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Midwives' Knowledge and Use of Decision-making Tools for Prevention of Obstetric-fistula among Pregnant Women in Abuja General Hospitals

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Obstetric fistula, an improper connection between the genital tract and urinary or digestive tract, poses a significant public health concern, especially in sub-Saharan Africa and Southeast Asia.
This study aimed to assess midwives' knowledge and use of clinical decision-making tools for preventing obstetric-fistula among pregnant women within general hospitals in FCT Abuja, Nigeria. Conducted through a descriptive cross-sectional research design, the study employed a stratified random sampling technique, dividing Abuja into six strata representing Area Councils. One general hospital was randomly selected from each stratum by simple random technique. All 132 midwives working in the Maternal Health Service Units of the selected hospitals participated. Data collection utilized a self-structured questionnaire with multiple-choice questions and a 4-point Likert scale,

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exhibiting high reliability (Cronbach's alpha = 0.732). Statistical analysis employed SPSS version 26, analyzing demographic information through frequency and percentages. Research questions were addressed using mean ratings and confidence intervals, while hypotheses were tested using Chi-Square and Pearson Product Moment Correlation at a significance level of 0.05. Midwives demonstrated a high level of proficiency in utilizing established guidelines and best practices for preventing obstetric-fistula across prenatal, intrapartum, and postpartum periods (grand mean: 3.55 at 95% confidence level), as well as in employing clinical decision-making tools for prevention of obstetric fistula (grand mean: 3.65 at 95% confidence level). In conclusion, midwives in Abuja exhibit high proficiency in the use of clinical decision-making tools for prevention of obstetric fistula. To further enhance their competency, continuous training and sustainability efforts are recommended.

Keywords: Midwives; decision-making tools; obstetric-fistula.

1. INTRODUCTION

An improper connection between the genital tract and the urinary or digestive tract is known as an obstetric fistula. It is a major public health concern for women in our communities, especially in Southeast Asia and sub-Saharan Africa [1]. Various types of obstetric fistula exist, with the most prevalent being vesicovaginal fistula, characterized by an abnormal opening between the vaginal canal and the bladder. Other types include: rectovaginal fistula (involving an abnormal passage between the vaginal canal and the rectum), urethrovaginal fistula (marked by an abnormal connection between the vaginal canal and the urethra), ureterovaginal fistula (involving an abnormal passage between the vaginal canal and the ureters), vesicouterine fistula (occurs when there is a hole between the bladder and the uterus). Iatrogenic fistulas can occur during gynaecological procedures such as hysterectomy or Caesarean sections, often due to substandard healthcare and insufficient training or competence in surgical skills. On the contrary, traumatic fistulas result from sexual violence, particularly prevalent in conflict areas, where the damage to the vagina is considered a consequence of war injuries [2].

Obstetric fistula is linked to prolonged or obstructed labor, commonly occur when the fetal head becomes lodged in the mother's pelvis, leading to the interruption of flow of blood to the adjacent tissues. Additionally, obstetric fistula may arise due to tissue necrosis caused by extended obstruction, resulting in faecal and/or urine incontinence. The ramifications encompass societal stigma and a reduced likelihood of seeking treatment, as individuals affected by obstetric fistula may be less aware of available options. Obstetric fistula stands out as one of the most severe complications associated with childbirth and maternal health. Despite being preventable, it remains a significant contributor to maternal morbidity and mortality worldwide. This condition not only leads to maternal deaths but also adversely affects the overall quality of life, resulting in lifelong impairments for those affected.

The primary cause of both obstetric vesicovaginal and rectovaginal fistulas is unrelieved prolonged obstructed labor. An estimated number of 90% to 95% of women with obstetric fistulas give birth to stillborn babies as a result of prolonged and obstructed labor. Unrelieved obstructed labor frequently results in the development of an obstetric fistula, rendering a survivor incontinent of urine or feces. If left untreated, the injury will cause a woman to suffer greatly and feel isolated for the rest of her life [3]. An estimated figure of 30,000 to 130,000 women annually experience the development of obstetric fistula while giving birth in Sub-Saharan Africa alone [1]. Severe consequences of the obstetric fistula condition disproportionately affect women especially those residing in low-resource countries [1].

The World Health Organisation stated that, obstetric fistula affects 50,000–100,000 women annually worldwide, with Asia and sub-Saharan Africa accounting for over 2,000 000 untreated cases (WHO, 2018). The prevalence of obstetric fistula in Nigeria is estimated to be 3.2 per 100 births, and it is speculated that 13 000 new cases occur annually [4]. The most common regions for obstetric fistulas to occur are Southeast Asia and Sub-Saharan Africa. Many occurrences of this obstetric fistula condition will go untreated and underreported since the patient population is difficult to contact and the ailment typically occurs in nations with few medical resources. Therefore, it is very difficult to collect solid,

recent, and trustworthy incidence and prevalence estimates of obstetric fistula. Numerous estimates exist on the prevalence of fistula; however, the most widely used estimate has the number of obstetric fistula sufferers at approximately 2,000,000 worldwide, with 50,000 to 100,000 new cases reported yearly [3].

The Federal Ministry of Health (FMoH) Nigeria published a Guideline on Urethral Catheterization for Prevention and Management of Obstetric Fistula in Nigeria [5] and since the development of the guideline, a number of healthcare professionals have received training, and it is believed that, implementation is ongoing in various health facilities across the different levels of care [6]. This established guideline on urethral catheterization for prevention of obstetric fistula stated that:

> "*Women in labour should be encouraged to spontaneously void at regular intervals (every two to four hours) without routine catheterization, unless difficulties arise.*
>
> *Women should be catheterized if the partograph "action Line" is crossed or when the duration of labour exceeds 18 hours.*
>
> *All women diagnosed with prolonged or obstructed labour should be catheterized prior to assisted vaginal delivery or caesarean section for a period of 14 days, plus a high-fluid intake regime to prevent fistula formation.*
>
> *All women who survived prolonged obstructed labour should immediately on presentation be managed with a regime of urethral catheterization for about 14 days plus a high-fluid-intake regime, to prevent fistula formation or to encourage spontaneous closure of very small fistulae. During this time, the patient could be managed as either inpatient or outpatient with the catheter in situ, depending on the trained health care provider's assessment.*
>
> *Urinary catheterization during or immediately after prolonged or obstructed labour could be performed at basic emergency obstetric and newborn care (BEmONC) facilities, as well as at all tertiary facilities by any trained health care provider who has midwifery competencies and is skilled and authorized to insert and manage a urinary catheter*" [6].

Since prior plans failed to produce any observable change, the Federal Ministry of Health released a National Strategic Framework for the Elimination of Obstetric Fistula in Nigeria between 2019 and 2023 [7]. The above stated guidelines of FMOH [6] is also embedded in this recent strategic framework. The national strategic framework of the Federal Ministry of Health for the elimination of obstetric fistula emphasizes the necessity for approaches that will strengthen social systems, empowering young girls and offering them safety nets. However, it is notable that these recommendations predominantly reflect the perspectives of policymakers and care providers, rather than those most directly affected – the women themselves. Recognizing this gap, there is an evident need to involve community participation in crafting solutions by actively engaging fistula survivors in the process [8].

In healthcare, decision-making involves the utilization of various tools and techniques, which may be either manual or electronic [9].

Clinical decision-making tools encompass a variety of instruments, processes, or systems employed by healthcare professionals to collect and analyze patient information, evaluate potential interventions, and make well-informed decisions concerning patient care.

The clinical decision-making tools utilized by midwives in obstetric fistula prevention, focuses on antenatal care, intrapartum management, community engagement, the integration of technology, partograph, labor care guide and established guidelines.

Midwives play a key role in delivering essential care to expectant mothers, particularly in resource-constrained environments. Serving as the primary link to maternal healthcare services, midwives oversee various aspects such as antenatal care, labor, and delivery. The profound impact of midwives on the well-being of both the mother and child stems from their extensive knowledge and proficient clinical decision-making skills. The significance of midwives in the prevention of obstetric fistula is paramount. As primary healthcare providers on the front lines, midwives play a crucial role in tending to pregnant women, providing guidance during childbirth, and making essential decisions concerning their overall care. Midwives are instrumental in identifying risk factors, discerning

signs of obstructed labor, and facilitating prompt referrals for advanced care when required. Consequently, the key role played by midwives in leveraging their knowledge and clinical decision-making skills is integral to preventing obstetric fistula and mitigating its prevalence.

However, to date, there is absence of comprehensive research on the assessment of midwives' knowledge and use of clinical decision-making tools in preventing obstetric fistulas in expectant patients in the General Hospitals within the Federal Capital Territory, Abuja.

Aim and objectives of the study: The aim of this study is to assess the midwives' knowledge and use of clinical decision-making tools for prevention of obstetric fistula among pregnant women in general hospitals in FCT Abuja, Nigeria.

The specific objectives were to:

1 determine midwives' ability to use established guidelines and best practices for preventing obstetric fistula at prenatal, intrapartum, and during postpartum period among pregnant women in general hospitals in FCT Abuja, Nigeria.
2 assess the midwives' ability to use clinical decision- making tools in the prevention of obstetric fistula among pregnant women in general hospitals in FCT Abuja, Nigeria.

3. METHODOLOGY

This study employed a descriptive cross-sectional research design. The study's target population includes midwives employed in the Maternal Health Service Units of the selected General Hospitals in the Federal Capital Territory (FCT) Abuja, Nigeria. A total population of midwives in the Maternal Health Service Units of the selected hospitals is 156. A Maternal Health Service Unit (MHSU) is a specialized healthcare facility or department within a hospital that focuses on providing maternal health services. Maternal health services primarily address the healthcare needs of pregnant women, mothers, and newborns. These units play a crucial role in ensuring the well-being of women during pregnancy, childbirth, and the postpartum period. For the purpose of this study, Maternal Health Service Unit comprises the following wards/units: antenatal clinic/ward, Gynecological ward, labour ward, postnatal ward and maternity ward. To conduct a study on midwives' knowledge and use of decision-making tools for prevention of obstetric fistula among pregnant women in General Hospitals of FCT Abuja, a stratified random sampling technique was used in classifying FCT, Abuja into 6 strata. Each stratum represents an Area Council. Simple random sampling was used to select one general hospital each from the three strata that have more than one general hospitals, while general hospitals in the remaining strata with one general hospital each were all selected. The sample for this study was drawn from population of midwives working in the Maternal Health Service Units of the selected General Hospitals in Federal Capital Territory (FCT) Abuja. Given the total population of 156 midwives, it was feasible to target the entire population for inclusion in the study. A census approach was employed, and all the 156 midwives were invited to participate in the research. All 156 midwives in the Maternal Health Service Units were considered the sample for this study, and each one was included in the research to provide comprehensive insights into their knowledge and use of clinical decision-making tools on obstetric fistula prevention among pregnant women. This approach aimed to minimize sampling bias and raise the study's internal validity. The selected midwives were approached and invited to participate in the study.

A self-structured questionnaire was developed specifically for this study to gather numerical data directly from the midwives. The questionnaire was designed to assess the midwives' knowledge and use of clinical decision-making tools in the prevention of obstetric fistula among pregnant women. It included closed-ended questions and Likert scale items. I56 questionnaires were distributed but only 132 were recovered. The collected quantitative data were subjected to statistical analysis to draw meaningful conclusions and insights regarding midwives' knowledge and use of clinical decision-making tools on the prevention of obstetric fistula. Descriptive statistical techniques like frequency and percentages were employed to summarize and present the demographic information of the midwives, while research questions were addressed using mean ratings and confidence intervals.

3. RESULTS AND DISCUSSION

Table 1 indicated that out of 132 respondents, 24 (18.2%) were from the Gwarinpa General Hospital, 19 (14.4%) were from the Abaji General Hospital, 36 (27.3%) were from the Kubwa General Hospital, 26 (19.7%) were from the Kuje

General Hospital, 21 (15.9%) were from the Kwali General Hospital and 6 (4.5%) from the Zuba General Hospital. Majority of the respondents were from the Kubwa General Hospital. From the sample of 132, 51 (38.6%) work in the labour ward, 27 (20.5%) work in the antenatal clinic/antenatal ward, 35 (26.5%) work in the post-natal ward, 19 (14.4%) work in the female surgical ward. Results showed that most of the respondents work in the labour ward. It was found that 32 (24.2%) of the respondents were within the age group of 19–28 years, 47 (35.6%) were of the age group of 29–38 years, 24 (18.2%) are of the age group of 39-48 years, 28 (21.2%) were of the age group of 49-58 and 1 (0.8%) was within the age range of 59-69. Those within the age range of 29-38 were more in the study. There were 131 (99.2%) females in the study while there was a male respondent, 1 (0.8%). Out of 132 respondents, 70 (53.0%) had RN/RM, 58 (43.9%) had Bachelor's Degree, 4 (3.0%) had Master's Degree.

Table 1. Analysis of the demographic variables n =132

Variables		Frequency	Percent (%)
Hospital Name			
	Gwarinpa General Hospital	24	18.2
	Abaji General Hospital	19	14.4
	Kubwa General Hospital	36	27.3
	Kuje General Hospital	26	19.7
	Kwali General Hospital	21	15.9
	Zuba General Hospital	6	4.5
	Total	**132**	**100.0**
Unit/Ward			
	Labour Ward	51	38.6
	Antenatal Ward/ANC	27	20.5
	Post Natal Ward	35	26.5
	Gynecological Ward	19	14.4
	Total	**132**	**100.0**
Age (years)			
	19 – 28	32	24.2
	29 – 38	47	35.6
	39 – 48	24	18.2
	49 – 58	28	21.2
	59 – 69	1	0.8
	Total	**132**	**100.0**
Gender			
	Male	1	0.8
	Female	131	99.2
	Total	**132**	**100.0**
Highest Educational Background			
	RN/RM	70	53.0
	Bachelor's Degree	58	43.9
	Master's Degree	4	3.0
	Total	**132**	**100.0**
Years of work Experience (Years)			
	1 – 10	83	62.9
	11 – 20	29	22
	21 – 30	16	12.1
	31 -40	4	3.0
	Total	132	**100.0**

Table 2. Mean and confidence interval on the responses of the extent of midwives' ability to use established guidelines and best practices for preventing obstetric fistula at prenatal, intrapartum, and postpartum period among pregnant women n = 132

			95% Confidence Interval		
S/N	**Items**	**Mean**	**Lower**	**Upper**	**Decision**
1	Midwives should consistently adhere to established guidelines and best practices for preventing obstetric fistula at Prenatal, Intrapartum, and during Postpartum period	3.89	3.84	3.95	High Extent
2	Educate pregnant women on risks of obstetric fistula and the importance of timely medical intervention	3.90	3.85	3.95	High Extent
3	Encourage women in labour to pass urine every 2-4 hours without catheterisation (unless difficulties arise in voiding) and record urine output on partograph (or labour care guide when available in my facility)	3.44	3.31	3.57	High Extent
4	Catheterize women in labour if partograph action line is crossed or labour exceeds 18 hours	3.33	3.20	3.46	High Extent
5	Catheterize all women with prolonged or obstructed labour (prior to assisted delivery or cesarean section) for 14 days and maintain high fluid intake to prevent fistula formation.	3.21	3.04	3.38	High Extent
6	Catheterize all women who have survived prolonged obstructed labour (already delivered before presentation) on presentation for 14 days plus, high fluid intake. Then, manage as inpatient or outpatient based on my judgement.	3.23	3.07	3.39	High Extent
7	Accept the guideline that urethral catheterization and normal deliveries should be done by skill health worker or midwives.	3.82	3.75	3.89	High Extent
	Grand Mean	**3.55**	**3.44**	**3.66**	**High Extent**

Benchmark: <= 2.99 is Low Extent, >= 3.00 is high Extent

Table 2 and Fig. 1 revealed the mean ratings and the confidence intervals on the extent of how the midwives are able to use established guidelines and best practices for preventing obstetric fistula at prenatal, intrapartum, and postpartum period among pregnant women in general hospitals in FCT Abuja, Nigeria. Midwives should consistently adhere to established guidelines and best practices for preventing obstetric fistula at Prenatal, Intrapartum, and during Postpartum period (Mean = 3.89), Educate pregnant women on risks of obstetric fistula and the importance of timely medical intervention (Mean = 3.90), Encourage women in labour to pass urine every 2-4 hours without catheterization (unless difficulties arise in voiding) and record urine output on partograph (or labour care guide when available in my facility) (Mean = 3.44), Catheterize women in labour if partograph action line is crossed or labour exceeds 18 hours (Mean = 3.33), Catheterize all women with prolonged or obstructed labour (prior to assisted delivery or cesarean section) for 14 days and maintain high fluid intake to prevent fistula formation (Mean = 3.21), Catheterize all women who have survived prolonged obstructed labour (already delivered before presentation) on presentation for 14 days plus, high fluid intake. Then, manage

as inpatient or outpatient based on my judgement (Mean = 3.23), Accept the guideline that urethral catheterization and normal deliveries should be done by skill health worker or midwives (Mean = 3.82). On the overall, the grand mean of the extent of how the midwives are able to use established guidelines and best practices for preventing obstetric fistula at prenatal, intrapartum, and postpartum period among pregnant women in general hospitals in FCT Abuja, Nigeria is **3.55.** Also, we are 95% confident that the extent of how the midwives are able to use established guidelines and best practices for preventing obstetric fistula at prenatal, intrapartum, and postpartum period among pregnant women in general hospitals in FCT Abuja, Nigeria is between 3.44 and 3.66. Hence, there is a high extent of the midwives being able to use established guidelines and best practices for preventing obstetric fistula at prenatal, intrapartum, and postpartum period among pregnant women.

Table 3 showed the mean scores and the confidence intervals of the extent midwives are able to use clinical decision- making tools in the prevention of obstetric fistula among pregnant women in general hospitals in FCT Abuja, Nigeria. It was found that, Use partograph to monitor and manage labour in my facility (Mean = 3.89), Midwives in my facility has not started using labour care guide which has replaced partograph (Mean = 2.84), The partograph is designed to act as an “early warning system,” alerting midwives, and nurses to the need for action e.g., referral to a higher-level facility, labor augmentation, or cesarean section (Mean = 3.80), During antenatal appointments, midwives evaluate the general health and risk factors of expectant mothers in order to spot any potential difficulties (Mean = 3.82), Use of partograph in management of labour enhanced the ability of the midwife to make informed treatment decisions thereby preventing fistula formation. (Mean = 3.83), Use of established guidelines on prevention of obstetric fistula enhanced my ability to make informed treatment decisions (Mean = 3.73). On the overall, the grand mean on the extent of midwives being able to use clinical decision- making tools in the prevention of obstetric fistula among pregnant women in general hospitals in FCT Abuja, Nigeria is **3.65.** Also, we are 95% confident that the extent midwives are able to use clinical decision-making tools in the prevention of obstetric fistula among pregnant women in general hospitals in FCT Abuja, Nigeria will lie between 3.12 and 3.75. This implies that there is a high extent of the midwives being able to use clinical decision-making tools on the prevention of obstetric fistula among pregnant women.

From the analysis, it is evident that midwives in general hospitals in FCT Abuja, Nigeria, demonstrate a high level of proficiency in utilizing established guidelines and best practices for preventing obstetric fistula across prenatal, intrapartum, and postpartum periods. The grand mean of 3.55 at a 95% confidence level supports this conclusion.

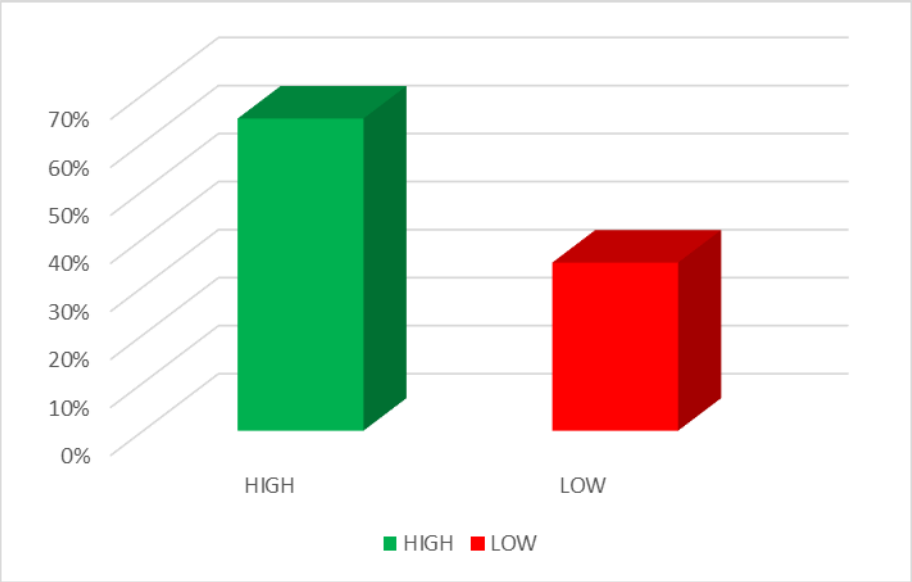

Fig. 1. Knowledge and use of decision-making tools for prevention of obstetric-fistula

Table 3. Mean and confidence interval on the responses of the extent of midwives' ability to use clinical decision- making tools in the prevention of obstetric fistula among pregnant women n = 132

			95% Confidence Interval		
S/N	**Items**	**Mean**	**Lower**	**Upper**	**Decision**
1	Use partograph to monitor and manage labour in my facility	3.89	3.83	3.95	High Extent
2	Midwives in my facility has not started using labour care guide which has replaced partograph (as recommended by the world Health Organization)	2.84	2.66	3.02	High Extent
3	The partograph is designed to act as an "early warning system," alerting midwives, and nurses to the need for action e.g., referral to a higher-level facility, labor augmentation, or cesarean section	3.80	3.72	3.89	High Extent
4	During antenatal appointments, midwives evaluate the general health and risk factors of expectant mothers in order to spot any potential difficulties	3.82	3.75	3.89	High Extent
5	Use of partograph in management of labour enhanced the ability of the midwife to make informed treatment decisions thereby preventing fistula formation.	3.83	3.76	3.91	High Extent
6	Use of established guidelines on prevention of obstetric fistula enhanced my ability to make informed treatment decisions.	3.73	3.65	3.81	High Extent
	Grand Mean	**3.65**	**3.12**	**3.75**	H**igh Extent**

Benchmark: <= 2.99 is Low Extent, >= 3.00 is high Extent

The finding contrasts with the research study by Alemu et al. [10], which assessed the knowledge and practices of obstetric caregivers regarding obstetric fistula prevention in southwest Ethiopia. Results indicated that approximately 57% of participants exhibited good knowledge, while about 55.4% demonstrated good practices in obstetric fistula prevention. Factors significantly associated with knowledge included service years, types of health facility, age, and in-service training. Similarly, in-service training, service years, and knowledge were significantly associated with the practice of obstetric caregivers toward preventing obstetric fistula. The study revealed a low level of knowledge and practice among obstetric caregivers regarding obstetric fistula prevention in public health facilities within the Gamo zone.

The analysis of research question, which focuses on the extent to which midwives in general hospitals in FCT Abuja, Nigeria, are able to use clinical decision-making tools for preventing obstetric fistula among pregnant women, reveals significant findings. From the data presented in Table 3, it is evident that there is a high extent of the midwives being able to use clinical decision-making tools in the prevention of obstetric fistula among pregnant women, with a grand mean of 3.65 at a 95% confidence level. This suggests a high level of competency among midwives in employing clinical decision-making tools to prevent obstetric fistula.

This study aligns with the research conducted by Markos et al. [11], who investigated the utilization of partograph and the factors influencing its use among Ethiopian obstetric caregivers in public health facilities in Wolaita Zone. Their study, which involved 269 obstetric caregivers, found that 71.7% of participants reported routine use of the partograph for all laboring mothers.

The findings highlighted the satisfactory level of partograph use among Ethiopian obstetric caregivers in public health facilities. Factors such as years of working experience, knowledge, training and attitude independently influence the utilization of this crucial tool in obstetric care.

This finding contrasts with the results of Mukisa et al. [12], who conducted a study to evaluate the completion of Partographs and gather insights on its implementation among healthcare workers at Mulago National Referral Hospital in Kampala, Uganda. Their research revealed significant gaps in Partograph completion [13]. Among the 355 Partographs examined, a considerable percentage lacked essential documentation, such as age (79.1%), gravidity information (52.7%), and parity details (3.2%). Additionally, approximately 61% exhibited incomplete recording of parameters related to fetal and maternal monitoring and labor progress. Insights from the FGDs highlighted challenges faced by healthcare workers, including overwhelming patient numbers, maternity ward congestion, skill limitations, and inadequate resources, all of which contributed to suboptimal Partograph completion rates. A notable proportion of Partographs initiated by healthcare workers remained incomplete, reflecting systemic challenges within the healthcare system [14,15].

4. CONCLUSIONS

The research findings indicate that midwives in General Hospitals, Abuja have a robust understanding of obstetric fistula prevention and effectively utilize clinical decision-making tools to mitigate associated risks. However, to maintain competency, continuous training and education are necessary to keep midwives updated on the best practices and guidelines in obstetric care.

5. RECOMMENDATIONS

Based on the findings of the study, the following recommendations are proposed:

1. To further enhance competency of midwives, continuous training and sustainability efforts are recommended. Additionally, giving incentives to midwives may improve the consistent and proper utilization of decision-making tools, ultimately contributing to the reduction of obstetric fistula cases.
2. Further research studies on the knowledge and use of clinical decision-making tools for preventing obstetric fistula in pregnant women should be carried out in other states of Nigeria, as this specific study has not yet been conducted in the country.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

CONSENT

Written consent was obtained from those who agree to participate.

ETHICAL APPROVAL

Ethical Approval for this research study was obtained from the Health Research Ethics Committee, Federal Capital Territory Administration, Garki, Abuja.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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