

Assisted reproduction technology: Perceptions among infertile couples in Ilorin, Nigeria

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ABSTRACT

Background: Infertility is a global health problem and a socially destabilizing condition for couples carrying several stigmas and a cause of marital disharmony. Assisted reproduction technologies (ARTs) offers a chance at parenthood to couples, who until recently would have had no hope of having a “biologically related” child. **Aims and Objectives:** This study aimed to determine the awareness and perception of ART services among infertile couples at a public health facility in Ilorin, Nigeria. **Materials and Methods:** This is a cross-sectional descriptive study of consecutively consenting infertile couples seen at the ART unit of the Department of Obstetrics and Gynaecology, University of Ilorin Teaching Hospital, Ilorin, between January 1, 2012, and December 31, 2015. **Results:** The patients aged 22–52 years with a mean age of 36.1 ± 6.6 years and mean duration of infertility of 7.3 ± 5.8 years. Most (60.8%) belonged to middle social class. Of the 559 infertile couples interviewed, 87.3% were aware of ART services. Less than half (48.8%) were aware of surrogacy while majority (85.7%) rejected the use of surrogate mother. Reasons to decline surrogacy were desire to carry one's own child (51.7%) and “do not like the idea” (22.3%). Female partner age, duration of infertility, and religion had a significant influence on acceptance of donor egg ($P < 0.05$). **Conclusion:** Despite the high level of awareness of ART, its low utilization remains a gap in the delivery of these services. Government and nongovernmental agencies need to institute interventions to stem the trend.

Key words: Awareness, gamete donation, Nigeria, surrogacy

INTRODUCTION

The birth of Louise Brown on July 25, 1978, was the culmination of decades of scientific research in reproductive medicine. Since then, abundance of breakthrough in both clinical medicine and basic science has all allowed increasing numbers of infertile couples the chance to have a baby.^[1] To date, more than 5 million babies have been born worldwide through assisted reproduction technologies (ARTs).^[2]

In Nigeria, Oladapo Ashiru pioneered the *in vitro* fertilization (IVF) program in 1984, and his team successfully delivered the first IVF baby in 1989.^[3] This was subsequently followed by reported birth of IVF babies in private- and public-funded

facilities within the country. This includes Orhue *et al.* at University of Benin Teaching Hospital; 2007,^[4] Okwelogu *et al.* at Life Specialist Hospital, Nnewi, 2011^[3] and Omokanye *et al.* and his team at University of Ilorin Teaching Hospital (UITH), Ilorin, Nigeria.^[5]

ART has been reported to relieve more than 50% of infertility.^[6] ART can be referred to as all treatments or procedures that include the *in vitro* handling of human oocytes and sperm or embryo for the purpose of establishing a pregnancy.^[7] This includes, but not limited to IVF and transcervical embryo transfer, gamete intrafallopian transfer, zygote intrafallopian transfer, gamete and embryo cryopreservation, oocyte and embryo donation, and gestational surrogacy.^[8]

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Despite breakthroughs recorded from ART, several barriers militate against its acceptability in our environment. Hence, determining the level of awareness and perceptions on ART practices among infertile couples would be useful in planning public enlightenment programs on advanced infertility treatment. Therefore, this study aims to determine the level of awareness and perceptions of ART treatments among infertile couple at the ART unit of the Department of Obstetrics Gynaecology, UITH, Ilorin, Nigeria.

MATERIALS AND METHODS

This is a cross-sectional descriptive study of consecutively consenting infertile couples seen at the ART unit of the Department of Obstetrics and Gynaecology, UITH, Ilorin between January 1, 2012, and December 31, 2015. Interviewer-administered questionnaire which was earlier pretested at gynecology clinic of UITH was used to collect data on biosocial variables, awareness, utilization, and perceptions about ART services. Infertile couples were interviewed by the fertility experts in the clinic, and confidentiality was ensured.

Statistical analysis was done using a commercial statistical package (SPSS/PC version 16.0, SPSS Inc., Chicago, IL, USA). The result was expressed as percentages and mean with standard deviation. $P < 0.05$ was considered as statistically significant.

RESULTS

Five hundred and fifty-nine infertile couples had infertility consultation during the study period. The patients aged 22–52 years with a mean age of 36.1 ± 6.6 years. Two hundred and twenty-eight (40.8%) had primary infertility while 331 (59.2%) had secondary infertility. More than a third (36.3%) had female alone factor infertility. Most (60.8%) belong to the middle social class. Their duration of infertility ranges between 1 and 33 years with a mean duration of 7.3 ± 5.8 years [Table 1].

Four hundred and eighty-eight (87.3%) were aware of ART services. Sources of information were from health facility (48.8%), mass media (21.3%), the internet (10%), and family relations (7.2%), respectively. Majority (75%) had friends and/or family relation who had undergone ART procedure. Most (63.3%) were of the opinion that ART is financially accessible. Knowledge on ART practices showed that 56.7% were aware that the procedure could fail, 35.1% knew that it could address male infertility [Table 2].

One hundred and five (18.8%) were aware of gamete donation for ART treatments. More than half (52.6%) preferred the use of own gametes for ART treatments while (47.4%) opted for anonymous donor gametes. Less than half (48.8%) were aware of surrogacy while majority (85.7%) rejected the use of surrogate mother. Reasons to decline surrogacy were desire

Table 1: Sociodemographic characteristics of respondents (n=559)

Variable	Frequency (%)
Age (female), years	
<25	16 (2.9)
25-29	77 (13.8)
30-4	146 (26.1)
35 and above	320 (57.2)
Mean±SD	36.06±6.57
Husband's age (years)	
25-29	9 (1.6)
30-34	116 (20.8)
35-39	113 (20.2)
40 and above	321 (57.4)
Parity	
0	402 (71.9)
1-2	138 (24.7)
3-4	19 (3.4)
Mean±SD	0.41±0.79
Social class	
High	12 (2.2)
Middle	340 (60.8)
Low	207 (37.0)
Type of infertility	
Primary	228 (40.8)
Secondary	331 (59.2)
Gender factor of infertility	
Male alone	70 (12.5)
Female alone	203 (36.3)
Both	154 (27.6)
Unexplained	132 (23.6)
Duration of infertility (years)	
<5	226 (40.4)
5-9	183 (32.8)
10 and above	150 (26.8)
Mean±SD	7.34±5.81

SD: Standard deviation

to carry one own child (51.7%), “do not like the idea” (22.3%), faith that God will provide a baby (16.9%), and “not better than adoption” (9.8%) [Table 3]. Female partner age, duration of infertility, and religion had a significant influence on acceptance of donor egg ($P < 0.05$) [Table 4].

DISCUSSION

Secondary infertility mostly due to tubal occlusion and male factor infertility accounts for most cases of infertility in Nigeria (30%–40%) each.^[9,10] They are also the most common indication for referrals for ART. With increasing numbers of trained IVF specialists and IVF/ART centers in the country, ART services have become more readily available to Nigerians, but its awareness has been poor. The majority of the patients (87.3%) in our study were aware of ART services. A high level of awareness was also found in northern Nigeria,^[11] Iran,^[12] Europe, and the United

Table 2: Awareness of assisted reproductive technology services (n=559)

Variable	Frequency (%)
Awareness of ART	
Yes	488 (87.3)
No	71 (12.7)
Source of Information (n=488)	
Health facility	273 (48.8)
Mass media	119 (21.3)
Internet	56 (10.0)
Family relation	40 (7.2)
None	71 (12.7)
Any friend or family gone for ART	
Yes	419 (75.0)
No	140 (25.0)
Aware that the procedure could fail	
Yes	317 (56.7)
No	242 (43.3)
Financial accessibility	
Accessible	354 (63.3)
Not at all	205 (36.7)
ART can address male infertility	
Yes	196 (35.1)
No	363 (64.9)

ART: Assisted reproductive technology

Table 3: Awareness of surrogacy and gamete donation (n=559)

Variable	Frequency (%)
Awareness of surrogacy	
Yes	273 (48.8)
No	286 (51.2)
Preference for the use of surrogate mother	
Yes	80 (14.3)
No	479 (85.7)
Reason to decline surrogacy (n=479)	
Desire to carry one own child	244 (51.0)
Do not like the idea	107 (22.3)
faith that God will provide a baby	81 (16.9)
Not better than adoption	47 (9.8)
Awareness of gamete donation	
Yes	105 (18.8)
No	454 (81.2)
Preference for source of sperm	
Self	294 (52.6)
Donor	265 (47.4)
Preference for source of egg	
Self	294 (52.6)
Donor	265 (47.4)

States of America.^[13] In contrast, the level of awareness in Lagos (51.8%), Ibadan (58.3%), Osun (48%) and Okija, and Nigeria (37.6%)^[3,7,14,15] was low. These studies were, however, carried out in general gynecology clinics where there is no facility for ART services, and this may have contributed to

the low level of awareness. The high level of awareness in this facility is not surprising as the ART unit mostly serve patients who have been evaluated and/or previously treated for infertility in the general outpatient gynecology clinic as well as in peripheral hospitals. The majority of these patients had been counseled and subsequently referred for ART services. This also explains why almost half of the patients had learned of ART services from health personnel.

The study was carried out in an urban center with 63% of subjects in the middle and high social classes, thus a significant number of patients had heard of ART from mass media and the Internet. Three-quarters of patients had a friend or family member who had undergone ART.

A major challenge to the utilization of ART services in Nigeria is cost. A cycle of IVF costs between (#500,000 and #3,000,000) depending on the facility. Additional costs are incurred for techniques such as intracytoplasmic sperm injection and the use of gamete donors. Nigeria has been classified a lower-middle income country by the World Bank with 46% of her population below the poverty line.^[16] Many patients who require infertility treatment and ART services cannot afford it. Worse still, the National Health Insurance Scheme does not cover the investigation and treatment of infertility. The governments of developing countries are more concerned about limiting the high fertility rates than subsidizing infertility care; this discrepancy has been well described in the article by Araoye.^[17]

About 63% of patients could afford ART in this study. Our local experience has shown that following counseling and referral for ART in infertile couples, those patients who have the financial capacity tend to present at the clinic whereas the converse is the case for those who cannot afford it. In the study in Northern Nigeria, only 2.7% of subjects could afford ART.^[10]

Only 35.1% of patients were aware that ART could address male infertility. This is similar to the findings by Adesiyun *et al.*^[11] and even lower in Okija.^[3] This figure is low considering that male infertility is the second commonest cause of infertility in developing countries.^[10,11]

Despite an average level of awareness of surrogacy among the subjects, only 14% would agree to use it. In the study in Okija, none of the respondents agreed to the use of surrogacy.^[3] However, the respondents in Ibadan^[15] and Greece^[18] were better acceptors. The majority of respondents in this study declined surrogacy because of their desire to carry their own child. Other reasons were because they do not like the idea, have faith that God would provide a baby and 9.8% felt it was not better than adoption. These reasons are similar to those found in other Nigerian studies.^[3,15] It also reflects the negative attitude to adoption found in other studies.^[19] Religion has a strong influence on acceptance of surrogacy

Table 4: Relationship between the sociodemographic characteristics of respondents and their preference for source of egg

	Preference for source of egg			χ^2	P
	Donor (n=265), n (%)	Self (n=294), n (%)	Total (n=559), n (%)		
Age (years)					
<25	11 (68.8)	5 (31.2)	16 (100.0)	9.124	0.028
25-29	45 (58.4)	32 (41.6)	77 (100.0)		
30-34	71 (48.6)	75 (51.4)	146 (100.0)		
35 and above	138 (43.1)	182 (56.9)	320 (100.0)		
Husband's age (years)					
25-29	4 (44.4)	5 (55.6)	9 (100.0)	6.395	0.094
30-34	64 (55.2)	52 (44.8)	116 (100.0)		
35-39	59 (52.2)	54 (47.8)	113 (100.0)		
40 and above	138 (43.0)	183 (57.0)	321 (100.0)		
Parity					
0	183 (45.5)	219 (54.5)	402 (100.0)	9.124	0.028
1-2	68 (49.3)	70 (50.7)	138 (100.0)		
3-4	14 (73.7)	5 (26.3)	19 (100.0)		
Duration of infertility (years)					
<5	107 (47.3)	119 (52.7)	226 (100.0)	14.347	0.001
5-9	107 (47.3)	119 (52.7)	226 (100.0)		
10 and above	54 (36.0)	96 (64.0)	150 (100.0)		
Type of infertility				2.361	0.124
Primary	117 (51.3)	111 (48.7)	228 (100.0)		
Secondary	148 (44.7)	183 (55.3)	331 (100.0)		
Gender factor of infertility					
Male alone	33 (47.1)	37 (52.9)	70 (100.0)	0.341	0.952
Female alone	95 (46.8)	108 (53.2)	203 (100.0)		
Both	76 (49.4)	78 (50.6)	154 (100.0)		
Unexplained	61 (46.2)	71 (53.8)	132 (100.0)		
Social class					
High	4 (33.3)	8 (66.7)	12 (100.0)	1.683	0.431
Middle	94 (45.4)	113 (54.6)	207 (100.0)		
Low	167 (49.1)	173 (50.9)	340 (100.0)		
Religion					
Christian	197 (63.3)	114 (36.7)	311 (100.0)	79.432	<0.001
Islam	68 (30.4)	156 (69.6)	224 (100.0)		
Traditional	0	24 (100.0)	24 (100.0)		

likewise preference for donor eggs as shown in this and other studies.^[20,21]

There was poor awareness of gamete donation in this study (18.8%). About 53% of couples preferred to use their own sperm and/or egg. This was similar to a study in Greece.^[18] Those who accepted donor gametes opted for anonymous donors. This is similar to a study in a developing country, in which couples were willing to accept gamete donation as long as confidentiality was assured and they could pass off the offspring as their own biological children.^[22] Again, this reflects the desire in the average African couple to be seen as being able to conceive and to have a genetic relationship with their children. It also explains the negative attitude displayed toward surrogacy and adoption.

Surprisingly, younger women had a greater tendency to prefer donor eggs than older infertile women. The reasons

for this finding could be attributed to family/peer pressure in the young since majority of the older women are already divorced and stigmatized. Duration of infertility also had a strong influence on acceptance of gamete donation. Those with infertility of 5–9 years duration were most likely to accept gamete donation. This may be due to the long years of infertility which will make them more willing to accept any suggested option.

CONCLUSION

Despite the rising cases of infertility in the society and the high level of awareness of ART services, the abysmal low level of utilization of these services remains a huge gap. One of the options of care in ART services is the use of surrogate mothers. From this study, a great number of couples rejected the choice of surrogacy as the ability to carry one's own

child seems more preferred. Duration of infertility and the age of female partner were significantly associated with the acceptance of donor egg. Consequently, there is a need for relevant government agencies and nongovernmental organizations to institute educational interventions to raise the awareness of surrogacy as an option of care available for infertile couples. This will go a long way to reducing the negative assumptions/perceptions of infertile couples toward surrogacy.

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Conflicts of interest

There are no conflicts of interest.

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