Research Article
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Level of partograph utilization and associated factors among obstetric caregivers in public health facilities of Hawassa city administration, sidama state, Ethiopia, 2021

Abstract

Background: Systematically detecting and handling complication at early stage of labor is part of guaranteeing quality obstetric service. Proper use of Partograph during labor and delivery helps in achieving a healthy child and maintaining the health of the mother with the least possible level of early intervention, early detection, manage the causes accordingly and timely referral. Even though; partograph use is influenced by different factors it is not well identified in the study area.

Objectives: This study aimed to assess level of partograph utilization and associated factors among obstetric caregivers in public health facilities of Hawassa City Administration, Sidama State, Ethiopia, 2021.

Methods: A facility based cross-sectional study was conducted from June 10 to June 30, 2021 among 221 study subjects sampled by simple random sampling technique in the selected health facilities. Data was collected using structured self-administered questionnaire. The data was coded, cleaned, entered using Epi data version 3.1 and analyzed using SPSS version 23 statistical software. A descriptive statistics for categorical and continuous variables was done and summarized as numbers, percentages, means and standard deviation. Bi-variable and multi variable logistic regressions were performed to identify factors associated with partograph utilization. The strength of statistical association was measured by adjusted odds ratios (AOR) and 95% confidence intervals. In all cases P-value, less than 0.05 were considered as statistically significant.

Result: From the total study participants 62.5% (95%CI: 56%, 69%) of them utilized partograph to monitor women's in labor. Respondents educational status (AOR=0.038, 95%CI: 0.003, 0.506), profession (AOR=9.9, 95%CI: 1.06, 92.65), service training (AOR 2.28, 95% CI: 1.1, 4.7) and attitude towards partograph utilization (AOR = 3.7, 95% CI: 1.76, 7.83) were factors significantly associated with partograph utilization

Conclusion: In this study level of partograph utilization is about 62.5%. Educational status, profession, service training and attitude were significant factors associated with partograph utilization. The concerned bodies should strengthen supportive supervision and provide training to obstetric care providers in order to promote partograph utilization

Keywords: partograph utilization, obstetric care providers, public health facilities, ethiopia

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Introduction

A partograph is graphic record of the progress of labor and relevant details of the mothers and fetus. Most of the labor related causes of maternal mortality and morbidity can be easily detected if the progress of labor is monitored using partograph. Utilization of partograph to manage labor improves maternal and newborn survival and helps to identify the progress of labor and reduces the need for an additional drug use for induction or surgical intervention. The recordings in the partograph give information about fetal and maternal condition that are all recorded on single sheet of paper.[1] (Figure 1)

The partograph consists of a graphic representation of labor and is an excellent visual resource to analyze uterine contraction, station, the effacement of the cervix, cervical dilatation, vital sign, fetal heart beat and fetal presentation in relation to time. However, poor utilization of the partograph was found in the public health institutions which reflect poor monitoring of mothers in labor and/or poor pregnancy outcome.[2]

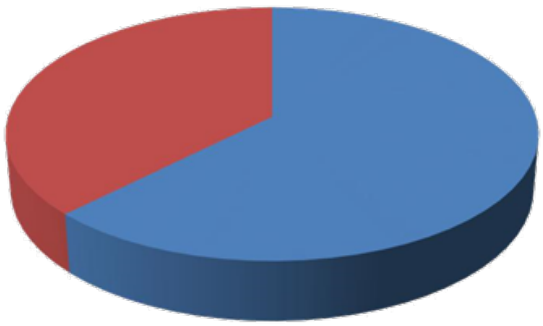

Figure 1 Partograph utilization levels of obstetric care providers; Hawassa city administration public health facilities, June, 2021.

According to World Health Organization (WHO) in 2017 about 295,000 women died globally during and following pregnancy and

child birth, Sub Saharan Africa alone accounted for roughly two-thirds (196 000) of maternal deaths, while Southern Asia accounted for nearly one-fifth (58 000); and both accounted for approximately 86% (254 000) of the estimated global maternal deaths.[3]

Based on EDHS (Ethiopian demographic and health survey) 2016 report the ratio of maternal mortality in Ethiopia is 412/100,000 live births.[4]

In Ethiopia Obstructed labor/uterine rupture, hemorrhage, Preeclampsia or sever eclampsia related and sepsis/infection, where the four major causes of maternal mortality.[5] Early detecting the causes and timely intervene of all obstetric complications and problems are the most important activities to prevent maternal death and antenatal, perinatal and postpartum disability.[2] Hence, systematically detecting and handling complication at early stage is part of guaranteeing quality obstetric service. Partograph is one of the most and cost-effective tool to prevent unnecessary delay and serve as frontrunner for obstetric caregivers.[6]

The World Health Organization recommends the universal utilization of partograph during labor for routine monitoring of labor, and helps the health care provider in identifying slow progress in labor, and to make better decisions for the diagnosis and management of prolonged and obstructed labor.[7]

Proper use of partograph during labor and delivery helps in achieving a healthy child and maintaining the health of the mother with the least possible level of early intervention, early detection, manage the causes accordingly and timely referral.[8] Even though there are lots of advantages through utilization of partograph, still now partograph is not broadly used in developing countries particularly in Africa including Ethiopia. Studies conducted in Iraq, Ghana and Zambia showed that 58%, 54% and 87.5% of the participants used partograph to monitor progress of labour respectively.[2,9,10]

The overall pooled prevalence of partograph utilization among health care providers in Ethiopia was 59.95%.[11] Proper partograph utilization among obstetric care providers varies from place to place in Ethiopia. The magnitude varies from 73.3% in Tigray region, 69% in Addis Ababa and 40.2% in North Shewa zones.[12–14]

Studies conducted in Addis Ababa city and Amhara region, Ethiopia identified that shortage of preprinted partograph in the public health facilities, being a general practitioner, poor knowledge and attitude towards partograph were the main factors for not using partograph during labor.[15,16]

Even though in-service training on basic emergency obstetric and newborn care (BEmONC) which widely include partograph utilization techniques given by different governmental and non-governmental organizations at all level, some is known about how many of them utilize it and factors associated within the city health facilities. Hence, this study gives more information on the level of partograph utilization and associated factors among obstetric care providers in public health facilities of Hawassa City Administration, Sidama State, Ethiopia, 2021.

Methods and materials

Study design, period and setting

A facility-based cross-sectional study was conducted from June 10 to June 30, 2021s in Hawassa city, Sidama State, Ethiopia. Hawassa city is capital city of Sidama state. The city is located 273 kilometers south to Addis Ababa (capital city of Ethiopia). Within the city there are a total of 2787 health providers in the governmental health facilities, of which 440 are providing obstetric care.[17]

Population

All health professionals who are working in Obstetric care unit in public health facilities of Hawassa city administration were the source population whereas all health professions who are working in Obstetric care unit of randomly selected health facilities were the study population.

Sample size determination

The sample size was calculated using single population proportion formula ($n= (Z\ \alpha /2)^2\ p\ (1-p)/d^2$) by considering the following assumption: 95% level of confidence= 1.96, proportion (p) of 40.2% partograph utilization among health care providers in North Showa, Ethiopia,[14] margin of error (5%) and non-respondent rate of 10%. Accordingly, the estimated final sample size for this study

Since, the numbers of obstetric care providers assigned in Obstetric care unit of all health facilities are very small (finite), we used population reduction formula considering the total number of obstetric care providers (440) in Hawassa city public health facilities to estimate the final sample size

$nf= n/1+n/N$

n_f= final sample size

N=total number of obstetric care providers =440

n_f= 369.4

$(1+ (369.4/440))\ n_f$=201

Taking non-response rate, the total sample size for this study was =221

Sampling procedure

In Hawassa city there are 10 health centers, 1 primary, 1 general and 1 comprehensive specialized hospital. The calculated sample size was proportionally allocated to the randomly selected public health centers and hospitals based on the number of obstetric care providers in each facility. Finally obstetric care providers in the selected public health facilities were selected randomly as study participants until the desired sample size was attained

Data collection procedures and data quality assurance

A structured self-administered questionnaire developed by reviewing different related literatures,[14,19,20,22] with modification according to the objective of this specific study was used to gather important information from each study respondent.

The structured questionnaire were pretested on 5% of the total sample size in nearby health center. Data collectors and principal investigator was participated during the pretest. Then the questionnaire was assessed for its clarity, logical flow, length and completeness and the necessary correction was made before the actual data collection. We used 3 degree holder nurses for facilitating the data collection process after giving two days training regarding the objective of the study, relevance of the study and informed consent.

Operational definition

Obstetric care providers: this category includes medical doctor, midwifery, nurse and health officers which have given delivery service by regular time, rotation and duty time.

Partograph utilization: was measured based on the number of Obstetric care providers who have been using partograph during monitoring labor.

Knowledge level: - in order to determine knowledge level of the respondents, using structured self-administered questionnaire scores were computed for knowledge assessing questions. One point was allocated to a correct response which is appropriate for partograph utilization & 0 for incorrect response. For each knowledge assessing question correct answers were summed together and the mean score was computed for the total respondent's response which was 4. Those who scored above (>) the mean score (4) were taken as good knowledge level where as those who were scored below (**<**) the mean score were taken as poor knowledge level,[14,23]

Attitude: - Obstetric care provider's attitude towards partograph utilization was assessed using different Likert scales for different questions. It was measured by total score dichotomized into favorable and an unfavorable attitude taking the mean score as a (Mean score or more (**>6** = favorable attitude and less than the mean score unfavorable attitude).[14]

Data management and analysis

The data were checked, cleaned and entered using Epi-data version 3.1 and exported to stastical package for social sciences (SPSS) version 23 for analysis. The descriptive analysis such as frequency distribution, percentages, mean and standard deviation (SD) were used.

Both bi variable and multi variable logistic regression models were fitted to identify factors associated with partograph utilization. To identify factors associated with the outcome variable, a bi- variable logistic regression analysis was performed for each independent variable and crude odds ratio (COR) with 95% confidence intervals was obtained. Those variables that have p-value less than 0.25 on bi-variable analysis were considered for multi-variable analysis. The presence and strength of statistical association was measured by adjusted odds ratios (AOR) and 95% confidence intervals. In all cases P-value, less than 0.05 was considered as statistically significant. Finally the results were presented using tables, graphs and charts.

Result

Socio demographic and work related characteristics of the respondents

A total of 216 obstetric care providers were included in the study with a response rate of 97.7%.

The minimum and the maximum age of the respondents were 21 years and 49 years respectively.

The mean (+SD) age of the study subjects was 28.9 years (+4.9). About 135(62.5) % of the respondents were found in the age group 20 to 29 years. Around 165(76.4%) of the study participants were females.

Majority of the respondents 139(64.4%) were Protestant by religion followed by Orthodox 64(29.6%). Concerning marital status about 107(49.5%) of the study participants were single.

Around 162(75%) of the study participants were degree holder. Regarding profession more than half 123(56.9%) of the respondents were BSc Midwives. More than seven in ten 168(77.8%) were currently working in Hospital. As far as service year is concerned greater than half 112(51.9%) of the study participants have six year and above service provision experience.

More than seven in ten 154(71.3%) of obstetric care providers were working in labor ward with 81(37.5%) professional number per shift of 6 or more.

Regarding obstetric training about 128(59.3%) of the participants had taken basic obstetric trainings of which around 82(38%) had taken Basic emergency obstetric and newborn care BEmONC. (Table 1)

Table 1 Socio demographic and work related characteristics of study participants, Hawassa city administration public health facilities, June, 2021; n=216

Variables	N	%		
Age in years				
20-29	135	62.5		
30-39	71	32.9		
40-49	10	4.6		
Sex				
Female	165	76.4		
Male	51	23.6		
Religion				
Protestant	139	64.4		
Orthodox	64	29.6		
Muslim	7	3.2		
Catholic	6	2.8		
Marital status				
Single	107	49.5		
Married	99	45.8		
Divorced	10	4.6		
Educational status				
Diploma	43	19.9		
Degree	162	75		
MSc and above	11	5.1		
Profession				
Gynaecologist/Obstetrician	7	3.2		
General practitioner	14	6.5		
Health Officer	7	3.2		
B.Sc. Nurse	15	6.9		
	Diploma Nurse		16	7.4
	B.Sc. Midwives		123	56.9
	Diploma Midwives		30	13.9
	IESO		4	1.9
Health facility				
	Hospital		168	77.8
	Health centre		48	22.2
Service year				
<2			51	23.6
5-Feb			53	24.5
>6			112	51.9
Working unit/ward				
	Antenatal unit		34	15.7
	Labor ward		154	71.3
	Postnatal		14	6.5
	Family planning		14	6.5
Professional number per shift				
	1 per shift		9	4.2
	2 per shift		47	21.8
	3 per shift		42	19.4
	4 per shift		19	8.8
	5 per shift		18	8.3
	6 or more per shift		81	37.5
Service training				
	Yes		127	58.8
	No		89	41.2
Received training				
	BEmONC		82	38
	Advanced life support		45	20.8
	Missed		89	41.2

Citation: Dola MI, Zewdie HE. Level of partograph utilization and associated factors among obstetric caregivers in public health facilities of Hawassa city administration, sidama state, Ethiopia, 2021. *MOJ Public Health.* 2022;11(3):170–177. DOI: 10.15406/mojph.2022.11.00396

Knowledge towards partograph utilization

When we consider knowledge towards partograph utilization all of 216(100%) the study participants heard about partograph and correctly know what partograph is. Concerning components of partograph all of 216(100%) the respondents know the different components of partograph. Majority 185(85.6%) of the study participants exactly know when to start plotting on the partograph during attending women in labor whereas more than half of 116(53.7%) obstetric care providers do not know the frequency to use partograph once active phase of labor started.

Over all about 165(76.4%) of the study participants scored greater or equal to the mean score (4) indicating that this number of participants have good level of knowledge towards partograph utilization. (Table 2)

Table 2 Knowledge of study participants towards partoraph utilization, Hawassa city administration public health facilities, June, 2021; n=216

Variables	N	%
Heard about partograph		
Yes	216	100
No	0	0
What partograph is		
A tool to be used in active phase of labour	139	64.4
A graphic method of recording first stage of labour	37	17.1
A silent feature of recording the whole process of labour	40	18.5
Components of partograph		
Assessment of fetal wellbeing	82	38
Assessment of maternal well being	40	18.5
Assessment of labour progress	94	43.5
When do you start plotting on partograph		
When labour is diagnosed	16	7.4
At 4 cm cervical dilatation	185	85.6
At 3 cm cervical dilatation	15	6.9
How often used once active phase of labour started		
Once/30 minute	100	46.3
Once/hour	39	18.1
Once/4 hour	69	31.9
Once/6 hour	8	3.7

Attitude towards partograph utilization

Attitudes of study participants towards partograph utilization was assessed using attitude related questions. Majority 175 (81%) of the respondents strongly agree that following women in labor using partograph was beneficial. Around 166 (76.9%) of obstetric care providers strongly agree on the fact that partograph is very favorable for alerting skill birth attendant if there is any deviation from normal and also about 160 (74.1%) of the study participants strongly agree that using partograph health care provider can be able to identify problems and recognize complications early. From the total respondents half 51 (23.6%) of them agreed on the truth that every skill birth attendant must use partograph on every laboring mother and about 127 (58.8%) strongly agree on the fact of using partograph can enables health care providers perform essential basic interventions and make referrals to appropriate levels of care.

Among the total respondents seven tee nine (36.6%) of them disagree on the concept that using partograph is not beneficial as the estimate it gives is exaggerated. More than quarter 56 (25.9%) of obstetric care providers strongly disagree on the idea that using partograph misleads management as the progress of labor and the partograph alert line are not aligned in most laboring women.

Generally depending on the mean score (>6) highest proportion 146(67.6%) of the study participants had favorable attitude towards partograph utilization whereas only 70(32.4%) of the participants had unfavorable attitude towards partograph utilization. (Table 3)

Table 3 Attitude of study participants towards partoraph utilization, Hawassa city administration public health facilities, June, 2021; n=216

Variables	N	%
Using partograph is beneficial for labouring women		
Strongly agree	175	81
Agree	36	16.7
Uncertain	3	1.4
Disagree	2	0.9
Partograph is very favourable in alerting skill birth attendant		
Strongly agree	166	76.9
Agree	41	19
Uncertain	4	1.9
Disagree	5	2.3
Using partograph care providers can able to identify problems		
Strongly agree	160	74.1
Agree	47	21.8
Disagree	9	4.2
Skill birth attendant must use partograph on every mother		
Strongly agree	130	60.2
Agree	51	23.6
Disagree	22	10.2
Strongly disagree	13	6
Using partograph enables care providers perform basic intervention (n=216)		
Strongly agree	127	58.8
Agree	66	30.6
Uncertain	8	3.7
Disagree	15	6.9
Using partograph is not beneficial as the estimate is exaggerated		
Strongly agree	22	10.2
Agree	34	15.7
Uncertain	24	11.1
Disagree	79	36.6
Strongly disagree	57	26.4
Using partograph misleads management		
Strongly agree	25	11.6
Agree	37	17.1
Uncertain	20	9.3
Disagree	78	36.1
Strongly disagree	56	25.9

Level of Partograph utilization

According to our assessment on partograph utilization majority of 192(88.9%) the study participants stated that partograph is always available in their health facility. Two hundred six (95.4%) of the respondents consider partograph as useful in obstetric review and also around 161 (74.5%) responded that it is a managerial policy that all women in labor should monitored with a partograph. (Table 4)

From the total participants 135 (62.5%) (95%CI: 56%, 69%) of them utilized partograph to monitor women's in labor (Figure 1). Among total study respondents more than half 119 (55.1%) of them used partograph routinely to monitor labor progress for. Regarding reason stated by obstetric care providers about 75 (34.7%) of them replied that workload was the major challenge which create difficulty for not using partograph among skill birth attendants. (Figure 2)

Citation: Dola MI, Zewdie HE. Level of partograph utilization and associated factors among obstetric caregivers in public health facilities of Hawassa city administration, sidama state, Ethiopia, 2021. *MOJ Public Health.* 2022;11(3):170–177. DOI: 10.15406/mojph.2022.11.00396

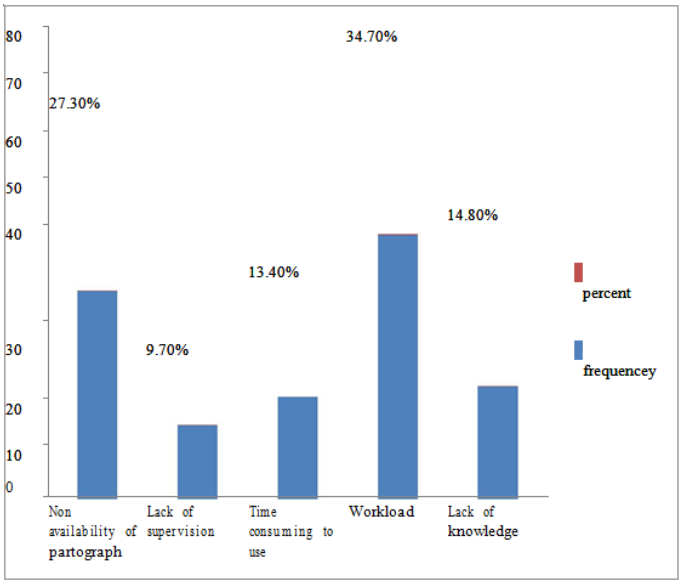

Figure 2 Reason stated by obstetric care providers for not utilizing Partograph; Hawassa city administration public health facilities, June, 2021.

Table 4 Partoraph utilization among study participants, Hawassa city administration public health facilities, June, 2021; n=216

Variables	N	%
Partograph availability		
Yes	192	88.9
No	24	11.1
Do you use partograph to monitor labor		
Yes	135	62.5
No	81	37.5
If yes how often used		
Routinely	119	55.1
Rarely	8	3.7
Occasionally	8	3.7
Missed	81	37.5
Do you consider partograph useful in obstetric review		
Yes	206	95.4
No	10	4.6
Managerial policy that women should monitored with partograph,		
Yes	161	74.5
No	55	25.5
What make difficult to use partograph		
Non availability of partograph	59	27.3
Lack of supervision	21	9.7
Time consuming to use	29	13.4
Work load	75	34.7
Lack of knowledge	32	14.8

Determinants of partograph utilization among obstetric care providers

In bi variable analysis, variables with p- value less than 0.25 were considered as a candidate variable for multi variable analysis and run in multi variable analysis. Educational status, profession, health facility, service year, service training, knowledge, attitude, partograph availability, partograph in obstetric review, managerial policy and reason for not using partograph were identified as a candidate variable for multi variable analysis by yielding P value <0.25. After multi variable analysis was preformed four variables (Educational status, profession, service training and attitude) showed significance association with partograph utilization with a p value of <0.05.

In multi variable analysis educational status were found to be stasticaly associated with partograph utilization of obstetric care providers (p<0.05). Obstetric care providers with educational status of degree had 62% less likely of partograph utilization as compared to those with educational status of MSc and above [AOR 0.038; 95% CI: 0.003-0.506; p- value =0.013].

On the other hand respondent's profession displayed significant association with partograph utilization (p<0.05). The odds of partograph utilization among study subjects whose profession was BSc Midwives were 9.9 times higher than that of study subjects whose profession was Obstetrician and Gynecologist [AOR 9.9; 95% CI: 1.06-92.65; p-value=0.44].

Similarly obstetric training was significantly associated with partograph utilization. The chance of partograph utilization was about 2.28 times higher for those care providers who had obstetric training than those care providers who had no any obstetric training [AOR 2.28; 95% CI: 1.1-4.7; p value = 0.029].

Additionally attitude towards partograph utilization showed strong statistical association with partograph utilization (p<0.01). Relative to obstetric care providers with unfavorable attitude towards partograph utilization obstetric care providers with favorable attitude had 3.7 times more likely to utilize partograph for monitoring labor [AOR = 3.7; 95% CI: 1.76-7.83 ; p value =0.001]. (Table 5)

Discussion

This study attempted to identify utilization of partograph and associated factor among obstetric care providers in public health facilities of Hawassa city administration. In this study 62.5% of the study participants utilized partograph for monitoring progress of labor. Educational status of respondents, profession, service training and attitude towards partograph utilization were significant factors associated with partograph utilization.

It is known that partograph utilization is so important for early identification of problems, complications and early referral; in turn it is essential for good maternal and fetal outcomes. In our study about 62.5% (95%CI: 56%, 69%) of the study participants utilized partograph in order to follow labor which is consistent with the result from Baghdad (58%) and Addis Ababa (57.3%)[9,16] and comparable with that of Ghana (54%) and East Gojjam (Ethiopia) (53.85%).[2,23]

The result of the present study also showed that level of Partograph utilization greater than from the study conducted in North Shoa[14] and South West Nigeria[18] (40.2%,32.3%) respectively.

This study finding on level of utilization of Partograph is less than from that of Zambia (87.5%) and Eastern zone of Tigray (83%) (10,19). The difference between these studies may emanate from difference in sample size and time variation between the studies; since obstetric training and supportive supervisions increased through time which in turn promote knowledge of obstetric care providers to actively utilize Partograph. In the other side this difference may arise from variation in knowledge level of the study participants and also from their profession since in our study majority(76.4%) of the respondents had good level of knowledge and greater than half (56.9%) of the respondents were Midwives: indicating the chance for utilization of Partograph.

The finding of our study indicated that 76.4% of obstetric care providers had good level of knowledge on Partograph implying that

this finding is consistent with the finding from North Shoa (70.5%).[14] This finding is also comparable with result from Central Zone of Tigray (68.2%)[12] but higher than from that of Cameroon (29.6%) and Eastern Gojam (56.04%) respectively.[21,23] the possible reason for this variation may be difference in the study area, time gap between the studies and data collection procedures.

Concerning attitude towards Partograph utilization about 67.6% of the study participants had favorable attitude on Partograph utilization during monitoring labor. This result is in agreement with the study finding from Central Zone of Tigray (67.7%).[12] However the finding of our study is lower than from that of North Shoa Zone (83.6%) and higher than from that of Wolaita Zone (42.1%) respectively.[14,22]

Table 5 Bivariable and Multi variable analysis of partoraph utilization among study participants, Hawassa city administration public health facilities, June, 2021; n=216

Variables			Partograph utilization		95% CI	
			Utilized	Not utilized	COR(95% CI)	AOR(95% CI)
Educational status						
Diploma			33(76.7)	10(23.3)	0.419(0.193-0.908)*	0.14(0.008-2.6)
Degree			94(58)	68(42)	0.808(0.18-3.635)	0.04(0.003-0.51)*
MSc and above			8(72.7)	3(27.3)	1	1
Profession						
Obstetrician/gynaecologist			3(42.9)	4(57.1)	1	1
General practitioner			7(50)	7(50)	1.33(0.214-8.28)	5.99(0.55-64.9)
Health officer			4(57.1)	3(42.9)	1.77(0.214-14.7)	2(0.14-31.56)
BSc Nurse			10(66.7)	5(33.3)	2.66(0.42-16.8)	17.5(1.37-224.67)*
Diploma Nurse			10(62.5)	6(37.5)	2.2(0.36-13.5)	2.72(0.22-33.43)
BSc Midwives			76(61.8)	47(38.2)	2.15(0.462-10.06)	9.9(1-92.6)*
Diploma Midwives			22(73.3)	8(26.7)	3.66(0.67-20)	6.8(0.57-81.34)
IESO			3(75)	1(25)	4(0.26-60.3)	0.6(0.2-15.4)
Health facility						
Hospital			99(58.9)	69(41.1)	1	1
Health centre			36(75)	12(25)	2.091(1.016-4.304)*	1.8(0.74-4.38)
Service year						
<2			28(54.9)	23(45.1)	1	1
2-5			35(66)	18(34)	1.597(0.723-3.527)	1.24(0.44-3.5)
≥6			72(64.3)	40(35.7)	1.479(0.754-2.9)	1.25(0.48-3.23)
Service training						
Yes			84(66.1)	43(33.9)	1.456(0.833-2.543)	2.28(1.09-4.76)*
No			51(57.3)	38(42.7)	1	1
Knowledge						
Good knowledge			99(60)	66(40)	0.625(0.357-1.231)	0.54(0.23-1.24)
Poor knowledge			36(70.6)	15(29.4)	1	1
Attitude						
Favourable			99(67.8)	47(32.2)	1.989(1.11-3.565)*	3.7(1.76-7.8)**
Un favourable			36(51.4)	34(48.6)	1	1
Partograph availability						
Yes			125(65.1)	67(34.9)	2.612(1.1-6.12)*	2.8(0.96-8.12)
No			10(41.7)	14(58.3)	1	1
Partograph in obstetric review						
Yes	126(61.2)	80(38.8)	0.175(0.022-1.408)	0.11(0.01-1.08)		
No	9(90)	1(10)	1	1		
Managerial policy						
Yes	95(59)	66(41)	0.54(0.276-1.056)	0.55(0.23-1.27)		
No	40(72.7)	15(27.3)	1	1		
Reason for not utilizing partograph						
Non availability of partograph	40(67.8)	19(32.2)	1	1		
Lack of supervision	11(52.4)	10(47.6)	0.522(0.189-1.443)	0.47(0.14-1.58)		
Time consuming	21(72.4)	8(27.6)	1.247(0.468-3.324)	0.8(0.26-2.53)		
Workload	38(50.7)	37(49.3)	0.488(0.24-0.992)*	0.45(0.2-1)		
Lack of knowledge	25(78.1)	7(21.9)	1.7(0.624-4.613)	1.57(0.5-4.9)		

*=p<0.05 statistically significant, **=p<0.01 Statistical association, ***=p<0.001 Strong statistical association; COR=Crude odds ratio, AOR=Adjusted odds ratio, =Confidence interval, 1=Reference categorya.

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The finding of our study identified that educational status have significant association with Partograph utilization during monitoring labor in which obstetric care providers with educational status of degree had 62% less likely to utilize Partograph as compared to those with educational status of MSc and above. Similar finding was observed in a study done in Eastern Zone of Tigray, Wolaita Zone and East Gojam Zone, Ethiopia.[19,22,23] The possible explanation will be most of the obstetric care providers who holds a degree were Midwives who got obstetric training and routinely work in obstetric wards; this experience leads them to properly utilize partograph during monitoring labor. However studies from Central Zone of Tigray contradicts with this finding indicating that educational status of study participants had no significance influence on partograph utilization.[12]

Our study also identified that respondent's profession had statistical association with partograph utilization. Respondents who are BSc Midwives were 10 times more likely to utilize partograph compared to Obstetricians/Gynecologists. This finding is similar with result from a study in North Shoa Zone and Eastern Zone of Tigray.[14,19] This might be due to the fact that Midwife obstetric care providers had more of chance of being assigned in delivery wards and consequently received training on partograph utilization which might in turn have improved their knowledge and skills to utilize partograph than others.

Similarly this study demonstrated that service training had showed significance association with partograph utilization implying that obstetric care providers who took service training had 2.3 times more chance of partograph utilization than their counter parts. This finding is supported by the study conducted in Central Zone of Tigray, North Shoa, Eastern Zone of Tigray, Addis Ababa and East Gojam.[12,14,19,20,23] A study finding from Cameroon is in contrary with the current study implying that service training had no a determinable effect on partograph utilization.[21] This discrepancy might be due to difference in the study setting, time and sample size.

Furthermore this study also showed that attitude had strongly statistically associated with partograph utilization during monitoring labor. Relative to obstetric care providers with unfavorable attitude obstetric care providers with favorable attitude had 3.7 times more likely to utilize partograph. Similar findings had been reported from a study in North Shoa and Addis Ababa.[14,20] However this result is in contrast with the study from Central Zone of Tigray in which attitude of study participants had no any effect on partograph utilization.[12]

Limitation of the study: The study lacks qualitative approach for exploring detail information about the problem.

Conclusion

Based on the result of this study about 62.5% of the study participants utilize partograph for monitoring labor whereas 37.5% of them had not utilized it.

This study also showed that educational status, profession, service training and attitude were significantly associated with partograph utilization during monitoring progress of labor. The study finding recommended that strengthening supportive supervision and providing training by responsible bodies to obstetric care providers is vital to promote partograph utilization for monitoring labor

List of Abbreviations

BEmONC: Basic Emergency Obstetric and New born Care.

CEmONC: Comprehensive Emergency Obstetric and New born Care.

EDHS: Ethiopian Demographic and Health Survey.

FMOH: Federal Ministry of Health.

HEWs: Health Extension Workers.

MDGs: Millennium Development Goals.

MNH: Maternal and Neonatal Health.

MMR: Maternal Mortality Rate.

NGO: Non-Governmental Organization.

OCGs: Obstetric Care Giver**.**

PHCU: Primary Health Care Unit.

PI: Principal Investigator**.**

UNICEF: United Nations Children's Fund.

WHO: World Health Organization.

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Conflicts of interest

The authors declare that there is no conflict of interest.

References

1. World Health Organization. *Beyond the numbers: reviewing maternal deaths and complications to make pregnancy safer*. World Health Organization. 2004.
2. Opoku BK, Nguah SB. Utilization of the modified WHO partograph in assessing the progress of labour in a metropolitan area in Ghana. *Research Journal of Women's Health*. 2015;2(2):1–7.
3. World Health O. Trends in maternal mortality 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Geneva: World Health Organization; 2019.
4. Central Statistical Agency, Addis Ababa, Ethiopia. The DHS program ICF Rockville, Maryland, USA. Demographic and Health Survey. 2016.
5. Berhan Y, Berhan A. Causes of maternal mortality in Ethiopia: A significant decline in abortion related death. *Ethiop J Health Sci*. 2014;Suppl(0 Suppl):15–28.
6. Tina Lavender A, Anna Hart, Rebecca MDS. Effect of Partogram use on outcomes for women in spontaneous labour at term (Review). *Cochrane Database of Systematic Reviews.* 2013;(7).
7. WHO. *Managing complications in pregnancy and childbirth: a guide for midwives and doctors*. Geneva: WHO, 2017.
8. Matewes M. The partograph for the prevention of obstructed labour. *2nd edition Clinical Obstetric Gynecology.* 2009;52(2):256–269.
9. Abdul-Saheb TM, Al-Deen LD. Knowledge and Use of Partograph among Obstetric Care Givers in a Sample of Hospitals in Baghdad, Iraq -2017. *Iraqi Journal Of Community Medicine*. 2017;30(3):115–22.
10. Kalusopa Victoria Mwiinga MS, Muleya Mutinta, Lyangenda Kutemba, et al. Use of the partograph among midwives at University Teaching Hospital, Lusaka: a LAMRN project in Zambia. *African Journal Of Midwifery And Women's Health*. 2017;11(2).
11. Ayenew AA, Zewdu BF. Partograph utilization as a decision-makingtool and associated factors among obstetric care providers in Ethiopia: a systematic review and meta-analysis. *BMC*. 2020;(9).
12. Tesfay Hailu, Kidane Nigus, Gebreamlak Gidey, et al. Assessment of partograph utilization and associated factors among obstetric care givers at public health institutions in central zone, Tigray, Ethiopia. *BMC research notes*. 2018;(11).

13. Azeb Abrham Hagos, Tekaand EC, Degu G. Utilization of Partograph and its associated factors among midwives working in public health institutions, Addis Ababa City Administration, Ethiopia,2017. *BMC pregnancy and childbirth*. 2020;(20).

14. Negash WA, Marta B, Gizachew AT, et al. Partograph utilization and associated factors among obstetric care providers in North Shoa Zone, Central Ethiopia: a cross sectional study. *Africa Health Sciences*. 2015;15(2):552–559.

15. Fantu AD, Worku A, Tadesse E. Assessment of knowledge and utilization of the partograph among health professionals in Amhara region, Ethiopia. *Science Journal of Clinical Medicine*. 2013;2(2):26–42.

16. Engida YB, Ayalew A, Nebreed F. Knowledge and utilization of partograph among obstetric care givers in public health institutions of Addis Ababa, Ethiopia. *Pregnancy and Childbirth*. 2013;13(17):1–9.

17. Hawassa City Administration Health Department, Annual report. 2021.

18. Fawole A, Hunyinbo K, Adekanle D. Knowledge and utilization of the partograph among obstetric care givers in South West Nigeria. *Afr j Reprod Health*. 2008;12(1):22–29.

19. Guesh W, Desta A, Natnael E, et al. Utilization of partograph and its associated factors among obstetric care providers in eastern zone of tigray, Northern Ethiopia. *African medical journal*. 2019;34(181).

20. Engida Yisma, Berhanu Dessalegn, Ayalew Astatikie, et al. Knowledge and utilization of partograph among obstetric care givers in public health institutions of Addis Ababa, Ethiopia. *BMC pregnancy and childbirth*. 2013;13:1–9.

21. Carlson B, Noah F, Valery K Danwe, et al. Knowledge and utilization of the partograph ;A cross sectional survey among obstetric care providers in urban referal public health inistitutions in North West and South West Cameroon. *Plos One*. 2017;12(2).

22. Kidist G, Eyasu T. Knowledge of partograph utilization and its associated factors:A cross sectional survey in Wolaita Zone, South Ethiopia. *International Journal of Nursing and Midwifery*. 2019;11(1):1–6.

23. Zelelaw D, Tegegne T. Level of partograph utilization and associated factors among obstetric care givers at public health facilities in East Gojam. *PLoS ONE*. 2018;13(7):1–13.

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