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Original Research Article

Attitude and acceptability of assisted reproductive technology among women in a tertiary hospital in Sokoto, northern Nigeria

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ABSTRACT

Background: Infertility couple affects the couple's life, work, health, personality, identity and quality of life. The aim of the study is to determine the attitude and acceptability of assisted reproductive technology among women at the Usmanu Danfodiyo University Teaching Hospital, Sokoto.

Methods: This is a cross-sectional study that involved three 350 women attending infertility clinic. They were recruited via convenient sampling method using semi-structured questionnaire. The data obtained was managed using the statistical package for social sciences version 20. A p value of <0.05 was considered statistically significant and the result obtained was presented in charts and tables.

Results: Among the 350 women recruited, their ages ranged between 14-58 years with a modal age of 25-35 years (58.0%) and a mean of 28.59±6.7. They are mostly (78.6%), of the Hausa/Fulani ethnic group. Almost all (98.9%) of them were married and unto 40.5% of them were in polygamous marriage. Majority, 36.9% had tertiary education, and about same proportion, about half, 51.7% were gainfully employed. About 60.3% of them were nulliparae with a mean duration of infertility of 5.07±4.8 years. Approximately half, 53.1% had secondary infertility and only about half, 51.4% will accept ART if offered. Unfortunately, among those who declined, majority (40.9%) had no reason for doing so. There was statistically significant association between educational status and acceptance of assisted reproductive technology (ART) at p value 0.02.

Conclusions: The acceptance of ART in our environment is influenced by the educational status and number of living children.

Keywords: Infertility, Assisted reproductive technology, Attitude, Acceptability, Sokoto

INTRODUCTION

In most African setting, parenthood is culturally mandatory and childlessness is socially unacceptable, this is because children are highly desired addition to the family and the society.^{1,2} In Nigeria, about 20% of couples are infertile.³ Female infertility was reported to account for about 55% of infertility cases, male factor for about 30% to 40% and unexplained infertility accounted for the remaining 5 to 15 percent. Infertility is generally known as a social stigma globally especially in the underdeveloped

world. The agony and trauma of infertility is so devastating that only the victims that can understand and describe it. Although, it does not claim the life of an individual, but it inflicts devastating influence on one's life for not fulfilling the biological role of parenthood unintentionally. It is also known that in general, in the developing nation, the society has got a very strong desire for children and particularly for son to carry forth the lineage.⁴

With the enormous advances in the field of medicine, infertility can now be treated using the new medical

technologies collectively called as assisted reproductive technology (ART) such as *in vitro* fertilization (IVF) or intracytoplasmic sperm injection (ICSI). The birth of the world's first child, Louise Brown, in 1978, through the technique of IVF was a path-breaking step in control of infertility; and is considered as one of the most important medical advances of the last century.⁴ In October 1978, the birth of the first test tube baby occurred in India using the cryopreserved embryo. Here in Nigeria, the first successful ART procedure was in 1989.^{5,6}

There are different types of infertility and in some cases it would be physically or medically impossible/undesirable to carry a baby to term and hence, to fulfill the desire of such infertile couple to have a child, then surrogacy comes as an important option.⁷

ART refer to all forms of treatments or procedures that include the *in vitro* handling of human oocytes and sperm or embryos for the purpose of establishing a pregnancy.⁸ It includes: the use of donor gametes for men and women with absent or dysfunctional gonads, surrogacy for women with absent or damaged uteri; and child adoption as a method of overcoming infertility. Surrogacy is, however, fraught with ethical, legal, moral, emotional and psychological dilemmas and difficulties.³ ARTs including IVF with fresh or frozen embryos as well as ICSI use are in the increase in developed countries since the late 1970s, solving more than 50 per cent of infertility cases.⁹⁻¹²

Multiple studies have failed to find a clinically relevant association between IVF or embryo cryopreservation and adverse maternal or fetal effects.¹³ Other studies have suggested that infants of IVF pregnancies may be at a small but statistically significant increased risk for rare epigenetic and other abnormalities.¹⁴ Overall, there is a general consensus that IVF confers a small but measurable increased risk for a variety of congenital abnormalities including anatomic abnormalities and imprinting errors as compared to the general population.¹⁴ Some maintain, however, that this is secondary to an increased baseline risk for these problems in the population of infertile patients.¹⁴ Regardless of the cause, this small increased risk, while statistically significant with extremely large sample sizes, will likely not be a powerful enough factor to dissuade infertile couples from pursuing parenthood through IVF.

Despite above problem and remedies, the acceptability of ART and subsequently its adoption is contextually influenced by the prevailing socio-cultural factors, especially the religious system.¹⁵ In some parts of the world about the procedure and babies born through IVF has been split between acceptance, reservation, and in some instances rejection, particularly in some aspects such as third-party involvement. Religion, culture, personal belief, and cost are some factors that affect the acceptance by the public. In a study, 73.5% would opt for ART and 35.6% found high cost hindering the acceptance. A total of 31.1% of them did not believe in ART and said only god

gives babies and 25.6% thought that ART babies are artificial.^{16,17}

Therefore, the aim of this study of this study is to assess the attitude and acceptability of assisted reproductive technology among infertile women at the Usmanu Danfodiyo University Teaching Hospital, Sokoto.

METHODS

This was a cross-sectional study conducted over a period of six months from August 2018 to January 2019. Three hundred and fifty women were recruited by convenience sampling method via the infertility clinic of the Department of Obstetrics and Gynaecology, Usmanu Danfodiyo University, Sokoto using semi-structured interviewer questionnaires. Information regarding their socio-demographic character, obstetrics, medical, surgical and social history was obtained, in addition to their attitude and acceptance of assisted reproductive technique.

The result obtained was analysed using the statistical software package for social sciences (SPSS) version 20 and a p value of <0.05 was considered statistically significant. The results obtained was presented in text, tables and charts. Ethical approval was obtained from the Institution's Ethics and Research Committee.

RESULTS

Three hundred and fifty women were recruited with age range between 14-58 years, modal age of 25-35 years (58.0%) and a mean of 28.59±6.66. Majority, 275 (78.6%) were Hausa/Fulani ethnic group and other minority tribes constituted the rest of the respondents. They were mostly (98.9%) married and 196 (59.5%) were in monogamous marriage while, the remaining (40.5%) were in polygamous family, and 2 (0.6%) each are widowed and divorcee. Majority 129 (36.86%) tertiary education and about half 181 (51.71%) of them were gainfully employed. About two third, 211 (60.29%) of them were nulliparous while, 118 (33.71%) were of low parity (para 1-3) and 21 (6%) had high parity (para 4-6). Details of their sociodemographic characteristics is as shown in Table 1.

Majority 186 (53.14%) had secondary infertility while 164 (46.86%) had primary infertility. The duration of infertility ranged from 1 year to 34 years with a mean duration of 5.07±4.836 years.

Among them, 179 (51.4%) would accept ART if offered and the rest declined. Surprisingly, majority, 103 (85.83%) had no reason to decline. The proportion of acceptance of ART is as shown in Figure 1.

The main reason for declining in up to 50 (41.67%) was high cost, of treatment. Up to 56.5% believed that such babies are normal and natural. Other reasons for declining ART procedure are as shown in Figure 2.

Table 1: Socio-demographic characteristics.

Variable	Frequency	Percentage (%)
Age group (years)		
14-24	99	28.29
25-35	203	58.00
36-46	39	11.14
47-57	5	1.43
≥58	4	1.14
Educational status		
No formal/Qur'anic	69	19.71
Primary	44	12.57
Secondary	108	30.86
Tertiary	129	36.86
Occupation		
Unemployed	169	48.29
Trader	46	15.14
Business women	27	7.71
Teachers	30	8.57
Others	78	22.29
Tribe		
Hausa/Fulani	25	7.86
Igbo	18	3.1
Yoruba	32	9.1
Others		
Parity		
0		
1-2		
3-4		
5 and above		
Total	350	100.00

Majority of those within the age of 36 to 46 years (52.8%), and 58 years and above (100%) will accept ART. However, it was not statistically significant. There was statistically significant association between educational status and acceptance of assisted reproductive technique at a p value 0.002. As up-to 60.2% of those with secondary

school education will accept if offered. Although, more than half of the Yoruba's, 58.8% and other minority groups will accept compared to Hausa/Fulani and Igbo's, it was not statistically significant at p value=0.56.

It is surprising that more than half, 63.7% of the nulliparae were not interested and another 2% do not know if they would accept. It is not surprising that a high acceptance, 86.7% was also observed among those with 1-2 living children, and that was statistically significant at p value 0.015.

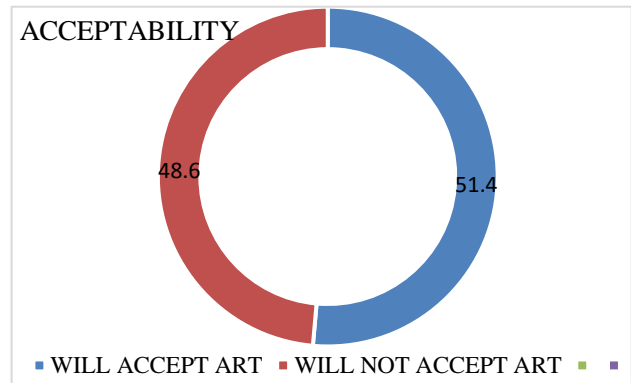


Figure 1: Proportion of acceptance of ART by the respondents.

Among those who will accept ART, 137 (59.6%) will prefer multiple gametes at point of transfer. With regards to preference for source of gamete, 77 (33.5%) will prefer self-gamete and 23 (10%) will accept donor, while only 20 (8.7%) will go for surrogate mother when necessary.

Only 22 (9.6%) and 17 (4.9%) will accept donating ovum or husband's sperm for ART respectively, as well as 18 (7.8%) accepted participating as surrogate mothers.

Overall, majority will go for self-gamete compared to donation across board.

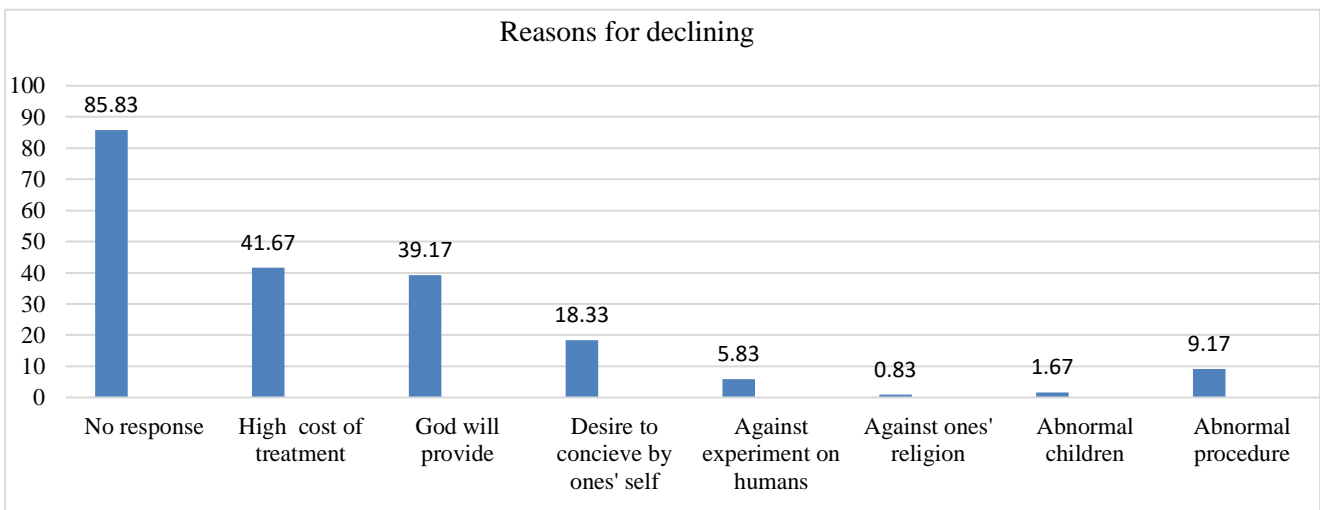


Figure 2: Reason for declining ART procedure by respondents.

DISCUSSION

In this study, the mean age of the respondents was 28.59 ± 6.66 with 25-35 years comprising 58% of them. This is in conformity with 31 ± 5.003 year reported from Iran and mostly within 30-39 years from Benin, Nigeria.^{18,19} It is however lower than 38.3 years and age range of 46 to 50 years in the majority reported by Okwelogu in Anambra, 34.38 years from Ibadan and 34.8 years from Zaria, Nigeria and 34.3 ± 5.5 years from south-south.^{1,20-22} This could be as a result of the relative delayed child bearing attitude in the southern part of the country compared to the North.

Majority 275 (78.6%) were Hausa/Fulani ethnic group and Muslims. This is so because the environment is a Hausa/Fulani dominated community. This is contrary to Christians and Igbo ethnic group in the southern part of the country.^{18,22}

They were mostly, 98.9% married and 59.5%, in monogamous. This is surprising as the study was conducted in a community where polygamy is the norm. This is comparable to what was reported from Benin, Nigeria where most, 85.4% of the respondents were married and in monogamous setting.²⁰ Similarly, 92.1%, Yoruba and up to 98.5% were married. However, 50.0% were also Muslims as reported from Ibadan, South western, Nigeria.²¹

55.5% had tertiary school education while only 59.4% were traders/artisans.

Majority, 36.86% of the respondents in this study had tertiary education and 30.86% had secondary education. This is contrary to secondary education in 52.8% and 51.7%, and 37.1% and 40.4% tertiary education reported by others.^{18,20} About half, 51.71% of them were gainfully employed. This is lower than 81% reported in another study.¹⁸ It is not surprising since majority of the respondents in both studies were educated and that can modify the attitude of self-reliance and health seeking behavior.

In this study revealed that about two-third, 60.29% of the respondents were nulliparae. This is comparable to 62%, as the studies were conducted among infertile women, nulliparae have higher tendency of acceptance.²⁰

This study revealed that, 53.14% had secondary infertility while, 46.86% had primary infertility. This is agreeing with 66% and 34% reported for secondary and primary infertility respectively.¹⁸ It also agreed with 82.0% for secondary and 18.0% for primary infertility.²² It is however, contrary to 54.5% primary infertility and 45.5% secondary infertility reported by Akande at Ibadan.²¹ The high rate of secondary infertility in most centers is as a result of the high prevalence of pelvic infections in resource poor countries.

In this study, the duration of infertility ranged between 1 to 34 years and, up to 55% had duration of 10 years and above with a mean of 5.07 ± 4.836 years. This is similar to 4.1 years however, not in agreement with a range of 1 to 12 years.²² It is contrary to mean duration of 11 years and 27% having 10 years and more.^{1,18} It is also contrary to mean duration of 7.3 ± 5.8 years but in support of range of 1 to 33 years from Ilorin.⁶

Among all the respondents studied, 51.4% would accept ART if offered. Surprisingly, majority, 85.83% had no reason to decline. It may however, be due to socio-cultural reasons that prevented them from expressing their opinions. This is in conformity with 42.0% reported from Ibadan.²¹ It was however, higher than 37.2% reported by Okwelogu and 7.6% from Kano which was mainly influenced by high educational status and being non-Muslim.^{8,23} It is however, lower than 92% reported from Zaria.¹ It is noteworthy that there was no difference among those with primary or secondary infertility in terms of acceptance. However, it was found out that those with fewer number of living children had higher rate of acceptance compared to higher number. This is contrary to the study conducted by Akande who reported higher acceptance rate among those with primary infertility.²¹

Among those who will accept, 59.6% will prefer multiple gametes at point of transfer and with regards to preference for source of gamete, 33.5% will prefer self-gamete. Both are in agreement with other studies.^{1,18,20} This is not surprising because cultural and religious factors play major role in such decision making. The main reason for declining in up to 41.67% was high cost, of treatment. This is in conformity with other studies.^{15,18,20,24} Others also believed that it may not be effective like the natural conception and therefore may not be reliable.¹⁵ The negative attitude towards high cost may be attributed to the overwhelming low level of living standards among majority of the populace, posing the procedure non-accessible and non-affordable by the common man.

Among the study participants who consented to ART, 59.6% will prefer multiple gametes at the point of transfer and with regards to preference for source of gamete, 33.5% will prefer self-gamete. Both are in agreement with other studies.^{15,18,20,24} However, only 9% and 4.9% will accept donating ovum or husband's sperm for ART respectively, as well as 7.9% acceptance to offer surrogacy. This is higher than 37.2% acceptance in another study due to the belief that the babies are abnormal.¹⁸ In addition, 81.4% of those that accepted will prefer self-gamete, however, none was interested in surrogacy.¹⁸ Similarly, a study from Ibadan, among those unwilling to utilise ART procedure reported exorbitant cost of the services in almost all the respondents, 98.8%.²¹ Among them, 88.2% would prefer natural conception, 47.1% believed in god's intervention and 45.9%, believed the procedures may result to deformed and abnormal babies. Another substantial proportion, 53.0% preferred spiritual intervention as an alternative to ART.

With regards to number gametes to be transferred, 91.4% of subjects in another study preferred multiple gametes to singleton. Additionally, a few respondents (10.7%) were willing to make use of donors' sperm, while 10.6% will accept donors' ovum for conception. Of those willing to adopt ART, only 15.0% were optimistic that the procedures will be successful.²¹

Limitations

The convenience sampling method may alter the result and therefore affects the power of the study. The study may not be a true reflection of the population as a result of the small sample size within an institution.

CONCLUSION

The attitude towards ART was not encouraging as majority had negative thoughts toward ART. Although, acceptance was relatively good, it was influenced by educational status and fewer number of living children.

This implies that there is a long way to go by stakeholders in ensuring attitudinal changes among the populace to bring about positive thoughts to improve acceptability so as to minimize trauma due to infertility.

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