East African Journal of Health and Science, Volume 8, Issue 2, 2025
Article DOI: https://doi.org/10.37284/eajhs.8.2.3233

East African Journal of Health and Science
eajhs.eanso.org
Volume 8 Issue 2, 2025
Print ISSN: 2707-3912 | Online ISSN: 2707-3920
Title DOI: https://doi.org/10.37284/2707-3920

EAST AFRICAN NATURE & SCIENCE ORGANIZATION

Original Article

Factors Affecting Utilisation of Partograph among Healthcare Workers in Bukoba District Council, Kagera Region, Tanzania

Mangi Job Ezekiel[1], *Mercy Obadiah Kagaruki*[2], *Salim Juma Mpimbi*[1*] & *Idda Hubert Mosha*[1]

[1] Muhimbili University of Health and Allied Sciences, P. O. Box 65001, Dar es Salaam, Tanzania.
[2] Bukoba Municipal Council, P. O. Box 299, Bukoba, Tanzania.
*Author for Correspondence ORCID ID; https://orcid.org/0000-0003-2350-6904; Email: salimmpimbi9693@gmail.com

Article DOI: https://doi.org/10.37284/eajhs.8.2.3233

Date Published:
30 June 2025

Keywords:
Partograph, Maternal Health Care, Utilisation, Healthcare Workers.

ABSTRACT

The World Health Organization (WHO) acknowledges that the effective use of partograph helps prevent maternal and neonatal deaths, identify abnormalities, and inform appropriate labour management. In Tanzania, the national Emergency Obstetric Neonatal Care (EmoNC) assessment has consistently reported low utilisation of partographs. However, little is known about the local factors hindering partograph use. Therefore, this study assessed factors affecting the utilisation of partographs among healthcare workers in Health facilities in Bukoba DC in the Kagera region. To address this, a quantitative descriptive cross-sectional design was adopted. The sample size for this study comprised 224 nurses and 79 clinicians recruited from Bukoba DC. Stratified random sampling was utilised to select study participants from the identified health facilities. Data were collected through structured questions, and data analysis was achieved through descriptive and multivariate analysis using the Statistical Package for Social Science (SPSS version 27). The study found that 80.8% of healthcare workers (HCW) used the partograph, while 19.2% did not. Its use was correlated with age and educational attainment. HCWs who were 27 years of age or older were 10% less likely than those under 26 to use the partograph (AOR = 0.904, CI 95% = 0.834-0.979, p = 0.013). Compared to those with less than two years of college education, HCWs with three years or more were 1.1 times more likely to do it (AOR = 1.141, CI 95% = 1.054-1.235, p = 0.001). HCWs who performed 6–10 deliveries in a 24-hour shift were also 9.6% less likely to use the partograph than those who performed 1–5 deliveries. Similarly, compared to those in the reproductive and child health (RCH) department, healthcare workers in the labour ward unit were 9.9% less likely to use the partograph (AOR = 0.901, CI 95% = 0.822-0.988, p = 0.027). The study shows that while most healthcare workers use partographs, there are gaps in knowledge and attitudes about their use, especially in reducing maternal and newborn deaths. To improve this, facilities should prioritise resources, implement continuous training, and ensure regular availability of partograph forms and monitoring equipment.

APA CITATION

Ezekiel, M. J., Kagaruki, M. O., Mpimbi, S. J. & Mosha, I. H. (2025). Factors Affecting Utilisation of Partograph among Healthcare Workers in Bukoba District Council, Kagera Region, Tanzania. *East African Journal of Health and Science*, *8*(2), 33-45. https://doi.org/10.37284/eajhs.8.2.3233.

Article DOI: https://doi.org/10.37284/eajhs.8.2.3233

CHICAGO CITATION

Ezekiel, Mangi Job, Mercy Obadiah Kagaruki, Salim Juma Mpimbi and Idda Hubert Mosha. 2025. "Factors Affecting Utilisation of Partograph among Healthcare Workers in Bukoba District Council, Kagera Region, Tanzania". *East African Journal of Health and Science* 8 (2), 33-45. https://doi.org/10.37284/eajhs.8.2.3233

HARVARD CITATION

Ezekiel, M. J., Kagaruki, M. O., Mpimbi, S. J. & Mosha, I. H. (2025). "Factors Affecting Utilisation of Partograph among Healthcare Workers in Bukoba District Council, Kagera Region, Tanzania", *East African Journal of Health and Science*, 8(2), pp. 33-45. doi: 10.37284/eajhs.8.2.3233.

IEEE CITATION

J., Ezekiel, M. O., Kagaruki, S. J., Mpimbi & I. H., Mosha "Factors Affecting Utilisation of Partograph among Healthcare Workers in Bukoba District Council, Kagera Region, Tanzania", *EAJHS*, vol. 8, no. 2, pp. 33-45, Jun. 2025.

MLA CITATION

Ezekiel, Mangi Job, Mercy Obadiah Kagaruki, Salim Juma Mpimbi & Idda Hubert Mosha. "Factors Affecting Utilisation of Partograph among Healthcare Workers in Bukoba District Council, Kagera Region, Tanzania". *East African Journal of Health and Science*, Vol. 8, no. 2, Jun. 2025, pp. 33-45, doi:10.37284/eajhs.8.2.3233.

INTRODUCTION

Globally, about 295,000 women died during and following pregnancy and childbirth in 2017, with the majority of these deaths occurring in low-resource settings and most being preventable (Balikuddembe et al., 2017). Since 1994, the World Health Organization (WHO) has promoted the use of the paper partograph as the standard labour monitoring tool to improve documentation of intrapartum maternal and fetal measurements, identify abnormalities, and inform appropriate labour management (Litwin et al., 2018). However, its utilisation remains poor in many low-resource settings, attributed to various user and usability challenges. To address these issues, maternal health scientists and the WHO called for improvements of the partograph and the development and evaluation of pragmatic electronic health (eHealth) solutions to health challenges (Balikuddembe et al., 2017).

Regular and timely monitoring of maternal and fetal parameters during labour is essential to assess maternal and fetal well-being, identify complications, and make timely clinical decisions. This monitoring is crucial in low-resource settings, where about 94% of maternal deaths occur (TDHS-MIS, 2015). Several studies have shown that the proper use of the partograph can lead to a significant decrease in the incidence and outcomes of prolonged and obstructed labour, which is responsible for 8%–10% of maternal deaths worldwide (WHO, 2019). However, challenges such as lack of availability of partograph and labour management guidelines, insufficient knowledge, training, or supportive supervision of skilled birth attendants (SBAs) related to partograph use, negative perceptions of the partograph and its value, and inadequate institutional commitment to its utilization contribute to its suboptimal use (Hagos et al., 2020).

In Tanzania, the Ministry of Health (MoH) has trained only 13 regions on the Labour Care Guideline (LCG), with implementation ongoing in other areas. Bukoba, a district in the Kagera Region, has not yet received LCG training and continues to rely on the Partograph. Despite the partograph's potential to improve maternal and neonatal survival when implemented with clear labour management protocols, its routine use in resource-constrained settings remains low and inconsistent (Hagos et al., 2020). Studies have shown that healthcare providers' knowledge about the partograph and its components is generally poor, and the completion of the partograph is often retrospective for recordkeeping purposes only (Wakgari et al., 2015; Yisma et al., 2013a). These national challenges are particularly pronounced in regions like Bukoba, where maternal mortality remains a pressing concern. This ongoing use underscores the relevance of studies examining Partograph utilisation in Bukoba District Council (DC), where the maternal mortality rate remains high at 300 per 100,000 live births (PORALG, 2020) *[Unpublished]*.

Proper utilisation of the partograph and timely identification of danger signs during pregnancy,

Article DOI: https://doi.org/10.37284/eajhs.8.2.3233

labour, and delivery are crucial to address the challenges faced by maternal and child health in the district. Yet we still lack a detailed look at what's happening inside its labour wards. While national and regional studies point to general barriers, little is known about the local mix of personal, institutional, and system-level factors shaping partograph use in Tanzania.

To address these local gaps and contribute to reducing maternal mortality, this study aims to investigate the factors affecting the utilisation of the partograph among healthcare providers in the Bukoba DC. By addressing these challenges and enhancing partograph utilisation, this research seeks to contribute to the improvement of maternal and child health outcomes in the district.

METHODOLOGY

Study Design and Approach

This study employed a descriptive cross-sectional design with a quantitative approach to assess the factors affecting the utilisation of partograph among healthcare workers in Bukoba DC in Kagera region.

Study Area

Bukoba DC, with a population of 476,351 people (NBS/OCGS, 2022), comprises 68 health facilities, facing a 43% shortage of required facilities per village and street *[Unpublished]*. All facilities are accessible with social and economic services such as water, electricity, and roads, making them easy referrals for pregnant mothers. Bukoba has 8 health facilities providing CEmONC services, 3 hospitals, and 5 Health centres, all of which receive referrals from low facilities *[Unpublished]*. The continued use of the Partograph in Bukoba, despite the WHO's shift to the LCG in 2018, underscores the relevance of this investigation, particularly given the district's high MMR in the region (300 per 100,000 in 2020 compared to 216 per 100,000 in 2019 *[Unpublished]* and ongoing challenges in labor monitoring.

Study Population and Sampling

The study population for this study includes doctors and midwives who provide reproductive, maternal child health services in Bukoba DC. Inclusion criteria were HCWs with at least one year of clinical experience in maternal health care, working in maternity or reproductive health facilities, and available and willing to participate during data collection. Exclusion criteria included HCWs recently hired (less than one year of experience) or those with high workloads or multiple tasks that prevented participation.

The study included 43 health facilities offering a high volume of maternity services and conducting labour above 15 deliveries per month. The study employed a stratified random sampling to get the required sample of HCWs from stated facilities. HCWs were grouped into two strata, i.e., nurses and doctors, to ensure homogeneity within strata and heterogeneity between strata. The single proportional formula was employed to determine the sample size in each stratum to be included in the study.

The study used the following assumptions while calculating the sample size using a simple proportional formula.

$$n = \frac{z^2 \times (p(1-p)}{e^2}$$

Where; n = Required sample; Z value for the corresponding confidence level (i.e., 1.96 for 95% confidence); e is the margin of error (i.e., 0.05 = ± 5%); p= Is the prevalence of partograph underutilization among nurses and doctors estimated to be 28% this adopted from study done in Kagera on prevalence of birth asphyxia where more observed on incompleteness partograph (Benard, 2018); and e= marginal error 0.05

Hence, the sample size (n) was 305.

Sample size for each stratum was estimated using;

$n_h = (N_h / N) * n$

Where n_h is the sample size for stratum *h*,

N_h is the population size for stratum *h*,

N is the total (target) population size, and

Article DOI: https://doi.org/10.37284/eajhs.8.2.3233

N is the total sample size.

As a result, the study comprised 229 nurses in the first stratum and 75 Medical doctors (MD), Assistant medical officers (AMO), and Clinical officers (CO) in the second stratum.

Data Collection

Quantitative data was gathered using structured questionnaires. The structured questions were adopted from the studies done in Rwanda (Bazirete, 2014; Bazirete et al., 2017) and Kenya (Abuga, 2020). The study obtained approval and authorisation from the relevant district's administrative authorities in accordance with the protocol for gathering data. At the Regional Referral Hospital, the researcher first conducted a pre-test of the questionnaire. Two research assistants who were trained to assist with data collection were included in the study: a nursing officer and a statistician by profession. A self-administered structured questionnaire was used in this study to collect data on health care providers' knowledge and attitudes, socio-demographic characteristics, health system factors, and partograph utilisation.

Data Analysis

The utilisation of the partograph was analysed descriptively using frequency and proportions. Socio-demographic and health system factors affecting the utilisation of the partograph were analysed through multivariate logistic regression. The results of the logistic regression analysis were presented in terms of Odds Ratios (OR), indicating the likelihood of partograph utilisation, with a significance level set at $p < 0.05$ and 95% confidence intervals (CI) to estimate the precision of the OR. To assess the knowledge and attitude of the health workers towards the partograph, a chi-square test was employed. The chi-square test allowed for the assessment of the associations between the utilisation of the partograph and the knowledge and attitudes of the health workers. The significance level for the chi-square test was set at $p < 0.05$ to determine the presence of any statistically significant associations. SPSS version 27 was used for data analysis.

Ethical Considerations

Ethical approval from the Muhimbili University of Health and Allied Sciences (MUHAS), Research Ethical Committee (REC) was granted for this study (Ref No: DA.282/298/20.C/). Permission to carry out the study was sought from the office of the Regional Administrative Secretary as well as the District Medical Officer. All participants were well informed about the purpose of the study, and informed consent to participate in the study was obtained from all the participants before being interviewed. The verbal consent was obtained from respondents after an explanation of the purpose of the study, and they were required to sign the informed consent form. Participation was free, and respondents who agreed to participate in the study were voluntarily and free to withdraw from the study at any time.

RESULTS

This study examined factors affecting partograph utilisation among 303 HCWs in Bukoba DC, Tanzania, to inform strategies for reducing the district's high maternal mortality rate. Findings are organised by socio-demographic characteristics, partograph utilisation, socio-demographic and health system factors, knowledge, and attitudes.

Socio-demographic Characteristics of Health Workers

This study involved 303 HCWs from Bukoba DC. Most HCWs(39.3%) were between 27 and 32 years old. Female HCWs made up 52.8% of the workforce. Registered Nurses (ANO) accounted for the largest group, making up 62.7% of the health workforce. Most health workers (66.0%) were married. In terms of clinical experience, 35.6% of health workers had five years or more of experience. The majority (52.5%) worked in the labour ward. Most health facilities (67.7%) were located in rural areas.

Article DOI: https://doi.org/10.37284/eajhs.8.2.3233

Table 1: Socio-demographic Characteristics of Health Workers (n=303)

Variables	Frequency (n)	Percentage (%)
Age (years)		
18 ≤ Age < 21	1	0.3
21-26	99	32.7
27-32	119	39.3
33-37	84	27.7
Sex		
Male	143	47.2
Female	160	52.8
Professional qualification		
Registered Nurse (NO)	3	1.0
Registered Nurse(ANO)	190	62.7
Enrolled Nurse (EN)	83	27.4
Clinical Officer (CO)	16	5.3
Assistant Medical Officer (AMO)	2	0.7
Medical Doctor (MD)	9	3.0
Current marital status		
Never married	84	27.7
Married	200	66.0
Divorced	15	5.0
Widowed	4	1.3
Year of college/university completion		
This year (2023)	17	5.6
Two years ago	56	18.5
Three years ago	114	37.6
Four years ago	32	10.6
Five years ago and above	84	27.7
Location of the facility		
Rural	205	67.7
Urban	98	32.3
Place of work		
Hospital	76	25.1
Health Centre	169	55.8
Dispensary	58	19.1
Year of clinical experience		
less than one year	44	14.5
One year	9	3.0
Two years	10	3.3
Three years of experience	60	19.8
Four years	72	23.8
Five years and above	108	35.6
Your unit/ ward of practice		
RCH department	73	24.1
Postnatal unit	58	19.1
Labour ward unit	159	52.5
Gynecological department	13	4.3

Utilisation of Partograph among Health Workers

Utilisation of the partograph was examined among health workers. The findings revealed that 245 health workers (80.8%) reported utilising the

Article DOI: https://doi.org/10.37284/eajhs.8.2.3233

partograph, while 58 health workers (19.2%) reported that they did not utilise the partograph.

Socio-demographic and Health Systems Factors Affecting the Utilisation of Partograph among Health Workers

The study analysed socio-demographic factors associated with partograph utilisation using multivariate logistic regression. Health workers aged 27 years and above were 10% less likely to use the partograph compared to those below 26 years (AOR = 0.904, CI 95% = 0.834-0.979, p = 0.013). Health workers with 3 years or more of college education were 1.1 times more likely to use the partograph compared to those with less than 2 years (AOR = 1.141, CI 95% = 1.054-1.235, p = 0.001).

Moreover, a multivariate logistic regression was used to examine health system factors associated with the utilisation of partograph among health workers. The findings revealed that health workers who reported not using any measure to assess partograph utilisation were 18.4% less likely to utilise the partograph compared to those who reviewed the filling of partograph and use of a checklist (AOR = 0.816, CI 95% = 0.738-0.903, p = 0.000). Furthermore, the average number of doctors and nurses-midwives per shift did not show a significant association with partograph utilisation. Health workers conducting 6-10 deliveries in 24 hours per shift were 9.6% less likely to utilise the partograph compared to those conducting 1-5 deliveries (AOR = 0.904, CI 95% = 0.832-0.983, p = 0.019). Also, health workers working in the labour ward unit were 9.9% less likely to utilise the partograph compared to those in the reproductive and child health (RCH) department (AOR = 0.901, CI 95% = 0.822-0.988, p = 0.027).

Table 2: Socio-demographic and Health System Factors Associated with Utilisation of Partograph among Health Care Providers (n = 303)

	Bivariate Model			Multivariate Model		
Variable	**OR**	**95%, CI**	**P-Value**	**AOR**	**95%, CI**	**P-Value**
Socio-demographic						
Age						
Below 26 years	Reference			Reference		
27 years and above	0.918	0.847-0.996	0.040	0.904	0.834-0.979	**0.013**
Profession						
Enrolled Nurse	Reference			Reference		
NO and ANO	0.942	0.863-1.029	0.189	0.997	0.909-1.092	0.949
Clinical officer	0.847	0.741-0.970	0.016	0.908	0.795-1.038	0.161
MD and assistant MD	0.870	0.732-1.035	0.116	0.936	0.791-1.107	0.442
College						
Below two years	Reference			Reference		
3 years or more	1.063	0.144-0979	0.144	1.141	1.054 - 1.235	**0.001**
Health system factors						
Use of partograph						
Review the filling of the partograph and the use of the checklist	Reference			Reference		
Do not use any	0.837	0.806-0.869	0.000	0.816	0.738-0.903	**0.000**

Article DOI: https://doi.org/10.37284/eajhs.8.2.3233

If yes, review the health facility plan to ensure the availability of budget of the facility plan						
Budget available	Reference					
Budget available neither budget is not available	1.063	0.973-1.161	0.172			
If yes above question, how is it done to healthcare workers?						
On-site mentorship	Reference					
Through (CME) and on-the-job training	0.931	0.864-1.004	0.064			
None of the above	0.807	0.761-0.854	0.000			
Average number of doctors and midwives per shift in the facility						
One per shift	Reference					
Two or more shifts	0.956	0.887-1.030	0.242			
Average number of deliveries in 24 hrs per shift						
1-5 Deliveries	Reference			Reference		
6-10 Deliveries	0.899	0.831-0.973	0.008	0.904	0.832-0.983	**0.019**
Ward practice						
RCH department	Reference			Reference		
Post-natal Unit	0.987	0.875-1.114	0.844	1.006	0.897-1.129	0.911
Labour ward unit	0.893	0.813-0.980	0.018	0.901	0.822-0.988	**0.027**
Gynecological department	0.845	0.722-0.988	0.036	0.008	0.690-0.944	**0.008**
Supportive supervision						
No or less	Reference			Reference		
High	1.063	0.973-1.161	0.172	1.092	0.995-1.199	0.061

Knowledge on the Utilisation of Partograph among Health Workers

The study assessed the knowledge of health workers regarding the utilisation of the partograph. When asked about its role in safe motherhood, 86.5% were unaware of its importance, while 13.5% recognised it. This finding was statistically significant (p = 0.003). Regarding whether the partograph could reduce maternal deaths, 98.8% did not believe it would. However, there was no significant association between this belief and partograph use (p = 0.397). Also, 91.0% did not think it would reduce newborn deaths, and this belief was significantly associated with partograph utilisation (p = 0.000).

Only 24.1% correctly identified that the partograph graph should fall on the "Alert line" during normal labour, a significant finding (p = 0.008). Regarding labour progress assessment, 83.7% did not agree that it should include cervical dilatation and descent of the presenting part. This correct assessment showed a significant

Article DOI: https://doi.org/10.37284/eajhs.8.2.3233

association with partograph use (p = 0.047). Most (77.6%) did not consider labour prolonged if it lasted more than 12 hours, with no significant association found (p = 0.100). Overall, 96.7% had "No or less" knowledge of the partograph, while only 3.3% demonstrated "High" knowledge. This overall knowledge was significantly associated with partograph use (p = 0.021).

Table 3: Knowledge on Utilisation of Partograph among Health Workers (n = 303)

	Utilisation of Partograph		
Variables	**Yes**	**No**	**P-value**
The partograph is one of the tools for implementing safe motherhood.			
No	212 (86.5)	41 (70.7)	0.003
Yes	33 (13.5)	17 (29.3)	
Partograph will reduce maternal deaths.			
No	242 (98.8)	58 (100.0)	0.397
Yes	3 (1.2)	0 (0.0)	
Partograph will reduce newborn deaths.			
No	223 (91.0)	43 (74.1)	0.000
Yes	22 (9.0)	15 (25.9)	
In the normal progress of labour, the graph/plot on the partograph should fall on the			
Alert line	59/245 (24.1)	34/58 (58.6)	0.008
Left of the alert line	100/245 (40.8)	32/58 (55.2)	0.577
Right of the alert line	111/245 (45.3)	25/58 (34.3)	0.112
Progress of labour is assessed by the degree of cervical dilatation and descent of the presenting part.			
No	205 (83.7)	42 (72.4)	0.047
Yes	40 (16.3)	16 (27.6)	
Labour is prolonged when it lasts more than 12 hours.			
No	190 (77.6)	39 (67.2)	0.100
Yes	55 (22.4)	19 (32.8)	
Overall knowledge			
No or less	237 (96.7)	52 (89.7)	**0.021**
High	8 (3.3)	6 (10.3)	

Attitudes towards the Utilisation of Partograph among Health Workers

The study also explored health workers' attitudes towards the utilisation of the partograph during labour. A significant number (78.0%) expressed a desire to use it. However, no significant association was found between attitudes and actual use (p = 0.148). Most (80.4%) disagreed that partograph use is solely a physician's responsibility, which showed a significant association with its utilisation (p = 0.003).

Regarding whether all normal deliveries should use the partograph, 62.4% agreed, but no significant association was found (p = 0.133). Opinions on its usefulness for early detection of caesarean sections were split: 52.7% believed it helped, while 47.3% disagreed, with no significant association (p = 0.412). Most (86.1%) disagreed that it is time-consuming, with no significant link found (p = 0.717). A large majority (73.9%) believed the partograph could reduce maternal morbidity and mortality, but this was not significantly associated with its use (p = 0.201).

Overall, 58.0% of health workers had a positive attitude towards using the partograph. However, no significant association was noted between overall attitudes and actual utilisation (p = 0.740).

Article DOI: https://doi.org/10.37284/eajhs.8.2.3233

Table 4: Attitudes towards Utilisation of Partograph among Health Workers (n = 303)

	Utilisation of Partograph		
Variables	**Yes**	**No**	**P-value**
I like to use the partograph when conducting labour			
No	54 (22.0)	18 (31.0)	0.148
Yes	191 (78.0)	40 (69.0)	
Using the partograph is the only responsibility for physicians.			
Disagree	197 (80.4)	36 (62.1)	**0.003**
Agree	48 (19.6)	22 (37.9)	
All normal deliveries need to use a partograph when labouring women.			
Disagree	92 (37.6)	28 (48.3)	0.133
Agree	153 (62.4)	30 (51.7)	
Utilisation of the Partograph helps in the early detection of caesarean section.			
Disagree	116 (47.3)	24 (41.4)	0.412
Agree	129 (52.7)	34 (58.6)	
Using a partograph is time-consuming when conducting labour.			
Disagree	34 (13.9)	7 (12.1)	0.717
Agree	211 (86.1)	51 (87.9)	
Partograph can help reduce maternal morbidity and mortality.			
Disagree	64 (26.1)	20 (34.5)	0.201
Agree	181 (73.9)	38 (65.5)	
Overall attitude			
Negative attitude	103 (42.0)	23 (39.7)	0.740
Positive attitude	142 (58.0)	35 (60.3)	

DISCUSSION

The study found that 80.8% of health workers in Bukoba District Council used the partograph. This is much higher than in places like India, where usage was only 6% (Chaturvedi et al., 2015). However, in Ethiopia, studies show low usage among obstetric care providers (Bedada et al., 2020; Yisma et al., 2013b). In Tanzania's Singida Municipality, only 38.7% of nurses regularly used the tool (Peter et al., 2022). The high rate in Bukoba might come from recent training, raised awareness, or specific health system improvements in the area.

However, even with high self-reported usage, we did not assess how completely or correctly the partograph was used. Previous research, like Mcharo (2019) in Mwanza, found that partographs were often incomplete. This suggests a gap between reported usage and actual practice. Age and education were linked to partograph use. Younger health workers and those with more college education were more likely to use it. This matches findings from Ethiopia and Tanzania (Peter et al., 2022; Yisma et al., 2013b), showing that younger, well-trained professionals may follow clinical guidelines more. Yet, inconsistent results, for example (Yisma et al., 2013b) found no link between education and use, hint at the role of factors like facility policies, mentorship, and training programs.

Moreover, the study showed lower partograph use among health workers who attended 6–10 deliveries per shift compared to those with fewer. A similar trend was noted in Uganda, where heavy workloads reduced compliance (Mukisa et al., 2019). In busy settings, the demands of monitoring labour may overshadow the time needed for documentation. Additionally, lower

Article DOI: https://doi.org/10.37284/eajhs.8.2.3233

usage in the labour ward versus the RCH department was unexpected. One would think usage would be higher in labour wards, but heavy workloads, poor supervision, or the belief that documentation can wait may explain this. This could also reflect systemic issues, like a lack of printed partographs or unclear staff roles.

Furthermore, the study found major knowledge gaps, with only 3.3% of respondents showing high knowledge. Most did not know the partograph's role in reducing maternal or neonatal deaths, and only a quarter could identify correct plotting methods. Similar gaps were found in Ethiopia, Uganda, and Cameroon, despite training efforts (Mezmur et al., 2017; Mukisa et al., 2019; Sama et al., 2017). The low knowledge suggests that training, both before and during service, may not be effective or well-remembered. The link between knowledge and actual use highlights the need for ongoing training, refresher courses, and mentorship.

While 58% of respondents had a positive view of the partograph, this did not significantly relate to actual usage. Still, positive attitudes are essential for improving practice. This aligns with findings from Bloemfontein, South Africa (Brits et al., 2020) and Eritrea (Woldemichael et al., 2016), where good perceptions did not always lead to use without supportive systems. Some respondents felt using the partograph was time-consuming or not their job, showing lingering misconceptions. Addressing these views with clear job roles, task-shifting policies, and workload reduction could help change behaviour.

Interestingly, many HCWs supported using the partograph for all normal deliveries and saw its value in spotting complications needing caesarean sections. This aligns with evidence from Southern Tanzania (Jaribu et al., 2016), where more partograph use is linked to a significant rise in health facility deliveries. This suggests that positive beliefs may lead to better maternal health outcomes when supported by systems.

STUDY LIMITATIONS

The study has several limitations, including the use of self-reported data from health workers, which may be subject to social desirability bias, and the cross-sectional design, which only examines associations between variables at a specific point in time. To address these limitations, future research could consider longitudinal or experimental designs to explore causal relationships over time. Additionally, the study's focus on one district may limit its generalizability to other regions or settings in the country, as the selected district was representative of similar regions in terms of healthcare facilities and population demographics. To gain a more comprehensive understanding of partograph utilisation across different contexts, future research could consider expanding the study to multiple districts or regions.

Our findings should be interpreted in the context that recently the government of Tanzania has started the phased implementation of the use of the WHO LCG in thirteen (13) out of 26 regions of mainland Tanzania. Despite the introduction of LCG, several regions are still using partographs, therefore making the results of this study continue to hold relevance since the partograph and the LCG also share some important characteristics.

CONCLUSION

The study found that a majority of health workers (80.8%) use a partograph during labour, with age and education level playing significant roles. Health workers aged 27 years and above were less likely to use the partograph, while those with 3 years or more of college education were more likely. Health system factors, such as reviewing partograph filling and using a checklist, were also associated with partograph utilisation. However, the study revealed significant gaps in understanding, with most health workers not aware of the partograph's significance for safe motherhood and not believing it could reduce maternal and newborn deaths. The majority expressed a preference for its use, but misconceptions such as the partograph being solely the responsibility of physicians were

Article DOI: https://doi.org/10.37284/eajhs.8.2.3233

present. Mixed attitudes were also found regarding the partograph's usefulness in early detection for caesarean sections. To improve partograph utilisation, healthcare workers should undergo comprehensive in-service training, with sessions focusing on proper interpretation, documentation, and labour monitoring. Supervisors and managers should establish supportive supervision systems, providing constructive feedback, addressing challenges, and emphasising the importance of the partograph for every labouring woman. Health facilities management should ensure the availability of necessary resources, such as partograph forms, functional monitoring equipment, and a conducive working environment. Addressing attitudinal barriers can be achieved through awareness campaigns, interactive discussions, and sharing success stories of improved maternal and neonatal outcomes. The study opens avenues for new research, in particular studies comparing service providers' experiences of labour management using the partograph and the labour care guide.

Consent for Publication

Not applicable.

Availability of Data and Materials

All study data and related materials are available from the corresponding author upon request.

Competing Interests

All authors declare no conflict of interest.

Funding

There was no funding received for this study.

Author Contributions

MOK contributed to the conceptualisation, data curation, formal analysis, investigation, methodology, and project administration. MJE supervised the study. MOK wrote the original draft, and MJE, SJM, and IHM were involved in the review and editing of the manuscript. All authors read and approved the final manuscript.

Acknowledgments

We value the oversight provided by the MUHAS research supervisor, who provided direction from the study's conception to the manuscript's completion. We value each author's contribution and their timely and assigned work. I want to express my gratitude to everyone who took part in this study.

REFERENCES

Abuga, T. M. (2020). *Utilization of Partograph in Management of Women in Labor among Nurses/Midwives Working in Machakos County, Kenya*. Kenyatta University.

Balikuddembe, M. S., Tumwesigye, N. M., Wakholi, P. K., & Tylleskär, T. (2017). Computerized Childbirth Monitoring Tools for Health Care Providers Managing Labor: A Scoping Review. *JMIR Medical Informatics*, *5*(2), e14. https://doi.org/10.2196/medinform.6959

Bazirete, O. (2014). *Utilization of Partogram among Nurses and Midwives in Rwamagana Health Facilities in the Eastern Province of Rwanda*.

Bazirete, O., Mbombo, N., & Adejumo, O. (2017). Utilisation of the partogram among nurses and midwives in selected health facilities in the Eastern Province of Rwanda. *Curationis*, *40*(1). https://doi.org/10.4102/curationis.v40i1.1751

Bedada, K. E., Huluka, T. K., Bulto, G. A., & EphremYohannesRoga. (2020). Low Utilization of Partograph and Its Associated Factors among Obstetric Care Providers in Governmental Health Facilities at West Shoa Zone, Central Ethiopia. *International Journal of Reproductive Medicine*, *2020*, 3738673. https://doi.org/10.1155/2020/3738673

Benard, K. B. (2018). *Association Between Completeness and Prevalence of Birth Asphyxia, Among Neonates in Kagera Region: A Case- Control*.

Article DOI: https://doi.org/10.37284/eajhs.8.2.3233

Brits, H., Joubert, G., Mudzwari, F., Ramashamole, M., Nthimo, M., Thamae, N., Pilenyane, M., & Mamabolo, M. (2020). The completion of partograms: Knowledge, attitudes and practices of midwives in a public health obstetric unit in Bloemfontein, South Africa. *Pan African Medical Journal*, *36*(301), 1– 10. https://doi.org/10.11604/pamj.2020.36.301.24880

Chaturvedi, S., Upadhyay, S., De Costa, A., & Raven, J. (2015). Implementation of the partograph in India's JSY cash transfer programme for facility births: a mixed methods study in Madhya Pradesh province. *BMJ Open*, *5*(4), 1–11. https://doi.org/10.1136/BMJOPEN-2014-006211

Hagos, A. A., Teka, E. C., & Degu, G. (2020). Utilization of partograph and its associated factors among midwives working in public health institutions, Addis Ababa city administration, Ethiopia,2017. *BMC Pregnancy and Childbirth*, *20*(1). https://doi.org/10.1186/s12884-020-2734-4

Jaribu, J., Penfold, S., Manzi, F., Schellenberg, J., & Pfeiffer, C. (2016). Improving institutional childbirth services in rural Southern Tanzania: a qualitative study of healthcare workers' perspective. *BMJ Open*, *6*(9), e010317. https://doi.org/10.1136/bmjopen-2015-010317

Litwin, L. E., Maly, C., Khamis, A. R., Hiner, C., Zoungrana, J., Mohamed, K., Drake, M., Machaku, M., Njozi, M., Muhsin, S. A., Kulindwa, Y. K., & Gomez, P. P. (2018). *Use of an electronic Partograph: feasibility and acceptability study in Zanzibar, Tanzania*. 1–11.

Mcharo, J. E. (2019). *Use and Completeness of Partograph and Associated Factors in Mwanza Region, Tanzania*. Muhimbili University of Health and Allied Sciences.

Mezmur, H., Semahegn, A., & Tegegne, B. S. (2017). Health professional's knowledge and use of the partograph in public health institutions in eastern Ethiopia: A cross-sectional study. *BMC Pregnancy and Childbirth*, *17*(1), 1–7. https://doi.org/10.1186/s12884-017-1477-3

Mukisa, J., Grant, I., Magala, J., Ssemata, A. S., Lumala, P. Z., & Byamugisha, J. (2019). Level of Partograph completion and healthcare workers' perspectives on its use in Mulago National Referral and teaching hospital, Kampala, Uganda. *BMC Health Services Research*, *19*(1), 107. https://doi.org/10.1186/s12913-019-3934-3

NBS/OCGS. (2022). *The 2022 Population and Housing Census: Administrative Units Population Distribution Report; Tanzania*.

Peter, D. E., Millanzi, Dr. W. C., & Joho, Dr. A. A. (2022). Levels of Practices and Influencing Factors on the Use of Partograph on Provision of Health care among Nurses in Singida Municipality, Tanzania. *International Journal of Innovative Science and Research Technology*, *7*(4). https://doi.org/10.5281/zenodo.6879122

PORALG. (2020). Annual Regional Health Management Team Plan [Unpublished]. In *Development* (Vol. 7, Issue 5,371,780,231.09).

Sama, C.-B., Takah, N. F., Danwe, V. K., Melo, U. F., Dingana, T. N., & Angwafo, F. F. 3rd. (2017). Knowledge and utilization of the partograph: A cross-sectional survey among obstetric care providers in urban referral public health institutions in northwest and southwest Cameroon. *PloS One*, *12*(2), e0172860. https://doi.org/10.1371/journal.pone.0172860

TDHS-MIS. (2015). *Tanzania Demographic Health Survey-Malaria Indicator Survey*.

Wakgari, N., Amano, A., Berta, M., & Tessema, G. A. (2015). Partograph utilization and associated factors among obstetric care providers in north shoa zone, central ethiopia: A cross sectional study. *African Health*

Article DOI: https://doi.org/10.37284/eajhs.8.2.3233

Sciences. https://doi.org/10.4314/ahs.v15i2.30

WHO. (2019). Maternal mortality: level and trends 2000 to 2017 Estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. *Sexual and Reproductive Health*, 12.

Woldemichael, L., Kidane, M., & Ghebreyohans, G. (2016). Knowledge, Attitude, and Factors Affecting Practice of Partograph by Professional Birth Attendants. *International Journal of Sciences: Basic and Applied Research (IJSBAR) International Journal of Sciences: Basic and Applied Research*, *26*(1), 179–192.

Yisma, E., Dessalegn, B., Astatkie, A., & Fesseha, N. (2013a). Completion of the modified World Health Organization (WHO) partograph during labour in public health institutions of Addis Ababa, Ethiopia. *Reproductive Health*, *10*(1), 1–7. https://doi.org/10.1186/1742-4755-10-23

Yisma, E., Dessalegn, B., Astatkie, A., & Fesseha, N. (2013b). Knowledge and utilization of partograph among obstetric care givers in public health institutions of Addis Ababa, Ethiopia. *BMC Pregnancy and Childbirth*, *13*, 17. https://doi.org/10.1186/1471-2393-13-17

