Awareness, Acceptability and Affordability of Assisted Reproductive Technology among Infertile Women seen in a Tertiary Hospital in Northern Nigeria

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ABSTRACT

The current advances in Assisted reproductive technology (ART) ART makes it possible to treat a wide range of causes of infertility, even those that previously had a poor prognosis, or were unexplained. The objective of this study was to determine the level of awareness of ART among women seeking infertility care in the study centre, and to determine how affordable it is to them. This was a cross-sectional study with 236 pretested questionnaires given to new clients seen at the gynaecology clinic, between the periods of January 2016 to March 2018. Information was gotten on demographic and reproductive characteristics, previous fertility treatment, awareness, acceptability and affordability of ART. Data were analysed with SPSS computer software version 22 and a p-value of <0.05 was considered significant. About 158 respondents (66.9%) were aware of ART, 219 (89%) respondents found ART acceptable but acceptability became much less if donor gametes were to be utilized. Only 63 (26.7%) of respondents could afford ART. Awareness of ART was significantly associated with clients age, education, occupation, duration of marriage and infertility (p<0.05). Acceptability of ART was significantly associated with marital status and occupation, while affordability of ART was only significantly associated with clients income (p<0.05). Awareness and acceptability of ART were high among the study population but unfortunately, most women cannot access it due to cost.

Keywords: Awareness, acceptability, affordability, Assisted Reproductive Technology, northern Nigeria.

INTRODUCTION

Globally, the prevalence of infertility is about 10-15%, but is much higher in Sub-Saharan African countries. Infertility may be due to several causes but in Africa it is mainly related to tubal factors caused by infections such as Sexually Transmitted Diseases (STDs), post-abortal and puerperal sepsis. Tubal factor infertility is usually treated with ART or tubal surgery. Assisted reproductive technology (ART) may actually provide a higher per-cycle pregnancy rate than compared to tubal surgery Medicine. ART includes all treatments or procedures that involve manipulation of human gametes (oocytes or sperm) and embryos to establish a pregnancy. ART options are constantly improving and widening and includes intrauterine insemination (IUI), gamete intra-fallopian transfer (GIFT), in vitro fertilisation (IVF), intracytoplasmic sperm injection (ICSI), pre-implantation genetic diagnosis (PGD), assisted hatching and cryopreservation among others. The developments in ART mean it can treat a wide range of causes for infertility, even those that previously had poor prognosis, or were unexplained. While there are now increasingly more ART centres in Nigeria, access is still limited probably because of awareness, attitudes and cost. The objective of this study was to determine the level of awareness of ART among women seeking infertility care in the study setting, and determine how affordable it is to them.

MATERIALS AND METHODS

Approval for the study was gotten from the Barau Dikko Teaching Hospital (BDTH) Health and Research Ethics Committee. The study was conducted at the BDTH, Kaduna,
and North-western Nigeria. The hospital serves as a major referral facility for the metropolis and its environs. The gynaecology clinic is run twice a week with an average number of 50 new clients seen weekly, half of which are infertility clients. This was a cross sectional study. Interviewer administered pretested questionnaires were given to a total of 236 consenting clients seen at their first visit to the gynaecology clinic with complaints of inability to conceive, between the period of January 2016 to March 2018. The minimum sample size was determined using the formula by Lemeshow et al., and prevalence rate for infertility of 15.7%. Information was gotten on demographic and reproductive characteristics, previous fertility treatment, awareness, acceptability and affordability of ART. Data was analysed with SPSS computer software version 22 and a p value of <0.05 was considered significant.

RESULTS

Demographic and general characteristics of respondents

As shown in table 1, two hundred and thirty six clients participated in the study and majority were 20-29 years (44.5%), with a mean age of 31.5 ±7.4 years, minimum age of 17 years and maximum age of 51 years. Most husbands (41.5%) were 30-39 years, with a mean age of 41 years ± 8.0, a minimum age of 25 years and maximum age of 65 years. More clients were educated up to secondary level or above (44.5%), with a mean age of 31.5 ± 7.4 years, minimum age 29 years and maximum age 65 years.

All clients were married except one, most clients had been married for 5 years or more, 18.2% were in their second order of marriage and 28% were in polygamous marriages. A lot of clients were homemakers (46.6%), their husbands were mainly self-employed. Majority of clients earned an average monthly income of less than fifty thousand naira. About 59.3% of clients presented with primary infertility, with 15.7% being infertile for duration of more than ten years, and 60.2% had previously sought treatment.

### Table 1: Demographic and general characteristics of study population

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Table 3: Factors which may affect awareness, acceptability and affordability of ART

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<td>Total = 236(100%)</td>
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**Awareness, acceptability and affordability of ART**

One hundred and fifty eight respondents (66.9%) were aware of ART (mainly from friends/neighbours, television/ films, family and medical personnel). For 219 (89%) respondents, ART was acceptable. For the few who did not find ART acceptable, reasons given were it was unnatural and may have side effects, heard it could fail, husband would not agree or he had children, and religion. Acceptability of ART became much less if donor gametes were to be utilized (table 2). Reasons why the use of donor gametes was not acceptable included; client can remarry rather than use a donor, husband would not agree, religion, culture, morally wrong, child is not really ours, child may misbehave and there may be future paternity or marriage disputes. Unfortunately, only 63 (26.7%) respondents could afford ART.

As shown in table 3, awareness of ART was found to be significantly associated with clients age, education, occupation, duration of marriage and infertility (p<0.05). Acceptability of ART was significantly associated with marital status and occupation, while affordability of ART was only significantly associated with clients income (p<0.05).

**DISCUSSION**

Majority of respondents were still within the reproductive age which is when fertility issues usually come up and can still be amenable to ART without using donors. Only one respondent was single probably because Nigeria is still a conservative society though the use of ART elsewhere has expanded with changing social values and sexual preferences.8

In this study, awareness of ART was fairly high among respondents (66.9%). This is slightly lower than what was found in Zaria (76.5%).9 Awareness was also high in Ilorin (87.3%) (North Central Nigeria) probably because majority of respondents knew someone that had undergone an ART procedure.10 However, levels of awareness was much lower in Kano, northern Nigeria (36.1%),11 as well as in Osun (46% %),12 Lagos (51.8%),13 Ibadan (58.3%)14 and Anambra (37.6%).15,16 In Osun state,12 there were very few ART centres, and a similar situation exists in Kaduna, so women or people they might know, have not used the service. Awareness is obviously much more in the developed world11,12,13 however noted that though awareness of ART was high, in-depth knowledge on specifics was low, but this was not explored in our study.

For those who were aware, information was from both informal/nonmedical and formal/medical sources, similar to other studies.10,12

In our study, awareness of ART was found to be significantly associated with clients age, education, occupation, duration of marriage and infertility (p<0.05). Older women may have more experiences and opportunities to get more information about ART. The same reason may account for why more educated people are more aware, and is similar to what was found in other studies.12 Client may also be more aware of reduced fertility with increasing age, and in the context of ART, reduced success rates.

Those with a longer period of infertility may also have suffered its adverse consequences for much longer, and are more desperate, hence are more likely to seek information about how to solve it, including ART. Duration of infertility was also found to significantly affect awareness in other studies.10,14

About 89% of women in this study found ART acceptable, which is high. This is much higher than what was found in Osun state (33%),1,2 and Kano (7.6%),11 but similar to Benin (71.9%).17 In our study, acceptability of ART was only significantly associated with marital status and occupation. With other studies, religion, childlessness, duration of infertility education, were also relevant.11,12,18 In the USA, length of awareness of ART and political affiliation was also significantly related to general attitudes of ART issues.19 Acceptability was much lower if a donor is involved for socio-cultural reasons, as with other studies.15,20

Unfortunately, very few of the respondents could afford the cost of ART (26.7%). This is similar to finding from other studies.9,10,12,13,15,17,21

Affordability of ART was only significantly associated with client’s income and this is not surprising. Majority of respondents were unemployed homemakers or self-employed and only 3% had monthly incomes above one hundred thousand naira. The minimum wage in Nigeria is currently eighteen thousand naira, with a call to raise it to thirty thousand naira per month, whereas, basic ART cycles costs between five hundred thousand to three million naira depending on the facility.10 There is no government funding for ART in Nigeria. Western countries such as and the United Kingdom pay for ART treatment for their citizens but have strict eligibility criteria such as age limitation, limited
number of cycles paid for etc. $^{8,22}$ Egg sharing to reduce cost may not be very feasible as this study shows acceptability of third party ART to be low, so more innovative ways are required to fund ART in Nigeria and improve access and equity. Experts and the general public in Germany accept moderate co-payments by both client and the government to fund ART.$^{23}$ Low cost ART has also been advocated in low resource settings, by simplifying investigations, techniques, procedures and drugs used.$^{24}$

Other studies show that affordability of ART had a strong and robust association with utilization, with a 10-percentage-point decrease in affordability predicted to, on average, decrease utilization by 32%.$^{24}$ Affordability was also independently and significantly associated with the number of embryos transferred, with higher numbers of embryos transferred in jurisdictions with relatively expensive ART.$^{24}$

**CONCLUSION**

Awareness and acceptability of ART is fairly high among the study population but should still be improved. Unfortunately most women cannot access it due to cost.

**RECOMMENDATIONS**

Infertility needs to be given adequate attention just like other diseases. While more studies are required, we urgently need to find innovative ways of funding ART in Nigeria, such as co-payment or credit facilities, especially as donors are not very acceptable to the population. More centres and training should be also made available.

**LIMITATION**

The study is limited by its size and hospital design, and findings may not necessarily apply at a community level.

**Conflicts of Interest**

Authors declare no conflicts of interest.

**REFERENCES**

13. Fabamwo AO, Akinola OI. The understanding and acceptability of assisted reproductive technology (ART)


