

Awareness and Acceptance of Fertility Preservation Among Women of Reproductive Age in Obio/Akpor, Rivers State, Nigeria

Josephine B. Bob-Manuel¹; Faith C. Diorgu² & Chinemerem Eleke³

Department of Fertility Nursing, African Centre of Excellence, University of Port Harcourt, Rivers State, Nigeria.

*Corresponding Author: Josephine B. Bob-Manuel

DOI: <https://doi.org/10.5281/zenodo.21545973>

Article History	Abstract
Original Research Article	
Received: 01-06-2026	
Accepted: 30-06-2026	
Published: 25-07-2026	
Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.	
Citation: Bob-Manuel, J. B., Diorgu, F. C., & Eleke, C. (2026). Awareness and Acceptance of Fertility Preservation Among Women of Reproductive Age in Obio/Akpor, Rivers State, Nigeria. UKR Journal of Medicine and Medical Research, 2(4), 60-65.	Background: Fertility preservation (FP) is offered to female patients who may need therapy that will subsequently limit reproductive ability. Knowledge and acceptance about preservation of infertility among reproductive age women in Obio/Akpor of Rivers State, Nigeria was investigated in this study. Method: Descriptive cross-sectional study was employed in this work and was conducted between August and November 2023. The study provided a sample of 427 women randomly drawn from an estimated population of 3789 women in eight more diverse settlement clusters. A structured questionnaire used for data collection were validated by pilot testing (reliability coefficient = 0.87). The questionnaire assessed awareness using yes/no dichotomous scale and acceptance as a 4-point Likert scale. Statistical analyses: Descriptive characteristics, Chi-square tests and Odds Ratio statistics were used to analyze associations between variables. Results: Out of 413 respondents, only 56.4% showed adequate awareness regarding FP whereas others accounted for inadequate knowledge (43.6%). Overall, majority 62.5% had good acceptance to FP. The probability of accepting FP was 99% and 91% more likely among participants who had adequate awareness and information from Healthcare staff ($p < 0.001$) respectively. Conclusions: The study highlights a substantial level of awareness and acceptance of FP among respondents, influenced significantly by education and credible information from healthcare workers. Awareness gaps signal a need for wider education initiatives. It is better to close these gaps by tailoring public programs in communication and healthcare providers to reach informed reproductive decisions among women. Keywords: Awareness, Acceptance, Reproductive health, Fertility preservation.

INTRODUCTION

Fertility preservation (FP) encompasses various interventions focused on retaining one's reproductive ability during situations where medical intervention have the ability to enhance reproductive ability (Stevenson et. al., 2021). The ability to preserve one's fertility has become more widely available, necessitating the need for information for women of childbearing age (van den Berg et al 2021). FP has been increasingly recognized around the world, particularly because the advancement of medical technology has made these procedures more successful (Harzif et. al, 2020) record these procedures. Advancement in FP technology and procedures

has made success more accessible, and appreciated the world around, even though FP technology and surgery have become more accessible globally (Xie et al., 2024). Many developing nations have limited understanding of reproductive health, and its various options, such as FP (Demissei et al., 2024). The cultural context, limited circulation of medical knowledge, and the scarcity of primary medical centers create the paradox (Banerjee & Singla, 2018). The assessment of FP knowledge and its acceptance in the population may help to determine suitable actions for the community.

It is this level of awareness that empowers them to make choices regarding FP choices (Quinn et al., 2019). Hickman et al. (2018) state that even FP advocates practitioners who wish to help these women refer them to FP practitioners.

More than knowing what's out there to treat them in terms of FP, women want to know about the physical effects, emotional influence, and financial burden of both. Through available counseling services, women can make these tough choices and construct coping methods.

Fertility preservation pursuit is a very personalized decision that varies greatly in reproductive-age women. What a woman opts to do largely relies on her condition of healthcare, culture, and personal situation. Women who will be undergoing chemotherapy, for example, will often deem FP a highly crucial step to them securing their desire to have biological children in the future. Such instances often require encouragement and support in seeking out fertility preservation.

Whether or not a woman will think about FP will largely be determined by how informed she is about both advantages and limitations. Such knowledge accompanied by appropriate medical advice and psychologic encouragement brings about decisions that synchronize with her reproductive agenda and life situation. Nigeria has inequalities in culture, healthcare and educational access at present. Levels and awareness regarding FP among women thus ought to be investigated (Kareem et al., 2024). Rivers State in southern Nigeria has a mix of people with unequal access to healthcare. Furthermore, Obio/Akpor in Rivers State has a mix of people involving both wide age and socio-economic backgrounds such that it presents a perfect environment within which to conduct such a study. Women who are of reproductive age especially stand out since they represent users who will be most suited for FP services either due to inherent or elective reasons.

Previous studies have highlighted significant disparities in FP awareness and acceptance, often influenced by factors such as educational level (Yeung et al., 2020). Nonetheless, no published study has assessed the association between awareness or source of information and acceptance of FP. Such information can steer public health initiatives and healthcare policies aimed at improving reproductive health education in the region. The identified gap justifies the need for this study. This study was on FP awareness and acceptance among reproductive age women in Obio/Akpor.

METHODS

The Helsinki Declaration of 2013 was respected. The University of Port Harcourt Full Ethical review Board examined and authorized the study protocol. This study in Obio/Akpor took place in August through November 2023.

A descriptive cross-sectional design was utilized. Out of the entire population (3,789 women in their reproductive years), a random sample of 427 participants was drawn from eight clusters. Cochran formula for cross-sectional studies was used to determine the needed minimum sample size:

$n = [Z^2 \times P(1-P) \div e^2]$; Where $Z = 1.96$, $P = 0.5$, $e = 0.05$ (Bolarinwa, 2020).

The minimum sample size of 384 was enlarged by 10% for potential non-responses, hence a final sample size of 427. Women aged 20-49 years, residing in the Obio/Akpor, willingness to participate, and provided informed consent were included in the study. Pregnant women, living with infertility, or had FP procedures in the past were excluded. Additionally, women who were unable to comprehend or respond to the questionnaire due to language barriers or cognitive impairments were excluded from the study.

A structured questionnaire with $r = 0.87$ was applied to collect data. The content of the instrument was developed following the review of related literature on awareness and acceptance of FP. The study measured items on awareness using the Yes/No scale. Items on acceptance were quantified using a Likert-type scale (1 = strongly disagree and 4 = strongly agree).

The women were met in the community between 9 am and 4 pm each day. Written consent was obtained before data collection and anonymity of respondents was maintained. No identifying information was requested. Confidentiality of responses was maintained throughout the study. Good rapport was established and maintained with respondents to facilitate their willingness to participate. No material incentives were offered the respondents.

Filled questionnaires were coded. The data were entered and analyzed with a statistical software (SPSS 25). Frequency, percentage, mean, and standard deviation summarized the data. Chi-square and Odds Ratio inferential statistics tested related hypotheses. Level of significance was set at a 0.05.

RESULTS

About 413 out of the approached 427 returned their completed questionnaire to a centrally placed anonymous, hence a return rate of 96.7%.

Table 1: Socio-demographic distribution of the respondents (n = 413)

Category	f	%
Age		
20-24	37	9.0
25-29	45	10.9
30-34	135	32.7

35-39	68	16.5
40-44	45	10.9
45-49	83	20.1
Marital status		
Single	138	33.4
Married	242	58.6
Divorced	22	5.3
Widowed	11	2.7
Educational status		
Primary	81	19.6
Secondary	20	4.8
Tertiary	312	75.5
Parity		
1	228	55.2
2	117	28.3
3	68	16.5
Employment status		
Civil servant	253	61.3
Trading	76	18.4
Private sector staff	20	4.8
Agricultural Service	10	2.4
Unemployed	54	13.1
Source of information about fertility preservation		
Healthcare worker	248	60.0
Other sources	165	40.0

% = percentage, f = frequency

Majority of the respondents were 30-34 years old (32.7%) and married (58.6%) while few were very few were 20-24 years old (9.0%) and widowed (2.7%). A majority had tertiary education (75.5%), one child (55.2%), and were

civil servants (Public service workers, 61.3%). About 60% of the respondents received information about fertility preservation from healthcare workers.

Table 2: Awareness of fertility preservation (FP) among the respondents (n = 413)

Questionnaire items	Yes	No
	f (%)	f (%)
FP is any medical technique and strategy employed to protect reproductive capacity, particularly in situations where fertility may be compromised due to medical treatments	317 (89.8)	42 (10.2)
Oocyte cryopreservation or egg freezing is a form of FP	355 (86.0)	58 (14.0)
FP can be referred to as the ability of individuals to reproduce	334 (80.9)	79 (19.1)
Fertility preservation has to do with achieving pregnancy	331 (80.1)	82 (19.9)
FP has to do with protecting reproductive capacity	128 (31.0)	285 (69.0)
Removal of the cervix surgically can be done as a form of FP	180 (43.6)	223 (56.4)
Fertility preservation cannot involve radiation shielding	193 (46.7)	220 (53.3)
Fertility cannot be preserved by ovarian transposition (oophoropexy)	243 (58.8)	170 (41.2)
FP saves eggs or sperm for future reproduction	365 (88.4)	48 (11.6)
With FP no medical procedure can render anyone childless	319 (77.2)	94 (22.8)
Fertility preservation can destroy embryo	67 (16.2)	346 (83.8)
FP renders the reproductive tissues inactive	159 (38.5)	254 (61.5)
FP increase the risk of reintroduction of cancer cells in cancer patients	191 (46.2)	222 (53.8)
FP is available in every clinic	147 (35.6)	266 (64.4)
It is expensive and requires expertise	287 (69.5)	126 (30.5)
Some fertility preservation techniques have low success rate	317 (76.8)	96 (23.2)

Having a malignant tumor is an indication for fertility preservation	134 (32.4)	279 (67.6)
Women who undergo chemotherapy which leads to ovarian insufficiency needs Fertility preservation	271 (65.6)	142 (34.4)
FP is needed for women who undergo radiation treatment	306 (74.1)	107 (25.9)
FP can also be employed when there is a decline in fertility due to age	314 (76.0)	99 (24.0)
A highly fertile can employ fertility preservation	280 (67.8)	133 (32.2)
A healthy female can employ fertility preservation	340 (82.3)	73 (17.7)
Women who have serious health problem but has nothing to do with their fertility can still go for fertility preservation	330 (79.9)	83 (20.1)
Summary		
<i>Adequate awareness (56.4%); Inadequate awareness (43.6%)</i>		

% = percentage, f = frequency, cut off 12 out of 23

Table 2 presents the awareness of FP among the 413 respondents. About 56.4% exhibited adequate awareness, while 43.6% demonstrated inadequate awareness. A majority (89.8%) recognize FP as a medical technique to protect reproductive capacity, with 86.0% aware of oocyte cryopreservation or egg freezing. However, only 31.0% associate FP with protecting reproductive capacity. Misconceptions are evident as 46.7% incorrectly believe FP cannot involve radiation shielding, and 58.8% mistakenly

think ovarian transposition does not preserve fertility. Additionally, 43.6% erroneously consider surgical cervix removal as a form of FP. Despite recognizing FP's role in saving eggs or sperm (88.4%), and acknowledging its necessity for women undergoing chemotherapy (65.6%) and radiation (74.1%), many respondents (64.4%) incorrectly think FP is available in every clinic. About 69.5% agree it is expensive and requires expertise.

Table 3: Acceptance of fertility preservation among the respondents (n = 413)

Questionnaire items	SD (score 1)	D (score 2)	A (score 3)	SA (score 4)	Mean	sd
	f	f	f	f		
Accept any recommendation that is concerned with protecting my reproductive capacity	31	36	156	190	3.22	0.89
# Very fertile so do not need any aid to preserve my fertility	81	77	141	114	2.30	1.08
# Never and do not have any medical condition, so will not accept FP	72	138	106	97	2.45	1.03
#Too young to talk about fertility preservation	191	114	66	42	3.10	1.01
Accept egg or sperm freezing as a fertility preservation technique	35	67	158	153	3.04	0.93
Accept ovarian tissue preservation as a fertility preservation technique	51	66	230	66	2.75	0.87
Accept embryo cryopreservation as a method of fertility preservation	30	139	193	51	2.64	0.79
# Cannot accept transplanting frozen ovarian tissue back into my system to restore ovarian function	86	153	87	87	2.58	1.04
Accept ovary freezing for future use during my early adolescence if situation warrants that who cannot undergo mature egg retrieval	71	127	103	112	2.62	1.06
<i>Grand mean (sd)</i>					2.74	0.94
<i>Summary</i>						
Adequate acceptance (62.5%), inadequate acceptance (37.5%)						

= Reverse scored, Mean < 2.5 = inadequate acceptance, ≥ 2.5 = adequate acceptance; SD = strongly disagree, D = Disagree, A = agree, SA = strongly agree; Sd = standard deviation

Table 3 presents the acceptance of FP among the 413 respondents showing the varied opinions on different aspects of the practice. The grand mean score of 2.74 (sd 0.94) indicates a moderate level of acceptance of FP techniques. About 62.5% of the respondents showed adequate acceptance while 37.5% showed inadequate acceptance. The respondents generally showed strong agreement with accepting recommendations that protect reproductive capacity (mean 3.22), acceptance of egg or

sperm freezing (mean 3.04), and ovarian tissue preservation (mean 2.75). Embryo cryopreservation was less accepted (mean 2.64). Additionally, some respondents felt too young to consider FP indicating a significant perception barrier. There is notable disagreement with the notion that very fertile individuals do not need FP, and mixed responses regarding the necessity of FP without any medical condition. Transplanting frozen ovarian tissue back to restore function also sees moderate disagreement.

Table 4: Chi square test of association between awareness and acceptance of fertility preservation among the respondents ($n = 413$)

Variables	Acceptance		df	χ^2	p	OR (95%CI)
	Adequate	Inadequate				
Awareness			1	239.08	<0.001	0.01 (0.01 – 0.03)
Adequate	221	12				
Inadequate	37	143				
Source of information			1	112.30	<0.001	0.09 (0.06 – 0.15)
Healthcare worker	206	42				
Other sources	52	113				

df = degree of freedom, χ^2 = chi square, OR = odds ratio, CI = confidence Interval, p value < 0.05 is significant

Table 4 presents Chi square test of association between awareness and acceptance of FP among the respondents. The table revealed that both adequate awareness and receiving information from healthcare workers increased the likelihood of acceptance of fertility preservation among the respondents by 99% (OR = 0.01, 95%CI: 0.01-0.03) and 91% (OR = 0.09, 95%CI: 0.06-0.15) respectively.

DISCUSSION

This study found that about half of the respondents had adequate FP awareness which can be explained by two possible factors. Socio-demographic characteristics (education and availability of healthcare services) may have impacted FP awareness. Considering that higher educational attainment allows for regular healthcare use and more access to media information, individuals without education or proper healthcare are at a disadvantage. In addition, healthcare providers and governmental health education campaigns may have played a role.

This finding supports Yeung et al. (2020) who discovered approximately about 54.3% of reproductive women were FP-aware in Hong Kong. It could be that both studies have comparable levels of respondents having a tertiary education level as was witnessed in this study and Yeung et al. (2020). Both studies had a majority of respondents having a tertiary education level. This was contrary to Ko et al, (2023) who made a finding of awareness level of 44%. It could be that this difference in findings was a result of a difference in respondents in Ko et al. (2023) who were only

considering women having breast cancer who were reproductive age.

This study found that the majority of the respondents had adequate acceptance of FP. It may be possible that as knowledge about the availability and success rates of FP treatments spreads through healthcare providers and the media, people become more open to accepting the treatment option. This finding aligns with Yeung et al. (2020) who found an acceptance rate of 73.4% in Hong Kong. The similarity in findings can be attributed to the growing global recognition of FP as a valuable method for maintaining reproductive ability. Advancements in medical technology and proactive healthcare policies may have contributed to higher acceptance rates. Additionally, similar socio-cultural attitudes towards reproductive health may have produced the comparable acceptance levels observed in both studies.

Both sufficient awareness and receipt of information about healthcare providers raised FP acceptability among respondents by 99% and 91%, respectively. This suggests a role played both by education and quality information sources in raising FP acceptability. It might be because trust in healthcare providers and counsellings serves a function.

Adequate awareness typically results from education. Individuals who are informed about FP would understand the procedures, benefits, and implications, reducing fears and misconceptions. This comprehensive understanding would facilitate acceptance. Moreover, information provided by healthcare workers is often perceived as credible. When healthcare professionals educate

individuals about fertility preservation, they are more likely to accept and consider FP options seriously. Healthcare workers can effectively communicate the benefits, risks, and success rates of FP, leading to informed decision-making. Additionally, healthcare professionals are trained to provide personalized counselling. This personalized approach helps address specific concerns, making the information more relevant and reassuring, thereby increase acceptance. At the time of writing this report, no published studies in the major research databases had examined the association between awareness and source of information or acceptance of FP among women of reproductive age.

The generalizability of findings from this study is limited. The study relied on self-reported data which is vulnerable to response bias. The respondents may have overestimated or underestimated their acceptance of FP to meet social desirability. More so, the cross-sectional design captures data at a single point in time and limited the ability to infer causality or changes in awareness and acceptance over time. Additionally, the study was conducted in the Obio/Akpor and the findings may not generalize to other regions. Cultural and economic variables not examined in this study can influence awareness and acceptance levels.

CONCLUSION

The findings indicate that awareness and acceptance of FP were sub-optimal, thus a need for community education efforts. There was a strong association between adequate awareness and acceptance which underscores the critical role of health education by healthcare workers in promoting FP. Effective communication from trusted healthcare professionals and targeted awareness campaigns are essential to remedy the situation.

REFERENCES

1. Baysal, Ö., Bastings, L., & Beerendonk, C. C. (2019). Decisional Conflict in Reproductive Decision-Making: A Comparison between Frequent and Infrequent Cryopreservation of Oocytes for Non-Medical Reasons. *Acta Obstetrica et Gynecologica Scandinavica*, 98(3), 319-325.
2. Bolarinwa, O. A. (2020). Sample size estimation for health and social science researchers: The principles and considerations for different study designs. *Nigerian Postgraduate Medical Journal*, 27(2), 67-75.
3. Demissei, D. B., Biratu, T. D., Gamshe, E. N., & Deressa, A. T. (2024). Attitude towards assisted reproductive technology: acceptance of donors eggs, sperms, and embryos as treatment of human infertility: a systematic review and meta-analysis. *Reproductive Health*, 21(1), 10.
4. Harzif, A. K., Maidarti, M., Silvia, M., Mariana, A., Mutia, H. D., & Wiweko, B. (2020). Knowledge, attitude, intention, and religion aspect toward fertility preservation among obstetrics and gynecology residents in Indonesia: A cross-sectional study. *International Journal of Reproductive BioMedicine*, 18(1), 47.
5. Hickman, L.C., Fortin, C.N., & Goodman, L. (2018). Fertility and fertility preservation: knowledge, awareness and attitudes of female graduate students. *The European Journal of Contraception and Reproductive Health*, 23(20), 1-9.
6. Kareem, Y. O., Adelekan, B., Bungudu, K., Goldson, E., Dasogot, A., Hajjar, J. M., & Yaya, S. (2024). Assessment of the Trends and Factors Associated With Unintended Pregnancy Among Women of Reproductive Age: An Analysis of the Nigerian Demographic Health Survey Between 2008 to 2018. *International Journal of Sexual Health*, 1-15.
7. Ko, J. K., Cheung, C. S., Cheng, H. H., Yung, S. S., Ng, T. Y., Tin, W. W., ... & Ng, E. H. (2023). Knowledge, attitudes and intention on fertility preservation among breast cancer patients. *Scientific Reports*, 13(1), 9645. <https://doi.org/10.1038/s41598-023-36377-w>.
8. Quinn, G. P., Vadaparampil, S. T., & Gwede, C. K. (2016). Discussion of Fertility Preservation with Newly Diagnosed Patients: Oncologists' Views. *Journal of Cancer Survivorship*, 10(2), 233-240.
9. Stevenson, E. L., Gispanski, L., Fields, K., Cappadora, M., & Hurt, M. (2021). Knowledge and decision making about future fertility and oocyte cryopreservation among young women. *Human Fertility*, 24(2), 112-121.
10. van den Berg, M., van der Meij, E., Bos, A. M., Boshuizen, M. C., Determann, D., van Eekeren, R. R., ... & Hermens, R. P. (2021). Development and testing of a tailored online fertility preservation decision aid for female cancer patients. *Cancer Medicine*, 10(5), 1576-1588.
11. Xie, Y., Liao, C., & Zhai, X. (2024). Awareness, Attitude, and Fertility Desire in Elective Oocyte Cryopreservation of Adults in Four Areas of China. *International Journal of General Medicine*, 2024(1), 1281-1292 Yeung, S. Y., Ng, E. Y. L., Lao, T. T. H., Li, T. C., & Chung, J. P. W. (2020). Fertility preservation in Hong Kong Chinese society: awareness, knowledge and acceptance. *BMC Women's Health*, 20(1), 86. <https://doi.org/10.1186/s12905-020-00953-3>.