

Perception and Willingness of Nigerian Nurses to Utilize Assisted Reproductive Technologies

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Received: 04 May 2025; Accepted: 17 Jun 2025; Published: 25 Jun 2025

Citation: Oyegbade AP, Akinwaare MO, Akingbade O. Perception and Willingness of Nigerian Nurses to Utilize Assisted Reproductive Technologies. *Gynecol Reprod Health*. 2025; 9(3): 1-6.

ABSTRACT

Background: Assisted Reproductive Technologies (ARTs) comprise a set of diverse interventions that have been developed to remedy the burden of infertility across the world. Understanding how health professionals perceive this concept is crucial to improving its wide acceptance and utilization amongst the populace without bias. Also, due to the limited literature on this concept in the Sub-Saharan African region, this study was designed to understand nurses' perceptions and willingness to use ARTs at a tertiary hospital in Ibadan, Nigeria.

Methods: The study adopted a descriptive cross-sectional research design, and self-structured questionnaires were used to gather data from female nurses in Adeoyo Maternity Teaching Hospital, Yemetu, Ibadan. A convenience sampling technique was used to select 114 participants; 100 questionnaires were retrieved and analyzed. Analysis of data was done using descriptive statistics and the Chi-square test.

Results: The research revealed a positive perception of the majority of the respondents towards ARTs. It was also observed that the majority of the respondents were negatively inclined towards utilizing third-party ART techniques. The study further revealed that access to information, religion, and lack of interest, amongst other factors, strongly influenced their perceptions, and that there was no significant relationship between the level of education of the female nurses and their willingness to utilize ARTs.

Conclusion: Effective enlightenment programs are necessary to ensure that ARTs have a wider reach. Hence, the board of nursing and education boards should ensure the inclusion of ARTs in continuing education programs and school curricula for nurses.

Keywords

Nurses, Utilization, Infertility, Reproductive Health, Technology.

Introduction

Infertility is a major reproductive health issue affecting a noteworthy proportion of people worldwide [1-3]. Its prevalence varies across different countries, with a higher occurrence in African Countries compared to the Western world, with one in every four couples in developing countries being affected [2] and Sub-Saharan Africa is among the regions with the highest occurrence of about 30-40%

[1,3,4]. However, with the advent and progressive development of Assisted Reproductive Technologies (ARTs) over the years, the burden of infertility has been lessened by offering a chance of procreation to affected couples [5,6].

Assisted Reproductive Technologies (ARTs) refer to medical procedures that are used to assist reproduction. Despite this development, these techniques are yet to be widely accepted. Although some people seek ART treatments to preserve their homes and family line, others prefer not to take the option [7].

This is due to different controversies that find their roots in religious, financial and socio-cultural influences [7,8] as well as the process and ethical dilemmas [9]. All these play crucial roles in the healthcare of individuals seeking treatment [10]. Latifnejad, in a study, suggested that in delivering care to clients undergoing fertility treatments, beyond the involvement of an interdisciplinary healthcare team, these professionals should be equipped with tactics to help their clients cope in the face of social hostility and other stress-related factors [7].

Healthcare professionals are the key sources of health-related information and counseling, and as such, they stand in the best position to help clients go through the process of ARTs successfully. Hence, they should be equipped with the right knowledge and appropriate attitude towards ARTs. Although, it is unlikely that they will not be knowledgeable about the concept of ARTs, it however, does not translate to an automatic willingness to engage in the use of these technologies, as every human being is entitled to their beliefs and actions towards a particular subject matter. It is necessary to understand the perception of individuals as it would give a better understanding of their behaviors and willingness [11]. This will further translate into better healthcare delivery. Different studies with conflicting reports have been conducted in Nigeria to assess perception, awareness, utilization and bioethical issues regarding ARTs mainly across populations comprising women and couples seeking infertility treatment [6,12-15]. However, no previous study was found to be conducted among health professionals in this region. Due to the paucity of literature in this area, this study focuses on the perception and willingness of nurses to utilize assisted reproductive technologies, which will complement the body of knowledge available on this subject matter and proffer resolution.

Materials and Methods

Study Area, Setting and Period

The study was carried out within Adeoyo Maternity Teaching Hospital, located at Yemetu Total, Adeoyo-Oje Road, Ibadan. The hospital provides maternal and child healthcare services to people in Ibadan and its surrounding. It comprises different units, including antenatal clinic, labor ward, antenatal ward, gynecological ward, lying-in ward, children's ward, immunization clinic, post-caesarian section ward, gynecological clinic and family planning clinic. The study was conducted from July 2021 to September 2021. A cross-sectional survey design was employed.

Source Population and Study Population

The target population for this study included all the female nurses at Adeoyo Maternity Teaching Hospital. Previous studies have described the perspectives and acceptance levels of different populations regarding ARTs, focusing on female nurses within clinics as the target population is a novel approach. It provided information about the perspectives and acceptance level among female nurses who are directly involved in care of patients, including those who used ARTs.

Sample Size Determination and Sampling Procedure

The number of nurses in the hospital was obtained as the sampling frame, which was 160. The sample size was determined using the formula by Taro Yamane formula; $(n) = \frac{N}{1+N(e)^2}$. Where n = required sample size, N = Total number of female nurses (160) and e = degree of tolerance at 5% with an allowance of 10% non-response, yielding a sample size of 127.

Inclusion and Exclusion Criteria

All female nurses working at the hospital who gave their consent to participate were included in the study, while those who were on leave and did not give their consent as also, male nurses were excluded from the study.

Data Collection Tools, Procedure

Data collection was carried out by the first author. The questionnaires were administered to available female nurses on each unit at different shifts. The data collection process lasted for about eight days to cover a good number of the respondents. A staff nurse also assisted in distributing the questionnaires to each unit, after which they were retrieved through the senior nurse on duty at the time of retrieval. The items of the questionnaire were cross-matched with the set objectives to check for validity in order to determine its alignment with the stated objectives. The questionnaire was made up of five sections; socio demographic variables (age parity, marital status amongst others), knowledge of ARTs, perception towards ARTs, willingness of nurses towards ARTs and factors influencing perception towards ARTs. Sections C and D in the data collection instrument were presented on a Likert scale, which the respondents ticked as applied to them. The self-reported perception of nurses was graded from 4= strongly agreed; 3= agreed; 2= undecided, 1= disagree, 0= strongly disagreed, while their willingness was graded as 0= Not Likely; 1= Not Really Likely; 2= Undecided; 3= Somewhat Likely; 4= Likely. Four questions in section C were selected and the aggregate score was calculated and summed up to 16 with eight as the average mark. Scores above 8 were graded as positive perception, while scores below 8 were graded as negative perception. Likewise, five questions in section D were selected, and the aggregate score was calculated and summed up to 20 with ten as the average mark. Scores above 10 were graded as good willingness, while scores below 10 were graded as poor willingness.

Data Processing and Analysis

The data was cleared and screened for errors and completeness. Analysis was done using SPSS Version 22.0 software. Descriptive statistics of frequency counts, percentages, mean, and standard deviation were used to summarize and represent the results. The chi-square test was used to investigate whether the relationship between the level of education of the participants and their willingness to utilize ARTs is not statistically significant at $p < 0.05$. Lastly, the results were presented using tables, figures, and texts.

Results

Sociodemographic characteristics

Eighty-eight per cent response rate (100 responses) was recorded. The age range of the respondents showed that a higher population of the respondents was between the ages of 20-39 years, while only 29% were aged 40 and above. The parity of the respondents indicated that 54% of the respondents have a parity of at least 1. Also, there were more married participants (52%). The dominant ethnic group was Yoruba (92%), and 84 participants had within 1-20 years of clinical experience. Slightly above half of the population (55%) hold bachelor's and postgraduate degrees. Eighty-one per cent were Christians (Table 1).

Table 1: Sociodemographic data of study participants (n=100).

Variables		Frequency	Percentage (%)
Age range	20-29	47	47
	30-39	24	24
	40-49	15	15
	50-59	13	13
	60 and above	1	1
Parity	0	46	46
	1-2	21	21
	3-4	27	27
	5-6	2	2
	Above 6	4	4
Marital Status	Divorced	1	1
	Married	52	52
	Single	47	47
Level of Education	Degree (BSc)	50	50
	Masters	4	4
	PhD	1	1
	RN/RM	45	45
Religion	Christianity	81	81
	Islam	19	19
Ethnic Group	Hausa	2	2
	Igbo	6	6
	Yoruba	92	92

Perception towards Assisted Reproductive Technologies

Based on the perception score of the study, 49% of the respondents had a negative perception towards ARTs, and 51% had a positive perception. Some respondents agreed that ARTs have more benefits than hazards (65%) and that the risks associated with their use can be effectively managed (87%). Also, 84% agreed that ARTs could help most women have a baby prior to menopause. While some disagreed that children conceived through ARTs develop long-term health problems (56%), fifty-two respondents, on the other hand agreed that the cost of ARTs is expensive and cannot be recommended to anyone (Tables 2,3).

Willingness to utilize Assisted Reproductive Technologies

Out of a hundred respondents, only 60% were likely to utilize *In Vitro* Fertilization (IVF) if they had difficulty with getting pregnant and 54% as well, were willing to purchase home fertility devices. However, about two-thirds of the respondents were either unwilling or undecided about other techniques, including surrogacy (64%), sperm donation from either a known (77%) or anonymous donor (71%), egg donation from a known donor (79%)

and embryo donation (77%) (Tables 4, 5).

Table 2: Respondents' Perceptions towards ARTs.

Variable	SD	D	NA/D	A	SA	Mean ± SD
ART have more benefit than hazards	1(1)	6(6)	28(28)	47(47)	18(18)	3.78±0.82
The risks associated with the use of ART can be effectively managed	-	2(2)	11(11)	78(78)	9(9)	3.94±0.53
Assisted reproductive technologies can help most women have a baby prior to menopause	-	3(3)	13(13)	59(59)	25(25)	4.06±0.71
Most fertility clinics will not provide treatment to women over 45 years	5(5)	27(27)	29(29)	30(30)	9(9)	3.11±1.06
Children conceived through the use of ARTs develop long term health problems	11(11)	45(45)	26(26)	8(8)	10(10)	2.61±1.11
Most couples go through IVF more than once to have a baby	2(2)	17(17)	21(21)	46(46)	14(14)	3.53±1.00
ART is very expensive and cannot be recommended to anyone	4(4)	28(28)	16(16)	35(35)	17(17)	3.33±1.17
Babies who are born with ART behave abnormally	31(31)	45(45)	12(12)	10(10)	2(2)	2.07±1.01
ARTs are techniques that experiments with human beings	5(5)	27(27)	15(15)	43(43)	10(10)	3.26±1.12
IVF is not very attractive as the success rate is very low	8(8)	25(25)	32(32)	27(27)	8(8)	3.02±1.08
Total n(%)			100(100)			

IVF: In-Vitro Fertilization; SD=Strongly Disagree, D= Disagree, NA/D= Neither Agree/ Disagree, A=Agree, SA= Strongly agree, SD= Standard Deviation.

Table 3: Summary of respondent's perception towards ARTs.

Range of Ranking for Perception Towards ART	Frequency	Percentage (%)	Remarks
0-8	49	49	Negative
9-16	51	51	Positive
Grand Total	100	100	

Factors influencing perception towards Assisted Reproductive Technologies

The bar graph indicates the position of the respondents toward the factors that influence their perception of ARTs. Ninety-three respondents showed that access to more information about ART would make them more confident to talk to their patients about it. Seventy-nine respondents indicated that their religion does not permit the use of ARTs. Also, 66 respondents specified that they are unwilling to engage in any activity related to ARTs, while 67

Table 4: Willingness of the respondents to utilize ARTs.

Variable	Not likely n (%)	Not really likely n (%)	Undecided n (%)	Somewhat likely n (%)	Likely n (%)	Mean ±SD
Would you likely consider IVF If you and your partner had difficulties becoming pregnant	6(6)	13(13)	21(21)	18(18)	42(42)	3.77±1.29
Would you consider using the eggs of another woman to produce an embryo If you or your partner were unable to produce a child	36(36)	9(9)	23(23)	13(13)	19(19)	2.70±1.53
Would you likely consider using the eggs from a donor known to you	31(31)	29(29)	19(19)	7(7)	14(14)	2.44±1.37
Would you likely consider a surrogate If you were unable to carry a child in your own uterus	18(18)	26(26)	20(20)	12(12)	24(24)	2.98±1.44
Would you likely pursue pregnancy with a donated embryo if you and your partner have fertility problems	29(29)	25(25)	23(23)	8(8)	15(15)	2.55±1.38
would you consider having your eggs/sperm frozen	24(24)	10(10)	29(29)	16(16)	21(21)	3.00±1.44
Would you likely consider ICSI to treat a fertility problem with your partner	17(17)	12(12)	29(29)	22(22)	20(20)	3.16±1.35
Would you consider using a sperm from a known donor If your partner was infertile	32(32)	20(20)	25(25)	16(16)	7(7)	2.46±1.28
Would you consider using sperm from an anonymous donor If your partner was infertile	26(26)	22(22)	23(23)	15(15)	14(14)	2.95±3.14
Would you consider buying and using home fertility test devices	16(16)	13(13)	17(17)	19(19)	35(35)	3.44±1.48

ICSI: Intracytoplasmic Sperm Injection

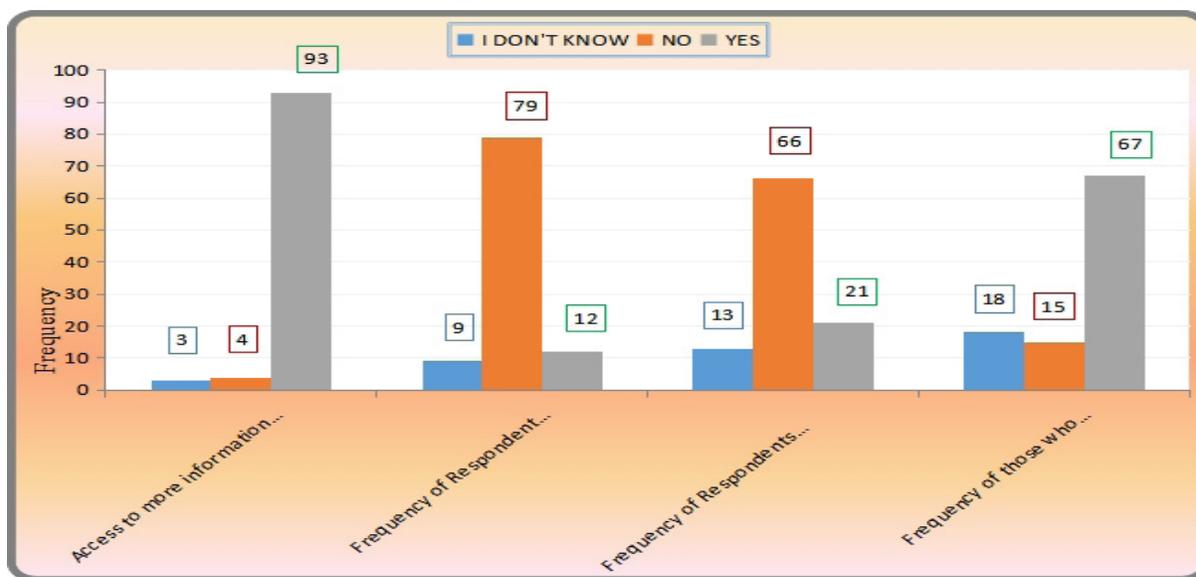


Figure 1: Bar graph showing the factors influencing perception towards assisted reproductive technologies.

respondents believe ARTs have become a norm in society (Figure 1). to reject the null hypothesis (Table 6).

Table 5: Summary of willingness of the respondents to utilize ARTs.

Range of willingness of Nurses Towards ART (score)	Frequency	Percentage (%)	Remarks
0-10	51	51	Poor
11-20	49	49	Good
Grand Total	100	100	

Null Hypothesis (Ho)

Pearson Chi-square test was used to test the null hypothesis, which states that there is no significant relationship between the level of education and willingness to utilize ARTs. Given the p-value of the null hypothesis as 0.091, which is greater than 0.05, we failed

Discussion

This study assessed the female nurses' perception and willingness to utilize Assisted Reproductive Technologies (ARTs). In this study, there was a slight difference in the percentage of nurses who had a positive perception of the concept of ARTs compared to those with a negative perception. This could be attributed to a lack of interest on the part of the participants and their perceived religious restrictions, as stated among the factors influencing their perception. This is consistent with the results of a previous study which highlighted the influences of an individual's belief systems and religion on perception [16]. It could also be inferred

Table 6: Relationship between nurses' level of education and their willingness to utilize ARTs

Variable	Category	Frequency of poor willingness (%)	Frequency of good willingness (%)	Chi square value	df	p-value
Level of educational qualification	Degree	19	31	19.908	12	0.091
	Masters	4	-			
	PhD	-	1			
	RN/RM	17	28			

df: degree of freedom, p: probability value

that there is no uniformity in the nursing field on the concept of ARTs as the responses from the participants denoted differences in their perception, which agrees with a study conducted by Queiroz et al., which affirmed that the practice styles of nurses exhibited differences in the meanings of ARTs [17]. However, a study conducted in Nigeria reflected a positive view of ARTs by the participants with the reason that it provides a pathway for infertile couples to be fruitful [18]. Also, close to two third of the respondents in this study believed that ARTs have more benefits than hazards. This is consistent with studies conducted by Akande [19] in the southwest region of Nigeria, which established that participants viewed ARTs to be beneficial despite their poor level of unwillingness towards it and by Jimoh [13] in North-central region of Nigeria.

A shared interest was also seen in the willingness of the participants to use ARTs, with the higher population having a poor willingness towards its use. Although they seemed open to the use of IVF, the majority of the respondents in this study were not positively inclined to the use of third-party ART techniques (surrogacy and donor conception). This is similar to the results obtained from other studies [6,13,19]. Also, a study conducted among infertile women in Northern Nigeria showed that the participants were majorly uncertain about oocyte (64.7%) and sperm (78.7%) donation [20]. This suggests that individuals prefer options that encourage them to have their own genetic progeny while avoiding the ethical, legal and social issues surrounding these third-party techniques. The popularity and wide acceptance of IVF in this clime compared to the other methods also plays a huge role in the willingness of individuals to utilize it. Furthermore, individual interests could be said to be responsible for this, as a person will only be willing to do things that interest them [11005D]. For sentimental purposes, some individuals would go a long way to wait until they can bear their children themselves. In this part of the world, many pride themselves in the fact that they can bear children themselves. This finding differs from Okonfua's view in the south-south region [14] and a study in the north-central region of Nigeria where 66.7% of the respondents were willing to utilize ARTs [13]. Also, a review of an Israeli study showed that ARTs were aggressively utilized due to the religious emphasis on procreation in the nation [22].

The socio-cultural and religious beliefs of the participants in the study proved to be a major setback in their willingness to use ART. Previous studies have also proven this fact [23,24]. Explanations given by women attending an infertility clinic in the southwest region of Nigeria for refusing ARTs exposed a strong religious influence [6]. Other studies showed differing opinions in the religious perspective towards ARTs, and support was only shown by

participants if it is done within the confines of marriage [15,25], while others do not consider religious affiliations to be significant [13].

However, in some studies, participants considered financial expenses and socioeconomic status as significant factors influencing their perception and willingness to opt for ART [7,24,26]. Given the high poverty index in Nigeria, the cost of ART procedures could be a major factor hindering its use [12,25,26]. The high cost could be due to the issue of poor regulation of ART services, which are majorly offered by the private sector. Nevertheless, an Iranian study conducted among infertile couples showed that socioeconomic status did not have any effect on the attitude of the participants towards ARTs, but the authors opined that it may still change due to the running costs of undergoing ART procedures [27]. The study established that access to information about ARTs would improve nurses' perceptions. This is congruent with the study carried out by Jegede and Fayemiwo, which established that an obstacle to the use of ART is the evident knowledge gap [12].

Limitation of the study

The study used a cross-sectional study design that has limitations in the methods in terms of ascertaining influencing factors on the perception and utilization of ARTs. Also, only female nurses were involved in the study. Additionally, the study was only conducted in one setting, which could limit generalization. These limitations should be considered when interpreting the findings.

Conclusion

The study exposed the perception of nurses towards ARTs. Although the concept of ARTs was embraced, a selective inclination towards the techniques was observed, which has shown the need for the enlightenment of nurses on this subject matter. This is because, beyond personal or sentimental purposes, adequate information is needed to deliver proper care, especially to those in need of it. Hence, with better information, nurses will be able to fit well into their roles with clients seeking ARTs without any form of bias. This highlights the need for more nursing research in this area. Many studies have been conducted on ARTs among other populations, with little attention being paid to the healthcare professionals who are the channels of this service delivery. Also, little or close to nothing about ARTs is discussed in school. Hence, it will be beneficial if this concept is included in the nursing curriculum for students. The Nursing and Midwifery Council of Nigeria could also integrate it into their continuing education programs and short courses in order to produce nurses who are better armed with the knowledge of ARTs. This will further improve their perception and willingness.

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