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Knowledge of partograph utilization and its associated factors: A cross-sectional survey in Wolaita Zone Southern Ethiopia

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Obstructed and prolonged labours are major causes of maternal death. To alleviate this problem, obstetrics care providers' knowledge on the basic obstetrics case management is crucial which include partograph use. Partograph is a cost-effective single sheet of paper used to follow fetal, maternal condition and progress of labour. The objective of this study is to assess knowledge of obstetrics care providers on partograph and associated factors in Wolaita zone southern, Ethiopia, 2016. All 442 obstetrics care providers in the zone were included. Data were collected with pretested and structured self-administered questionnaire. Data were entered in Epidata and exported to statistical package for social sciences (SPSS) for analysis. Logistic regression was used to identify significant factor. P value < 0.05 was considered as significant variable. Knowledge of obstetrics care provider in the study area is 72.6%. Age, formal education, health facility and on job training were the variables which shows significant association with knowledge of partograph use. In conclusion, low level of knowledge was recorded in the study area. Providing formal education, on job training, working on women older than 30 and on Hospitals are very important in enhancing care providers knowledge on partograph.

Key words: Ethiopia, knowledge, partograph utilization.

INTRODUCTION

In the year 2013, the Global maternal mortality estimation was 210 per 100,000 live births. Of this, Sub-Saharan African countries account for the highest number which is 510 per 100,000 live births (UNICEF WHO, 2014). In 2016, maternal mortality ratio in Ethiopia was 412 per 100,000 live births (Ethiopian Demographic Health Survey (EDHS) Key Indicators, 2016).

In this country, 20,000 mothers die per year due to pregnancy and related causes. To reduce this alarming number of deaths, different interventions modalities were devised. Enhancing obstetrics care provider's knowledge and skill on the main signal function of basic emergency obstetrics and newborn care is one. From the signal functions, partograph utilization skill and knowledge is important (Organization, 2010).

Prolonged and obstructed labour, which is one of the

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causes of maternal mortality accounts for about 8 to 10% of maternal deaths (Organization, 1993, 1994). Worldwide, 50,000 mothers die with obstructed labour (UNFPA, WHO, 1999). Enhancing knowledge and skill of health professionals to manage obstetrics emergency cases will alleviate maternal death (UNICEF, WHO, 2014).

Partograph is a cost-effective single sheet of paper used to follow fetal, maternal condition and progress of labour. It helps to lower preventable causes of maternal deaths, and knowledge of partograph use is important in minimizing prolonged and obstructed labour (Abebe et al., 2013; Fawole et al., 2010; Fawole et al., 2008; Ogwang et al., 2009).

According to different authors, type of health facility (Abebe et al., 2013; Mezmur et al., 2017; Sama et al., 2017) and inservice training (Wakgari et al., 2015; Yisma et al., 2013) are mostly mentioned as a significant variable of partograph use. World Health Organization (WHO) recommends routine use of partograph for all laboring mothers in all setup (UNFPA WHO, 1999). Thus knowledge on partograph use and interpretation is crucial for all obstetrics care providers. However, care providers knowledge level is not enough as expected (Abebe et al., 2013; Fawole et al., 2010; Fawole et al., 2008).

In Ethiopia, midwives, nurses and physicians are the one mostly working in maternity care unit. Literatures on their knowledge on partograph use lack adequate data. Thus, this paper aim to show knowledge level of partograph use and associated factors in Wolaita Zone southern Ethiopia, 2016. The result of this study can fill data gap, be a base stone for further researchers and a back up to meet target of sustainable development goal on maternal health.

MATERIALS AND METHODS

Study design, setting and population

Institution based cross-sectional study was conducted among obstetrics care providers in Wolaita zone, southern Ethiopia from 1st to 30th April, 2016. The zone has a total population of 1,501,112. Wolaita Sodo which is the capital is 330 km far from the main city of Ethiopia, Addis Ababa. The zone has a total of 417 health facilities; 8 hospitals (1 teaching hospital, 2 general hospitals, 5 primary hospitals), 69 health centers and 342 health posts, with a total of 1490 health care workers. Obstetrics care providers include nurses, midwife, health officers, general practitioners and emergency surgeons working in both governmental and nongovernmental institutions included. Those obstetrics care providers were undergoing leave and will not be available for three consecutive visits to the institutions.

Sampling methods

From all health institutions in the zone, 69 health centers, 8 hospitals and 342 health posts, 69 health centers and 8 hospitals providing delivery services were taken. And from the total 486 obstetrics care providers, those providers available during the data collection period were 459.

Study procedure and data collection instrument

Pretested self-administered structured questionnaire was developed from different literature used to assess knowledge of obstetrics care providers. To assure validity and reliability, pretest was undertaken before the real data collection on 25 obstetrics care providers in an area which is different from the actual. Data were collected by seven medical students. Following this, pretest questionnaires were amended accordingly. The questionnaire was designed to assess socio-demographic, partograph use, knowledge and attitude towards partograph use. Knowledge level of respondents was assessed by ten questions while attitude by eight questions.

Scoring of knowledge and attitude of obstetrics care providers

For objective measurement of knowledge on partograph use, a scoring method was developed. For each participant, knowledge score was gotten by adding the correct answers and also assessing the questions. By setting a cutoff point, a score of mean and above was taken as good knowledge and below mean considered as poor level of knowledge. Participant's attitude was measured through five-point likert scale, 5 point for strongly agree, 1 for those who responded as strongly disagree, whereas scores was reversed for negative attitude questions. Mean cutoff point attitude was dichotomized into favorable and an unfavorable attitude.

Data analysis

Collected data were first checked manually for completeness, then coded and entered into Epidata manager v4.0.1.97 and exported to IBM-SPSS statistical software v.20 for Windows (SPSS Inc., Chicago, IL) for analysis. Frequency run and double data entry was performed to check data entry errors, and missing values cross checked before analysis. Bivariable and multivariable logistic regression was conducted to test the significant variable. In bivariable logistic regression, P value < 0.2 was exported to multivariable logistic regression to control bias. Odds ratio with 95% confidence interval and p value <0.05 were considered as significant variable.

Ethical consideration

Ethical clearance was obtained from ethical review committee of Wolaita Sodo University. Permission letter was taken from Wolaita Sodo zonal health department, and from selected health facilities. Thereafter, study objectives were discussed with the participants, and verbal and written consent taken from each participant. Privacy and confidentiality were kept during the process. Participants name and signature was not taken rather coding was use.

RESULTS

Socio-demographic characteristics of study participants

A total of 442 study participants participated in the study

Table 1. Socio-demographic characteristics of obstetric care providers Wolaita zone southern Ethiopia, 2016 (n=442).

Variable	Frequency (N)	Percentage
Sex		
Female	237	53.6
Male	205	46.4
Age		
20-24	76	17.2
25-29	217	49.1
30 and more	149	33.7
Health facility		
Government Hospital	216	48.9
Health center	135	30.5
Private Hospital	91	20.6
Profession		
Midwifery	280	63.3
Nurse	63	14.3
Public health officer	23	5.2
Doctors	48	10.9
Emergency Surgeons	29	6.3
Qualification		
Diploma	204	46.2
BSC	162	36.7
MSC	21	4.8
Physicians	48	10.9
Health officers	7	1.6
Experience		
1-5	238	64
6-9	132	29.9
10-18	27	6.1

with a 96.3% response rate. Most of them were categorized with the age group of 25 to 29 with a mean age of 27.97SD±3.72. More than half, that is, 53.3 and 63.3% of the participants were females and midwives in the profession (Table 1).

Knowledge of partograph utilization among obstetric care providers

In this study, 321(72.6%) (95% CI: 68.3 to 76.9) of the study participants were found to be in a good level of knowledge. From ten knowledge assessing questions all participants identified four questions correctly. The list identified question was; should the first plot of Partograph fall on alert line or not? This accounts for 33 (7.5%) as seen in Table 2.

Attitude of participants

Participants who have favorable attitude were 186 (42.1%). And 337 (76.2%) and 335 (75.8%) of the participants had strongly agreed to the use of partograph being an important tool. Obstetrics care providers who strongly wish to use partograph are 292 (66.1%). More than half (277(62.7%)) of the participants strongly disagree that partograph is the responsibility of the physicians only and 275(62.2%) believed that, it is not necessary to train nurses on partograph. Moreover, 233

Table 2. Knowledge assessing questions of obstetric care providers Wolaita zone southern Ethiopia, 2016 (n=442).

Knowledge assessing questions	Participants response	
	Yes N (%)	No N (%)
Do you think partograph detect deviation from normal delivery	422 (100)	0
Do you think partograph has a component on which maternal condition recorded	442 (100)	0
Do you think that partograph has a component on which maternal condition recorded	422 (100)	0
First plot of partograph should fall on alert line	33 (7.5)	409 (92.5)
Do you think cervical dilation should be plotted every 4 hourly	442 (100)	0
Cervical dilation to the right is slow progress	411 (93)	31 (7%)
Do you think BP should be plotted every 4 hourly	424 (95.9)	18 (4.1)
Do you think partograph should be started in active phase of labour	426 (96.4)	16 (3.6)
Do you think that partograph should be used for all laboring mother	417 (94.3)	25 (5.7)
Do you think that deviation of partograph plots to the right of alert line indicates abnormal progress of labour	389 (88)	53 (12)

(52.7%) strongly disagree on question which assess whether they have difficulties in using partograph or not.

Factors associated with knowledge on partograph utilization

Table 3 shows some socio-demographic, profession related and other variables associated with knowledge of obstetrics care providers on partograph use. In binary logistic regression, age, health facility, profession, formal education, qualification and on job training shows association with p value < 0.2. After adjusting for possible confounders in multivariate logistic regression with 95% confidence interval age, health facility, on job training and formal education shows a significant association with knowledge of partograph with p value < 0.05 (Table 3).

DISCUSSION

This study assesses knowledge of partograph use among obstetrics care providers in Wolaita zone, southern Ethiopia. Knowledge of partograph in the study area is 72.6% (95%CI: 68.3 to 76.9). This finding is in line with a cross sectional study conducted in the North Showa Zone, which is 71.2% (Wakgari et al., 2015). However, the result is lower than the study conducted in Addis Ababa (96.6%) (Yisma et al., 2013), Nigeria (84.2%) (Opiah et al., 2012) and Gambia (80%) (Badjie et al., 2013).

The result is higher than the study conducted in public health institutions eastern Ethiopia, which is 53.7% (Mezmur et al., 2017), and Nigeria 16 and 37.3%, respectively (Fawole et al., 2010; Fawole et al., 2008). This difference might be due to difference in the study participant's education system and difference in data collection method. The odds of being >30 years is 0.46 times less likely to develop a good level of knowledge on partograph utilization than age 20 to 29 years. This might be due to the fact that younger age groups are more likely to graduate soon than older age group, and they can potentially remember their partograph lesson than older ones.

In this study, the type of health facility where obstetrics care providers' works shows significant association with knowledge of partograph use. Working in a health center is 2.4 times positively associated with having knowledge of partograph use than working in a hospital. This might be due to the fact that most organizations work on capacitating primary health facilities by providing trainings on the enhancement of obstetrics care giver's knowledge by aiming to reduce obstetrics complications on the first level so these training might help obstetrics care providers in health

Table 3. Bivariate and multivariate analysis of factors associated with knowledge of the Partograph utilization Wolaita zone, southern Ethiopia, 2016 (n=442).

Variable	Knowledge about partograph		OR 95% CI		P-value	Confidence interval
	Good	Poor	COR	AOR		
Age						
20-29	229	64	1	1		
>30	92	57	0.007	0.46	0.003*	0.27-0.76
Health facility						
Health center	88	47	0.009	2.37	0.003*	1.34-4.18
Hospital	233	74	1			
Qualification						
Diploma	155	49	0.21	0.49	0.28	0.13-1.81
BSc	111	51	0.1	0.4	0.12	0.12-1.28
Masters	55	21	1	-	-	-
Profession						
Midwife	233	57	0.48	1.54	0.4	0.56-4.24
Nurse	27	36	0.08	0.37	0.07	0.12-1.11
Others*****	71	28	1	-	-	-
Formal education						
No	6	9	0.02	0.27	0.02*	0.09-0.81
Yes	315	112	1	-	-	-
On job training						
No	117	73	0.00	0.29	0.00*	0.17-0.5
Yes	204	48	1	-	-	-

: $p < 0.05$; Others: Physicians, emergency surgeons and health officers.

facility to upgrade their knowledge in partograph use than care providers working in hospital. However, the finding contradicts with a cross-sectional study conducted in the North Showa Zone (Wakgari et al., 2015), Nigeria (Fawole et al., 2008) and Gambia (Badjie et al., 2013). This difference might be due to study area difference.

This study further revealed that obstetrics care providers who doesn't take any formal education on partograph is 0.27 times negatively associated with good knowledge of partograph use than their counterparts. This is a reality that in any circumstance education can increase knowledge of a person. Therefore, the result assures a reality that obstetrics care provider who doesn't take formal education on partograph is 0.27 times less likely to have good level of knowledge.

In the present study, on job training also shows a significant association with knowledge of partograph use. Those providers who haven't been trained on partograph are 0.29 times less likely to have a good level of knowledge of the use of partograph. This result is consistent with a study conducted in a North Showa Zone, which states that those providers who are trained on partograph are 5.5 times more likely to have a good level of knowledge than those who haven't been trained (Wakgari et al., 2015).

Conclusion

Knowledge of partograph utilization in the study area is found to be low in comparison to other studies. Age, health facility, formal education and on job training are factors which show significant association with knowledge of partograph use. Incorporating partograph in a formal education and refreshing obstetrics care provider's through on the job training have a positive impact in enhancing obstetrics care providers' knowledge of partograph use.

Limitation of the study

Hence, the study was based on interviewer administered questioner rather than observation social desirability bias can be a potential limitation of the study.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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