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Research Article

Midwives' Knowledge, Perceptions and Practices on Utilization of the Partograph at Mbuya Nehanda Maternity Hospital

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Abstract

Globally, maternal death has been an issue of concern, while obstructed and prolonged labour are among the top five causes of these deaths in Africa and Zimbabwe particularly. Proper and effective utilization of the Partograph significantly helps in preventing and reducing the high numbers of birthing complications of such a nature. A Partograph is a labour monitoring chart that provides a pictorial overview of maternal and foetal well-being during the intrapartum period. The study aimed to assess the knowledge, perceptions, and practices on the utilization of the Partograph among midwives working at Mbuya Nehanda Maternity Hospital. A descriptive cross sectional design was used, and a semi-structured questionnaire was administered to 60 participants chosen using the purposive sampling technique. Data were collected and analysed using the Statistical Package for Social Sciences (SPSS version 22) and presented using charts, tables, and narration. The study identified that midwives were knowledgeable, although they had a negative attitude towards the Partograph attributed by a lack of motivation caused by the absence of support from mentors and supervisors, lack of workshops, and on-the-job training on the use of the graphical chart. Underutilization of the tool, which pointed to poor practice, was attributed to understaffing of midwives, high workload, and burnout syndrome among the labour ward midwives. These implications could lead to omissions, litigations, poor maternal service delivery, and lawsuits. Periodic workshops, symposiums, on-the-job training would go a long way in improving attitudes. The study concluded that the Partograph is a very important tool that should be effectively used in the labour ward so that complications are picked up early, thereby improving maternal outcomes. Support for the midwives, supervision, mentorship, non-monetary incentives, and increased staffing with an acceptable midwife-patient ratio of probably 1:2 would improve practice and yield a positive birthing outcome of a live and healthy mother and baby.

Keywords

Partograph, Midwives, Knowledge, Attitudes

1. Introduction

Giving birth is said to be a pleasant experience and a life-changing event. Skilled birth attendants are required to ease the burden by providing support and care to labouring women so that they can go through the process smoothly and prevent po-

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tential emotional and physical harm. Sanyal and others, argued that labour is one of the most dangerous journeys a woman can ever embark on, although it remains the only natural physiological phenomenon leading to childbirth [1]. Failure to prevent avoidable complications in labour can harm both mother and baby. Both developed and developing nations may experience negative birthing outcomes if essential tools and expertise are not correctly employed during labour. The partograph has been scientifically proven and adopted as a labour monitoring tool that can be used to prevent complications [2].

Markos & Bogale described the partograph as the recommended tool to address imminent complications such as poor progress, prolonged, and obstructed labour [3]. Undesired labour outcomes such as maternal or perinatal morbidity and mortality can be avoided by the use of this tool during the intrapartum period. Kushwah described the partograph as a simple graphical tool used to assess the well-being of the foetus and mother by providing a pictorial overview of labour progress [4]. Proper use of the partograph is effective in detecting both prolonged and obstructed labour. Failure to detect labour-related complications raises maternal and perinatal morbidity and mortality rates in Sub-Saharan Africa [2].

According to the Multiple Indicator Cluster Survey of 2019, Zimbabwe's maternal mortality ratio remained very high at 462 deaths per 100,000 live births, which is a worrying figure for the nation [5]. Just like other Sub-Saharan nations, Zimbabwe is coupled with several challenges where healthcare workers may be faced with a lack of knowledge to curb both maternal and neonatal deaths; however, this remains unclear, and it remains to be investigated if it's the case. In 1972, Professor Philpott discovered the graphical tool as an essential labour monitoring chart, which was then adopted by the Zimbabwe Ministry of Health and Child Care (MoHCC) as the only effective tool to monitor and manage labour.

Partograph use is crucial in monitoring labour and gaining insight into achieving Sustainable Developmental Goal number 3, which aims to reduce maternal and perinatal morbidity and mortality by the year 2030. Subrata and others defined the partograph as a low-cost intrapartum monitoring tool that helps in the early identification of complications and is useful in saving the lives of both mother and baby. In obstetrics, it is better known as the midwives' tool, which serves as a communication tool between obstetric caregivers for continuity of care.

The tool provides a pictorial view of the progress of labour. Documentation on the chart can be done either electronically or manually. Varying documentation practices are determined by the setting in which it is being done and the availability of resources. It is through this chart that midwives can relate if the women are going to deliver well or anticipate a complication. The partograph gives a pictorial overview of a complication well in time and warrants a change of mode of delivery if need be. Globally, 300,000 women die every year due to avoidable labour-related complications, namely obstructed and prolonged labour [2]. Therefore, this underscores the need to effectively utilize the scientifically tested tool to prevent all avoidable deaths.

It is for this same reason that the World Health Organization (WHO) conducted multicentre trials in Indonesia, Malaysia, and Thailand to prove and justify whether the partograph is indeed an effective tool to use in the labour wards as a monitoring tool. The findings of the study by the World Health Organization (WHO) in these three countries proved that utilizing the partograph in the management of labour improved positive labour outcomes significantly as there were reduced labour complications and labour-related deaths [3].

According to a study by Haymanot, Semahegn & Tegegne conducted in 2017 prolonged labour is a leading cause of death among mothers and newborns in the developing world [7]. While in Zimbabwe, prolonged and obstructed labour accounts for 1% of maternal deaths [8]. Although the percentage is low in Zimbabwe, maternal deaths remain unacceptable and should be treated as a national disaster. It is for this reason that the partograph remains an essential labour monitoring tool to prevent all avoidable deaths during pregnancy and labour. Effective use of the partograph helps midwives identify maternal complications at an early stage and intervene accordingly. Prolonged and obstructed labour are easily detected on the partograph by the pattern depicted on the maternal progress of labour section.

Several African countries utilize the partograph in the monitoring of labour, including South Africa, Tanzania, Cameroon, Ethiopia, Kenya, Uganda, and Zambia. Although most countries in Sub-Saharan Africa utilize the tool in managing labour, each country has a varying experience with the graphical chart. Some countries underutilize the tool while others effectively utilize the tool in their labour wards. One study conducted in South Asia proved that the use of the partograph significantly contributed to reduced prolonged labour from 6.4% to 3.4% and a 1.6% reduction in caesarean section cases [9]. In a study carried out in India by Subrata and others, findings revealed that healthcare providers knew the importance of the partograph, but they hardly used it due to increased workload and staff shortages [6]. In another study in Uttar Pradesh, India, results showed that there was a dearth of information on the usage of the partograph, especially on plotting of findings emanating from lack of interpretation of the graphical chart pattern [10].

A study conducted in Bangladesh observed that there was an increased use of the partograph by health workers for documentation purposes rather than as a guiding tool in the identification of complications and appropriate management of progress of labour [11]. Results for studies conducted by Mukisa and colleagues in Kampala, Uganda, Nyiawung and others in Cameroon, and Bazirete in Rwanda, were consistent with WHO findings on the importance of the tool [12-14]. All results pointed to early detection of complications such as obstructed and prolonged labour. A study conducted in Nigeria contended that the utilization of the partograph significantly influenced decision-making among low and high-risk pregnancies [15]. Studies by Wakgari and team and Yisma with others concur that utilization of the partograph remained poor and inconsistent [16, 17].

Sub-Saharan Africa continues to record high maternal deaths

due to obstructed and prolonged labour which can be avoided if the tool was to be effectively and correctly utilized. Sub-Saharan Africa continues to account for 8% to 10% of all maternal deaths worldwide [18]. In a study by Konje and others, lack of documentation of vital parameters on the partograph led to poor monitoring of labour and it could have been propelled by a shortage of staff, knowledge deficit, and lack of appropriate skills among healthcare workers [19]. Utilization of the partograph remained low in Cameroon, as maternal mortality continued to be a serious public health problem [20]. A study by Basu and colleagues concurred with other researches conducted in Sub-Saharan Africa that there was underutilization of the partograph in the monitoring of labour, which resulted in increased maternal morbidity and mortality [21]. Approximately 99% of the global maternal deaths occurred in developing regions with Sub-Saharan Africa accounting for roughly 66% [2]. It is therefore from WHO recommendation that Maternal and Neonatal Health programs should promote the routine use of the graphical chart to monitor progress of labour in all settings.

Zimbabwe is a landlocked country in the Southern part of Africa surrounded by Zambia, Mozambique, South Africa, and Botswana. Separated from Zambia by the Zambezi River to the north and South Africa by the Limpopo River to the south. Zimbabwe is a culturally diverse nation with women from these cultures responding differently in labour; therefore, there is a need to vigilantly monitor each woman in the intrapartum period. As of 2019, the population of the country was at 14.65 million people and still records a high maternal mortality rate [22]. Despite efforts of implementing the Safe Motherhood pillar of ensuring Obstetric Health Personnel are equipped with the appropriate skills such as proper use of the partograph in the monitoring of labour, there are continued annual reports of maternal deaths being reported in the country. Quaternary health institutions like Mbuya Nehanda Maternity Hospital also continue to record maternal morbidity and mortality cases related to negative labour outcomes. There are no published research studies on the utilization of the partograph among midwives working in the labour wards of Zimbabwe, but there are several research studies in the region which the researcher referred to. The only available and published data found on the use of the tool in Zimbabwe are that of the discovery of the partograph in 1972, at Salisbury Hospital by Dr. Philpot. The dearth of published studies stirred the researcher to conduct a study on the partograph with the intention to do a publication. The study project focused on the country's largest quaternary maternity institution Mbuya Nehanda Maternity Hospitals.

Mbuya Nehanda Maternity Hospital is the country's largest Emergency Obstetric and Neonatal Care facility (EmONC). The hospital has nine separate departments with the labour ward being the busiest. It is a twenty-bedded unit with trained midwives, who work three shifts per day and a midwife-patient ratio of 1:5 per shift according to weekly duty records. The ratio contradicts the WHO recommendation of 1:1 for a labour ward. The institution has well-trained obstetricians who perform caesarean sections, and instrumental deliveries such as vacuum extractions and forceps delivery. It also has a functional admission unit for early triaging of complications. The department of obstetrics and nursing has made it mandatory that Mbuya Nehanda Maternity Hospital gets manned by trained, professional obstetric caregivers who include both midwives and obstetricians.

Periodic on-the-job EmONC training and refresher courses are implemented to improve obstetric caregivers' skills. Despite all efforts by management, the institution continues to record maternal deaths, which is an unacceptable scenario. From January 2020 to December 2020, the hospital conducted 5430 deliveries and recorded 33 maternal deaths which all occurred during the intrapartum period according to the Mbuya Nehanda delivery register of 2020. In the same year, the hospital recorded 76 and 18 prolonged and obstructed labour cases respectively. It has been observed that there have been delays in providing timely and necessary obstetric interventions pinned to a lack of adequate and effective communication by midwives during monitoring of labour. It has been observed that there is incomplete and inadequate partograph documentation and low utilization of the chart in the same department. Contributing factors leading to such practice remain unknown. It is well-documented that many complications of pregnancy are avoidable by providing skilled midwifery care during the intrapartum period through utilization of the partograph [12]. It is against this background that this study seeks to validate if partograph utilization has any link in labour outcomes. Although the partograph has found use in Mbuya Nehanda maternity, inconsistency in its utilization remains a problem. This is the driving force for the current study to assess the knowledge, practices, and attitudes midwives have on the utilization of the partograph at Mbuya Nehanda Maternity Hospital. The purpose of this study was to determine the knowledge, practices, and attitudes midwives have on the utilization of the partograph at Mbuya Nehanda Maternity Hospital.

Objectives

1. To assess the level of knowledge among midwives regarding the use of the partograph at Mbuya Nehanda Maternity Hospital.
2. To determine the perceptions of midwives regarding the utilization of the partograph at Mbuya Nehanda Maternity Hospital.
3. To examine the practices of midwives during the utilization of the partograph at Mbuya Nehanda Maternity Hospital.

2. Methods

2.1. Study Design

We used a descriptive cross sectional study design.

2.2. Setting

The study was conducted at Parirenyatwa Group of Hospitals at the Maternity department. The entire health institution is a one thousand eight hundred bedded facility, while the

maternity facility is a two hundred and twenty-one bedded department. The labour ward alone is a 20 bedded unit. The maternity facility serves Harare metropolitan clinics and surrounding Provinces of the country mainly Harare, Mashonaland East, Mashonaland West, Mashonaland Central, Manicaland since it's the country's largest Quaternary Institution and an EmONC referral centre. All complicated maternity cases are referred to the hospital for specialised care. Walk in clients who opt for the hospital maternity services are also catered for at the institution as it's a woman's right to choose a health facility of their choice. The unit is staffed by both midwives and obstetricians who are trained obstetric care givers and certified by their regulatory bodies to practice as birth attendants.

2.3. Study Population

The study population were midwives working in Mbuya Nehanda Maternity Hospital and registered with the Nurses Council of Zimbabwe. The target population were midwives with a current or previous labour ward experience at Mbuya Nehanda Maternity Hospital and with at least 2 years or more work experience in the department.

2.4. Sample Size

A total of 60 participants were considered as the sample size. The sample size was selected using the purposive sampling method from all the midwives working in MNMH. The pre – requisite was that all of them were holders of a midwifery certification by the Nurses Council of Zimbabwe.

2.5. Ethical Considerations

Researcher was cleared by Zimbabwe Open University, the Clinical Director of Parirenyatwa Group of Hospitals and the Medical Research Council of Zimbabwe (Protocol number: MRCZ/B/2181) to proceed with the study on human participants. Written informed consent was also obtained from all participants who consented to participate in this study.

2.6. Inclusion and Exclusion Criteria

All the midwives working in the MNMH labour ward with a current and previous labour ward work experience of at least two years and more were included in the study. Midwives who had a previous two years or more experience and are now working in another department and occasionally work in the department during crisis periods were also included as part of the study since they had exposure in utilising the partograph during monitoring of labour of both mother and foetus. Those who agreed to voluntarily sign the informed consent were part of the study respondents. The study excluded midwives without a labour ward experience. Those who were not willing to participate in the study voluntarily were not part of the study.

2.7. Study Variables

The Independent variables were knowledge, attitude and practices of midwives whereas the dependent variable was labour outcomes.

2.8. Research Instrument

A semi structured questionnaire was used to collect data. In Addition to demographic data, the questionnaire had questions on knowledge, attitudes and practices midwives had on the use of the partograph during monitoring of labour. The questionnaire was carefully examined to ensure its relevance and avoidance of ambiguity by use of face and content validity. The questionnaire was in English since it's the official teaching and communication language among midwives therefore using this language was easier for participants to respond. The reliability of this study was ensured by minimising sources of measurement error such as collector bias. The researchers were the only ones who administered the questionnaire and collected the data. To instrument was also pre-tested with 5 midwives at Sally Mugabe Hospital and adjustments were made, removing ambiguous questions and rephrasing for easy understanding.

2.9. Data Collection

The researchers clearly explained the process of data collection, addressed all misconceptions and fears, and reassured participants that their involvement was entirely voluntary. Informed consent was read to the chosen participants and voluntarily signed before administering the questionnaire. The questionnaire took approximately 10 to 15 minutes to complete. Emphasis was made that all information obtained would be divulged only to the research supervisor and that no unauthorized persons would have access to the questionnaires. After the participants indicated their understanding, the questionnaire was administered. Upon completion, the questionnaires were immediately collected and locked in a safe cupboard.

2.10. Data Analysis

Data was then captured using a computer and was analysed using the Statistical Package for Social Sciences (SPSS version 22). Descriptive statistics were used and data was presented as tables and figures.

3. Results

3.1. Midwives Demographic Data

With regards to age distribution, the majority of the midwives 35(70%) were between 31-40 years of age. The majority of the midwives are female 46(92%) and 30(60%) of the midwives were married with 48(96%) were Christians. Only

2(4%) had an honours degree in nursing and midwifery, 30(60%) of the participants were living with their families and the, the majority 40(80%) had 2 – 4 years of working experience (Table 1).

Table 1. Demographic characteristics of Midwives.

Variable	Categories	Frequency (F) N (=50)	Percentage%
Age	20 – 30 years	1	2
	31 – 40 years	35	70
	41 – 50 years	8	16
	51 – 60 years	6	12
Gender	Male	4	8
	Female	46	92
Marital status	Single	15	30
	Married	30	60
	Divorced	2	4
	Widowed	3	6
Religion	Christianity	48	96
	Non – believer	2	4
Living status	Family – husband and Children	30	60
	In – laws	2	4
	Friends	1	2
	Parents	1	2
	Alone	16	32
Qualification	Diploma in midwifery	48	96
	Honours degree in nursing and midwifery	2	4
Work experience	6 months – 2 years	7	14
	2-4 years	40	80
	5-10 years	2	4
	10 years and above	1	2

3.2. Knowledge of Midwives on the Partograph

Majority of midwives, 42 (n=84%) indicated that a partograph is a graphical tool used to monitor progress of labour, foetal and maternal well – being in labour. A considerable 4% were of the opinion that it is a graphical chart used to record labour findings while another 2(4%) indicated that it is a tool used to monitor the foetal wellbeing. Another 2(4%) indicated that it is a tool used to record maternal health. Only 2 (4%) respondents stated that it is a graphic method of recording 1st stage of labour. A significantly higher proportion of midwives demonstrated good knowledge of the purpose of the partograph. They managed to select the correct answer as a graphical tool used to monitor progress of labour, foetal and maternal well-being in labour compared to other purposes (Table 2).

With regards to foetal heart rate, the majority of midwives, 38(76%) selected normal foetal heart rate as 120 -160 beats per minute. A considerable 7(14%) indicated that the normal foetal heart rate ranged from 110-150 beats per minute. Only 3(6%) chose foetal heart rate range of between 80-120 beats per minute and 2(4%) indicated that normal foetal heart rate was between 180 beats per minute to 240 beats per minute. None mentioned 60 beats per minute to 100 beats per minute. A considerable high proportion of midwives had knowledge

on the correct number of foetal heart beats per minute as they selected the correct answer (Table 2).

Results show that 50(100%) respondents had knowledge that foetal heart assessment was done half hourly. The majority of the midwives mentioned that the fetoscope was the most appropriate tool to auscultate for foetal heartbeat, while 23(46%) stated that the ultrasound scan was the most appropriate tool. Only 2(4%) indicated that the stethoscope was the most appropriate tool. Results showed that half the number of respondents 25(50%) had somewhat knowledge on the correct auscultating tool (Table 2).

The majority 36(72%) nominated colour, amount and consistency as the findings of the state of the liquor which are recorded after rupture of membranes whereas 5(10%) indicated that it was colour, amount and volume. Another 5(10%) had the opinion that it was colour, texture and consistency. Only 4(8%) selected colour, odour and consistency as the correct sequence when recording findings after rupture of membranes. Majority of respondents had sound knowledge on the state of liquor recording after the membranes have ruptured.

Results show that majority of the respondents 40(80%) selected thick meconium stain as the correct response, while 8(16%) chose vaginal infection as the accurate answer. Only 1 2%) midwife indicated that it was a rhesus iso –immunisation while another 1(2%) stated that it showed that the mother had passed stool in labour. A greater proportion of midwives demonstrated very good knowledge on the correct description and meaning of a thick muddy stained liquor on vaginal examination.

Table 2. *Knowledge of midwives on the partograph.*

Variable	Responses	Frequency (F) N=50	Percentage%
Purpose of Partograph	Tool used to record maternal health.	2	4
	Tool used to monitor the foetal wellbeing.	2	4
	A graphical tool used to monitor progress of labour, foetal and maternal well – being in labour.	42	84
	A graphic method of recording 1st stage of labour	2	4
	A graphic chart used to record labour findings.	2	4
Normal foetal heart rate	60 -100 beats per minute	0	0
	110 -150 beats per minute	7	14
	120 -160 beats per minute	38	76
	180 -240 beats per minute	2	4
	80 -120 beats per minute	3	6
Duration of foetal heart assessment	1/2 hourly	50	100
Best tool to auscultate for foetal Heart rate	Stethoscope	2	4
	Ultrasound scan	23	46
	Fetoscope	25	50
State of liquor as recorded after rupture of membranes	Colour, amount, consistency	36	72
	Colour, odour, consistency	4	8
	Colour, amount, volume	5	10
	Colour, texture, consistency	5	10
Meaning of a thick muddy stained liquor on vaginal examination.	Mother has passed stool in labour	1	2
	Vaginal infection	8	16
	Thick meconium stain	40	80
	Rhesus iso- immunization	1	2

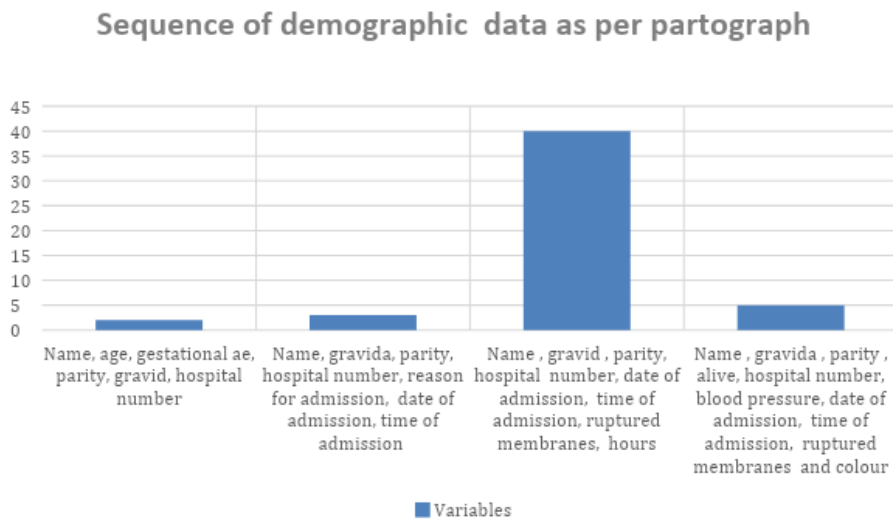

Figure 1. *Sequence of demographic data as per partograph.*

Most of the midwives, 40(80%), indicated that the sequence of demographic data on the partograph is as follows: Name, gravidity, parity, hospital number, date, time of admission, and hours since membranes ruptured. Another 5(10%) respondents stated the sequence as: Name, gravidity, parity, hospital number, blood pressure, date of admission, time of admission, rupture of membranes, and colour. Some 3(6%) respondents listed the sequence as: Name, gravidity, parity, hospital number, reason for admission, date of admission, and time of admission. Additionally, 2(4%) respondents mentioned: Name, age, gestational age, parity, gravidity, and hospital number. The majority were familiar with the sequence of demographic data as outlined in the Zimbabwe Maternal and Neonatal Health Record booklet. This demonstrates good knowledge among the midwives and shows that they comprehended their everyday working tool very well (Figure 1).

Results revealed that 40(80%) mentioned that moulding and caput are assessed to monitor the state of foetal wellbeing, while 8(16%) indicated that it entails maternal exhaustion. Only 1(2%) showed that it indicated foetal development while another 1(2%) stated that it's the state of cervical progress in labour. Majority of midwives showed very good knowledge on reasons for assessing moulding and caput during labour (Table 3).

Most of the midwives, 30(60%), responded that sutures were assessed when performing an abdominal examination. Meanwhile, 10(20%) believed that the statement "sutures overlapped and not reducible +++" was incorrect. Additionally, another 5(10%) thought that "sutures are opposed but reducible ++" was incorrect. Lastly, another 5(10%) respondents opined that "sutures apposed +" was the incorrect statement. Most respondents demonstrated knowledge by correctly identifying the incorrect answer regarding sutures (Table 3).

A significant number of midwives, 35(70%), reported that the two lines used to monitor labour are the action line and the alert line. A considerable 8(16%) indicated the alert line, transfer line, and action line. Only 4(8%) selected the alert line and transfer line as the two lines on the partograph. Additionally, 3(6%) mentioned that the lines on the partograph were the alert line and action line. A greater proportion of respondents demonstrated sound knowledge of the two lines found on the partograph (Table 3).

Thirty (60%) of the midwives indicated that plotting was done in the active phase of the first stage of labour, while a considerable 10(20%) mentioned that it was done when the woman was being admitted to labour. Only 5(10%) opined that it was done in the latent phase, and another 5(10%) indicated that it was done when the cervix reached full dilation. Most of the midwives demonstrated remarkable knowledge on when to start plotting on the partograph.

The majority of midwives, 44(88%), identified cervical dilation as the first maternal observation to be recorded. Additionally, 2(4%) indicated that it was parity, another 2(4%) opined that urinalysis should be the first observation, and a final 2(4%) chose menarche as the first observation. The majority of the midwives demonstrated sound knowledge regarding the first maternal observation to be plotted on the partograph (Table 3).

About 40(80%) respondents indicated that cross (x) was the symbol for cervical dilatation while 6(12%) indicated the letter (w). And a minute 2(4%) indicated that it was the Dot (.) while another 2(4%) indicated that the Circle (o) was the correct symbol for recording cervical dilatation. Majority of the midwives had knowledge on the correct symbol for recording cervical dilatation (Table 3).

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partograph.

Table 3. *Knowledge of midwives on the partograph.*

Variable	Responses	Frequency (F) N=50	Percentage%
Moulding and caput	Maternal exhaustion	8	16
	Foetal development	1	2
	Cervical progress in labour	1	2
	State of foetal wellbeing	40	80
Incorrect statement about sutures	Sutures apposed. +	5	10
	Sutures overlapped but reducible. ++	5	10
	Sutures overlapped and not reducible. +++	10	20
	Sutures are assessed when performing an abdominal examination.	30	60
Two lines on the partograph to monitor labour	The alert, transfer and action line	8	16
	The alert and transfer line	4	8
	The transfer and action line	3	6
	The alert and action line	35	70
Plotting on the partograph	In the active phase of the 1st stage of labour	30	60
	In the latent phase	5	10
	When the cervix reaches full dilatation	5	10
	When the woman is admitted into labour	10	20
The first maternal observation to be plotted on a partograph	Menarche	2	4
	Urinalysis	2	4
	Parity	2	4
	Cervical dilatation	44	88
Symbol for cervical dilatation	Dot (.)	2	4
	Cross (×)	40	80
	Circle (o)	2	4
	Letter (w)	6	12
Frequency of checking uterine contractions	Hourly	3	6
	Last ten minutes of half an hour	41	82
	½ hourly	3	6
	Before admission into labour ward	3	6

The majority of the midwives, 40(80%), indicated that strong uterine contractions ranged from 41-60 seconds, while a considerable 6(12%) indicated that strong contractions lasted above 60 seconds. Only 2(4%) highlighted that they ranged between 10-20 seconds, and the remaining 2(4%) concluded that they ranged between 21-40 seconds. The majority of the midwives were knowledgeable, as they knew the correct ranges for uterine contractions (Table 4).

About 30(60%) respondents mentioned that pulse, temperature, blood pressure, respiration, urine output, urinalysis were the maternal well-being observations measured in labour while a considerable 10(20%) opined that pulse temperature, show and ketones were the observations of maternal well-being that are measured during labour. Another 7(14%)

respondents highlighted that pulse, cervical dilatation, blood pressure, respiration, ketones were the ones measured during labour and a paucity number, 3(6%) mentioned that blood pressure, temperature, level of consciousness, urinalysis were the maternal well-being observations measured in labour. Most of the midwives demonstrated sufficient knowledge regarding the critical aspects of maternal wellbeing that are measured during labour (Table 4).

Findings reflected that most 37(74%) respondents indicated that they had never attended to a refresher course while considerable 8(16%) number highlighted that they attended to these courses yearly. Only 3(6%) indicated that they attended to refresher courses on a monthly basis and 2(4%) mentioned that refresher courses were done every three months. Majority of respondents showed that there was a deficiency in refresher course which affected their body of knowledge, with adequate training possibly they could maintain good standard of knowledge.

Forty-eight (96%) of the respondents highlighted that it was true workshops, audit meetings, research on use of the partograph, helped in improving utilization of the monitoring tool, while 2(4%) midwives stated that it was false, workshops, audit meetings do not improve partograph utilization.

Table 4. *Knowledge of midwives on the partograph.*

Variable	Responses	Frequency (F) N=50	Percentage%
Ranges of strong uterine contractions	10 – 20 seconds	2	4
	21 – 40 seconds	2	4
	41 – 60 seconds	40	80
	Above 60 seconds	6	12
Maternal well- being observations measure during labour	10 – 20 seconds	2	4
	The alert, transfer and action line	8	16
	The alert and transfer line	4	8
	The transfer and action line	3	6
	The alert and action line	35	70
Plotting on the partograph	Pulse, temperature, blood pressure, respiration, urine output, urinalysis	30	60
	Pulse, cervical dilatation, blood pressure, respiration, ketones	7	14
	Blood pressure, temperature, level of consciousness, urinalysis	3	6
	Pulse, temperature, show, ketones	10	20
Distribution of respondents according to refresher course attendance.	Monthly	3	6
	Yearly	8	16
	Never	37	74
	Every three months	2	4
	Monthly	3	6
Workshops, audit meetings, research on use of the partograph, helps in improving utilization of the monitoring tool.	True	48	96
	False	2	4

3.3. Midwives Perceptions Towards Use of the Partograph

Thirty three (66%) of the respondents agreed that the partograph was important in the monitoring of labour, foetal and maternal wellbeing, whereas 7(14%) were neutral. Only 10(20%) respondents disagreed that the partograph was important in the monitoring of labour, foetal and maternal wellbeing (Table 5).

Similarly, 35(70%) of the participants agreed that utilization of the partograph in the monitoring of labour was of great significance in detecting maternal complications and 4(8%) were neutral. However, 11(22%) disagreed that utilisation of the partograph in the monitoring of labour was significant in detecting maternal complications. Majority of respondents 70% were agreeable that the use of the partograph was important in the monitoring of labour and of great significance in detecting maternal complications which showed good attitude towards the tool.

Most of the participants 40(80%) strongly agreed that prolonged and obstructed labour can both be detected when the partograph was used effectively during labour whereas 5(10%) were neutral. However, 5(10%) disagreed with the statement. Majority of respondents were for the opinion that the partograph could detect both prolonged and obstructed labour if used effectively in labour.

Results showed that 29(58%) respondents agreed that the partograph should not be used on all labouring women especially those with normal straight forward deliveries whereas 22(44%) disagreed that the partograph should not be used. A marginal number of midwives (58%) opined that the partograph shouldn't be used on all labouring women especially to those with normal straight forward deliveries.

Similarly, 21(42%) respondents agreed that the partograph could help to reduce maternal morbidity and mortality, and 2(4%) were neutral. However, 27(54%) disagreed that the partograph could help to reduce maternal morbidity and mortality. Majority of the midwives concurred that the partograph does not reduce maternal morbidity and mortality, which most authors including WHO are not agreeable to (Table 5).

Twenty- five (50%) of the respondents agreed that the partograph was a tool used to detect and triage complications during labour, 5(10%) respondents were neutral and 20(40%) disagreed that the partograph was a tool used to detect and triage complications during labour. Responses revealed good attitude towards the Partograph as a tool used to detect and triage complications during labour.

Most midwives 37(72%) agreed that using the partograph was a waste of time, 1(2%) remained neutral and 2(4%) disagreed that the use of the partograph was a waste of time. The majority of the respondents revealed negative perceptions and attitudes towards the use of the partograph saying it's a waste of time (Table 5).

Results showed that 40(80%) of the respondents agreed that supervision and mentorship on the use of the partograph helped reduce the stress of failing to understand and effectively utilise the tool, 5(10%) remained neutral whereas 5(10%) disagreed.

Table 5. *Perceptions of midwives on the partograph.*

Variable	Responses	Frequency (F) N=50	Percentage%
The partograph is important in the monitoring of progress of labour, foetal and maternal wellbeing.	Agree	33	66
	Neutral	7	14
	Disagree	10	20
Utilization of the partograph in the monitoring of labour was of great significance in detecting maternal complications.	Agree	35	70
	Neutral	4	8
	Disagree	11	22
Prolonged and obstructed labour can both be detected when the partograph was used effectively in labour.	Agree	40	80
	Neutral	5	10
	Disagree	5	10
The partograph should not be used on all labouring women especially those with normal straight forward deliveries.	Agree	29	58
	Neutral	3	6
	Disagree	18	36
Partograph can help to reduce maternal morbidity and mortality.	Agree	21	42
	Neutral	2	4

Variable	Responses	Frequency (F) N=50	Percentage%
Partograph can help to reduce maternal morbidity and mortality.	Disagree	27	54
	Agree	21	42
	Neutral	2	4
Partograph as a tool used to detect and triage complications during labour.	Disagree	27	54
	Agree	25	50
	Neutral	5	10
Using the Partograph is a waste of time.	Disagree	20	40
	Agree	37	72
	Neutral	1	2
Mentorship on use of this tool increases effectiveness	Disagree	2	4
	Agree	40	80
	Neutral	5	10
	Disagree	5	10

About 35(70%) of the respondents strongly agreed that the partograph was a difficult tool to use in the labour ward while 3(6%) were neutral and 12(24%) disagreed (Table 6). The majority had a negative attitude as they perceived the partograph as a difficult tool to use in the labour ward.

The majority of the respondents 43(86%) agreed that it's difficult to balance tasks between caring of a woman in labour and documenting on the partograph all the time and only 2(4%) disagreed. The majority of respondents revealed a negative perception on the use of the tool through their responses. Most of them stated that it's difficult to balance tasks between caring for a woman in labour and documenting on the partograph all the time.

About 44(88%) of the respondents agreed that the partograph is too long and monotonous to use, 2(4%) remained neutral and 4(8%) 2(4%) strongly disagreed. A significantly high percentage of midwives indicated that the graphical tool was too long and monotonous to utilise, this showed a negative perception and attitude towards the tool.

Ninety percent of the respondents agreed that the partograph was a complicated tool, whereas 3(6%) respondents remained neutral. The finding reflected a very bad and negative attitude towards the Partograph. The majority 40(80%) of the respondents agreed that shortage of staff strongly impacts on partograph utilization with only 5(10%) of the respondents disagreeing. The responses showed a negative perception towards use of the graphical tool. Midwives perceived absence of adequate staffing as a hindrance to proper use of the chart (Table 6).

Most of the midwives 40(80%) indicated that a partograph was a non- verbal communication tool that saves women's lives in labour, while 1(2%) remained neutral to the statement. Only 9(18%) of the midwives disagreed.

Table 6. *Perceptions of midwives on the partograph.*

Variable	Responses	Frequency (F) N=50	Percentage%
Partograph is a difficult tool to use in the labour ward.	Agree	35	70
	Neutral	3	6
	Disagree	12	24
It's difficult to balance tasks between caring of a woman in labour and documenting on the Partograph all the time	Agree	43	86
	Neutral	5	10
	Disagree	2	4
The graphical tool is too long and monotonous to utilise.	Agree	44	88

Variable	Responses	Frequency (F) N=50	Percentage%
	Neutral	2	4
	Disagree	4	8
	Agree	45	90
The Partograph as a complicated tool.	Neutral	3	6
	Disagree	2	4
	Agree	40	80
Shortage of staff greatly impacts on partograph utilization.	Neutral	5	10
	Disagree	5	10
	Agree	40	80
Partograph as a nonverbal communication tool that saves women's lives in labour.	Neutral	1	2
	Disagree	9	18

3.4. Practices of Midwives During Partograph Utilization

With regards to midwives practices in the use of partograph, 40(80%) of the midwives indicated that on a busy day, the partograph was used occasionally while 5(10%) indicated that the partograph was rarely used on a busy day. A considerable 4(8%) respondents mentioned that on a busy day the partograph was never used and only 1(2%) stated that the partograph was used always, even when busy. Majority of them exhibited bad practice when it came to use of the tool as they evidently acknowledged that they occasionally utilised the monitoring tool especially on busy days (Figure 2).

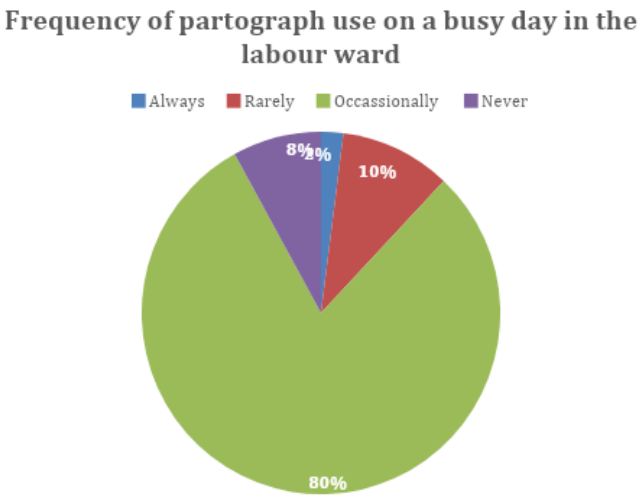

Figure 2. *Frequency of Partograph use on a busy day in the labour ward.*

Most of the respondents 40(80%) completed foetal and maternal well-being parameters more, while 5(10%) completed the drug and fluid parameters. Only 3(6%) completed all the parameters of the partograph while only 2(4%) completed the demographic data section. According to the table there was incomplete documentation of other parameters of the partograph. Respondents only made sure that they adequately completed the foetal and maternal well-being parameters and least completed demographic data section. Findings show that there was poor use of the graphical tool as evidenced by documentation of two parameters instead of ten parameters of the chart (Table 7).

Thirty-one (62%) of the respondents highlighted that there are usually 3 midwives per shift. A considerable 15(30%) mentioned that 4 or more midwives work per shift, while 2(4%) mentioned 2 midwives per shift, and the remaining 2(4%) respondents mentioned that there is 1 midwife per shift. Most of the respondents indicated that the labour ward has 3 midwives per shift. The lack of availability of midwives compromised the performance and utilization of the partograph. The lower number of midwives per shift and the increased workload resulted in a lack of use of the tool, thereby contributing to poor practice.

The majority of the respondents, 40(80%) indicated that in terms of midwife to labouring woman ratio it is 1: 5 and more, while 5(10%) mentioned that it is 1:4 ratio. Significantly 3(6%) midwives stated that the midwife to labouring woman ratio is 1:3 and only 1(2%) indicated that it was 1:2 and 1: 1 for the remaining 1(2%) respondent. Majority of midwives highlighted that the midwife patient ratio was 1: 5. According to findings of the study midwife and labouring women ratio compromised work performance as this resulted in bad practice especially on utilization of the partograph. A midwife, patient ratio of 1: 5 was against the WHO recommendation of 1:1. Most midwives clearly cited that it's good practice as

revealed by acknowledging use of the tool in monitoring of labour (Table 7).

Most of the respondents 40(80%) respondents always plotted the action line parallel and four hours to the right of the alert line while demonstrating good practice. About 10(20%) stated that it was necessary to enter both maternal and foetal information on the partograph. A significantly high percentage of respondents mentioned that it wasn't necessary which shows that there was poor practice among midwives.

Most of the respondents 38(76%) respondents revealed that continuous documentation on the partograph wasn't necessary as it is time consuming exposing bad utilisation practices. About 30(60%) respondents closed the partograph upon delivery of the baby, 10(20%) indicated that it's closed when sending the woman to post-natal ward. About 5(10%) indicated that it's closed when there is a neonatal and maternal death only while 5(10%) stated that it's closed when taking the booklet to records department. The majority of midwives knew when the partograph is closed upon delivery of the baby.

Table 7. *Practices of midwives on the partograph use.*

Variable	Categories	Frequency (N=50)	Percentage%
Parameters of the Partograph that are completed the most.	Foetal and maternal wellbeing parameters	40	80
	Drugs and fluid parameters	5	10
	Demographic data section	2	4
	All the parameters	3	6
Number of midwives per shift in the Labour ward.	Foetal and maternal wellbeing parameters	40	80
	1 per shift	2	4
	2 per shift	2	4
	3 per shift	31	62
	4 or more per shift	15	30
Midwife to labouring woman ratio in the labour ward.	1:1	1	2
	1:2	1	2
	1:3	3	6
	1:4	5	10
	1: 5 and more	40	80
Partograph use in monitoring of labour is good practice.	True	35	70
	False	15	30
Action line is plotted parallel and four hours to the right of the alert line.	Always	40	80
	Never	10	20
Entering of both maternal and foetal information on the Partograph is done routinely on diagnosis of labour and after delivery.	Yes	10	80
	No	40	20
Continuous documentation on the partograph is not done as it is time consuming.	Yes	12	24
	No	38	76
Closure of Partograph	Upon delivery of the baby	30	60
	When sending the woman to postnatal ward	10	20
	When taking the booklet to records department	5	10
	When there is a neonatal and maternal death only	5	10

4. Discussion

Purpose of the study was to assess midwives' knowledge, perceptions and practices on the utilization of the partograph at Mbuya Nehanda Maternity Hospital.

4.1. Knowledge on the Utilization of the Partograph

According to the study findings, most of the midwives who participated were female. The majority of the midwives at Mbuya Nehanda Maternity Unit are female, accounting for 92%, while 8% are male. Ninety-six percent of the midwives held a Diploma in Midwifery. Their extensive knowledge of the partograph utilization could be attributed to their formal training on the tool through classroom lectures. These findings align with a study by Eshetu and others, which concluded that diploma graduates and years of service positively influence partograph knowledge [23].

The majority of the midwives demonstrated knowledge of the monitoring tool. Midwives at Mbuya Nehanda Maternity Hospital exhibited good and remarkable knowledge, as evidenced by their ability to respond correctly to all important parameters of the partograph. The study found that midwives who responded to the questionnaire had concrete knowledge, as shown by their articulation of the components of the graphical tool. The findings at Mbuya Nehanda Maternity Hospital regarding the relationship between years of professional experience and partograph knowledge are similar to those of research conducted by Ngidi, who noted that years of work experience and academic qualifications positively impacted partograph knowledge [24].

In this study, midwives with over 4 years of experience working in the labour ward and holding a diploma in midwifery comprised most respondents. These individuals demonstrated remarkable knowledge, accurately stating the purpose of the partograph, shown by an 84% accurate response rate, and 76% accuracy in stating the correct normal foetal heart range.

The findings of this study are consistent with those of Brits and team, who highlighted that midwives at Bloemfontein Public Health Obstetric Unit possessed a vast body of knowledge, managing to identify all components of the chart, including the latent and active phases of labour [25]. In this study, 70% of the midwives could also identify the two lines found on the partograph, which are the alert and action lines. The ability to distinguish these lines indicates that the midwives are very knowledgeable. This study noted a widespread knowledge among Mbuya Nehanda midwives, as evidenced by a high accurate response rate of 82% from 41 out of 50 midwives regarding the correct intervals to check for uterine contractions.

4.2. Perceptions of Midwives on the Utilization of the Partograph

The study findings are similar to those of research conducted in Addis Ababa, Ethiopia, by Hagos et al., where it was stated that the majority of midwives acknowledged the partograph as an important tool for monitoring labour but had attitude issues towards its use [26]. This aligns with findings from Mbuya Nehanda Maternity Hospital, where 66% of midwives agreed that the partograph is an essential tool for monitoring the progress of labour and the well-being of both the foetus and the mother. However, the majority of the midwives, 47 out of 50, also agreed with the statement that using the tool was a waste of time, indicating clear attitude issues towards its use.

A significant percentage, 80%, of midwives at Mbuya Nehanda Maternity Hospital agreed that supervision and mentorship on the use of the tool helped reduce the stress associated with understanding and effectively utilizing it. These findings are in line with a study by Bedada and others, which postulated that a lack of motivation and support led to poor utilization of the partograph [27]. Similarly, a study by Asibong, supports these findings, highlighting that a lack of motivation contributed to the negative attitude of obstetric care providers towards the partograph [28].

Midwives at Mbuya Nehanda Maternity Hospital expressed that the partograph is a difficult tool to use in the labour ward, which is indicative of a negative attitude problem. In a study by Wakgari and others in Central Ethiopia, obstetric care providers did not use the partograph as a routine labour monitoring tool; instead, monitoring was done on pieces of paper despite the availability of the actual charts [29].

4.3. Practices of Midwives on the Utilization of the Partograph

Study results at Mbuya Nehanda Maternity Hospital do concur with other studies especially on issues of staffing and human resources in the form of midwives. The existing midwife to labouring woman ratio is 1: 5 which contradicts the WHO recommended ratio of 1:1 in a labour ward. A study by Mathibe Neke and others, revealed that shortage of staff, heavy workload hindered use of the chart [30]. Study findings by Yisma and team showed that completion of the tool was lacking and that most parameters of foetal wellbeing were not recorded. This is in line with this study's findings where midwives only completed the foetal and maternal well-being parameters.

The study findings showed that midwives are knowledgeable on the partograph but did not use the tool to full capacity hence this compromised care in the labour ward as there was poor monitoring of labouring women and their management. Parirenyatwa Hospital is a teaching hospital therefore poor utilization practice impacts negatively to the students as it compromises education. Students learn from what they see on a day-to-day basis. If they observe bad utilization practice from their mentors who are the midwives, they tend to comply to wrong practice. There is need to empower midwives to correlate their knowledge with practice and attitude, so that

students emulate the correct way of utilizing the partograph. There is need to devise continued professional development lectures and capacity building programs at institutional level for midwives so that points and certification is rewarded when a midwife has provided a partograph that has been fully and correctly utilized. This is a measure to improve on quality of care rendered to women in labour.

4.4. Limitations

The study was carried out at one site and sample size was small therefore results may not be fully reflective of the entire population of midwives across the country hence results cannot generalize the knowledge, attitudes, and practices of midwives in all hospitals in Zimbabwe.

5. Conclusion

The following conclusion was drawn basing on the findings of the research. The research concluded that midwives at Mbuya Nehanda Maternity Hospital have a good understanding of the partograph. MNMH midwives exhibited very good knowledge and sound articulation of the tool which showed good academic background showing that in the classroom area it is taught well and understood well too.

The attitude of midwives towards utilisation of the partograph was generally very bad, with most responses showing that they cared less of the tool in caring for and monitoring labouring women. Their attitude on utilisation of the graphic tool leaves a lot to be desired as majority of the midwives had a strong base of knowledge but negative attitude which in fact exposed the women to labour related complications such as obstructed and prolonged labour if poorly monitored.

The researchers also concluded that there was underutilisation of the partograph as proven by poor and negative documentation and utilization practices, compounded by negative attitudes. Practice of midwives directly compromised obstetric care of mothers and women in the labour ward, and this was highly influenced by shortage of midwives per shift and in the unit. The study findings also drew the researcher to conclude that lack of continuous capacity building programmes on the use of the partograph and refresher courses contributed significantly to lack of utilization of the tool. Lack of supervision and mentorship as a support measure enormously attributed to poor utilisation of the graphic monitoring chart.

Abbreviations

MOHCC	Ministry of Health and Child Care
UNFPA	United Nations Family and Population Fund
WHO	World Health Organisation
MNMH	Mbuya Nehanda Maternal Hospital
EmONC	Emergency Obstetric and Neonatal Care

Author Contributions

Hazvinei Mutema: Writing original draft

Maxwell Mhlanga: Methodology, Writing - review & editing

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Data Availability Statement

The data is available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare no conflicts of interest.

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