4.7% were left empty. This finding is consistent with the findings of the study carried out in 2017 in Bhutan[11] and could be attributed to trainings they have received during their professional career and the knowledge they have on the partograph.

This study has some limitations. There may be many factors such as knowledge, attitude, years of service and the participant's place/county of pre-service education which may be associated with proper utilization, which is not explored in this study. The other important limitation of this study was the fact that it was not able to establish the relationship between the participants' knowledge and attitude to the completeness of the partograph and the relationship between the reported utilization of partograph and actual completeness of the partograph.

CONCLUSIONS

This study implicates that despite having fair to good knowledge, a favourable attitude and highly reported utilization of partograph, a gap remains when it comes to actual practice as evidenced by the low completeness of partographs. Taking into consideration the various limitations of the study, we recommend a further detailed study on the factors associated with incompleteness of the partograph. Nonetheless, the results from this study can be used to reinforce the use of partograph through continuous medical education, auditing of the partographs and taking up the utilization of partograph as a point of care quality improvement (POCQI) projects in their respective units or hospitals.

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AUTHORS CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

KC: Concept, design, data collection and analysis, manuscript writing and review.

ND: Design, data collection and analysis, manuscript writing and review

Author agree to be accountable for all respects of the work in ensuring that questions related to the accuracy and integrity of any part of the work are appropriately investigated and resolved.