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## Knowledge, Attitude, and Factors Affecting Practice of Partograph by Professional Birth Attendants

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### Abstract

Since most life-threatening complications occurring during labor and delivery, it cannot be predicted or prevented. Therefore interventions to address the global burden of maternal and neonatal death and disability should focus on quality of care during intra-partum period. The Partograph is an essential tool for decision-making during labor and is proved to prevent prolonged labor. Thus this study is aimed to assess the level of knowledge attitude and practice and major factors affecting the use of partograph by the professional birth attendants (PBAs) in Orotta Integrated National Referral Maternity Hospital (OINRMH). The quality of midwifery care provided in this hospital is of paramount importance because it is core teaching and maternity care provision center, that shapes and equips future medical professionals. A health facility based cross sectional study was conducted from July 7 to September 9, 2015 among all professional birth attendants (PBAs) who were actively working in the waiting (labor) and delivery wards. Data was collected using a self-developed structured questionnaires with open and closed ended questions covering the thematic areas of the study. The collected data were analyzed using SPSS version 20. Chi square ( $\chi^2$ ) test was applied to assess if there was any significant association among the variables under study. The Results shows that on the average about (65%)of the study participants had moderate knowledge about partograph. Nevertheless the knowledge on specific important variables is found to be low. Those who are in the age groups of 20-27 and single had better knowledge of partograph. Despite their positive attitude toward the advantage of using.

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partograph to document the assessment of maternal and fetal condition that enables appropriate decision making it is not being used at OINRMH. As a Conclusion; the knowledge and skills of partograph and its routine use by professional birth attendants is recommended by WHO and the International Confederation of Midwives while caring for a mother during labor, which is lacking at OINRMH. Thus the research team recommend, continuous in service training, up-to-date reading materials and supportive supervision should be in place.

**Key terms:** Partograph; Professional birth attendants Orrota integrated national referral maternity hospital.

## **1. Introduction**

### ***1.1 Background***

Most of maternal mortality (99%) occurs in the developing countries, with sub-Saharan Africa and Southern Asia accounting for most of them (United Nations Population Fund [1]. Moreover mothers and newborns who survive difficult labor remain with permanent disabilities. One of the main contributors to maternal mortality and morbidity is prolonged labor. Therefore diagnosing and taking timely appropriate intervention of prolonged labor is important for reducing this avoidable tragedy [2].

Maternal mortality in Eritrea remains high, at a rate of 486/100,000[3. Even though antenatal care has shown a promising trend that increased from 40% in 2000 to 62% in 2014, skilled birth attendance has not changed much for the last 10 year which is 32% [4]. However, antenatal care could not detect obstetric complications that would occur during labor. Antenatal screening has only a small and insignificant contribution in preventing bleeding and prolonged labor that is unpredictable and sudden in 90%, and the major causes of maternal morbidity and mortality[5]. Maternity services that include preconception-pregnancy-birth-and postpartum care are a continuum. Since most life-threatening complications occurring during labor and delivery cannot be predicted or prevented, interventions to address the global burden of maternal death and disability should focus on quality of care of intra-partum period [6, 7].

In Eritrea care for normal pregnancy, delivery and postpartum is rendered by midwives. Therefore high quality midwifery care can play a pivotal role in reducing maternal and newborn mortality and morbidity as proved by Lancet [8]. Prolonged labor that can be detected early and managed using partograph, is a leading cause of death among mothers and newborns in the developing world [2]. However in Eritrea, it is assumed that partograph is not routinely used by maternity care providers during labor.

### ***1.2 The partograph***

The partograph consists of a graphic representation of labor and is a visual resource to analyze the progress of labor in relation to time. It provides a pictorial overview of the progression of labor to the attending obstetrician or midwife, making early identification and management of prolonged labor possible. It is widely used in under-resourced settings as a simple and affordable tool to monitor labor [9]. The underlying principles of the partograph include: a) a method of displaying progress in cervical dilatation as a continuous graph, while at the same time b) displaying as many other features of the state of the mother, the fetus and the labor as possible in

graphic form [10]. The partograph is the simplest and most effective aid to logical management of labor that has ever been devised; the combination of its features makes the partograph so valuable. More over It eases communication among health workers from the least to the most experienced, and for all health care environments from the least to the most sophisticated. The partograph is a simple and inexpensive tool that helps monitor labor in a cost-effective way; it is a suitable method to be used in low income countries to improve the midwifery care outcomes [2].

Indeed poor knowledge, attitude and lack of skills of the use of partograph, are among the possible causes of poor quality midwifery practice that results in adverse obstetric outcomes.

The partograph serves as a warning system of arising complications during labor; it assists with intervention decisions and the ongoing evaluation of the effects of implemented interventions [11]. As stated above, the partograph has been widely accepted as one of the measures that assist in reducing maternal and neonatal mortality resulting from prolonged labor [12]. One of strategies to prevent prolonged labor and improve intrapartum care and yield better maternal and neonatal health outcomes in African countries is through proper use of partograph [13]

Even though in Eritrea most maternity care for normal pregnancy, labor and postpartum is offered by midwives, the evidence related to quality of midwifery care in the country is limited. Moreover use of partograph by maternity care providers has never been assessed.

Orrota Integrated National Referral Maternity Hospital (OINRMH) is a teaching hospital where doctors, nurses and midwives take their midwifery training. Therefore, quality of midwifery service at OINRMH has a paramount importance in shaping future maternity health care providers.

Thus the aim of the study had two folds to assess the existing knowledge, attitude and practice of professional birth attendants (Midwives, Nurses, Doctors (interns) and Health Assistants) at OINRMH, regarding the use of the partograph while caring for a mother during labor and delivery. And will also assess the factors that affect use of the partograph.

Therefore the study becomes significantly important because OINRMH is the core midwifery training center and the biggest midwifery service provider in the country.

## **2. Methodology**

### **2.1 Study Design**

A cross sectional, descriptive analytic study was conducted from June 2015- September 2015.

### **2.2 Study site**

The study was conducted at Orrota Integrated Maternity National Referral Hospital (OIMNRH). It is located in

Asmara the capital city where the major health training institutions (Orotta School of Medicine and Asmara College of Health Sciences are Located). The Ministry of Health has declared that OIMNRH is among the major teaching National Referral Hospitals. It is the biggest and busiest maternity center in the country with high turnover of mothers giving birth. This hospital has about 8000 normal deliveries annually that is 34% of the total national normal deliveries [14]. It is a teaching hospital where, medical students, nurses, nurse- midwives and others take their training. Therefore the quality of maternity care offered in this hospital should be high quality.

### ***2.3 Study Population***

The study population were professional birth attendants (Midwives, diploma nurses, Health Assistants, Doctors (interns)), involved in the care of mothers during labor and delivery in the study area.

### ***2.4 Sampling method and Sample Size***

Sampling method: Purposive samplings that utilized a total coverage of all professional birth attendants was used.

Sample size: Total coverage.

**Inclusion Criteria:** All professional birth attendants (Midwives, Nurses, Health Assistants, Doctors (interns) involved in care of mothers during labor and delivery.

### ***2.5 Data Collection methods and Tool***

A self-developed structured questionnaire containing open and closed ended questions that assessed the thematic areas of the study was utilized. The questionnaire was designed to assess: Demographic Variables of study participants; knowledge about, attitudes toward and practice of partograph and factors that influence use of partograph.

#### **Data collection procedure:**

The study site was assessed beforehand and work relationship established with the Hospital Medical Director, Head Nurses and staff at the study site.

Before starting data collection, the purpose of the study, and that participation in the study is voluntary was explained to the study participants. Finally after securing their cooperation study participants were asked to have their written consent.

Data was collected using a self-administered questionnaire. Confidentiality was maintained throughout the research process.

**Validity:** The validity of the data collection tool (questionnaire) was established by comparing with similar

studies, consulting midwifery experts, and pretesting before implementation. The pretest was done in another labor and delivery ward to avoid bias of the true study.

### ***2.6 Measure of variable***

The part of the questionnaire that assessed the knowledge was assigned grades with a total points of 32. Based on that the level of knowledge was divides in to three, that is poor, moderate and good. The classification was: 11 from the total 32 questions are classified as poor; and those who got 12-20 as moderate and 21-32 as good. , so the results are classified to poor, moderate and good according to that.

### ***2.7 Data Analysis***

After preparing three data entry from, the quantitative data was entered using SPSS version 20. Some of the open ended questions were also coded and entered on the same data entry forms. Data was cleaned for any inconsistencies that occurred during data collection or entry, and then analysis was conducted using the same software.

Analysis was performed and the results were expressed in cross tabulated tables; percentages, ratios and rates.

Chi square ( $\chi^2$ ) test was applied to assess if there was any significant association among the variables under study.

Based on the results that addressed the objectives, discussions, conclusions and recommendations were made.

### ***2.8 Ethical consideration:***

The research proposal was reviewed by the ethical committees of Asmara College of Health Science and that of the Ministry of Health and ethical clearance was granted. Verbal and written consent was obtained from the research participants. Participants were told that they could withdraw from the interview whenever they wished, and their privacy would be kept strictly confidential

## **2. Results**

The above table shows, majority are between the ages of 20-27 years (70%) and single (82.5%).

Table 2.shows very low knowledge about the three important parameters that should be recorded on the partograph that is full answer on labor progress, fetal condition, and maternal condition on the average is 14%.

Table 4 shows most of Midwives (80%) said partograph had good coverage during their pre-service training

Table 3.shows over all incorrect answers for labor and partograph are 48%.

Table 5 shows 88.7% of participants have positive attitude towards use of partograph.

NB:  $P < 0.05$ , Demographic variables do not have any significant association with their attitude

**Table 1:** Socio demographic characteristics of study participants

Variables	Frequency	Percentage (%)
<b>Age</b>		
20-27	28	70.0
28-35	10	25.0
≥ 35	2	5.0
<b>Marital status</b>		
Single	33	82.5
Married	7	17.5
<b>Professional category</b>		
Medical students in intemship	13	32.5
Nurse Midwives	15	37.5
Nurses (diploma graduates)	5	12.5
Health Assistants (certificate)	7	17.5
<b>Years of service in maternity wards</b>		
≤ 1 year	17	42.5
2 years	6	15.0
3 years	6	15.0
4 years and above	11	27.5

**Table 2:** Scores earned on Knowledge about the parameters to be plotted in the partograph

Question	0		≤1		2		3 (full)	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Parameters of Labor Progress	2	5%	11	27.5%	24	60%	3	7.5%
Parameters of Fetal condition	1	2.5%	19	47.5%	11	27.5%	9	22.5%
Parameters of Maternal condition	0	0%	23	57%	12	30%	5	12.5%
Total		2.5%		44%		39%		14%

**Table3:** Knowledge about labor in relation to partograph

Questions on knowledge	Correct Frequency	%	Incorrect Frequency	%
Define a partograph	35	87.5	5	12.5
Main purpose of partograph	7	17.5	33	82.5
Time to start plotting	37	92.5	3	7.5
Define latent phase of labor	28	70	12	30
-Hours it takes for primipara	16	40	24	60
- Hours in labor for multipara	5	12.5	35	87.5
Define active phase	36	90	4	10
-Hours in takes in primipara	8	20	32	80
-Hours it takes in multipara	15	37.5	25	62.5
Cervical dilatation per hour in primipara	26	65	14	35
Cervical dilatation per hour in multipara	17	42.5	23	57.5
Utrine contraction in 10 minutes	10	25	30	75
Five indicator of bishop score	21	52.5	19	47.5
What does alert line indicate	17	42.5	23	57.5
What does action line indicate	21	52.5	19	47.5
Define prolonged labor	16	40	24	60
Define obstructed labor	28	70	12	30
We can say labor is prolonged labor is if the plotting moves to where?	30	75	10	25
Total		52%		48%

**Table 4:** How much was the partograph covered as a topic during their pre-service training

	Well covered		Moderately covered		Not mentioned at all	
	Frequency	%	Frequency	%	Frequency	%
Dr.GP/interns	5	38.5	7	53.8	1	7.7
Midwife	12	80	3	20	0	0

Diploma nurses	3	60	2	40	0	0
Health assistants	4	57.1	2	28.6	1	14.3

**Table 5:** Attitude of participants towards partograph (PG) (positive indicates those who agree with the question)

Question on assessing the attitude	Positive attitude		Negative attitude	
	Frequency	%	Frequency	%
PG is important tool to monitor the progress of labor	40	100	0	0
PG help identify case for CS	25	62.5	15	37.5
Do you want to take training in the use of PG	35	87.5	5	12.5
Routine use PG is important	37	92.5	3	7.5
PG use is waste of time	4	90	36	10
PG should be used routinely for Normal labor	34	85	6	15
Use of PG is midwives' responsibility	35	87.5	5	12.5
Use of PH improve quality of care in labor?	38	95	2	5
Total		88.7%		11.3%

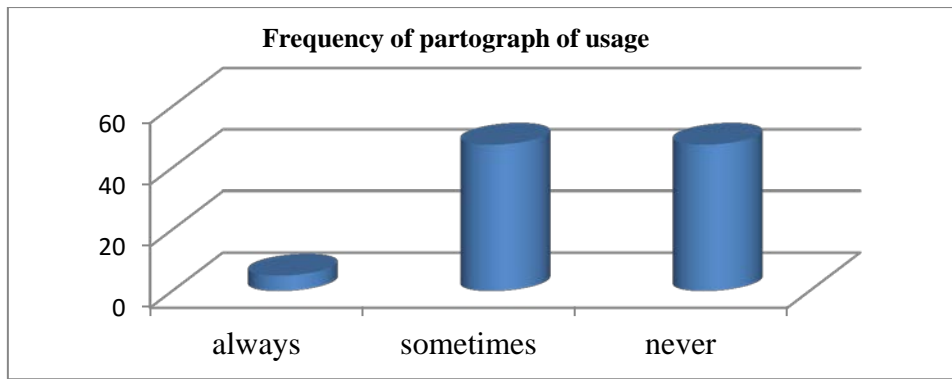
**Table 6:** Availability of protocols for labor management in OINRMH

Questions on partograph	Yes		No	
	Frequency	%	Frequency	%
Is there any labor management protocol at OINRMH?	33	82.5	7	17.5
If there is protocol, are you instructed on how to use it?	30	75	10	25
If there is a protocol does it state routine use of partograph?	22	55	18	45

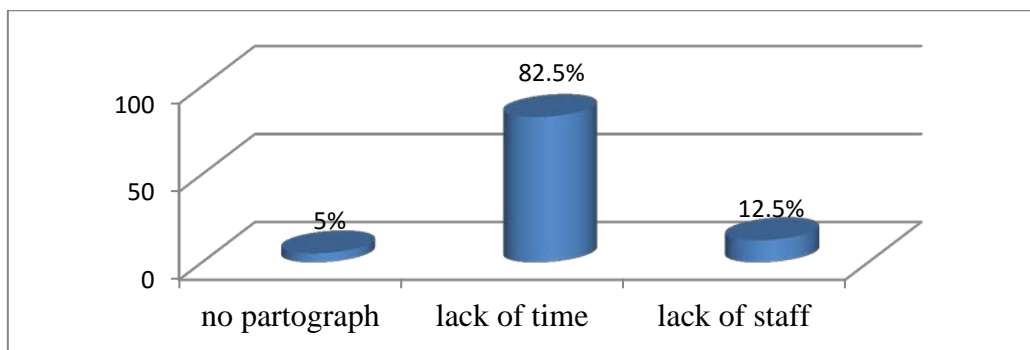
Table 6.shows, majority (82.5%) know that there is a protocol and 75% said they are instructed on it use.

Figure 1 Use partograph by Health professionals while caring for a mother during labor





**Figure 1:** Use of partograph by study participants



**Figure 2:** Factors affecting use of partograph while caring for a mother during labor

According to figure 2; the majority of the participants (82.5%) stated that they didn't use partograph because of lack of time. And minority (5%) because there is no available partograph, and (12.5%) stated due to lack of staffs

**Table 7:** Relationships between knowledge, attitude and Practice

Pearson correlation among knowledge attitude and practice			
	Knowledge	Attitude	Practice
Knowledge		0.122	0.408
Attitude	0.122		0.62
Practice	0.4.8	0.62	

Table 7 shows that there is no significant relationship among Knowledge attitude and Practice.

### 3. Discussion, Conclusion & Recommendations

### **3.1 Discussion**

This study was designed to assess the participant's comprehensive knowledge, attitude and practice about partograph and also the factors affecting its use. It was conducted in OINRMH which is the core national health professionals training center and biggest national childbirth service provider. Prolonged labor is a leading cause of death among mothers and newborns in the developing world. If the labor does not progress normally, the woman may experience serious complications such as obstructed labor, dehydration, exhaustion, or rupture of the uterus. Prolonged labor may also contribute to maternal infection or hemorrhage and to neonatal infection and morbidity. The most recent statistics from the World Health Organization (WHO) showed that 8% or 42,000 of all maternal deaths are caused by prolonged labor which can simply be identified through the routine use of partograph during care of laboring mothers [15]. Though the WHO and ICM recommend all professional birth attendants use partograph while caring for a laboring mother and have the required competence about it, our study revealed that, our study participants lack all.

The study participants are 40 in number composed of medical students in their internship, nurse-midwives, nurses, and health assistants and their age ranges from 20 to  $\geq 35$  years which majority (70%) is in 20-27 years age group. Majority of the full time workers are midwives (35%). The midwives and nurses take full responsibility of managing all normal labor and delivery at OIMNRH. The health assistants are not supposed to take the responsibility of assisting the mother during childbirth, but they do it because of the shortage of nurses. All professionals who care for a mother during labor and delivery are expected have adequate knowledge about and use the partograph for recording findings and monitor progress of labor, maternal and fetal condition.

The results yielded important results on knowledge of participants about partograph. As reflected in table 2 the knowledge about the three important parameters that should be recorded on the partograph with correct answers are only 14% and table 3 shows 48% of the answers for general knowledge about labor in relation to partograph is incorrect, the details can be referred to the tables. In this study the knowledge level for a professional birth attendant is unacceptably low. Consistent with our study Fawole their studies from Nigeria reported, that knowledge about components of partograph and assessment during labor was grossly deficient that resulted in poor quality of intra-partum care[11]. Hence Fawole recommended effective interventions to improve labor supervision skills and partograph utilization are urgently required.

The demographic background was assessed for any significant association with Knowledge. Age and marital status that is age group of 20-27 and single had better knowledge P value at 0.00 and 0.018 respectively. This can be explained, the young ones are majority single and those who recently graduated from their pre-service trained who are still with recent memory of their lectures about partograph. The rest of the demographic variables had no significant association with knowledge about partograph possibly due to small sample size. Different from our results studies from Ethiopia and Nigeria reported midwives were more knowledgeable about partograph than general nurses, health officers and general practitioners[15, 17]. Over 91% of study participants had positive attitude towards the use of partograph. For Instance as reflected in table 5, 100% of them said partograph is important tool to monitor the progress of labor. This is promising, that indicates it is easy to change behavior of the professionals and introduce the use of partograph at OINRMH. Similar to our study,

studies from Ethiopia and Nigeria reported professional birth attendants had positive attitude toward use of partograph who said, “it is an efficient tool for monitoring labor and identify women requiring further interventions” [17, 18]. On the other hand a study from Malawi reported their study participants had negative attitude towards using partograph [19].

In our study 82.5% of the participants knew that there is labor management protocol at OINMRH and are instructed on how to use it. In contrast to our finding, Scolefield reported the root cause for 37 adverse events in obstetric care was due to lack of guideline or protocol regarding the practice and majority of staff were unfamiliar with labor ward protocols [20]. The availability of protocol and instructing the professionals about its use in OINMRH shows the commitment of the hospital for improving maternal care. It only needs continuous education and close supervision.

At OINMRH we can claim that the health professional who are taking care of mothers during labor and delivery are not using partograph to monitor maternal and fetal condition. As Shown in figure 1, 47.5% said we sometimes use and 47.5 said we never used. The use of some times is not specific that could be only once or none. Those who said we always use (5%) are two health assistants those who are not even expected to assist labor and delivery independently at a national referral hospital. Thus our findings are not consistent with WHO and ICM recommendations that insist the routine use of partograph to monitor maternal and fetal conditions during the active phase of labor [7, 21]. Similar to our findings a study in Niger Delta University Teaching Hospital showed that despite midwives good knowledge of the partograph, there was poor use of partograph for labor monitoring [19]. On the other hand, in contrast to our study [22] from her study in Mexico reported use of partograph by midwives was 99.3%. [23] also reported Partograph was used in 70% of care for women during labor in Cambodia a tertiary hospital. A study that examined data collected about maternity- related practices during the testing of a new birth record in Jordan, and compared these with WHO guidelines and evidence based recommendations reported many practices were used inappropriately [24].

In our study the participants’ main reason for not using the partograph was lack of time (82.5%). This reflects, the participants’ lack of understanding of the fact that plotting findings in partograph saves more time than writing the findings as a note. Similar to our study Ith et al reported, knowledge, attitudes, skills and others influenced skilled birth attendant behaviors [25].

#### **4.2 Conclusion**

Though our study participants are small in number the study had yielded valuable information that can be used to improve the midwifery care at OINRMH in Asmara. The findings revealed that the professional birth attendants have lower knowledge about partograph than expected. In spite of their poor knowledge almost all have positive attitude towards the use of partograph. The major issue of concern is, regardless the WHO and ICM recommendation of routine use of the partograph by birth attendants our study showed almost no use of partograph while caring for a laboring mother.

### **4.3 Recommendation**

1. OINRMH is a core midwifery care training center thus up-to-date reading material should be available.
2. Continuous in service training should be in place.
3. Educators from colleges should closely supervise their students and make their students role models for other practitioner.
4. Assessment of staff patient ratio should be considered.
5. Staff members should be continuously motivated.

### **4.4 Limitation**

Though the study is significant due to the importance of target maternity center the core teaching site the sample is relatively small that created problem in creating relationships between variables.

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