

Original Article

Determinants of Utilization of Assisted Reproductive Technology services in Ilorin, Nigeria

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Abstract

Background: Infertility is the most important reproductive health and social issue confronting married couples in developing countries. Assisted Reproductive Technology (ART) offer 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 at determining the factors influencing the utilization of ART services at a public health facility in Ilorin, Nigeria. **Materials and Methods:** 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. Majority (87.3%) was aware of ART services; only a few (15.6%) had ever used it. Most (63.3%) were of the opinion that ART is financially accessible. Reasons for nonutilization of ART were high cost (44.3%) and nonavailability (29.4%). Measures to enhance the utilization of ART were cost reduction (61.2%) and awareness creation (27.2%). Knowledge on ART practices showed that 56.7% were aware that the procedure could fail and 35.1% knew that it could address male infertility. Female partner age and parity had a significant influence on awareness and utilization of ART services. **Conclusion:** Awareness of ART services is high; however, utilization is abysmally low. Efforts should be made to make the procedure more affordable and accessible to the masses.

Key Words: Assisted Reproductive Technology, awareness, Nigeria, utilization

INTRODUCTION

Infertility is a disease of the reproductive system which affects both men and women with almost equal frequency.^[1] While there is no universal definition of infertility, a couple is generally considered clinically infertile when pregnancy has not occurred after 12 months or more of regular unprotected sexual activity.^[2] Globally, it is estimated that one in seven couples has problems becoming pregnant irrespective of the level of development in each country.^[1] Infertility rates among married couples in African countries range from 15% to 30%.^[3] Experiences from clinical practice indicate that

infertility is a major burden on clinical service delivery in Nigeria.^[4] Several reports indicate that infertility is the most frequent reason for gynecological consultation in Nigeria.^[3–5] More than 50% of gynecological caseloads are as a result of infertility consultations, and over 80% of laparoscopic investigations are for the management of infertility.^[3–5]

The challenges associated with infertility have necessitated different health care-seeking behaviors ranging from spiritual, traditional/alternative health care to orthodox medical types including biotechnological devices such as assisted reproductive technology (ART).^[6] ART is one of the safest health cares against infertility, which is associated with treatment procedures that include the *in vitro* fertilization (IVF) for the purpose of conception. This includes but not limited to IVF and transcervical

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embryo transfer, gamete intrafallopian transfer, zygote fallopian transfer, gamete and embryo cryopreservation, oocyte and embryo donation, and gestational surrogacy.^[7]

Of the various treatment options available for the treatment of infertility, none of the treatment procedures have had an impact on the society as much as ARTs. Therefore, this study is aimed at determining the effect of sociodemographic variables on awareness and utilization of ART services. It is hoped that findings from this study will assist in achieving its domestication in our environment.

MATERIALS AND METHODS

This is a cross-sectional descriptive study of infertile couples seen at the ART unit of the Department of Obstetrics and Gynaecology, University of Ilorin Teaching Hospital (UITH), Ilorin, between January 1, 2012, and December 31, 2015. The couples were selected using convenience sampling, and informed consent was obtained from selected couples. Interviewer-administered questionnaire which was earlier pretested at Gynaecology clinic of UITH was used to collect data on biosocial variables, awareness, utilization, and knowledge 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, III, USA). The result was expressed as percentages and mean with standard deviation. $P < 0.05$ was considered 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, whereas 331 (59.2%) had secondary infertility. More than a third (36.3%) had female alone factor infertility. Most (60.8%) belong to 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 a health facility (48.8%), mass media (21.3%), internet (10%), and family relations (7.2%), respectively. Majority (75%) had 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 and 35.1% knew that it could address male infertility [Table 2].

Table 1: Sociodemographic characteristics of respondents

Variable	Frequency (n=559) (%)
Age, female (years)	
<25	16 (2.9)
25-29	77 (13.8)
30-34	146 (26.1)
35 and above	320 (57.2)
Mean $\pm$ SD	36.06 $\pm$ 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 $\pm$ SD	0.41 $\pm$ 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 $\pm$ SD	7.34 $\pm$ 5.81

SD: Standard deviation

Of the 559 infertile couple, 87 (15.6%) have ever used ART services. Four hundred and twenty-six (76.2%) and 472 (88.4%) were willing to utilize and recommend ART services for friends and relatives. Reasons for nonutilization of ART were high cost (44.3%), nonavailability (29.4%), and inaccessible (26.3%). Majority (84.4%) were of the opinion that ART services should be encouraged. Measures to enhance utilization of ART were cost reduction (61.2%), creation of awareness about ART (27.2%), spousal cooperation (7.5%), and reproductive education, respectively [Table 3]. Female partner age, parity, and duration of infertility had a significant influence on awareness of ART. Similarly, female partner age, husband age, and parity had a significant influence on utilization of ART [Tables 4 and 5].

Table 2: Awareness of assisted reproductive technology services

Variable	Frequency (n=559) (%)
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: Utilization and willingness to use assisted reproductive technology services

Variable	Frequency (n=559) (%)
Ever utilized IVF services	
Yes	87 (15.6)
No	472 (84.4)
Reason for nonutilization (n=472)	
High cost	209 (44.3)
Not available	139 (29.4)
Not accessible	124 (26.3)
Willing to utilize IVF services	
Yes	426 (76.2)
No	133 (23.8)
Willing to recommend IVF services to friends and relatives	
Yes	472 (84.4)
No	87 (15.6)
IVF services should be encouraged	
Yes	472 (84.4)
No	87 (15.6)
Measure to enhance IVF service utilization	
Reduce cost	342 (61.2)
Create awareness	152 (27.2)
Spousal cooperation	42 (7.5)
Reproductive education	23 (4.1)

IVF: In vitro fertilization

DISCUSSION

The mean age of respondents in this study was 36.1 ± 6.6 years with the majority of patients being 35 years and above. This was the finding in other Nigerian studies^[8,9] and a study in Indonesia^[10] but contrasts with studies in Ethiopia^[11] and Kenya.^[12] Due to women empowerment and pursuing of career goals, more women marry late with attendant problems of age-related decline in fertility.^[13,14] It may also be partially explained by the general attitude of many Nigerian infertile couples who tend to access ART option as the last resort. This also reflected in the duration of infertility with majority of patients in this study presenting after 5 years of infertility. Secondary infertility was the predominant type of infertility as seen in previous studies.^[8,11,15-17]

Majority of the patients (87.3%) were aware of ART services, and their major source of information was from health personnel. Our ART center is mainly a referral center for infertile couples who have been previously evaluated and/or treated for infertility in general gynecology clinics; thus, most patients had been counseled for ART and presented specifically for this purpose. A high level of awareness was also found in a study in northern Nigeria (76.5%)^[8] and in an Iranian study.^[17] In contrast, the level of awareness in another study in northern Nigeria (36.1%), Lagos (51.8%), Ibadan (58.3%), Osun (48%), and Okija (37.6%)^[18-22] was low. Majority of patients also had a friend or relative who had undergone ART, thus contributing to increased awareness among them.

Duration of infertility was found to significantly influence the awareness of ART but not its utilization. Female partner age and parity also had a significant influence on the awareness of ART. This could probably be as a result of stigmatization and social pressure of parenthood as it has been revealed by several studies that infertility and parenthood are highly valued in Africa to the extent that childbearing is usually considered the most important reason while marriage is in existence.^[19]

Only 35.1% of the clients were aware that ART could be used to treat male infertility. This was ironic as male factor infertility contributed (either as a single factor or in combination with female factor infertility) to about 40% of cases. About 63% of respondents could afford ART services. With 46% of Nigerians living below the poverty line^[23] and the minimum wage set at ₦18,000, ART services still remain financially inaccessible to the majority of infertile couples. A cycle of IVF costs ₦500,000–₦3,000,000 depending on the facility. Again the majority of our clients had already been counseled on ART services and its attendant costs before referral to our clinic.

Table 4: Relationship between some selected biosocial variables and awareness of assisted reproductive technology services

Variable	Awareness			χ^2	P
	Yes (n=488) (%)	No (n=71) (%)	Total (n=559) (%)		
Age (years)					
<25	16 (100.0)	0	16	11.515	0.029*
25-29	73 (94.8)	4 (5.2)	77		
30-34	122 (83.6)	24 (16.4)	146		
35 and above	122 (86.6)	43 (13.4)	320		
Husband's age (years)					
25-29	9 (100.0)	0	9	6.387	0.094*
30-34	105 (90.5)	11 (9.5)	116		
35-39	102 (90.3)	11 (9.7)	113		
40 and above	272 (84.7)	49 (15.3)	321		
Social class					
High	9 (75.0)	3 (25.0)	12	5.850	0.054
Middle	187 (90.3)	20 (9.7)	340		
Low	292 (85.9)	48 (14.1)	207		
Parity					
0	343 (85.3)	59 (14.7)	402	8.731	0.013*
1-2	126 (91.3)	12 (8.7)	138		
3-4	19 (100.0)	0	19		
Duration of infertility (years)					
<5	207 (91.6)	19 (8.4)	226	18.548	0.01*
5-9	165 (90.2)	18 (9.8)	183		
10 and above	116 (77.3)	34 (22.7)	150		

*P value less than 0.05 and is significant

Table 5: Relationship between some selected biosocial variables and utilization of assisted reproductive technology services

Variable	Utilization			χ^2	P
	Yes (n=87) (%)	No (n=472) (%)	Total		
Age (years)					
<25	0	16 (100.0)	16	11.515	0.009
25-29	7 (9.1)	70 (90.9)	77		
30-34	31 (21.2)	115 (78.8)	146		
35 and above	49 (15.3)	271 (84.7)	320		
Husband's age (years)					
25-29	0	9 (100.0)	9	27.279	0.01*
30-34	6 (5.2)	110 (94.8)	116		
35-39	33 (29.2)	80 (70.8)	113		
40 and above	48 (15.0)	273 (85.0)	321		
Social class					
High	3 (25.0)	9 (75.0)	12	5.850	0.054
Middle	43 (12.6)	297 (87.4)	207		
Low	41 (19.8)	166 (80.2)	340		
Parity					
0	69 (17.2)	333 (82.8)	402	7.890	0.019*
1-2	18 (13.0)	120 (87.0)	138		
3-4	0	19 (100.0)	19		
Duration of infertility (years)					
<5	195 (86.3)	31 (13.7)	226	3.089	0.213
5-9	157 (85.8)	26 (14.2)	183		
10 and above	120 (80.0)	30 (20.0)	150		

*P value less than 0.05 and is significant

Only a few patients had previously utilized ART services. This was majorly explained by the prohibitive cost of ART which makes it financially difficult to access repeat cycles. The majority of the patients were in the low- and middle-income classes. There was a general positive attitude to the use of ART as majority of patients were willing to personally use ART services and recommend the same to others. This is in contrast to the study in northern Nigeria where only 7.6% of clients were willing to opt for ART. The majority felt that utilization of ART would be increased with a reduction in cost and increased public awareness. The patient's age, male partner's age, and parity significantly influenced the utilization of ART services in this study. This is because the traditional pressure of the need to have children would be more on them and this may have prompted them to accept/use alternative fertility measures including ART.^[19]

CONCLUSION

Infertility remains a major reproductive health and social issue confronting married couples in developing countries. While a majority of the couples in this study were willing to utilize and recommend ART services as an option of care available, a sizeable number of the respondents were willing to embrace it. This is mainly as a result of prohibitive financial accessibility outside the reach of the couples most of whom are in the middle social class. The government needs to subsidize this service to increase financial access, especially for the indigent couples.

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Conflicts of interest

There are no conflicts of interest.

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