

# Attitudes, Practices and Factors Affecting the Use of the Partogram by Professionals Attending to Women in Labour and Delivery in the Bafut Health District

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## Abstract

**Introduction:** Given that the provision of care to the childbirth process is not purely in the hands of educated and trained midwives, the competency in application of midwifery tools may be inadequate and consequently affect the quality of care. The Partogram is the single most important tool which has been scientifically proven to reduce maternal and foetal morbidity and mortality. Though important, many healthcare providers do not use it regularly in the monitoring of labour. **Objectives:** Our objectives were to determine the attitudes, practices, proportion of parturients monitored using a Partogram and the factors limiting the use of the Partogram by professionals attending to women in labour and delivery (PAWLD) in the Bafut Health District. **Methods:** This was a cross-sectional study carried out amongst 65 Professionals attending to women in labour and delivery in the Bafut Health District that lasted 6 months. All the data were collected by our self. First through a face to face interview with a questionnaire, secondly with an observational guide used to assess Partograms filled and lastly using delivery registers to obtain the proportion of parturients monitored with a Partogram. The data analysis was done using the statistic software Epi Info version 7 and Microsoft Excel. **Results:** This study revealed that 47 (72.3%) of participants had good attitudes, 34 (52%) had good practices, 375 (79.3%) parturients were monitored using a Partogram, and the lack of in-service training, low number of staff and poor knowledge on Partogram use were identified as the main limiting

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factors to the use of the Partogram. Being a health assistant was statistically significantly associated with having a poor practice with a p-value of 0.047 and odds ratio 5.33 [1.03 - 26.45] we obtained just 1 (1.54%) filled according to the WHO standards. **Conclusions and Recommendations:** In the Bafut Health District, 7 out of 10 PAWLs have a positive attitude towards the use of the Partogram, while a poor practice is predominant as a result 4 out of 5 deliveries were monitored using a Partogram with only 1.54% of the Partograms filled according to WHO standards. The lack of in-service training, lack of PAWL and poor knowledge on Partogram usage are the major drawbacks to the use of the Partogram. We therefore recommend that continues medical education (CME) be organised on the use of the Partogram.

## Keywords

Partogram, Health Assistant, PAWL, Limiting Factor

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## 1. Introduction

### Background

Maternal mortality rates (MMR) vary widely between countries within a given region, and, between urban and rural areas. Globally, there were an estimated number of 289,000 maternal deaths in 2013. Sub-Saharan Africa alone accounted for 62% of maternal deaths followed by Southern Asia (69,000) [1]. Moreover, mothers and new-borns who survive difficult labour remain with permanent disabilities [2].

In some countries, national rates of MMR exceed 1000 per 100,000 live births, with urban rates of 500 or more and rural rates several times as high [3].

A feature of the health care services in developing countries is the inequality in their distribution which turns to be worse in some African countries where health care coverage is largely restricted to cities. In many rural areas, there may be no health services at all or lack of roads and difficulties of transportation may make them inaccessible. A high proportion of maternal deaths in these areas occur at home, when a woman delivers unattended to by a trained health professional, or when the woman referred from the Health centre is actually on the way to a secondary referral hospital [3]. Thus the importance of effective and timely referrals in an obstetric emergency is related to the unpredictability of pregnancy complications and their potential to progress rapidly to become severe and life threatening [4].

Maternal mortality in Cameroon has evolved from 669 maternal deaths/100,000 live births in 2005 through 1000/100,000 live births in 2010 [5] to a rate of 596/100,000 as of 2015 [6]. Even though antenatal care has aided to decreased the trend by 18.1% from 1990 to 2015 [6].

Prolonged and obstructed labour is one of the five major causes of maternal death which was responsible for 8% of all maternal deaths. Therefore, diagnosing prolonged labour and taking appropriate and timely interventions are im-

portant for reducing this morbidity and mortality [2].

The Partogram is an essential tool for decision making during labour and has proven to prevent prolonged labour. In order to be successful, the Partogram must be used in the continuous monitoring of labour. Without this, monitoring of labour becomes incomplete hence problems may be identified late, resulting in complications which may cause maternal and neonatal morbidity and mortality [7].

It is assumed that those who will use the Partogram are trained health personnel. This personnel includes obstetricians, general practitioners responsible for labour wards, medical assistants trained in midwifery, nurses, midwives and those maternal and child health aides who have been trained appropriately and were termed Professionals assisting to women in labour and delivery (PAWLD) in our study. Therefore a good training in the monitoring of labour using the Partogram can play a pivotal role in reducing maternal and new-born mortality and morbidity [7].

The use of the Partogram needs to be encouraged more in developing countries where peripheral staff and non-obstetricians are used as a workforce for management of pregnant females. As these countries do not have effective peripheral level emergency obstetrics services, it is very important that every woman in labour should be referred timely in order to improve maternal and neonatal outcomes which can only be achieved by proper monitoring of labour using a simple tool like the Partogram [8]. Similar studies like the one carried out by Mathews In Bangladesh on the utilization of the partogram hold that Supporting the health workers at first-level primary care facilities to better interpret and act on partograph data in a timely manner, and strengthening the referral systems are needed to ensure that women in labour receive the prompt quality care they and their babies require to survive. However the results obtained in this case are for a typical African setup whereby most of the personnel still lack adequate training on the use of the partogram. The persistent maternal mortality and morbidity associated with the inconsistent use of the Partogram in the Bafut Health District was therefore the motivation behind this study.

## **2. Materials and Methods**

### **2.1. Study Site and Population**

#### **2.1.1. Study Site**

**Location:** The Bafut Health District is one of the nineteen Health Districts in the North West Region, located at latitude 6°05'00" longitude 10°06'00" created in August 1996. It has a total of 15 Health areas.

**Relief:** About a third of the District is of hilly/Mountainous topography notably the Mbakong, Mundum and Akofunguba Health Areas. The rest of the other 10 health areas have plain land. The big fast flowing Mezam River cuts across the District at the Akofunguba, Mankanikong and Mbakong Health Areas.

**Population:** The total District population for 2016 is of 67,744 inhabitants distributed over a surface area of about 450 Km<sup>2</sup> giving a population density of 147

inhabitants per Km<sup>2</sup>.

Culture and Language: Her people are of the Widikum and Tikari tribes of over 50 different ethnic groups that differ much in their traditional and cultural practices and even language. English and French however remain the two main official languages spoken in the District.

Communication: The communication system is about 80% good. The mobile phone network covers most of the territory and the road network 80% accessible by vehicle all-round the season. About 20% of the District is enclave, accessible only by trekking, canoe, and horseback and is not covered by the telephone network.

Administratively: The Health District is a Sub-division with well-established technical services at the head of which is a Divisional officer (**Table 1** and **Table 2**).

### 2.1.2. Study Population

The study population included professionals attending to women in labour and delivery in the Bafut Health District available and willing to be part of the study.

## 2.2. Study Period

The study was carried out from October 2017 to March 2018.

## 2.3. Study Design

This was a hospital base cross-sectional study.

## 2.4. Sample Size Calculations

This was estimated using the Cochran's formula as shown below:

$$n = \frac{(Z_{1-\alpha/2})^2 P(1-P)}{d^2}$$

where  $n$  = Sample size;

$P$  = Prevalence of standard Partogram use in the rural area = 0.036% (Prevalence of 3.6%;

$d$  = Precision = 0.05;

$Z_{\alpha}$  = Coefficient of significance = 1.96.

The sample size,

$$n = \frac{0.036 \times 0.964 \times 1.96^2}{0.05^2} = 53.33$$

Thus, the study was to include at least 54 participants.

Meanwhile, the number of participants finally enrolled was 65 participants in 15 of the 16 (due to socio-political instability, Mundum II could not be visited) health facilities present in the District.

## 2.5. Sampling Technic

A consecutive sampling method was used. Any professional attending to women in labour and delivery available and willing to be part of the study were used.

**Table 1.** Number and state of public and private health infrastructures in the BHD (Bafut annual report 2016).

Health Area	Infrastructure	Number	Categories	Status	State	Remarks
Akofunguba	Akofunguba IHC	1	IHC	Public	Temporal	Needs construction & equipment
AKOSSIA	AKOSSIA IHC	1	IHC	Public	Temporal	Needs renovation & fencing
BUME-BUKARI	BUME-BUKARI IHC	1	IHC	Public	Temporal	Needs construction & equipment
MAMBU	MAMBU	1	Med. H/C	Private (Catholic)	Permanent	Needs renovation
MANJI	MANJI IHC	1	IHC	Public	Temporal	Needs construction & equipment
MANJI	Bafut District Hosp.	1	District Hospital	Public	Semi-temporal	Needs renovation & fencing
MANKANIKONG	MANKANIKONG IHC	1	IHC	Public	Temporal	Needs construction & equipment
MANKWI	MANKWI IHC	1	IHC	Public	Temporal	Needs construction & equipment
MTAKWI	MTAKWI IHC	1	IHC	Public	Temporal	Needs construction & equipment
MTAKONG	MTAKONG IHC	1	IHC	Public	Temporal	Needs construction & equipment
MFORYA	MFORYA IHC	1	IHC	Public	Temporal	Needs renovation & fencing
MUNDUM	MUNDUM IHC	1	IHC	Public	Temporal	Needs renovation & fencing
MUNDUM	Mundum II IHC	1	IHC	Public	Temporal	Needs construction & equipment
NCHUM	Nchum IHC	1	IHC	Public	Temporal	Needs construction & equipment
NSEM	Nsem PHC	1	Med. H/C	private (Presby.)	Permanent	Needs renovation & fencing
NSOH	Nsoh IHC	1	IHC	Public	Temporal	Needs construction & equipment
TINGOH	Tingoh IHC	1	IHC	Public	Semi-temporal	Needs renovation & fencing

**Table 2.** Health facilities, pregnant women target and total number of deliveries (Bafut annual report 2016).

Health Facilities	Pregnant women Target	Antenatal clinic	Antenatal clinic coverage	Deliveries
<b>AKOFUNGUBA</b>	361	40	11%	32

## Continued

AKOSSIA	117	15	13%	14
BUWE BUKARI	74	20	27%	13
MAMBU	261	112	43%	146
MANJI	441	265	60%	244
MANKANIKONG	330	29	9%	15
MANKWI	116	8	7%	15
MBAKONG	326	139	43%	87
MFORYA	192	44	23%	41
MUNDUM	223	33	15%	16
NCHUM	114	39	34%	26
NSEM	386	154	40%	166
NSOH	175	11	6%	4
TINGOH	270	113	42%	81
<b>Total</b>	<b>3387</b>	<b>1022</b>	<b>30%</b>	<b>900</b>

## 2.6. Inclusion and Exclusion Criteria

### 2.6.1. Inclusion Criteria

- Professional attending to women in labour and delivery available and working in the Bafut Health District.
- Professional attending to women in labour and delivery who had undertaken any training in Partogram usage and had monitored labour with the use of the Partogram.
- Professional attending to women in labour and delivery who freely accepted to be part of the study.

### 2.6.2. Exclusion Criteria

- Failure to provide informed consent.
- A health facility without any registered delivery.
- PAWLD's who had not undertaken any training in Partogram usage and had not monitored labour with the use of the Partogram.

## 2.7. Study Variable

### 2.7.1. Sociodemographic Characteristic

- Age: This was a quantitative discrete variable. It was recorded during analysis into age range in years as follow: minimum 20, maximum 65 with interval of 10.
- Sex: This was a qualitative binary variable, male or female.
- Religion: This was a qualitative variable. It was categorized into 3 modalities; 1) Christian; 2) Muslim; 3) Others (to be precised).
- Professional Qualification: This was a qualitative variable. It was categorized

into 8 modalities; 1) Midwife; 2) State registered nurse; 3) Reproductive health nurse; 4) Degree nurse; 5) Nurse assistant; 6) Health assistant (laboratory technician or surface technician); 7) Doctors.

- Professional Tenure: This was a quantitative discrete variable. It was recorded during analysis into age range in years as follow: minimum 1, maximum 40 with interval of 5.

These same variables were used in a similar study made on the Partogram in Ethiopia [9].

### 2.7.2. Attitudes of Participants in Regards to the Partogram Use

- Positive Attitude of participants on when required to use the Partogram: This was a qualitative variable. It was categorized into 4 modalities; Yes, for answer (b) alone and No for answers (a, c, d). Multiples answers were not possible.
- Positive attitude of participants in case the Partogram is not used: This was a qualitative variable. It was categorized into 6 modalities; Yes, for answer (a) alone and No for answers (b through f). Multiples answers were not possible.
- Positive Attitude of participants on when feeling not as to use the Partogram: This was a qualitative variable. It was categorized into 5 modalities; Yes, for answer (e) alone and No for answers (a, b, c, d) Multiples answers were not possible.
- Positive Attitude of participants on routine use of the Partogram: This was a qualitative variable. It was categorized into 3 modalities; Yes, for answer (a) alone and No for answers (b, c) Multiples answers were not possible.
- Positive Attitude of participants on feeling when using the Partogram: This was a qualitative variable. It was categorized into 3 modalities; Yes, for answer (c) alone and No for answers (a, b) Multiples answers were not possible.
- Positive Attitude of participants on feeling when not using the Partogram: This was a qualitative variable. It was categorized into 3 modalities; Yes, for answer (b) alone and No for answers (a, c) Multiples answers were not possible.

At the end of this section attitudes were scored on 6 points. A score 0 to 3 was considered as bad attitude and a score of 4 to 6 was considered good attitude towards the use of the Partogram.

### 2.7.3. Practice Related to the Routine Manner in Which Participants Fill the Partogram

- Adequate practice related to which part of the Partogram participants begin filling: This was a qualitative variable. It was categorized into 4 modalities; Yes, for answer (a) alone and No for answers (b, c, d) Multiples answers were not possible.
- Adequate practice related to when participants begin filling the Partogram: This was a qualitative variable. It was categorized into 5 modalities; Yes, for

answer (c) alone and No for answers (b, a, d, e) Multiples answers were not possible.

- Adequate practice related to after how long participants proceed with filling the Partogram: This was a qualitative variable. It was categorized into 5 modalities; Yes, for answer (c) alone and No for answers (b, a, d, e) Multiples answers were not possible.
- Adequate practice related to how participants end filling the Partogram: This was a qualitative variable. It was categorized into 3 modalities; Yes, for answer (c) alone and No for answers (a, c) Multiples answers were not possible.

At the end of this section practices were scored on 4 points. A score 0 to 2 was considered as bad attitude and a practices and that of 3 to 4 was considered good practices in the routine manner of filling the Partogram.

#### **2.7.4. Principles of the WHO Partogram Model**

The WHO Partogram is the best known Partogram in low resource settings. Experiences with WHO and other types of Partogram in low resource settings suggest that when used with defined management protocols, this inexpensive tool can effectively monitor labour and prevent obstructed labour [10]. It reduces unnecessary strain on mothers by reducing total duration of labour, without any increased foetal morbidity and mortality [11].

The WHO modified the Partogram for use in hospitals in the year 2000. In the amendment, the latent phase was excluded and the active phase commences at 4 cm dilatation with the other features remaining the same as in the composite. The reasons for excluding the latent phase were that interventions are more likely if the latent phase is included and because staff reported difficulties in transferring from latent to active phase. The choice of 4 cm was made to reduce the risk of interventions in multiparous women with patulous cervix who were not yet in labour. A study of the modified WHO Partogram in Ethiopia concluded that labour could be managed without the latent phase being plotted on a Partogram [10].

#### **2.7.5. Factors Limiting the Use of the Partogram**

This was a qualitative binary variable. It was recoded as follow: Yes, if factor applicable to participant and No if factor non-applicable to participant.

### **2.8. Research Instruments**

The research instruments for our study were firstly, a self-developed structured interview questionnaire designed in English language and in line with the variables to be measured and secondly, an observational guide.

The questionnaire has four sections *i.e.* Section 1 contain the Sociodemographic information. Section 2 attitudes towards the use of the Partogram. Section 3 contains questions practices related to the routine manner in which participants fill the Partogram. Section 4 contains questions factors limiting the use



of the Partogram.

The observational guide was filled by the principal investigator. Here, the Partograms filled by each professionals attending to women in labour and delivery was evaluated as compared to the WHO standards of filling and completeness.

Most of the variables were inspired from other studies carried out in the similar topic in different setting [2] [11].

## 2.9. Study Procedure and Data Collection

An ethical clearance to carry out the study was obtained from the Faculty of Health Science Institutional Review Board. The administrative authorizations were obtained from the Regional Delegation of Public Health of the North West and the District Medical Officer of the Bafut Health District.

A prior meeting with the head of each health facility was held in the Bafut District Health service during which an expose on what the research constituted was presented, contacts were exchanged with between the principal investigator and the head of each facility and passage dates were then decided. Prior to passage to the Health facilities, unit heads were reminded 1 week in advance so ensure availability of the maximum number of PAWLD.

Once at the health facilities each participant who meet the inclusion criteria were enrolled. The questionnaire was administered by our self to each participant. The interview lasted for a maximum of 15 minutes per participant.

Enrollment procedure of the participants

The participants were enrolled at the level of labour room or conference hall when available.

Once received at our enrollment post, we greeted the participants and introduced our self and the information sheet was explained to them. After we asked to the participant's agreement to participate in our study. This was granted with the signature of the inform concern form. If the participants disagree to participate to our study for whatever reason, we immediately passed to the next eligible participants without raising any alarm.

Progress of the interview

Once the participant accepted to participate in our study, an identical identification code was attributed to the participants' interview questionnaire. Finally, the interview was done (face to face) and lasted for a maximum of 15 minutes.

For each question asked, the answer (s) given by the respondents were ticked or filled when appropriate.

During the month of April, we moved to the maternity ward of each Health facility were the Partograms filled by each participant during the period of study was then assessed according to the WHO standards for filling and completeness, each part filled was then scored on 1 at the end a total of 5 points on 5 obtained was identified as well filled Partogram whereas 3 and 4 on 5 points was scored as averagely performed, and 2, 1 and 0 as poorly performed Partogram.

Also delivery records were assessed and data collected for the study period on the total number of deliveries, number of births before arrival and caesarean sections. This data was used to calculate the proportion of parturients monitored using a Partogram.

### **2.10. Quality Control**

Quality issues were addressed through the following measures to ensure that the data generated was complete, reliable, accurate and above all reproducible using the same methods.

- Pre-testing the data collection tools
- The pre-testing was done at the Benakuma District Hospital which is a direct neighbor to our study district also of rural setting this was to achieve a much more similar population to our study population. This exercise helped to improve the data collection tools in terms of content and order of the questions in relation to the study objectives and necessary adjustments were made prior to data collection.
- Checking for completeness and accuracy of the data collection forms

This was done at the end of each day of data collection. Gaps identified such as missing gender or age of participant were addressed and during subsequent passage to the Health facility. This was possible with the use of the patient identification code.

### **2.11. Data Analysis**

The questionnaire was checked for completeness and consistency, and the data were entered into the statistic software Epi Info version7 for different analysis. In addition, the software Microsoft excel was used to design the different tables and figures for the presentation of the result. Descriptive statistics (frequencies, mean and standard deviation) were used to tabulate and describe the data. Chi-Squared test was used for comparisons of categorical variables. A p-value <0.05 was considered statistically significant.

### **2.12. Ethical Considerations**

At the level of the institutions, the ethical clearance and approval were obtained from the University of Bamenda Institutional Review Board. Approval was also obtained from the North West Regional Delegation of Public Health and from the District Medical Officer of the Bafut Health District.

At the individual level, a sign consent was received from each participant before data collection following a detailed description of the research and information on anonymity and confidentiality provisions and the fact that their participation was voluntary and they could withdraw at any point if they wished. The principles of privacy and confidentiality were assured.

## **3. Results**

With the 67 PAWLs, 65 participated in the study giving a response rate of

97.01% (n = 65) was obtained following the distributions of our questionnaires.

### 3.1. Sociodemographic Characteristics of Study Participants

**Ages:** The ages ranged from 20 to 60 with a mean age of 34.538  $\pm$  9.454. The predominant age group was 20 - 35 years, representing 55.38% of the study sample. Most of the participants were 25 years old (12.3%). The age distribution is shown in **Table 3**.

**Gender:** With an 83.08% (n = 54) predominance, majority of our study participants were female as shown in **Table 3**.

**Marital Status:** One out of three of our respondents were single corresponding 20 (30.77%) as in **Table 3**.

**Religion:** We had 64 (98.46%) of our study participants as Christians, the religious distribution of our study participants is detailed in **Table 3**.

**Professional tenure (years)** with median of 5 years (2 - 10) of experience majority 29 (44.6%) of our participants had between 0 - 5 years of experience and all the doctors falling in this range as shown in **Table 4**.

**Distribution of participant's professional qualification:** The ratio of midwife: Parturient is 1:43. The table below illustrates the frequency distribution of our participants professional qualification in relation to their health facility status (**Table 5**).

**Table 3.** Frequency distribution of the Sociodemographic characteristics of study participants.

Age groups	Frequency (n = 65)	Percent (%)	Mean	standard deviation
20 to 35	36	55.38	34.538	9.454
36 to 50	25	38.46		
50 above	4	6.15		
<b>SEX</b>				
Female	54	83.08		
Male	11	16.92		
TOTAL	65	100		
<b>MARITAL STATUS</b>				
widow/widower	3	4.62		
Single	20	30.77		
Married	41	63.08		
Divorce	1	1.54		
<b>RELIGION</b>				
Christian	64	98.46%		
Muslim	0	0		
Others	1	1.54%		

**Table 4.** Professional tenure of participants in relation to professional qualification.

Years of Experience	Degree Nurses	Doctors	Health Assistants	Midwife	Nurse Assistant	SRN	Total
<5	2	3	5	3	5	11	29
06 - 10	1	0	1	3	5	6	16
11 - 15	1	0	2	2	5	1	11
16 - 20	0	0	0	2	1	0	3
>20	0	0	3	1	2	0	6
<b>TOTAL</b>	<b>4</b>	<b>3</b>	<b>11</b>	<b>11</b>	<b>18</b>	<b>18</b>	<b>65</b>

Median = 5 years, IQR = 2 - 10, mode = 3.

\*SRN = State Registered Nurse.

**Table 5.** Distribution of participants professional qualification according to health facility.

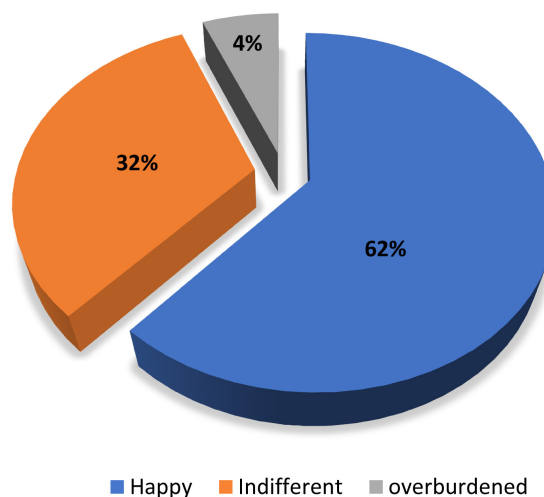
Health facility	MD	MW	RHN	DN	SRN	NA	HA	TOTAL
Akofunguba IHC	0	1	0	0	0	1	2	4
Akossia IHC	0	1	0	0	1	0	2	4
Buwe-Bukari IHC	0	0	0	1	0	1	0	2
SAJOCAH	0	2	0	0	3	0	0	5
Bafut medical centre	0	1	0	0	0	0	0	1
Bafut District Hospital	2	3	0	1	7	1	0	14
Mankanikong IHC	0	0	0	1	0	1	2	4
Mankwi IHC	0	0	0	0	1	2	2	5
Mbakong IHC	0	0	0	0	0	1	1	2
Mforya IHC	1	0	0	0	1	4	0	6
Mundum I IHC	0	0	0	0	0	1	1	2
Nchum IHC	0	1	0	0	1	0	0	2
Nsem PHC	0	1	0	0	0	2	0	3
Nsoh IHC	0	1	0	0	3	1	0	5
Tingoh IHC	0	0	0	1	1	3	1	6
<b>TOTAL</b>	<b>3</b>	<b>11</b>	<b>0</b>	<b>4</b>	<b>18</b>	<b>18</b>	<b>11</b>	<b>65</b>

\*MD = Medical Doctor; \*MW = Midwife; \*RHN = Reproductive Health Nurse; DN = Degree Nurse; \*SRN = State Registered Nurse; \*NA = Nurse Assistant; \*HA = Nurse Assistant; IHC = Integrated Health Centre.

### 3.2. Attitudes of Participants in Regards to the Partogram Use

A greater proportion of our participants 47 (72.3%) had good attitudes towards the use of the Partogram as shown on the table below (**Table 6**):

Feeling after Using a Partogram: Out of the 65 participant, 40 (62%) revealed being happy after using the Partogram to follow up a delivery and 4 (6%) felt overburdened. The frequency distributions our participant's feelings after using the Partogram are illustrated on the chart below (**Figure 1**).



**Figure 1.** Feeling after monitoring labour with a Partogram.

**Table 6.** Participants attitudes towards the use of the partogram.

Attitudes	Frequency (n = 65)	Percent (%)
Good	47	72.3
Bad	18	27.7
Total	65	100.00

Feeling when the Partogram is not used: A total of 54 (83.08%) of our participants felt unaccomplished for any delivery carried on without a Partogram. The frequency distributions of the participant's attitudes after completing a delivery without using the Partogram are illustrated in the table below (**Table 7**).

### 3.3. Practice Related to the Routine Manner in Which Participants Fill the Partogram

Frequency of distribution of practices: A total of 34 (52%) of participants poorly practiced the filling of the Partogram. The chart below illustrates the frequency distribution of our participant's practices in filling the Partogram (**Figure 2**).

Comparison of professional qualification with good practices: A statistically significant association was found between being a Health assistant and poor practices in filling the Partogram with p-values of 0.047 and Odds ratio 5.33 [1.03 - 26.45]. **Table 8** illustrates the associations between good practices in filling the Partogram with professional qualification.

### 3.4. Proportion of Parturient Monitored Using a Partogram

Out of the 473 of delivery cases registered, 375 (79.7%) were monitored using a Partogram, 34 (7.2%) cases were caesarean section and 3 (0.6%) cases were births before arrival. The parturients monitored using a Partogram was calculated taking into consideration births before arrival and elective Caesarean sections.



**Figure 2.** Frequency of distribution of practices in filling the Partogram.

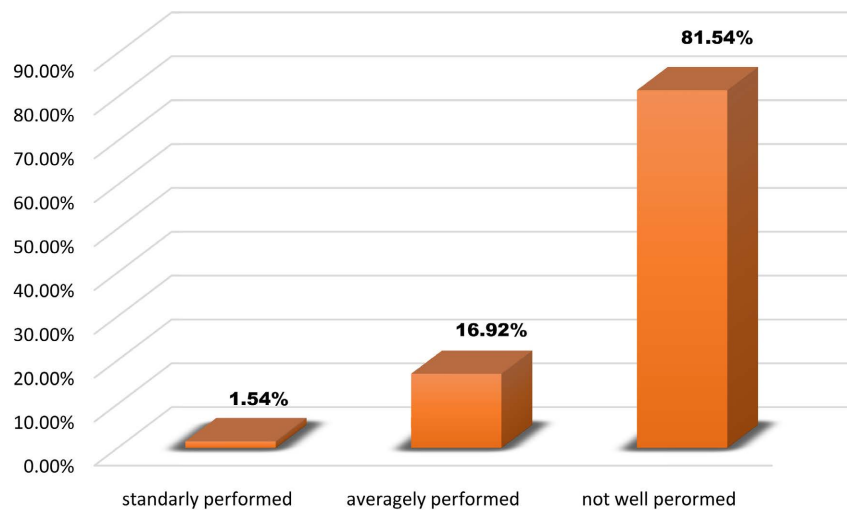
**Table 7.** Feeling after completing a delivery without using the Partogram.

Feeling	Frequency (n = 65)	Percent (%)
Happy	1	1.54
Indifferent	10	15.38
Unaccomplished	54	83.08
<b>TOTAL</b>	<b>65</b>	<b>100.00</b>

**Table 8.** Associations between professional qualification with good practices.

Professional Qualification	Good practices (Yes)	Good practices (No)	Total	OR [CI]	p-value
Doctor	3 (100%)	0 (0.0%)	3 (100.0%)	undefined	0.06
Degree Nurse	4 (100.0%)	0 (0.0%)	4	undefined	0.03
Health Assistant	2 (18.18%)	9 (81.82%)	11 (100.0%)	0.192 [0.04 - 0.97]	0.03
state Registered Nurse	11 (61.11%)	7 (38.89%)	18 (100.0%)	2.12 [0.69 - 6.43]	0.18
Nurse Assistant	6 (33.33%)	12 (66.67%)	18 (100.00%)	0.44 [0.14 - 1.37]	0.15
Midwife	5 (45.45%)	6 (54.55%)	11 (100.0)	0.89 [0.24 - 3.29]	0.87

The frequency distributions of the proportion of parturient followed with a Partogram and standard filling of the Partogram between our study period is shown on the charts below (**Figure 3** and **Table 9**).



**Figure 3.** Frequency distribution of Partogram performed according to standard.

**Table 9.** Frequency distribution of parturient followed using a Partogram.

Deliveries	Frequency (n = 473)	Percentages (%)
With a Partogram	375	79.3
Without a Partogram	98	20.7
<b>Total</b>	<b>473</b>	<b>100</b>

### 3.5. Factors Limiting the Use of the Partogram PAWLD at the BHD

The lack of in-service training was the preponderant factor limiting the use of the Partogram with 55 (84.6%) of our participants identifying it as such on the other hand, feeling the Partogram has no advantage was the least identified limiting factor with 22 (33.8%) participants identifying it as one. The figures below illustrate the frequency distribution of our respondents to factors limiting the use of the Partogram (**Figure 4** and **Figure 5**).

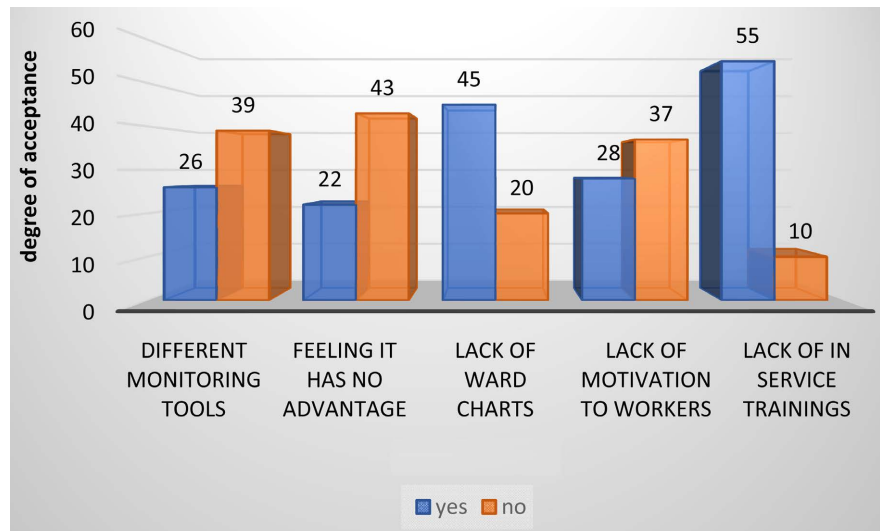
## 4. Discussion and Conclusion

### 4.1. Discussion

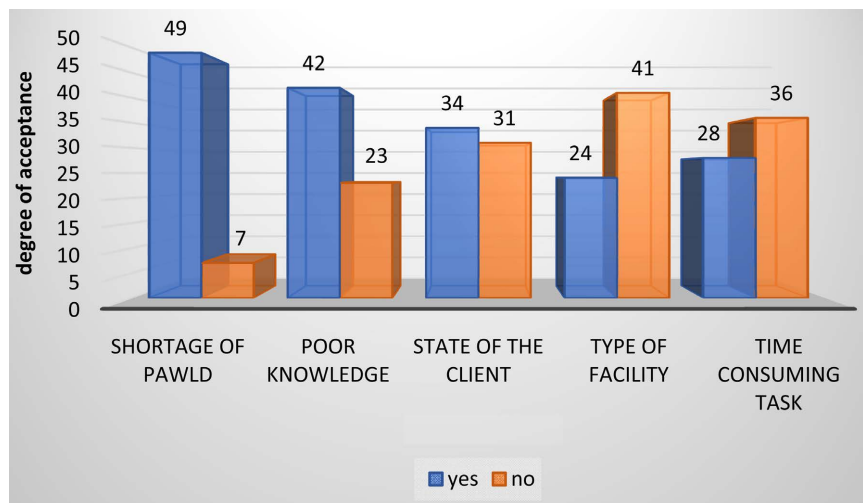
Our study enrolled a total number of 65 participants from 15 Health facilities. The findings are presented according to objectives below.

#### 4.1.1. Socio-Demographic Characteristics of Our Respondents

The most predominant age group was between 20 - 35 years representing 58% of our participants which is similar to those obtained in other studies < 30 years in the study of Nagat *et al.* in 2010 in the cities of port-Said [2] and 20 - 30 years by Abonge *et al.* in the Buea Health District in 2012 [12]. On the other hand, it was lower than the 36 - 49 years obtained by Maphaspha *et al.* at the Odi District Hospital Gauteng, South Africa 2017 [13]. This difference was attributed to the massive recruitment observed lately in the BHD after it joined the Performance Based finance program of the World Bank lately [14].



**Figure 4.** Frequency distribution of factors limiting Partogram use.



**Figure 5.** Frequency distribution of factors limiting Partogram use continues.

Most 18 (28%) of the PAWLs were Nurse Assistant which is contrary to the study of Dohbit *et al.* in 2006 in 7 hospitals in Yaoundé in which most workers 47.3% were Midwives [15]. This can be explained by the fact that Yaoundé being an Urban centre will tend to have a higher proportion of qualified PAWLs. As opposed to the BHD considered as rural setting.

The professional experience of 29 (44.6%) of our participants was between 0 - 5 years with a median age of 5 year (2 - 10) which is similar to that obtained by Verla *et al.* at the Bamenda Health District in 2017 [7] and lower than that of Dohbit *et al.* of >20 years [10]. This can be explained by the fact that most PAWLs in our study were not only newly recruited for most but younger than in the latter.

Most of our study participants 20 (30.7%) were single, which was lower than the 38% obtained by Carlson *et al.* in 2016 [11]. This difference was attributed to the fact that in the later study, the definition of single included, the bachelors,



divorced and widower.

#### 4.1.2. Attitudes of Participants in Regards to the Partogram Use

Good attitudes towards the use of the Partogram was seen in 47 (72.3%) of our participants which is contrary to the 150 (55%) obtained by Zelellw *et al.* in East Gojjam zone Ethiopia 2016 [16]. This difference might be attributed to difference in study area, and differing strategies and commitments in implementation of health policy at the various levels throughout the country. In addition, the difference in study participants might impact on the difference in attitude towards the Partogram use.

The desire for the routine use of the Partogram was expressed by 56 (86.25%) of our participants which was similar to the 87.9% obtained by Dohbit *et al.* in Yaoundé [15], and the 91.3% Nagat *et al.* in Port-said cities [2] but lower on the other hand to the 64.5% of Verla *et al.* 2016 in the Bamenda Health District [10].

The desire for in-service trainings was seen in 55 (84.6%) of our study participants which was similar to that of 73 (96.1%) of Verla *et al.* 2016 in the Bamenda Health District [10] an higher than the 15.9% of Nagat *et al.* [2]. This difference was attributed to the facts that, in the later study, participants deplored the absence of the Partogram in their institutions and coupled with this, the use of the Partogram was not an obligatory Hospital policy thus explaining a lower desire for their participants to go in for in service trainings.

We obtained 4 (6%) of our participants who felt overburdened using the Partogram which was similar to the 4 (4.8%) obtained by Thomas *et al.* in 2016 in the Bamenda Health District [10] and lower than the 8 (66.7%) obtained by Rajashree *et al.* in 2015 in India [17]. This difference was attributed to the fact that participants in the later study, were all Resident Doctors on shift Duty in the labour ward and added to that , the availability of the Paperless Partogram which is said to be easier to fill [18] made them to see the WHO Partogram as a burden.

#### 4.1.3. Practices Related to the Routine Manner in Which Participants Fill the Partogram

A poor practice was seen in 34 (54%) of our participants. As such, associations were obtained between good practice and professional qualification but the association with statistical significance was between Health Assistance and poor practice of the Partogram which we had with p-values of 0.047 and Odds ratio 5.33.

#### 4.1.4. Proportion of Parturients Monitored Using a Partogram

Out of the 473 deliveries during this study period, 375 (79.7%) had a Partogram this goes in line with the 84.9% reported by the North West Regional Fund for Health Promotion (NWRFP PIG), Bamenda 2016 [14] and the 69.9% of Ongwang *et al.* [19] but was different from the 58.2% obtained by Thomas *et al.* [10] and the 9.8% Oladapo *et al.* [20]. These differences were attributed better supervisions, a positive attitude towards the Partogram use, and seeing it like and ad-

vantage tool as opposed to that in Oladapo *et al.* [20].

Standard filling of the Partogram was observed in 1.54% of our study participants which was similar to 1% obtained by Thomas *et al.* in 2016 [10] and the 3.6% obtained by Verla *et al.* [10].

#### 4.1.5. Factors Limiting the Use of the Partogram

The lack of in-service trainings in 55 (84.6%) was identified as the greatest limits to the use of the Partogram which was similar to the 73 (96.1%) of Verla *et al.* [10] and different from the 15.9% obtained by Nagat *et al.* in Port-said [2] this difference was attributed to the absence of the Partogram in most Health units in the later study.

Shortage of PAWLD's with just 1 Midwife for 43 parturients was also marked with 49 (75.4%) of participants expressing it as a limiting factor. This was lower than the 46.1% obtained by *okokon et al.* in Nigeria 2014 [9] and more than the 31.3% obtained by Carlson *et al.* in 2015 in the BHD [11]. The rural setting in which our study was carried out could act as an explanation to these differences as workers tend to be attracted more towards urban areas.

#### 4.2. Limitations

A total coverage of all health facilities could not be achieved as planned this because of the ongoing Socio-political crisis prevalent in the unvisited Health Facility. This could thus limit the pertinence of prevalence obtained. However, from past reports it was clearly seen that the facility in question has just a limited amount of deliveries per annum as such variations in prevalence obtained can be considered minimal.

Having a small sample size, it predisposed our findings to random error; however, the methodological rigour incorporated in this study minimises threats to validity.

#### 4.3. Conclusion

In the Bafut Health District, one Midwife is in charge to forty-three parturient, seven out of ten PAWLDs have a positive attitude towards the use of the Partogram, while a poor practice is predominant as a result four out of five deliveries were monitored using a Partogram with only 1.54% of the Partograms filled according to WHO standards. The lack of in-service training, lack of PAWLD and poor knowledge on Partogram usage are the major drawbacks to the use of the Partogram.

#### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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## Appendix: Questionnaire

### Attitudes, practices and factors affecting the use of partogram by parturient in the bafut health district

Code ..... Date ..... Name of institution .....

*Tick (✓) or fill as applicable, multiple answers are not applicable.*

#### SECTION: 1 SOCIO-ECONOMIC AND DEMOGRAPHIC PROFILE

- 1) Age (years)
- 2) Sex: Male  Female
- 3) Religion:
  - a) Christian
  - b) Muslim
  - c) Others ...
- 4) Marital status:
  - a) Married
  - b) Single
  - c) Divorced
  - d) Widow/Widower
  - e) Nun
- 5) Professional qualification:
  - a) Midwife
  - b) Nurses assistant
  - c) SRN
  - d) RHN
  - e) DN
  - f) Doctors (interns)
  - g) Health Assistants
- 6) Experience:
 

Years

Months

\*SRN = State Registered Nurse, \*RHN = Reproductive Health Nurse, \*DN = Degree Nurse, \*NA = Nurse assistant

#### SECTION 2: ATTITUDES

- 7) What will make you use a Partogram?
  - a) Receiving a client with suspected complicated labour
  - b) Receiving a client in the active phase of labour
  - c) The presence of your unit head
  - d) Receiving a rich client in labour
- 8) What will make you not to use a Partogram?
  - a) No knowledge on how to fill the Partogram
  - b) No full understanding of the Partogram.
  - c) Too cumbersome to fill.
  - d) Lots of unnecessary information's to fill
  - e) Too many patients for few staffs f. difficult working conditions

9) When do you not feel like using the Partogram?

- a) Every time
- b) When your unit head is not around
- c) When you are tired
- d) When you are alone on duty
- e) When there are many clients

10) When use the Partogram?

- a) Every time
- b) Never
- c) Often

11) How do you feel using the Partogram?

- a) Indifferent
- b) Overused
- c) Happy

12) How do you feel not using the Partogram?

- a) Indifferent
- b) Happy
- c) Unaccomplished

13) Score

- a) Good
- b) Poor

### **SECTION 3: PRACTICES**

14) Which part of the Partogram do you begin filling with?

- a) Identification of the Partogram
- b) Noting of the cervical dilatation
- c) Noting of the foetal heart rate
- d) Noting of the client's vital signs

15) When do you begin filling the Partogram?

- a) Whenever you receive a pregnant client
- b) When a client's membranes rupture
- c) When a client is in the active phase of labour
- d) When a client is in the latent phase of labour
- e) After the delivery of the baby

16) After how long do you proceed with filling the Partogram?

- a) Every 10 mins
- b) Every 30 mins
- c) Every 1 hour
- d) Every 2 hours
- e) Every 4 hours
- f) At the beginning of labour then at delivery.

17) How do you end the use of the Partogram?

- a) Delivery summary
- b) Signature of PAWLD

c) No particularities

18) Score

a) Good

b) Poor

**SECTION 4: FACTORS LIMITING THE USE OF THE PARTOGRAM**

19) Which of these factors listed below prevents you from using the Partogram. If it applies (YES) or if it does not apply (NO)?

FACTOR	YES	NO
Poor knowledge of the Partogram		
Lack of charts in the labour wards		
Shortage of PAWLD		
Time consuming task		
Low number of staff		
Feeling it has no advantages		
Lack of motivation of workers		
Different monitoring tool (clinical records)		
Lack of seminars and in-service training sessions		
State of the client		
Type of facility		
Others (precise)		

**OBSERVATION GUIDE**

ACTIVITIES ON PARTOGRAM	Well performed	Not well performed	comment	profession
<b>Name</b>				
<b>Gravidity formula</b>				
<b>Patients information</b>				
<b>Hospital number</b>				
<b>Date and time of admission</b>				
<b>Time of membrane rupture</b>				
<b>FHR</b>				
<b>Foetal condition</b>				
<b>Amniotic fluid</b>				
<b>Moulding</b>				
<b>Dilatation</b>				
<b>Descent</b>				
<b>Labour condition</b>				
<b>Timing</b>				
<b>Uterine Contractions/10mins</b>				
<b>Drugs given (oxytocin or any others)</b>				

**Continued**

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<b>Maternal condition</b>	<b>Blood pressure</b>
	<b>Pulse</b>
	<b>temperature</b>
	<b>proteins</b>
	<b>Urine</b>
	<b>acetone</b>
	<b>volume</b>

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Standardly filled Partogram

Averagely filled Partogram

Poorly filled Partogram