



## **Awareness and Perception of Assisted Reproductive Techniques among Women Attending Infertility Clinic in Sokoto, North-Western Nigeria**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author AGU designed the study, wrote the protocol, performed the statistical analysis and wrote the first draft of the manuscript. Authors SN and AEU managed the analyses of the study. Authors JAG, ATB and EIN managed the literature searches. All authors read and approved the final manuscript.*

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### **ABSTRACT**

**Background:** Infertility is more prevalent in resource poor settings like ours', owing to about 50% of couples being affected. Its impact has lead to social, psychological and economic challenges especially to the female partner who is always blamed. Assisted reproductive technique is the last resort for most couples with damaged tubes with significant results.

**Aim and Objectives:** The aim of the study was to determine the level of awareness and perception of assisted reproductive technique among women.

**Methodology:** This was a cross-sectional study that involved three hundred and fifty women attending infertility clinic at the Usmanu Danfodiyo University Teaching Hospital, Sokoto, They were recruited using convenience sampling method. Semi-structured questionnaire was used to obtain relevant information. The data obtained was analyzed using the Statistical Package for Social Sciences (SPSS ) version 20.

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**Results:** The age range of the participants was 14- 58 years. The mean age was 28.59 ±6.656 and the modal age group was 25-35 years (58.0%). Majority (53.14%) had secondary infertility and 43.8% were not aware of the cause for their infertility. Up to 65.71% were aware of assisted reproductive technique (ART). There was statistically significant association between educational status and awareness of ART (P- value < 0.001). More than half of the respondents (56.5%) believed that such babies were normal and natural.

**Conclusion:** The awareness of assisted reproductive technique is relatively high in our environment. Majority believed that ART babies are normal and natural.

*Keywords: Infertility; assisted reproductive technique; awareness; perception.*

## 1. INTRODUCTION

Infertility is defined as the failure to achieve a clinical pregnancy after twelve months or more of regular unprotected sexual intercourse. It affects up to 15% of reproductive aged couples worldwide. A demographic survey had shown that in sub-Saharan Africa, about one-third of couples are reported to be infertile and more than 30% of women aged 25–49 years suffer from secondary infertility [1]. In Nigeria, about 20% of couples are infertile [2].

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. ART has evolved to include in-vitro fertilisation (IVF), 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 [2,3]. These include, conflict of interests that may occur if pregnancy complications arise, the legal and emotional difficulties that may surround the relinquishment of the infant to the intending parents, and problems with the acceptance of a congenitally abnormal infant [4,5].

In-vitro fertilisation (IVF) is a procedure in which eggs from the woman's ovary are removed, and are mixed with sperm in an In-vitro Fertilization laboratory culture dish [6]. Africa having the highest rate of infertility, majority are due to tubal occlusion. However, it records the lowest rate of assisted reproductive technology (ART) treatment [6]. Its impact has led to social, psychological and economic challenges, in addition to religious and cultural influence that may alter acceptance of available ART techniques [2].

The understanding of the causes of infertility has made enormous progress over the last two decades. In parallel, a number of treatments had been successfully tested and can be tailored to individual problems depending on the factor related to the infertility. Assisted reproduction is no longer experimental with improvement in success comparable to normal conception in some instances.

Assisted Reproductive technology has been reported to relieve more than 50 percent of infertility cases [7,8]. However, to set up this technology in the developing world is capital intensive and to access the treatment is reciprocally expensive. These pose barriers to the spread of ART treatment in the developing world where this technology is mostly needed. On the contrary, in the developed countries, ART treatment has made substantial contribution to the alleviation of infertility burden. In Latin America and Egypt, the proportion of the population that have access to ART treatment is less than 2 %, contrary to rates as high as 37 % in Denmark [9].

Over all, studies had shown significant level of awareness of more than 50%. However, perception is contrary [2,3,6]. These are studies from elsewhere, as such little is known regarding ART in general in our environment.

Therefore, the aim of this study is to assess the level of awareness and perception of assisted reproductive technique among women attending infertility clinic at the Usmanu Danfodiyo University Teaching Hospital, Sokoto. This because no similar study was performed

## 2. MATERIALS AND METHODS

This was a cross-sectional study conducted over a period of six months. Three hundred and fifty women were recruited by convenience sampling method via the infertility clinic of the department

using semi-structured interviewer questionnaires. The questionnaire include the following segments; socio-demographic characteristics and obstetric history. The perception of the cause of infertility and the type of infertility. The awareness of assisted reproductive procedures, the various types and sources of information. In addition to their perception regarding assisted reproductive technique and the quality of babies conceived following such procedures. The result obtained was managed using the Statistical Package for Social Sciences (SPSS) version 20 and a P-Value of < 0.05 was considered statistically significant. The results obtained were presented as text and tables.

### 3. RESULTS

Three hundred and fifty women were recruited during the study period. Their ages ranged between 14- 58 years with a modal age group of 25-35 years (58.0%) and a mean of 28.59 ± 6.656. They were mostly of the Hausa/Fulani ethnic group. Almost all (98.9%) of them were married and about half (59.5%) were in monogamous setting. About 67.71% of them had at-least secondary school education, however, almost half (48.29%) of them were not gainfully employed. About (60.29%) of them were nulliparae while others (39.71%) were multiparae. There was statistically significant association between educational status and awareness of assisted reproductive technique p-value < 0.001. Details of their sociodemographic characteristics is as shown in Table 1.

Up to 65.71% were aware of assisted reproductive technology and the main source of information was TV/Radio in 26%. This was followed by friends in 22% of the respondents and family members among 14.57% of them.

More than half (72.17%) were aware of in-vitro fertilization as a method of ART. While, awareness of other techniques was less than 5%, except gestational surrogacy which accounted for 6.52%. About half (56.95%) were aware that it can be used in the treatment of male infertility and another substantial proportion (67.38%) were aware that treatment could fail. Detail is as depicted on Table 2 below.

One hundred and fifty-nine (69.13%) believed that ART is a way of making infertile couple to have children, while 21.74% thought it is an artificial way of fertilizing an ovum. Another 0.43% believed it is a new experiment on

humans, while 0.76% do not know what it means. Up to 40.86% of the respondents perceived ART babies as natural and normal, 6% thought they are normal but not natural while, 5.14% said they are not natural and not normal.

**Table 1. Socio-demographic characteristics**

Variable	Frequency	Percentage (%)
<b>Age group(years)</b>		
14-24	99	28.29
25-35	203	58.00
36-46	39	11.14
47-57	5	1.43
>= 58	4	1.14
<b>Educational status</b>		
No formal/Qur'anic	69	19.71
Primary	44	12.57
Secondary	108	30.86
Tertiary	129	36.86
<b>Occupation</b>		
Unemployed	169	48.29
Trader	46	15.14
Bussines women	27	7.71
Teachers	30	8.57
Others	78	22.29
<b>Parity</b>		
0	211	60.29
1-3	118	33.71
4-6	21	6.00
Total	350	100.00

**Table 2. Sources of information on assisted reproductive technique**

Source of information	Frequency	Percentage
TV/Radio	91	26
Family	51	14.57
Friends	77	22
Internet	57	10.57
Mosque/Church	34	9.72
Newspaper	25	7.14
Health workers	35	10
Total	350	100.00

### 4. DISCUSSION

The ages of the respondents in this study ranged between 14- 58 years with a modal age group of 25-35 years (58.0%). This is similar to 26-35 years from Benin [10] and 26-40 years in Ilorin [11]. However, the modal age in one of the studies was 15-24 years [12]. The difference in the modal age group may be as a result of the

differences in the population where the studies were conducted. Whereas the index study is an institution based where majority are older women, the previous one was a community based study that encompassed all age groups. It is also contrary to 35 years and above reported from Canada [13].

The mean age of the respondents in this study was  $28.59 \pm 6.656$ . This is in conformity with a previous study by Oche [12] who reported a mean age of  $26.7 \pm 6.85$  years. It is however, contrary to  $36.1 \pm 6.6$  years reported from Ilorin (11) and  $36.06 \pm 6.57$  from Canada [13].

This study revealed that most (98.9%) of them were married. This is similar to 91% [11] reported earlier. It is however contrary to other studies where only about 52%, [12] and 46% [13] of the respondents were married. The similarity above could be due to socio-cultural similarities. Although, the study by Oche [12] share same characteristics, majority of the respondents were the very young age group. In addition, the Canadian [13] study involved different ethnic groups with different socio-cultural background.

In this study, up to 67.71% had at-least secondary school education, which is similar to 58% from Zaria [14] within same geopolitical zone with similar social background. This is much lower than previous studies where 90% [12] and 96% [11] had at least secondary education. It is however, higher than 57% reported from Canada [13] among HIV positive patients who can read and write.

The index study revealed that 65.71% were aware of assisted reproductive technology. This is comparable to 58.3% reported from Ibadan, south-west [2]. It is however, higher than 37.6% reported from Anambra, Southeastern Nigeria [6], 36.1% from Kano [15] and 46% from Osun [16]. It is much lower than 87.3% reported from Ilorin [11], 73% from Benin [10] and 76.5%, from Zaria [14], Nigeria.

The high rate in the above studies could be due to the fact that the study was conducted at referral centres where educated patients with high literacy level present. The high level of education among the participants could be the possible reason for the high level of awareness. The awareness is higher than that reported from a study not conducted in a tertiary hospital. In addition, the sample size was larger than the index study.

Among those aware of ART, 72.2% were aware of in-vitro fertilization as one of the available methods. The awareness in other techniques was lower than that reported from some studies. The awareness of surrogacy of 6.52% is much lower than 48.8% reported from Ilorin [11]. The lower level of awareness in other methods could be because most of the respondents' source of information was TV/radio where details of such methods may not be considered important as it is a general knowledge for community consumption. Another possible reason may be due to religious perception on surrogacy in the study area.

About half were aware that it can be used in the treatment of male infertility and another substantial proportion of up to 67.38% were aware that treatment could fail. This is in conformity with 50.7% & 36.8% from Zaria [14]. The similarity could be because both studies were conducted in the northwestern Nigeria with similar socio-cultural characteristics. It is however, higher than that study reported from Anambra [6]. It is somehow contrary to 35.1% and 56.7% reported from Ilorin [11]. In Benin, 33.6% Believed that ART can be used for treatment of infertile couple [10].

The main source of information was TV/Radio in 26% of them then, followed by friends (22%). This is however, contrary to family members, then churches reported from South-east [6], 48.8% health facility reported from Ilorin, North-western Nigeria [11] and 51.2% from Benin, south-south [10]. These could be explained by the sociocultural differences between the communities in the different centres that may pose difficulty in routinely discussing ART in the hospital environment. It also differs from Zaria [14], where more than 40% got information from their family members.

In this study, 56.5% believed that such babies are normal and natural. This is contrary to the finding from Anambra where 79.7% believed they were abnormal babies [6]. It also differs from the finding from a community based survey in the same study area that reported 36% thought the babies from IVF are normal but not natural [12]. Another study from northern Nigeria also reported that 52.7% do not know how normal or natural the babies are [14]. This high rate of positive perception of ART babies could be as a result of the type of information offered by the media which is usually an interactive session between the community and a specialist that

might have clarified the issue during the course of discussion. It could also be due to the fact that both studies were carried out in urban communities where literacy level is usually high.

## 5. CONCLUSION

There is reasonable level of awareness of assisted reproductive technique and positive perception of such babies in our community. There is therefore, an urgent need to provide such services in our centre so as to relieve the burden of childlessness.

## CONSENT

It is not applicable.

## ETHICAL APPROVAL

Ethical clearance was obtained from the Institution's Ethics and Research Committee.

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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