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Exploring Barriers and Facilitators to Waterbirth Implementation: A Qualitative Study of Maternity Care Providers in Tertiary Hospitals in Abuja, Nigeria

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Abstract

Background: Globally, waterbirth is recognized as a birthing option that offers women benefits such as pain relief, relaxation and comfort during labour and a positive childbirth experience, while reducing the need for medical interventions. Despite evidence-based benefits, its implementation remains limited in African settings, including Abuja, Nigeria, where waterbirth is yet to be introduced.
Objective: The objectives of the study were to explore the perspectives of maternity care providers regarding potential barriers and facilitators to the implementation and use of waterbirth in public tertiary hospital settings in Abuja, North-Central Nigeria.
Methods: The study adopted a descriptive qualitative approach. Purposive sampling technique was used to select the three public tertiary hospitals within Abuja. Participants consisted of 13 midwives and 10 obstetricians with varying years of experience in maternity care, purposively sampled until data saturation. A semi-structured interview guide was used for the data collection and data were manually analysed using the Braun and Clarke six steps thematic analysis.
Results: Findings were grouped into two themes: the potential barriers and potential facilitators to waterbirth implementation and use. Potential barriers were various personal factors, lack of local evidence, non-existence of services, institutional constraints, among others. Potential facilitators were availability of services, training or education of maternity care providers, adequate funding, stakeholder sensitisation, provision of waterbirth resources, including protocols/guidelines and institutional support.
Conclusion: Integrating waterbirth practices into Nigeria' maternal healthcare is feasible and this study provides baseline understanding of maternity care provider's views regarding potential facilitators and barriers. Adequate institutional support, sufficient funding, provision of infrastructure, including protocols/guidelines and appropriate training of providers are critical. Equally, important are inclusion of waterbirth into the national maternal health policy document, as well as public sensitisation to increase awareness and demystify implementation and use of waterbirth.

Keywords: Maternity care providers, Waterbirth, Implementation, Facilitator, Barriers, Abuja, Tertiary hospitals

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1. Introduction

Labour and childbirth are usually characterized by extreme pain, and nowadays women are seeking for alternative pain control techniques rather than the use of pharmacologic agents during labour and childbirth (Morris, 2017). Globally, waterbirth is recognized as a birthing option that offers women benefits such as pain relief, shorter labour, relaxation and comfort during labour and a positive childbirth experience, while reducing the need for medical interventions (Cooper & Briley, 2023; Reviriego-Rodrigo et al., 2023; Burns et al., 2022; Dado et al., 2022; Yorgancı et al., 2021; Feeley et al., 2021; Clews et al., 2020; Hodgson et al., 2020; Cooper & Warland, 2019; Dular & Shokeen, 2019; Carlsson & Ulfsdottir, 2019; Antonakou et al., 2018). Despite evidence-based benefits, its implementation remains limited in African settings, including Abuja, Nigeria, where waterbirth is yet to be introduced. Midwives and obstetricians practicing in tertiary hospitals seem not to be conversant with the practice of waterbirth, as such do not promote its use by women during labour and childbirth.

Childbearing women seek waterbirth as a non-invasive means to reduce pain and increase relaxation during labour and birth (Snapp, et al., 2020), experience of natural birth (Menakaya, et al., 2013; Cooper & Briley, 2023) as well as resist unnecessary medical intervention (Sarawad, 2023). Women who have experienced waterbirth often reported higher levels of control and satisfaction with the birth experience than those who did not have the experience (Ulfsdottir, et al., (2018); Lathrop, et al., (2018). Furthermore, immersion in water is associated with a sense of coherence, leading to a more positive labour, birth and postnatal experience (Lewis et al., 2018), and facilitates a sense of agency, aligns with birth as a natural and physiological life event, a more holistic birthing experience, which collectively contribute to positive birth outcomes (Cooper & Briley, 2023). Waterbirth is widely accepted world-wide, and acknowledged as one of the natural methods offered for labour and birth (Hall, et al., 2022; Milosevic, et al., 2019), and it is practised in more than 90 countries (Ulfsdottir, et al., 2019; Harper, 2014). Some of these countries include Australia, (Lewis et al, 2018) Canada, (Jacoby et. al., 2019) the United Kingdom, (Milosevic et. al., 2019) Sweden (Carlsson &Ulfsdottir, 2020) and some parts of Asia (Liu et al, 2014).

In the sub-Saharan Africa region, there is a paucity of documented empirical evidence on the practice of waterbirths (Nutter et al, 2014). Research exploring the use of waterbirths particularly in Nigeria is limited but barriers to its use have been highlighted by experts (Okeh, 2022). Currently, waterbirth services are not commonly provided in Nigeria's healthcare facilities and data on its prevalence or use seem not to exist. Yet, access to non-pharmacologic comfort options during labour aligns with maternal care priorities in the country (World Health Organisation [WHO] (2018). There are also calls to expand nurse-midwifery -led practice (Akinola et al., 2019), which waterbirth supports. In several countries, more women are choosing to give birth in water (Hall, et al., 2022). Anecdotal evidence also, suggests that there is an increasing desire for waterbirth method of labour and childbirth among women in Abuja but the service is not available in hospitals. Aughey et al., (2021), noted that black women and those from locations with higher socioeconomic hardship are less likely to have access to waterbirth facilities and health professionals. Could this be the reason for waterbirth services not being offered in Nigeria healthcare settings, even when there seems to be a rising demand for such services? Currently, it seems that Nigerian women and their newborns are deprived of waterbirth benefits due to non- availability of waterbirth facilities in our hospital settings.

Previous studies have documented the challenges inherent in the process of waterbirth implementation in hospital settings. These include limited tub availability; the cost of tub installation and maintenance; staffing issues; a lack of support from physician, nurse, and/or administrative colleagues (Aughey et al., 2021; Milosevic et al., 2020; Milosevic et al., 2019). Also reported were: a lack of suitable patient information materials; concerns about water temperature, provider ergonomics, and difficulty viewing or reaching the perineum; limited access to waterbirth-related continuing education; midwives' lack of confidence in their ability to advocate for the practice; and restrictive licensing requirements (Vanderlaan, et al., 2022; Cooper, et al., 2021; Milosevic et al., 2020; Milosevic et al., 2019; Newnham et al., 2015; Nutter, 2014; Russell et al., 2014; Stark & Miller, 2009). More recent studies have reported inadequate training, a lack of resources, and organisational issues as some of the obstacles to implementation of waterbirth (Reviriego-Rodrigo et al., 2023; Cooper et al., 2023). About the facilitators of waterbirth, Dado et al., (2022); Cooper et al., (2023) posit that the feasibility of water immersion/waterbirth can be improved by raising awareness about its benefits and removing organisational and infrastructural barriers.

The limited practice of waterbirth in Nigeria contrasts sharply with its increasing popularity globally. Understanding the interplay of factors that potentially influence the implementation and use of waterbirth services is crucial. In the vibrant tertiary hospital settings of Abuja, Nigeria, where medical advancements and innovations; religion, culture, and traditions often intersect, the provision of waterbirth practices becomes a subject of great relevance. This study intends to explore the potential barriers and facilitators of waterbirth practices especially in tertiary hospital settings. It is important that maternity care in Nigeria is provided within current available evidence that meets the global standard of care. Thus, the need for the current study.

Objectives:
To explore potential barriers and facilitators to the practice of waterbirths among maternity care providers in public tertiary hospital settings in Abuja, Nigeria.

2. Materials and Methods

A descriptive qualitative design was adopted for the study. The setting was the 3 government-owned tertiary (teaching) hospitals in Abuja, the Federal Capital Territory of Nigeria. As teaching hospitals, the three facilities are better equipped in terms of materials and staffing to provide qualitative, evidence-based maternity care. The study populations were maternity care givers (midwives and obstetricians) who practice in government-owned tertiary hospitals in the federal capital territory of Nigeria. The inclusion criteria were midwives and obstetricians who were duly registered and licensed with their professional regulatory bodies, and have been practicing for at least six months in the maternity units of the study hospitals.

Sampling of participants: Purposive sampling technique was employed to select participants from those that met inclusion criteria and were willing to participate in the in-depth interview. The purposive sampling technique was adopted to ensure recruitment of participants who could share rich, in-depth information about experiences in maternity care and perspectives about potential facilitators and barriers of waterbirth. Participants consisted of midwives and obstetricians with varying years of experience were selected. Sampling continued until data saturation was achieved. This

is the point at which no new information was emerging during the in-depth interview sessions. The actual sample size was determined at data saturation during the in-depth interview. Altogether, the sample size was 23, comprising 13 midwives and 10 obstetricians.

Data collection:
Data was collected through face-to-face in-depth interview, using a semi-structured guide, developed by the researchers and validated by experts and pilot-tested. It consisted of five sections- an introduction, one opening question, two thematic areas, a section on recommendations and conclusion. The thematic areas consisted of open-ended questions in bullets (7 to 8 in number), arranged under each theme to match the study objectives and to answer the research questions. These questions gathered data on perceived potential facilitators and barriers of waterbirth practice and recommendations for successful implementation of waterbirth. The in-depth interviews took place mostly in participants offices during office hours within the hospital at the agreed times. Informed consent before participation was obtained from each participant. The principal investigator conducted all the 23 in-depth interviews. The duration for interview sessions ranged between 30 and 57 minutes. Interview sessions were audio-recorded with prior consent from participants.

Rigour and trustworthiness:
To ensure rigour and trustworthiness of the qualitative data. The four criteria proposed by Lincoln and Guba 1989 was used, as shown in table 1.

Table 1: Application of trustworthiness in data collection and analysis

Trustworthiness Criteria	How it was applied in the study
Credibility	-Engagement with participants during interview sessions was long, lasted 30 to 50 minutes for one interviewee. -Midwives' views about potential barriers and facilitators of waterbirth were compared with those of obstetricians (triangulation and consistent thymes were identified)
Transferability	-Detailed description of the study settings (public tertiary hospitals), context, population and methodological approaches were provided in the full research report. -Sample included midwives and obstetricians with varying years of experience
Dependability	-Data collection protocol was developed and adhered to -The data coding and interpretation were reviewed and validated by the researchers and experts in qualitative research with other peer reviewers. -Records of in-depth interview guide, coding framework and the analysis are kept and are available as appendices to this study report.
Confirmability	-Direct quotes of participants were used in the presentation and analysis of results -The researchers recognised personal biases as either midwife, mother, physicians and ensured that these did not affect the data collection and analysis, researcher reflexivity was constantly observed.

Data management & Analysis:
Verbatim transcription of each audio recording was carried out on the same day by the researcher. Quality checks to ensure accuracy of the transcripts was carried out by listening to the audio recording while reading the transcripts. The transcripts were anonymised by replacing any direct identifiers on the transcripts with the codes. The anonymised transcripts were manually coded for analysis. Data were analysed thematically using Braun et al., (2016) five steps of thematic analysis.

Ethical considerations:
Ethical approval was obtained from University of Port-Harcourt Research Ethics Review Board, with reference number: UPH/CEREMAD/REC/MM94/023, dated 30th January, 2024. Also, approvals were secured from the Health Research Ethics Committees (HREC) of the three study settings. The protocol number assigned to the study by the respective HREC are: FMCABJ/HREC/2023/141; NHA/EC/023/24 and UATH/HREC/PR/412. Written informed consents were obtained from study participants who met inclusion criteria before collection of data in all the study centres.

3. Results

Tables 2 and 3 present the demographic characteristics of the midwives (n=13) and obstetricians (n=10) who participated in the study, respectively. Table 4 outlines the major themes and sub-themes identified as potential barriers and facilitators to the use of waterbirths in the study hospitals.

Demographic characteristics of maternity care providers

Table 2: Demographic characteristics of midwives (n=13)

Pseudonyms	Age	Professional qualifications	Current rank	Years of experience	Hospital of practice
IDI-M1	56	RN, RM, RPHN	CNO	27	Hospital 1
IDI-M2	52	RN, RM, BSc	ADNS	24	Hospital 2
IDI-M3	57	RN, RM, BSc	ADNS	28	Hospital 2
IDI-M4	51	RN, RM, RNE	ADNS	20	Hospital 1
IDI-M5	57	RN, RM, BSc	ADNS	28	Hospital 2
IDI-M6	59	RN, RM	ADNS	29	Hospital 1
IDI-7	33	BSc, RN, RM	NO1	3	Hospital 1
IDI-M8	49	RN, RM, BSc	CNO	24	Hospital 3
IDI-M9	59	RN, RM	ADNS	30	Hospital 3
IDI-M10	43	RN, RM, BSc	ACNO	22	Hospital 3
IDI-M11	38	RN, RM, BSc	PNO	10	Hospital 2
IDI-M12	57	RN, RM, BSc	ADNS	Over 20	Hospital 1
IDI-M13	55	RN, RM, RCN	CNO	15	Hospital 3

Table 3: Demographic characteristics of obstetricians (n=10)

Pseudonyms	Age	Gender	Current rank	Experience in obstetrics (in years)	Hospital of practice
IDI - O1	38	M	Registrar	6-7	Hospital 3
IDI – O2	56	M	Consultant	25	Hospital 3
IDI – O3	37	M	Registrar	4	Hospital 2
IDI – O4	52	M	Consultant	Over 10	Hospital 2
IDI – O5	42	F	Consultant	12	Hospital
2IDI – O6	39	F	Registrar	2	Hospital 2
IDI – O7	57	M	Consultant	24	Hospital 1
IDI – O8	55	M	Consultant	Over 20	Hospital 3
IDI – O9	39	F	Consultant	10	Hospital 3
IDI – O10	47	M	Consultant	7	Hospital 1

Data were analysed using Braun, et al., (2016) five steps of thematic analysis. Responses from the in-depth interviews were categorized into themes and sub-themes and thematically. There are two themes and fourteen sub-themes that emerged and are as summarized in the Table 4.

Table 4: Themes and sub-themes of potential barriers and facilitators to the use of waterbirths in the study hospitals

Themes	Sub-themes
1. Potential barriers	• Personal factors • Lack of evidence (local studies) • Non-existence of waterbirth services • Institutional constraints • Financial constraints • Cultural constraints • Lack of awareness about waterbirth
2. Potential facilitators	• Availability of waterbirth services • Appropriate training • Adequate funding • Stakeholders' sensitization • Provision of waterbirth resources • Provision of protocols/guidelines • Institutional/management support

Theme 1: Potential barriers

This theme presents some of the potential barriers to the provision of waterbirth services as identified by maternity care providers. Respondents highlighted several key obstacles to the use of waterbirth, including personal factors, lack of evidence (local studies), non-existing waterbirth services, institutional constraints, financial limitations, cultural beliefs and limited awareness of waterbirth. These barriers are further presented in the subthemes discussed below.

Personal factors

Respondents identified several personal factors that may negatively impact either maternity care providers' waterbirth practice or women's acceptability regarding the use of waterbirth services. These factors included ignorance, lack of experience, ambiguous conceptualization of waterbirth, hesitancy, religious considerations, and the presence of infectious diseases such HIV, hepatitis, etc. Ignorance was a major potential barrier to waterbirth, which were commonly expressed by the respondents

"I don't even know that waterbirth delivery can reduce pain during delivery. I don't know. And that's what the department [referring to O&G] *will have to say. So, I don't know, and I'm not sure because I've not seen it done before. So, there's no way I can recommend it as a mode of pain relief. All the pain relief methods that we are taught in analgesia and obstetrics, there is no where that waterbirth is mentioned"* (Obstetrician 3).

Regarding inexperience; ignorance and hesitancy, respondents elaborately stated:

"I don't know what kind of protective gear, but I don't foresee you having the parturient in a water pool, and you are not there with the patient to conduct the delivery seamlessly. You just have to be close to her. The acculture will have to be in the same setting with the patient to be able to conduct the delivery seamlessly. But I'm trying to imagine how to, when a woman is in a dorsal position, raise her legs or in lithotomy position to take delivery. How do you do that in water? I think these are things you [referring to the researcher] *have to educate me".* (Obstetrician 7).

"Personally, I've not had an experience in using waterbirth or managing clients with waterbirth but the main limiting factor I think would be the lack of the training, we've not done it before, this is a new, totally new form of delivery to us, and the fact that we don't have the equipment for the waterbirth, that would basically be the main limiting factor, but as long as training is being given, facilities and equipment are being provided, why not?" (Obstetrician 9).

"My obstacle in promoting waterbirth would be that, personally, I have not had a hands-on experience in undertaking a waterbirth. I've only witnessed one outside Nigeria. So, safely guiding a woman through the process of waterbirth, for me, since I don't have the experience, I won't safely recommend it to anybody". (Obstetrician 1).

Lack of evidence (local studies)

Some of the respondents shared their perspectives about limited local evidence to support waterbirth implementation. In their opinion, the absence of evidence is a big obstacle to the implementation of waterbirth services in Nigeria, since there are no reference points.

"...and since I've not seen established journals, established journals, like, what I mean established journals, are well-known journals, that it has been documented on the safety of waterbirth, mostly for African women and mostly in Nigeria, local environment. So, it may still seem unorthodox for me to adopt something that has not been proven scientifically. The best evidence suggests that there are benefits to waterbirth. But until this is tested in the field, in our women, as safety is guaranteed for mothers and children, that may still be an obstacle for me in promoting waterbirth at this time". (Obstetrician 1).

Non-existing waterbirth services

Some respondents expressed the view that current non-existence of waterbirth services anywhere in the Nigeria maternity care setting is potentially a huge militating factor against any intention introduce it. In their opinion, change is usually difficult to implement, as it will take a lot of effort to get the people to buy the new idea.

"*The major obstacle is the non-availability of such services. For me, how can I recommend something that is not existing. So, if there is provision for waterbirth delivery, even somewhere in Abuja here and someone says ah, I had a waterbirth in the UK or US, I would like waterbirth... I can say ok, those people have water delivery, you can go there, but I have not heard about any facility that offers that. So that's the major obstacle".* (Obstetrician 7).

"There's no provision for it [waterbirth]*in my facility; so, I can't sell it out to them when they need it, it is a very big obstacle, because you don't talk about things you cannot offer."* (Obstetrician 2).

Institutional Constraints

The majority of respondents emphasised on institutional constraints as a significant challenge to the implementation of waterbirth services. These included a lack of trained personnel, inadequate physical resources such as birthing pools or tubs, inconsistent power supply, space constraints and unreliable access to clean water. These limitations were regarded as critical barriers that could potentially and significantly hinder the provision of waterbirth services. Illustrative accounts of these constraints are provided in the data extracts from respondents.

Regarding physical resources and personnel, a respondent emphasised:

"*No bathtubs or pool for it, so I can't encourage women to use it."* [referring to waterbirth] (Obstetrician 2).

"*Adequate running water. When we don't have good water supply, I don't think we can achieve that* [waterbirth], *number one. Then, number two, skilled personnel. If I don't undergo a training, as a novice, I won't want to attempt* [waterbirth]. *But if I've undergone a training, and I've been supervised, why not?" "...I cannot, or want to, carry out waterbirth, and I'm managing the quantity of water that I need. It's not going to work. I won't get the results I need".* (Midwife 11).

Another respondent said:

"The water is to be warm. I don't know if there's a way we can be warming water often. Because if the water is not

warm, I don't know if it will affect the mother, or if it will affect the baby. So, were do we warm water from? Most times, there's no light, there's no electricity. So, what do we do in such cases? Especially at night, when all the solar energy has gone off." (Midwife 10).

Concerning personnel shortages constituting a barrier, a respondent stated:

"The obstacle I foresee is shortage of manpower because, yes, manpower, the 'japa syndrome' [mass migration of health workforce] *is affecting us. So, if I have to, because in waterbirth, with what I saw on the internet, the midwife was there with the woman. So, imagine I need to, we are just two on duty and I've got like seven women like I had last week. So, I won't be able to focus on just one when I have other women to be attended to".* (Midwife 11).

Financial constraints

Some respondents noted that the cost of establishing waterbirth infrastructure, facilities and equipment on the part of the hospital; and the cost of accessing waterbirth services on part of women, may be high, which may potentially influence women's decisions to utilize such services. This concern is reflected in the data extracts provided by respondents.

"My belief is that if it is something that is less expensive [referring to waterbirth*], because economically, the situation we find ourselves in now, people prefer cheaper articles in terms of, you know, something that they will spend less and still get that quality of service they are looking for. So, if you now sell waterbirth to them and say well, it is less expensive, you don't have to spend much if you opt for this delivery. They will prefer to go for it"* (Midwife 4).

A respondent stated that:

"*Charging costs, billing, that will be one aspect that will make clients shy away from the procedure. So, it should be fair.*" (Midwife 7).

"The financial cost of having a waterbirth can be an obstacle." (Obstetrician 5).

Still on cost as a barrier another respondent stated:

"...cost will be part of it, of course, anything that will not make something work, cost will be part of it. I don't know how expensive it will be. I don't know. If it is offered free, of course, it may help. It may encourage... It may encourage patronage if it's free". (Obstetrician 3).

Cultural beliefs

The majority of the maternity care providers were of the strong view that cultural beliefs potentially, will definitely hinder uptake of waterbirth services by the women receiving maternity care in their hospitals. They expressed this concern that Nigeria with many ethnic groups and different cultural backgrounds, women will come up with different reasons that may not favour waterbirth practice. Examples of the concerns expressed by some maternity care providers regarding cultural beliefs are the excerpts below.

"*Cultural aspect like attaching spiritually to it, since it is connected to water. Some of them will tell you, let me go and tell my husband first. And if he's the type that doesn't understand, he will say, no, you cannot deliver my baby inside water ooo. It's not possible. You want my baby to be mammy water pikin?* [child] [pidgin]. *Things like that".* (Midwife 2).

Another respondent stated:

"And like I said, our culture and our tradition also tend to believe that anything that has to do with water is either demonic or satanic. So, these women accepting the principle of first keeping their children in water, they may not be able to buy it. For the physician, a physician that believes for whatsoever reason that the traditional delivery technique is still the best, old beliefs die hard like they say". (Obstetrician 1)

Another respondent emphasised:

"The other problem, also, is that our women are deeply religious women and also, in a traditional sense, we say, waterbirth, are they not going to associate it with the marine world? So, a woman being convinced that it is a child being born into water, there is no risk of asphyxiation, there is no risk of suffocation. It may be a long while before women and even myself will be convinced, except there are trainings, demonstrations, and repeated trainings on how safe this will be. So, I think those are just the grey areas". (Obstetrician 1).

Lack of awareness about waterbirth

A lack of awareness among women and maternal care providers was identified by the majority of respondents as a potential major barrier to the implementation and utilization of waterbirth services. It was recommended that maternity care providers actively promote awareness during hospital interactions, as this could enhance knowledge and potentially increase the uptake of waterbirth services.

"I think the main obstacles would be, on the part of the pregnant women, lack of awareness. Most pregnant women are not aware of this form of birth, and then I think there is basically a lack of awareness, and then also on our own part [referring to providers], *we are not experienced in providing that type of birth as well" (*Obstetrician 9).

Another respondent stated:

"Firstly, we need to create awareness because I would like to say that I don't think there is any hospital in Nigeria as a whole that practices this waterbirth method of delivery. And if there is any, well, I don't know if there is any, but we need to create awareness in the first place. We need to introduce it to our women". (Midwife 4)

"...apart from that, is, lack of awareness among even the health workers themselves would be a challenge" (Obstetrician 9).

Another respondent stated:

"To improve awareness, we mean enlightening people, education. But we have to, for us to get people educated, we [referring to providers] *have to understand what it takes, what it entails. We should be able to have details of the advantages, disadvantages of everything to be able to enlighten people on waterbirth. And until that is done, to the caregivers, the people who take charge of the births, probably, you find it difficult promoting it".* (Obstetrician 7).

Theme 2: Potential facilitators

This theme presents some of the facilitators to the use of waterbirth as described by the maternity care providers.

Some of the respondents emphasised on some potential facilitators to the use of waterbirth in their health facilities.

Sub-theme 1: Availability of waterbirth services

The majority of the respondents expressed their views concerning the urgent need to make waterbirth services available in the maternity units of their hospitals. They viewed this as a very important starting point in order to facilitate the use and practice of waterbirth by clients and maternity care providers. Many of the participants emphasised that waterbirth use and practice cannot happen in a vacuum, that clients and even themselves (maternity care providers) will only be motivated when they see that waterbirth services are available in the hospitals.

"And then, the availability of the birthing pool for the women to have it. I believe this would help the practice. Out of curiosity, they would want to have it to see how it looks, how it would feel like. But we don't have the pools, not in our building. We don't have places where we could do that in our hospital for now. So, if that can be provided, it will be good." (Midwife 12).

"...but there's no woman that has ever come and said she wants a waterbirth. And we've never had an instance where a woman had a waterbirth delivery. I don't even think that it exists in the country. If you want to facilitate the practice of waterbirth in this hospital, make it available and make it one of the options of delivery" (Obstetrician 3).

Sub-theme 2: Training of personnel

The majority of respondents highlighted the critical need for immediate training and retraining of maternity care providers in the use of waterbirth during labour and childbirth. They viewed this as essential for promoting and sustaining the availability of waterbirth services for women who desire this option. Several respondents also emphasized the importance of adopting innovative childbirth practices, such as waterbirth, through targeted training to enhance positive childbirth experiences. They also reported the need to train medical students as well as nursing and midwifery students to promote knowledge during the pre-service period. This perspective was exemplified during interactions with obstetricians and midwives, as illustrated in the excerpts below, and was reflective of the views shared by many participants.

"Yes, it is to educate them. Firstly, the health care workers have to be educated and trained. Then they can now educate the pregnant women about it, and the whole populace too has to be educated about it. Start teaching medical students and nurses in school and make available facilities and train people that are already in the workforce on how to do it, then they can suggest it to patients". (Obstetrician 3).

Sub-theme 3: Adequate funding

Majority of the respondents emphasised on the importance of funding to promote the implementation of waterbirth services. They highlighted that in order to enable waterbirth services in Nigeria, the government should provide adequate funding for it. This was typical of many of the respondents. One of the midwives described how impossible it is to improvise so as to provide waterbirth services and so emphasised on the need for funding to promote the implementation of waterbirth services.

"*As nurses, we always improvise. But there are some things that need serious funding. Because without money, you can't provide waterbirth services. So, when there's funding for this, we will have it. So, when you have it, you put it into practice and then there will be benefit".* (Midwife 5).

Sub-theme 4: Sensitization

The majority of respondents underscored the importance of sensitizing women about the benefits of waterbirth prior to the introduction of the service. Some respondents were of the opinion that since waterbirth is a new thing in Nigeria, sensitization should not be limited to women but be wider to include other stakeholders, such as maternity care providers, government, hospital management and even husbands. Some respondents were of the view that supporting facilities to offer free waterbirth services as a strategy to encourage uptake among mothers, given the current harsh economic situation in Nigeria. This view was echoed by several midwives, as reflected in the data extract below.

"*I think we will need to sensitise women before the service is provided for them. We will use a few mothers as an example. So that when they do it and it is a success to them, they will pass the message to other women. We can even take the women to the point where they will see and believe. You know, they say seeing is believing. Also, for the younger ones* [referring to midwives], *we can send them for training to know more about it. So that when they come out from that training, they will now practice it*". (Midwife 6).

"We [referring to the hospital] *have to have some sensitization materials, maybe flow charts, diagrams that can be displayed at the Antenatal Clinic and in the maternity ward and labour ward so that these women are properly educated on the benefits of waterbirths in terms of bonding, relaxation, pain control within the birth experience".* (Obstetrician 1).

Sub-theme 5: Provision of waterbirth resources

The majority of respondents emphasized the need to provide essential resources for waterbirth, such as reliable power supply, birthing tubs, constant supply of clean water, necessary equipment and facilities. They believed that the availability of these resources as well as trained, knowledgeable personnel would facilitate the effective provision of waterbirth services. This perspective was commonly shared and is illustrated in the data extract below through the views of some midwives and obstetricians.

"*Provision of equipment cannot be overemphasized because it is the equipment that you use in conducting this delivery. And with water being a major resource for waterbirth, you ensure that the source of water is clean and adequate and functional. Then the equipment for the birth should also be available. And if water supply has to be powered by electricity, there should be power*". (Midwife 8).

Sub-theme 6: Availability of protocol/guidelines

The majority of respondents echoed their views on the critical importance provision of protocols or guidelines as a factor in facilitating the implementation of waterbirth services in the hospitals. They shared the opinion that it will be easier to implement waterbirth services if there were

written document on what is to be done and how it should be done. In their views this will ensure the provision of safe and quality services.

"There's no protocol or guideline to support waterbirth delivery in this hospital. There's none. We just know that one of the options of delivery is waterbirth delivery. A patient can choose whatever she likes, whatever form of delivery she wants to have, she can choose it, but there's no protocol and there's no guideline. And for any patient that chooses waterbirth now as it is now, I'm not asking anybody, but if anybody chooses now, it is as good as just saying that she wants to have waterbirth delivery because there is nothing on ground to take care of that". (Obstetrician 3)

"We don't have any of that in this institution. There's no protocol at all. We don't conduct waterbirth. Maybe when we start thinking of that, of course, we'll have to put forward protocols. Because since we don't conduct it and I don't think anybody has thought about it until now that you [referring to the researcher] *came with the idea".* (Obstetrician 7).

Sub-theme 7: Institutional/management support

More than a half of the respondents shared their perspectives on the need for support from institutions such as the federal ministry of health and top management of their hospitals in order for introduction of waterbirth services to succeed and remain sustained. In their opinion, these institutions will make or mar waterbirth implementation efforts in the tertiary hospitals.

"*Most tertiary hospitals are owned by the government. So, the support has to come from the government and the policy makers. The government, well, maybe through private partner, public partnership too, they have to make available the facilities. They have to train the current educators on how to conduct the waterbirth delivery. So, they have to provide the facilities and they also have to train the educators on how to. So, I think that's what is needed".* (Obstetrician 3).

"The management, can even undertake a sensitization programme within the community and within the hospital to also encourage our women to adopt waterbirth. And also, the next one is probably reducing the cost of waterbirth for our women initially, making it a better and cheaper alternative than the traditional". (Obstetrician 1).

4. Discussion

Findings from this study revealed two themes and fourteen sub-themes that may influence implementation and use of waterbirth in the tertiary hospitals in Abuja, Nigeria. The potential barriers found in our study include: 1) Personal factors: These personal factors included ignorance, lack of experience with waterbirth, religious considerations, presence of infectious diseases and ambiguous conceptualization of waterbirth. This finding agrees with previous reports that midwives and obstetricians who had limited exposure to waterbirth were more hesitant to support the option, due largely to perceived risk and deficient practical experience and that medical practitioners who were not conversant with waterbirth practice were inclined to express greater concerns about safety and were less likely to promote the option (Ulfsdottir et al., 2020). These findings suggest that potentially, inexperience and ignorance contribute to a large extent impede practice of waterbirth, and in the tertiary hospitals of Abuja, religious considerations, presence of infectious diseases further limit the chances for integration of waterbirth into practice. 2)A lack of local evidence: This finding from our study is supported by Edward et al., (2022); AI Moghrabi, (2023) that reported that many practitioners were cautious endorsing waterbirth due to concerns over neonatal outcomes and lack of regional data; and that major barriers to waterbirth practice were the lack of scientific evidence, hospital resistance, professional disapproval, especially from paediatricians and obstetricians. In the light of the findings of this study, the lack of specific studies on waterbirth in Nigerian or African settings is a monumental research gap that must be urgently bridged. This will facilitate the integration and effective implementation of waterbirth practice in the region. 3) Non-existing waterbirth services: This finding from our study is similar to a previous report that lack of dedicated waterbirth infrastructure and equipment, like birth pools make it difficult for midwives to promote waterbirth regardless of the presence of interest (Larsson et al., 2024). It is illogical to expect maternity care providers to campaign for or to promote use of waterbirth among women, when actually there is nothing on ground, infrastructure and equipment wise. 4) Institutional constraints: These include- lack of trained personnel, inadequate physical resources, inconsistent electricity supply, space constraints and unreliable access to clean water supply. This finding from our study has been reported in recent reports where inadequate training, a lack of resources, and institutional issues were noted as some of the obstacles to implementation of waterbirth (Reviriego-Rodrigo et al., 2023; Cooper et al., 2023; Moghrabi, 2023). Also, earlier studies reported limited institutional backing, including logistical and policy support, as significant barriers to waterbirth implementation (Ulfsdottir et al., 2020). However, constraints like erratic electricity supply and water supply shortages were not mentioned as barriers in previous reports, suggesting that these may be peculiar to resource-limited settings like Nigeria. Initiation of waterbirth services in the Nigeria context will require deliberate effort to surmount these potential obstacles particularly, regarding erratic electricity and water supply which in most tertiary hospitals are currently epileptic. 5) financial constraints: This finding from our study is reinforced by previous reports that financial barriers, such as the cost of setting up waterbirth facilities and acquiring necessary equipment, inhibit its adoption in low-resource settings (Milosevic et al., 2019). In Abuja tertiary hospitals, waterbirth has not yet been introduced, so it will require setting up facilities and equipment from the scratch. This can pose substantial financial burden, particularly as the Nigeria healthcare funding is limited. 6) Cultural beliefs: This finding is supported by Clews et al., (2019) which reported that community perceptions and cultural norms significantly affect women's willingness to choose waterbirth, particularly in traditional settings. Details of how cultural beliefs potentially pose a barrier to waterbirth implementation and use is available in the full report of our study. However, there would be need for culturally sensitive advocacy and

community-based enlightenment programmes in order to promote the safety and benefits of waterbirth and to correct misconceptions. 7) lack of awareness about waterbirth: This finding from our study agrees with previous report that many midwives and obstetricians were unaware of the benefits and safety of waterbirth, leading to disinclination to recommending it to clients (Ulfsdottir et al., 2020). The midwives, obstetricians and the entire tertiary hospitals community in Abuja are not familiar with waterbirth practice. They may view it as something alien and may resist its adoption and patronage. The lack of awareness is worsened by cultural constraints, further increasing the resistance against the practice. For successful implementation of waterbirth practice in the hospitals, intensive awareness campaigns, stakeholder sensitisation and educational programmes on waterbirth, including its advantages, benefits and safety are of critical importance in order to address misconceptions and spur confidence in the practice.

The potential facilitators of waterbirth revealed by the study include availability of waterbirth services: No previous study was found in the literature that assessed potential facilitators. However, Milosevic et al., (2019); Aughey et al., 2021; Chua et al., 2023; Larsson et al., 2024 all reported that availability of waterbirth infrastructure, facilities and resources; including pools and monitoring equipment are necessary in order to facilitate or support waterbirth. Also, access to waterbirth facilities has direct positive correlation with increased utilization of waterbirth as a preferred child birthing option (Aughey et al., 2021). Currently, waterbirth services are yet to be introduced in Nigerian hospitals, so even as women desire waterbirth, they are unable to have it because such services do not yet exist. These reports suggest that establishing waterbirth facilities in Nigerian tertiary hospitals could serve as a catalyst for its acceptance. Therefore, availability of well-equipped waterbirth facilities is paramount for the initiation of waterbirth practices. It is believed in this study also, that the availability of services will provide opportunity for maternity care providers to build knowledge, skills and experience over time. Appropriate training of midwives and obstetricians in facilitating waterbirth has been previously reported as very crucial in waterbirth practices (Nicholls et al., 2016; Clews et al., 2019; Ulfsdottir, et al., 2020; Chua et al., 2024). Competence and confidence of maternity care providers in the maternity units of Abuja tertiary hospitals in providing the services is crucial for waterbirth adoption and implementation in the settings. Proactively educating and training of the maternity care providers will prepare them for embracing waterbirth practice when the services become available in the hospitals. Training is necessary for successful implementation of waterbirth services in maternity units of tertiary hospitals in Abuja. Furthermore, finding from our study is in line with previous reports that hospitals with funding for equipment and staff training had higher rates of successful waterbirths Aughey et al., (2021) and that that financial commitment is critical for the sustainable implementation of waterbirth in hospitals (Larsson et al., 2024). Integrating waterbirth services into the maternity units' services in Abuja tertiary hospitals is an innovation, which could only be facilitated by adequate funding, in terms of infrastructure, facilities, equipment, training and retraining of personnel that will be involved in the provision of services. Provision of sufficient funds will facilitate building of infrastructure, procurement of waterbirth equipment, facilities and training of staff. Previous reports show that successful implementation of waterbirth often required a synergy of public and private funding (Vanderlaan et al., 2017). In Nigeria context, where the healthcare sector lacks adequate funding, successful adoption and integration of waterbirth services into mainstream maternity care in our tertiary hospitals may require public-private partnership, particularly at the initial stages. This may help in narrowing gaps in the funding. Stakeholder sensitisation was also described as useful for the successful implementation and use of waterbirth. This finding agrees with Clews et al., (2019) that awareness campaigns, community sensitisation help to demystify waterbirth and increases its acceptance; and that antenatal education increases uptake of waterbirth and dispel myths. Lewis et al., (2018) noted that women who are informed about the benefits of waterbirth are more inclined to choose the option. In the Nigeria context, it is necessary to sensitize women before the services are provided by creating awareness and educating them on the benefits of waterbirth. Provision of waterbirth resources and provision of protocol/guidelines: Previous reports noted that access to physical infrastructure and technical documents such as protocols or guidelines are known enablers of waterbirth services delivery (Wiklund, 2024). The importance of institutional and management support as emphasised by the study participants is reinforced by previous reports that where waterbirth is backed by institutional policies, its acceptance and practice are significantly higher (Aughey et al., 2021) and that midwives' willingness to promote waterbirth was strongly influenced by support from hospital administrators, and the presence of waterbirth-friendly policies (Larsson et al., 2024; Ulfsdottir et al., 2020).The need for institutional/hospital management support in the successful implementation of waterbirth services in tertiary hospitals in Nigeria can never be overemphasised.

Strengths and limitations

One strength of this study is that, to our knowledge, it is the first research in Nigeria that has focused on waterbirth as evidence-based beneficial option of childbirth with potential for integration into maternity care in Nigeria. Another is the inclusion of midwives and obstetricians together in one study. Examining their diverse perspectives and insights as key stakeholders in maternity care provided a clear and deeper insights on potential facilitators and barriers regarding waterbirth and the feasibility of integrating it into the tertiary hospitals' maternity care in Nigeria.

One limitation of this study is that waterbirth is not currently being practiced in any public hospital in Nigeria, so, the of responses of the midwives and obstetricians in the study were not based on actual lived experiences or hands-on practice of waterbirth but rather based on theoretical or shallow understanding, which may have affected the depth of their responses.

Recommendations/implications for clinical practice and policy:

The findings of our study highlight the need for piloting implementation in the three study hospitals. This also implies that waterbirth infrastructure, equipment, and other resources, including protocols/guidelines development must be put into place as well as full hospital management support in order to ensure successful and safe implementation. Educational programmes and waterbirth awareness campaign are required to bridge the gaps in awareness among the women. Knowledge and skills gaps among maternity care providers must be proactively addressed through intensive training and retraining.

5. Conclusion

The study concludes that integration of waterbirth practices into Nigeria' maternal healthcare is feasible and this study provides baseline understanding of maternity care provider's views regarding the its potential practice in Nigeria. Despite the fact that waterbirth is not yet being practised in Nigeria, there is encouraging interest and willingness of midwives and obstetricians in Abuja public tertiary hospitals to accept and support its implementation and use. Adequate institutional support, sufficient funding, provision of infrastructure, including protocols/guidelines and appropriate training of providers are critical. Equally, important is public sensitisation to increase awareness and demystify waterbirth among women.

Conflicts of Interest

Authors declare that there is no conflict of interest

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Approvals were obtained from the institutions and consent from participants

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