





Women's Knowledge, Perception and Acceptability of Waterbirth: A Cross-Sectional Survey of Tertiary Hospitals in Abuja, North- Central Nigeria

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Abstract	Article History
<p>Background: Waterbirth is practised, accepted and acknowledged in many countries worldwide as one of the natural options for labour and childbirth due to its evidence-based benefits. Despite its increasing popularity in many regions of the world, waterbirth is not yet widely practiced in Abuja, Nigeria. Understanding women's perceptions, knowledge and acceptability regarding the practice is essential to inform evidence-based integration into maternity services.</p> <p>Objectives: The objectives of the study were to assess the knowledge, perceptions and acceptability regarding waterbirth among antenatal women in public tertiary hospitals in Abuja, north-central Nigeria.</p> <p>Methods: The study adopted a quantitative descriptive cross-sectional design. The setting was the three government-owned tertiary hospitals in Abuja. 331 women were randomly sampled from those who met inclusion criteria, and data were collected through semi-structured questionnaires. Data were analysed using SPSS version 27 and involved the use of descriptive and inferential statistics; the data were presented in frequency tables, percentages, grand means, standard deviations, and bar charts.</p> <p>Results: The questionnaire return rate was 90%, with a total of 331 responses. More than half, 190 (57.4%), of the women had a high level of knowledge; 131 (39.6%) had moderate knowledge; and very few, 10 (3.0%), had a low level of knowledge about waterbirth. Perception about waterbirth was positive for the majority, 278 (83.9%); the grand mean of 2.95±0.92 was greater than the criterion mean of 2.50. More than three quarters more – 255 (77.0%) of the women indicated a high extent of acceptability for waterbirth; the grand mean of 2.79±0.89 was greater than the criterion mean of 2.50. There was a statistically significant relationship between perception and extent of acceptability of waterbirth as $p < 0.05$ ($n = 408$, $r = 0.58$, $p = 0.00$).</p> <p>Conclusion: Women in Abuja have good knowledge of waterbirth, positive perceptions, and a high level of acceptability, suggesting an interest and willingness to embrace services if offered. There may be need further studies to validate these findings.</p> <p>Keywords: Waterbirth, Knowledge, Perception, Acceptability, Antenatal women</p>	<p>Received: 07 Jun 2025 Accepted: 15 Jun 2025 Published: 19 Jun 2025</p>  <p>Scan QR Code to view¹</p>
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1. Introduction

The practice of water immersion during labour and birth, popularly called waterbirth, has gained substantial recognition globally due to its numerous maternal and newborn benefits. Documented evidence of maternal benefits include: pain reduction and shorter labour (Zhang & Yang, 2022; Yorganci et al., 2021; Hodgson, 2020), increased maternal relaxation, comfort, autonomy and positive psychological outcomes (Reviriego-Rodrigo et al., 2023; Burns et al., 2022; Clews et al., 2020; Carlsson & Ulfssdottir, 2020; Cooper & Warland, 2019, Dular & Shokeen, 2019), reduces unnecessary interventions and supports spontaneous birth without additional neonatal risks

(Maude & Kim, 2020). The benefits of immersion in water during labour and birth to the newborn are also well documented, and include: improved oxygen supply (Cluett et al., 2018), smooth, less drastic transition to extra uterine life (Dular & Shokeen, 2019), early mother-baby bonding, (Nutter et al., 2014), and lower rates of adverse neonatal outcomes, compared to conventional births (Hodgson, et al., 2020; Bailey, et al., 2019). In addition, immersion in water during labour and childbirth has been reported to be a safe option for low-risk women and a low-tech intervention for improving quality and satisfaction with care (Burn, et al., 2022; Harper, 2014).

Despite copious documented evidence, waterbirth is not widely practiced in Nigeria. Currently, it seems that Nigerian women and their newborns are deprived of these benefits due to non-availability of waterbirth facilities in hospital settings. Maternity care providers believe that reducing the stress of labour will reduce foetal complications and reduce maternal and neonatal mortality (Shaw-Battista, 2017 Nutter et al., 2014). Experts agree that a range of birth techniques or methods should be provided during labour and childbirth and that women have the right to choose options that are appealing to them (Aughey, et al., 2021; Milosevic, et al. 2019; Harper, 2014). 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? Clews et al., (2020) posits that negative perception, lack of knowledge or awareness and acceptance of waterbirth remain an issue in developing countries. Could poor knowledge and negative perception be why women in Abuja are not requesting for waterbirth option for labour and childbirth?

Research indicates that well-informed women are more likely to consider waterbirth as a viable option. For example, women who are educated about its pain-relief benefits and the overall positive birthing experience associated with water immersion are more inclined to opt for this method (Liu, et al., 2014). Knowledge and positive perception about waterbirth and its benefits is crucial for its acceptance and implementation. Studies that have assessed knowledge, perception and acceptability regarding waterbirth among women in a single study are very limited in the published literature. Most of the available studies on waterbirth knowledge and perceptions were conducted outside Africa. Bashaikh et al., (2022) used a cross-sectional study to assess the knowledge and perception of Saudi women about waterbirth, using a sample size of 388 women. Findings showed a fair knowledge level about waterbirth and positive perception among the women. The available studies on perceptions and experiences of women regarding waterbirth were mostly those conducted in western societies and regions outside Africa and the reports indicate positive perceptions and experiences about waterbirth in the majority of the women (Camargo et al., 2022; Cooper and Warland, 2022).

The limited practice of waterbirth in Nigeria contrasts sharply with its increasing popularity globally. Also, limited childbirth options for women in Nigeria potentially put them at risk of unnecessary medical intervention during labour and birth and this should not continue. It is important that maternity care in Nigeria is provided within current available evidence that meets the global standard of care. In the vibrant tertiary hospital settings of Abuja, Nigeria, where culture, religion, medical advancements and innovations often

intersect, the provision of a novel service such as waterbirths becomes a subject of great relevance. Currently, in Abuja tertiary hospitals, waterbirth facilities are not yet available. Understanding the knowledge level, perceptions and acceptability around waterbirth among women as potential recipients of the novel services is crucial in order to inform evidence-based recommendations and policy changes.

Objectives

The broad objective was to investigate the level of knowledge, perceptions and acceptability regarding waterbirth among antenatal women in tertiary hospital settings in Abuja. However, three specific objectives guided the study further

1. To assess the level of knowledge about waterbirth among antenatal women in three public tertiary hospitals in Abuja, Nigeria.
2. To examine the perceptions about waterbirths among women in the public tertiary hospitals in Abuja, Nigeria.
3. To assess the extent of acceptability of waterbirths among antenatal women in the public tertiary hospitals in Abuja, Nigeria.

2. Materials and Methods

Setting

The study adopted a quantitative descriptive cross-sectional design. This design was appropriate as it enabled the researchers to quantitatively gather data on demography and measure the variables of interest and their relationships with each other at particular point in time among the participants. The study was conducted in Abuja, the Federal Capital Territory of Nigeria, located in the north central geopolitical zone of Nigeria. It lies between latitude 8.25 and 9.20 north of the equator and longitude 6.45 and 7.39 east of Greenwich Meridian. Geographically, Abuja is located in the centre of Nigeria. The setting was three government owned tertiary (teaching) hospitals in Abuja: Federal Medical Centre (FMC) Abuja, National Hospital Abuja (NHA) and University of Abuja Teaching Hospital (UATH), Gwagwalada. As teaching hospitals, the three facilities are better equipped in terms of materials and staffing to provide qualitative, evidence-based maternity care. As documented in Ogu et al., (2017); Koce et al., (2019), due to the inadequate functionality of primary health centres throughout Nigeria, the majority of patients reportedly avoided the PHC facilities to self-refer to the tertiary care centre in Nigeria. For these reasons, tertiary hospitals enjoy high patronage of maternity clients.

Study population

The target population comprised 1,910 women who receive antenatal care in the three government-owned tertiary hospitals in the Federal Capital Territory, Abuja (710 women at FMC Abuja, 150 at NHA, and 1,050 at UATH Gwagwalada) A sample size of 369 women was determined using Leslie Fisher's formula, considering a 95% confidence level, a 5% margin of error, and a 10% non-response rate. Multi-staged sampling (proportionate, stratified, simple random) technique was employed, ensuring representativeness by hospital population size (FMA Abuja, n=125; NHA, n=26; UATH, n=185).

Instrument, data collection and analysis

Data were collected using a 61- item semi-structured questionnaires developed by the researchers. Sekhon et al., (2017) seven 'acceptability constructs' guided the development and grouping of the statements used in assessing the participants extent of acceptability of waterbirth. The questionnaire was made up of four sections, (A -Demography, B- Knowledge, C- Perception, D- Acceptability) Section B consisted of multiple-choice items while C and D consisted grouped items on a 4-point Likert Scale, (Strongly Disagree=1, Disagree= 2, Agree=3, Strongly Agree = 4). Face and content validity were ascertained through reviews by senior midwifery lecturers and researchers who are experts in quantitative cross-sectional studies, at the University of Port Harcourt and Ahmadu Bello University, Zaria. Reliability was established using a test- retest method with 50 antenatal women from the General Hospital Garki, achieving a reliability coefficient of 0.82. Ethical approvals were obtained from the University of Port Harcourt Research Ethics Committee and the Health Research Ethics Committees (HRECs) of the three study hospitals, as well as informed consent from participants. Data collection occurred over four weeks. Retrieved questionnaires were sorted and checked for accuracy and completeness. The data were analysed using the SPSS version 27 and involved the use of descriptive and inferential statistics; the data were presented in frequency tables, percentages, grand means, standard deviations, and bar charts.

3. Results

Table 1 summarises the socio-demographic characteristics of women (n=331) who participated in the study. The age distribution of the women indicates that more than half 173(52.3%) were within the age range of 30-39 years, 143(43.2%) were aged 20-29 years and 15(4.5%) were aged 40-49 years with a mean age of 31.13±1.34 years. This indicates a predominantly younger women in their mid-childbearing ages. In terms previous births, more than half 171(51.7%) have had one to two deliveries, indicating experience with labour and birth. Regarding educational level, more than half 198(59.8%) reported having a university education, suggesting that the women who receive antenatal care in the tertiary hospitals are well-educated. More than half 202(61.0%) reported annual income below 360,000. This finding reflects the poor earning power of most of Nigerian women. Apart from the three major Nigerian tribes (Hausa/Fulani, Igbo and Yoruba), more than one-third (39.3% n=130) was from other tribes, reflecting the diverse ethnic and cultural nature of Nigeria, and the cosmopolitan nature of Abuja. However, more than a quarter 92(27.8%) was Igbo, regardless that the study is in the North-Central of Nigeria. This finding suggests either a higher population of Igbo women in Abuja or a higher rate of utilisation of antenatal services. About three quarter 248(74.9%) were Christians, also suggesting a higher rate of utilisation of antenatal care services in tertiary hospitals among Christians than Moslems in Abuja.

Table 1: Socio-demographic characteristics (n = 331)

Categories	Frequency	Percentage
Age		
20-29 years	143	43.2
30-39 years	173	52.3
40-49 years	15	4.5
Total	331	100.0
Mean age = 31.13±1.34 years		
Deliveries		
None	142	42.9
1-2	171	51.7
1-4	16	4.8
5-6	2	0.6
Total	331	100.0
Mean number of deliveries = 1±0.57		
Education		
School leaving certificate	12	3.6
Secondary or equivalent	30	9.1
College or polytechnic	84	25.4
University	198	59.8
Others	7	2.1
Total	331	100.0
Estimated annual income in naira		
Below 360,000	202	61.0
360,000 to 1.5M	81	24.5
1.5M to 2.5M	26	7.9
2.5M to 3.5M	13	3.9
Above 3.5M	9	2.7
Total	331	100.0
Mean annual income = 701,000		
Tribes		
Hausa/ Fulani	43	13.0
Igbo	92	27.8
Yoruba	56	16.9
Ijaw	10	3.0
others	130	39.3
Total	331	100.0
Religion		
Christianity	248	74.9
Islam	79	23.9
others	4	1.2
Total	331	100.0

Table 2 reveals that majority of the women had good knowledge of waterbirth as majority 281(84.9%) knew that labour in water or immersion in water can help reduce labour pain, 270(88.5%) knew that waterbirth should be assisted by a trained midwife or obstetricians, 262(85.9%) knew that water birth is giving birth in a pool of warm water, 249(81.6%) knew that water birth can be done both at home and in the hospital with proper care, and the fewest 163(53.4%) knew that increased chance of infection is a potential risk of water birth. When pulled together the result

showed that more than half 190(57.4%) of the women had high level of knowledge, 131(39.6%) had moderate while very few 10(3.0%) had low level of knowledge of waterbirth.

Table 2: Knowledge about waterbirth (n = 331)

SN	Multiple-choice items	Correct F (%)	Incorrect F (%)	Total F (%)
1	What is a waterbirth?	281(84.9)	50(15.1)	331(100)
2	Which of the following is true about labour in water?	292(88.2)	39(11.8)	331(100)
3	Where can waterbirth be done?	268(81.0)	63(19.0)	331(100)
4	For which group of women is waterbirth most suitable?	235(71.0)	96(29.0)	331(100)
5	What is one benefit of having labour in a pool of warm water?	187(56.5)	144(43.5)	331(100)
6	Why do many women choose waterbirth?	224(67.7)	107(32.3)	331(100)
7	What is the primary benefit of immersion in warm water during labour?	244(73.6)	87(26.3)	331(100)
8	Which of the following can water immersion in water during labour help with?	189(57.1)	142(42.9)	331(100)
9	Which of the following women might not be allowed to have a waterbirth?	207(62.5)	124(37.5)	331(100)
10	What is one possible risk of waterbirth?	263(79.5)	68(20.5)	331(100)
11	Which factor could prevent a woman from having a waterbirth?	268(81.0)	63(19.0)	331(100)
12	Which of the following is a potential risk of waterbirth?	179(54.1)	152(45.9)	331(100)
13	When is it best to enter into the pool of warm water during labour?	181(54.7)	150(45.3)	331(100)
14	How deep should the pool water be for a waterbirth?	243(73.4)	88(26.6)	331(100)
15	Who should assist during a waterbirth?	290(87.6)	41(12.4)	331(100)

(Guide: 1-5 is low, 6-10 is moderate and 11-15 is high. Highest possible score is 15)

Table 3 shows mean scores and standard deviations of the perceptions of women towards waterbirth. About the safety of waterbirth, women who believe giving birth in water is safe for the baby had overall mean score of (\bar{x} =2.82) which is higher than the criterion mean (\bar{x} =2.50) demonstrating that most of the women perceive waterbirth as safe for the baby. The women also believe that giving birth in water is as safe as giving birth on land as indicated by the mean score (\bar{x} =2.79) which is greater than criterion mean (\bar{x} =2.50). Item number 3 on the table shows a higher mean score (\bar{x} =3.0) showing a positive perception that only women without complications should try waterbirth. The mean score for item number 4 (\bar{x} =2.99) is higher than the criterion mean (\bar{x} =2.50) which shows that women felt confident that hospital will provide safe waterbirth environment. Regarding perception about comfort, item number 5 on the table indicates that the women believe that being in water during labour can reduce pains. This is shown by the cluster mean (\bar{x} =3.01) being higher than the criterion mean. The sixth item on the table shows a cluster mean of (\bar{x} =2.80) which is greater than the criterion (\bar{x} =2.50) indicating positive perception by women that waterbirth would help them feel more relaxed during labour. Also, item number 7 in table, with a cluster mean (\bar{x} =2.81) is higher than the criterion mean of (\bar{x} =2.50), suggesting that the women felt waterbirth makes labour more comfortable than staying in bed. In terms of waterbirth offering emotional wellbeing, response to item numbers 8 and 9 on the table shows positive perception among the women, as the cluster means (\bar{x} =2.52) and (\bar{x} =2.81) respectively is greater than criterion mean, as the women felt that waterbirth can make them feel more in

control during labour and childbirth and also can make women calmer. With a cluster mean (\bar{x} =2.62) higher than criterion mean, item number 10 on the table indicates a positive perception by women that their families will support the idea of waterbirth, so also, item number 11 having a mean (\bar{x} =2.92) which is greater than the criterion (\bar{x} =2.50). This shows that the women believe that they will feel more comfortable choosing waterbirth if, partner supports it. In the aspect of trust in maternity care provider, there is positive perception among the women as item numbers 12 and 13 both show mean scores (\bar{x} =3.26) and (\bar{x} =3.11) respectively, both greater than criterion of (\bar{x} =2.50). These demonstrate that the women believe that maternity care providers would not recommend waterbirth if it is not good and they will have the support of providers if they choose waterbirth option of birth. In the aspect of affordability or cost of waterbirth (shown in item numbers 14 and 15), the number of women that believe that waterbirth should be affordable, have a score (\bar{x} =3.00) higher than criterion (\bar{x} =2.50). This shows positive perception. The women believe that waterbirth is a good option if it does not cost more than regular birth. There is positive perception among the women that cultural beliefs can affect a woman's choice to have a waterbirth as can be gleaned from the table in item number 16. This is revealed by cluster mean (\bar{x} =2.92) greater than criterion mean (\bar{x} =2.50). Item number 17 in the table indicates a perception is positive with a cluster mean score (\bar{x} =3.01) higher than criterion (\bar{x} =2.50). On the aspect of access to waterbirth facilities, items 18-20 all indicate that perception is positive, with cluster means greater than criterion (\bar{x} =2.50). The results aggregate show that the grand mean of 2.95 ± 0.92 was greater than the

criterion mean of 2.50, indicating a positive perception in all the aspects of water examined among the women. The percentage summary indicates that 84% (n=278) have

positive perception while 16% (n=53) have negative perceptions towards waterbirth.

Table 3: Perception about waterbirth (n = 331)

SN	Questionnaire items	Mean	Std Dev.	Remark
A. Safety of waterbirth				
1	Believed giving birth in water is safe for the baby.	2.82	0.74	Positive
2	Felt that waterbirth is as safe as giving birth on land.	2.79	0.78	Positive
3	Believed that only women with no complications should try waterbirth.	3.04	0.87	Positive
4	Felt confident that hospitals will provide safe waterbirth environment	2.99	0.74	Positive
B. Comfort				
5	Believed being in water during labour can make it less painful.	3.01	0.73	Positive
6	Thought waterbirth would help me feel more relaxed during labour.	2.88	0.81	Positive
7	Felt that water would make my labour more comfortable than staying in bed.	2.81	0.79	Positive
C. Emotional wellbeing				
8	Believed that giving birth in water would make me feel more in control.	2.52	0.78	Positive
9	Thought waterbirth would help me feel calmer during labour.	2.81	0.78	Positive
D. Support from family/friends				
10	Felt that my family supports the idea of waterbirth.	2.62	0.82	Positive
11	Thought that if my partner supports waterbirth, I would feel more comfortable choosing it.	2.92	0.83	Positive
E. Trust in maternity care provider				
12	Believed that doctors and midwives would recommend waterbirth only if it is safe.	3.26	1.87	Positive
13	Felt confident that my healthcare provider will support me if I choose waterbirth.	3.11	2.46	Positive
F. Affordability/cost				
14	Believed that waterbirth should be affordable for everyone.	3.00	0.75	Positive
15	Thought waterbirth is a good option if it doesn't cost more than regular birth.	2.98	0.81	Positive
G. Cultural religious beliefs				
16	Felt that cultural beliefs can affect a woman's choice to have a waterbirth.	2.92	0.85	Positive
17	I believe that waterbirth may not be accepted by some due to religious reasons.	3.01	0.87	Positive
H. Access to waterbirth facilities				
18	Thought waterbirth would be more popular if more hospitals had the right equipment.	3.17	0.72	Positive
19	Believed that more hospitals should offer waterbirth as an option.	3.15	0.75	Positive
20	Felt that more information should be provided to women about waterbirth.	3.35	0.76	Positive
	Grand mean	2.95	0.92	Positive

Criterion mean = 2.50.

Table 4. presents means and standard deviations of the extent of acceptability of waterbirth among the women. Items 1-3 under affective attitude, each shows a mean score greater than criterion mean (\bar{x} =2.50), indicating high acceptability of waterbirth among the women. In terms of the burden of waterbirth, the table further shows mean scores greater than criteria mean for item numbers 4-6 respectively, also demonstrating high acceptability of waterbirth among the women. findings reveals further that the mean score (\bar{x} =2.84) for item number 7 was greater than criterion (\bar{x} =2.50). This also indicates high acceptability among the

women. In item number 8, under ethicality, the mean score (\bar{x} =2.44) is lesser than criterion (\bar{x} =2.50), indicating low acceptability for waterbirth practice in the community among the women. In other aspects of acceptability, the mean scores were greater than criterion mean. The result overall, show that the grand mean of 2.79±0.89 was greater than the criterion mean of 2.50, indicating a high level of acceptability. The percentage summary indicates that 77% (n=255) have high extent of acceptability, while 23% (n=76) have low extent of the acceptability of waterbirth. Thus, the extent of acceptability for the use of waterbirth option for labour and birth among women was high.

Table 4: Extent of acceptability of waterbirth

SN	TFA guided statements (Items)	Mean	Std Dev.	Remark
A. Affective attitude				
1	Felt positive about the idea of giving birth in water.	2.90	0.75	High
2	Waterbirth seems like a calm and comfortable way to deliver a baby.	3.03	0.76	High
3	Would consider waterbirth as a way to have a peaceful birthing experience	2.86	0.78	High
B. Burden				
4	Waterbirth seems like a method that would not require much effort on my part.	2.65	0.79	High
5	Thought giving birth in water would not be physically exhausting.	2.70	0.76	High
6	Would be difficult for me to access waterbirth in a healthcare facility.	2.75	0.81	High
C. Ethicality				
7	Waterbirth fits with my personal beliefs about having a natural childbirth experience.	2.84	0.76	High
8	Believed waterbirth is an acceptable form of delivery in my community.	2.44	0.84	Low
9	Felt that waterbirth is a safe and ethical option for my baby and me.	2.93	3.11	High
D. Intervention coherence				
10	Understood what waterbirth involves and how it could benefit me during labour.	2.68	0.78	High
11	Aware of the potential risks and benefits of waterbirth for me and my baby.	2.69	0.76	High
12	Felt have enough information to decide if waterbirth is right for me.	2.67	0.80	High
E. Opportunity costs				
13	Waterbirth is worth considering, even if it means adjusting other aspects of my birth plan.	2.78	0.75	High
14	The benefits of waterbirth, such as pain relief and relaxation, make it a good option for me.	3.04	0.87	High
15	Waterbirth would take away other delivery options I may prefer.	2.57	0.80	High
F. Perceived effectiveness				
16	Believed waterbirth would help to reduce my labour pain.	2.85	0.75	High
17	Waterbirth could help make my labour more comfortable and less stressful.	2.80	0.74	High
G. Self-efficacy				
18	Confident in my ability to go through a waterbirth.	2.79	0.77	High
19	Believed could successfully give birth in water with proper support.	2.91	0.78	High
20	Felt prepared to give birth in water, with support from my healthcare providers.	2.95	0.83	High
Grand mean		2.79	0.89	High

Criterion mean = 2.50.

4. Discussion

It was found in this study that women have a high level of awareness and knowledge about waterbirth, positive perception and high extent of acceptability regarding waterbirth option for labour and childbirth. There were statistically significant relationships between knowledge and perception about waterbirth as well as between perception and acceptability. Reports from other studies reinforce these findings. Nutter et al., (2021); Garcia et al., (2020) both reported that direct beneficiaries of health services (women) are often more proactive in seeking information on birthing options. Bashaikh et al., (2022) also reported fair knowledge about waterbirth among Saudi women. However, the findings from this study are at variance with the findings of Hollins Martin & Martin, (2021) who reported that many women lacked formal knowledge but expressed high interest when informed about the benefits of waterbirth. The high level of awareness and knowledge about waterbirth among women in this current study may be a reflection of increasing access to digital sources and women's self-education

initiatives, particularly in a cosmopolitan city such as Abuja, and a good number of them having university education. This corroborates Copper & Briley, (2023) findings which indicated varied levels of pre-childbirth knowledge, implying that women's understanding of waterbirth is shaped by personal research and midwives' encouragement, not institutional education. The fact that no form of antenatal education on waterbirth had commenced in any of the study settings further buttresses that the knowledge that the women had about waterbirth were not based on antenatal education or care providers. This high awareness level among Abuja women suggests interest and readiness to embrace waterbirth if the services are introduced in the hospitals.

Regarding perception about waterbirth, the women showed positive perception in all seven areas assessed. This finding is similar to previous reports that most women related positive perceptions experiences with waterbirth (Chua et al., 2023; Camargo et al., 2022; Dado, et al., 2022; Feeley, et al., 2021; Carlsson & Ulfssdottir, 2020; Copper & Warland,

2019; Fair et al., 2020; Lewis et al., 2018b; Antonakou et al., 2018). The marked positive perception regarding waterbirth is noteworthy, as this practice is yet to be introduced into Nigeria's maternity care and the women have neither seen waterbirth practically nor experienced it. This finding is consistent with Antonakou, et al., (2018); Lewis et al., (2018) where it was reported that women who did not experience waterbirth had high levels of satisfaction and positive perception regarding waterbirth. It is therefore interpreted that the positive perception in this current study shows the willingness and readiness of the women to want to try the waterbirth option when such services are available. If the women could demonstrate marked positive perception about waterbirth regardless of the lack of actual experience, then it is predicted that experiencing it is likely to reinforce the positive perception. Furthermore, the women in this study believe that waterbirth is safe for the baby and felt confident that tertiary hospitals will provide a safe waterbirth environment. This finding is strengthened by previous reports from (Copper et al., 2021; Lewis et al., 2018b) who documented the role of support from midwives in improving the attitude of women toward waterbirth. The women in this study showed reservations in some aspects, feeling that waterbirth should be provided to everyone who needs it at an affordable cost, and also thought that waterbirth would be more popular if more hospitals had the right equipment and more information provided to women. These findings are in consonance with Dado et al., (2022); Carlsson & Ulfsdottir, (2020) where women positive perception and experiences of waterbirth were limited by lack of information, limited access to pool and poor equipment. The women in this study also believe that support from family/friends particularly a partner will make choice of waterbirth easier. This finding is particularly significant given the context of the current study (Abuja, North-central Nigeria) where the male partner plays a key role in childbirth decision-making. The implication of this finding is that male partners should be involved when considering waterbirth and adequate information should be provided for an informed decision. This finding is supported by Fair et al., (2020) who noted that resistance towards decision on waterbirth came from family, friends and strangers. An interesting trend from the findings of this study.

There was high extent of acceptability of waterbirth among the women in most of the seven aspects of acceptability assessed. The finding is in agrees with Orrantia & Petrick, (2020); Camargo et al., (2022); Copper & Warland, (2022), all of which reported high level of acceptance of waterbirth among women in their studies. This high extent of acceptability among the women regardless of experience suggests readiness and willingness to embrace waterbirth practice when services become available. This trend is consistent with Orrantia & Petrick, (2021); Antonakou et al., (2018); Lewis et al., (2018), who reported that women who did not experience waterbirth had high levels of satisfaction, positive perception and acceptability towards waterbirth; believed it is safe and showed interest to have that option of birth if provided. Although more than three quarters of women in this current study indicated high extent of acceptability of waterbirth in most of the aspects, some felt

waterbirth will not be an acceptable form of childbirth in the community so, they indicated low acceptability in this aspect. This lower acceptability by women may relate to fear of the unknown, uncertainty, cultural belief, limited information, and lack of exposure or experience of waterbirth. This pattern was also reported in a Saudi study where fear of the unknown and knowledge gaps influenced hesitancy to choose waterbirth despite interest (Bashaikh et al., 2022; Fair et al., 2022).

This study also found a statistically significant relationship between the level of knowledge and perception about waterbirth and also perception and extent of acceptability of waterbirth among the women. This finding is a reflection of the conceptual framework of this study which posits that knowledge forms the basis for perception, shaping how respondents interpret waterbirth, then perception may influence acceptability. It has been shown in this study that positive perception also led to high extent of acceptability of waterbirth.

5. Conclusion

The study concludes that despite the fact that waterbirth is not yet being practised in Nigeria, there is encouraging interest and readiness among women in Abuja public tertiary hospitals to accept and support its implementation and use, barring any obstacles. The good knowledge level, positive perception and high degree of acceptability, particularly among the maternity care providers, suggests an enabling environment for the introduction of waterbirth practice in tertiary healthcare settings in Abuja, Nigeria. It also demonstrates interest and readiness to embrace waterbirth practice if services become available. However, potential systemic and personal barriers to waterbirth implementation and use must be addressed. important is incorporation of waterbirth into existing maternal health policy document, public sensitisation to increase awareness and knowledge and address misconceptions.

6. Recommendations

In line with the findings from this study managements of the tertiary hospitals in collaboration with the Federal Ministry of health should establish infrastructure and necessary equipment for provision of waterbirth services. Availability of services will help create awareness and encourage women to begin to consider waterbirth as an option for their childbirth. The management should proactively develop comprehensive educational programmes with modules for training and retraining of maternity care providers and to inform women about the benefits and safety of waterbirth. The hospitals should further sensitise and enlighten the public by developing and distributing waterbirth information in posters, flyers or hand-bills to women during antenatal visits to increase awareness.

Conflicts of Interest

Authors declare that there is no conflict of interest

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Ethical approval and consent to participate

Approvals were obtained from the institutions and consent from participants

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