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Acceptability of Babies Conceived through Assisted Reproductive Technology among Married Women in University of Benin Teaching Hospital, Benin City, Nigeria

Abstract

Context: Infertility is a condition whereby a married woman is unable to get pregnant despite having frequent, unprotected sex for at least a year. This has been an area of medicine in which health care practitioners had limited means to help their patients. The landscape of this field changed dramatically with the announcement of birth through the use of Assisted Reproductive Technology (ART) by Louise Brown in 1978. This has given hope to millions of couples suffering from infertility; but it has also introduced countless social challenges like acceptability issues, which is a multi-faceted construct that reflects the extent to which people delivering or receiving intervention consider it to be appropriate. Acceptability of babies conceived through ART in developing countries is a major challenge to the effective use of ART among married women in the area. **Aims:** This study examined the acceptability of babies conceived through ART among women attending tertiary health facility. **Setting and Design:** A cross-sectional study was conducted on women who attended the University of Benin Teaching Hospital. **Materials and Methods:** The study was carried out among 348 women through a stratified probability sample technique, and a self-structured questionnaire with open-ended and Likert scale questions used as instrument was administered. **Statistical Analysis Used:** Data collected were analyzed using descriptive statistics, means, standard deviation and Linear regression at 0.05 level of significance, through Statistical Package for Social Sciences software. **Results:** Acceptability of babies conceived through ART had a mean of 3.23 (1.025). The result also revealed through linear regression of the relationship between acceptability of babies conceived through ART and religion, level of education, and cultural background to be 0.333, >0.001, and >0.001, respectively. **Conclusion:** The acceptability of babies conceived through ART among the participants is very low. Therefore, government should do more on fertility public enlightenment, all training schools should include it in their curriculum, and royal fathers should be sensitized to keep everybody abreast with the right knowledge about ART babies.

Keywords: Assisted, infant, newborn, Nigeria, reproductive techniques

Introduction

Infertility is the inability to achieve pregnancy after 1 year of regular unprotected sexual intercourse; and this is a global health problem, a socially destabilizing condition for couples carrying several stigmas, and a cause of marital disharmony.^[1] Fertility and having children have always been considered as the blessings from God in the traditional societies and have cultural importance.^[2,3] Infertility is the failure of a couple to conceive a baby after trying to do so for at least 1 full year.^[4] According to the data compiled by the World Health Organization

in 2004, there are 187 million infertile couples in developing countries.^[5,6] These millions of couples around the world with an inability to have children is a personal tragedy.^[7] A significant proportion of them, the private agony, are compounded by a social stigma, which can have serious and far-reaching consequences.^[7,8] There are limited treatment options currently available for infertile couples.^[9] Many of them are wary of choosing adoption as a way of resolving infertility, because of cultural factors and the nonspecific provisions for adoption in the Nigerian legal system.^[10] This quest of infertile couples to resolve the problem of infertility

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has resulted in the patronage of various treatment centers with different treatment options.^[11] Assisted reproductive technology (ART) has been reported to relieve more than 50% of infertility cases.^[12] ARTs offer a chance at parenthood to couples, who until recently would have had no hope of having a “biologically related child.”^[13] It is not surprising therefore that the demand for ARTs is growing in all regions of the world. Most policymakers in health sector keep celebrating the success rate of this procedure and neglected the psychological effect and societal acceptability of the babies conceived through the technology. Therefore, the aim of this study is to assess the acceptability of babies conceived through ART among married women in the University of Benin Teaching Hospital, Benin-City, Nigeria.

Materials and Methods

A descriptive, cross-sectional survey was conducted in the University of Benin Teaching Hospital, in 2018, which enabled the researcher to survey hundreds of patients and get private information during survey. Accidental sampling method was used to select 348 married women seeking medical help in the University of Benin Teaching Hospital. Moreover, the inclusion criteria were patients who were willing to participate in the study and women who were registered in the hospital, while the exclusion criterion was the patients with comorbidities such as depression or other mental diseases that can affect their ability to understand and respond to questionnaire. The sample size was calculated using Cochran formula, $P = 70%$, error 5%, and 95% confidence interval. Ethical approval for this study was obtained from the University of Benin Teaching Hospital Ethical Committees where the study took place, with an approval reference ADM/E22/A/VOL.VII/14556 on December 14, 2017. In line with the Belmont report, the researcher strived to do no harm to the participants. Consent form was given to the participants to seek written consent, and verbal consent was also taken before data collection. Participants were not exploited financially and physically; therefore, their time of consultation was not encroached into and data collection took place after consultation. Patients who declined inclusion were not penalized.

Data collection instrument was a structured questionnaire with closed-ended and Likert-scaled questions, using items from published questionnaire that was modified and developed, specifically to cover the objectives of this study. It allowed the researcher to ask same question, in the same way, sequence, and order, to different people and in different places, thus enabling the researcher to reach more participants with divergent opinion, at the same time. The questionnaire was prepared with the input of an expert in the field and a statistician to enhance validity of the instrument. In order to ensure the reliability of the questionnaire, split-half method was used as an indicator of the instrument stability and consistency. This was done by

administering the questionnaire to 40 respondents in Stella Obasanjo Hospital. A Cronbach's alpha was used to test the reliability of the instrument and a correlational score (s) of 0.82 was obtained showing a high level of reliability of the instrument.

The questionnaire consists of two sections: Section A: This contains eight questions with options on social demographic statistics of respondents, and Section B: This contains eight questions with options on acceptability of babies conceived through assisted reproductive technology among married women. The data obtained were coded and analyzed using SPSS version 21.00 statistical software (IBM Corp. released 2012. IBM SPSS statistics for widows,

Table 1: Demographic characteristics among married women attending University of Benin Teaching Hospital, Benin-City

Variables	Attributes	Frequency (n=348) (%)
Age group (years)	18-25	51 (14.7)
	26-35	226 (64.9)
	36-45	58 (16.7)
	46 and above	13 (3.7)
Marital status	Single	30 (8.6)
	Married	316 (90.8)
	Widow	2 (0.6)
Religion	Christianity	300 (86.2)
	Islam	42 (12.1)
	Others	6 (1.7)
Level of education	None	5 (1.4)
	Primary	8 (2.3)
	Secondary	38 (10.9)
	Tertiary	297 (85.3)
Ethnic group	Bini	124 (35.6)
	Igbo	59 (17.0)
	Esan	50 (14.4)
	Yoruba	28 (8.0)
	Urhobo	18 (5.2)
	Owan	17 (4.9)
	Others	52 (14.9)
	Duration of marriage (years)	0-1
2-5	167 (48.0)	
6-10	70 (20.1)	
Above 10	21 (6.0)	
Number of times pregnant	1	74 (25.3)
	2	96 (32.8)
	3	64 (21.8)
	4	28 (9.6)
	5	21 (7.2)
	6-9	10 (3.4)
Number of children alive	0	129 (37.1)
	1	90 (25.9)
	2	86 (24.7)
	3	23 (6.6)
	4	14 (4.0)
5	6 (1.7)	

Table 2: Acceptability of babies conceived through assisted reproductive technology among married women attending University of Benin Teaching Hospital, Benin-City

Items	SA, n (%)	A, n (%)	U, n (%)	D, n (%)	Sd, n (%)	Mean (SD)
ART babies are normal babies and acceptable	135 (38.9)	66 (19.0)	43 (12.4)	58 (16.7)	46 (13.0)	3.53 (1.469)
I am in support of ART babies	114 (32.7)	79 (22.6)	40 (11.5)	72 (20.6)	43 (12.3)	3.43 (1.436)
Only God gives babies/religious belief	308 (88.4)	40 (11.5)	0 (0.0)	0 (0.0)	0 (0.0)	4.89 (0.319)
ART babies are culturally acceptable	20 (5.7)	35 (10.0)	12 (3.4)	77 (22.1)	204 (58.5)	1.82 (1.230)
ART babies do not create societal stigma	38 (10.9)	22 (6.3)	67 (19.2)	112 (32.1)	109 (31.3)	2.97 (0.903)
I will like to opt for ART babies	122 (35.0)	98 (28.1)	35 (10.0)	52 (14.9)	41 (11.8)	3.60 (1.397)
ART babies are socially acceptable	41 (11.8)	59 (16.9)	24 (6.8)	98 (28.1)	126 (36.1)	2.40 (1.420)
ART babies might be defective	22 (6.3)	90 (25.8)	202 (57.9)	15 (4.3)	19 (5.4)	3.23 (0.849)
Total mean						3.23 (1.025)

SA: Strongly agree, A: Agree, U: Undecided, D: Disagree, Sd: Strongly disagree, SD: Standard deviation, ART: Assisted reproductive technology

version 21.0 Armonk, NY, USA: IBM Corp). Variables and research questions were analyzed using descriptive, mean, standard deviation, and linear regression.

Results

Demographic characteristics about the sampled women attending the University of Benin Teaching Hospital are reported in Table 1. The sample was characterized by most of the women in young adult age group, with a mean score of 31.72 (6.33). More than two-third of the women were married and had married for over 6 years, either without a child or maximum of one to two children. Moreover, about two-third of the women had previous university education, and Christianity was the dominating religion.

Acceptability of babies conceived through ART among the women is reported in Table 2. It shows that more than half of the sampled women were not in support of ART babies; similarly, almost all the women said that ART babies are culturally and socially not acceptable in their area. Moreover, about two-third of the women said that ART babies create societal stigma, and most time, babies from this method could be defective. In contrary to that, more than two-third of the sample women agreed to opt for ART babies, and all the women believed that only God can give babies based on their different faith or religion. In overall, Table 2 shows low level of acceptability of babies produced by ART, with a score of 3.23 (1.025).

The relationship between acceptability of babies through ART and independent variables (religion, level of education, and cultural background) among the women is reported in Table 3. Here, linear regression was used which gives a *P* value of 0.001 and alpha value of 0.05 ($P < \alpha$). This indicates that overall regression model statistically predicts the outcome (acceptability of ART babies). The level of significant of religion, level of education, and ethical group is 0.333, >0.001 , and >0.001 , respectively.

Discussion

This study through literature search identified the health status of the babies, high risk of defective babies, religion

and level of education of the woman, or family, social, and cultural belief as the major contending factors for the acceptability of babies conceived through ART.^[13-16] This present study revealed that babies produced by ARTs are normal babies. This result is similar to the study that found that single birth babies with ART treatment do not have any significant differences from normal birth babies in gestation days, early birth rate, and baby birth weight, but multi-baby births often result in high early birth rate, lower birth weight, and shorter gestation days. The frozen embryo transfer technique may significantly decrease the early birth rate of babies.^[17] In contrary to this, a study found that babies born via *in vitro* fertilization and other ARTs have more genetic differences than the babies conceived naturally, although the majority of the “test tube” babies they studied were within the normal range.^[18,19] In addition to that, this study also found that babies from ART might be at high risk of being defective when compared to natural babies. This is in agreement with a study that opined that even singleton ART babies are at higher risks of cerebral palsy, premature birth, and very low birth weights.^[18,20] Other studies also showed that ART babies are at high risk of multiple birth defects, specifically cardiovascular and musculoskeletal defects.^[18,21] These risks are grossly two times higher in ART singleton babies as compared with naturally conceived singleton babies.^[22] A study identified three possible sources of the increased risks of health problems in singleton ART babies: *in vitro* procedure, drugs to stimulate follicular development, and ovulation and infertility itself.^[23,24]

ART is currently a common place technology that has successfully treated millions of infertile couples all over the world. While ART has given hope to millions of couples suffering from infertility, it has also introduced countless ethical and social challenges.^[25-27]

This study found that ART is socially and culturally not acceptable. This is supported by the study findings which revealed that although economic factors and national wealth are important, it is not merely affordability that determines the adoption of ART, rather ART treatments were more

Table 3: Linear regression of the relationship between acceptability of babies conceived through assisted reproductive technology and religion, level of education, and cultural background among married women attending University of Benin Teaching Hospital, Benin-City

Model	Unstandardized coefficients		Standardized coefficients	t	Significant
	B	SE	β		
Regression	6.537	0.146		44.916	0.000
Religion	-0.104	0.107	-0.013	-0.970	0.333
Level of education	-0.507	0.027	-0.267	-18.782	0.000*
Ethical groups	-0.400	0.007	-0.834	-56.958	0.000*

Dependent variable: Acceptability. *Significant. SE: Standard error

widely used in countries where it was considered culturally and morally acceptable to do so and concluded that there is a relationship between cultural attitudes in countries where ART was considered to be socially acceptable, with the number of people using the treatment.^[28-30]

Furthermore, this study shows that religion, level of education, and cultural background were the major variables that could affect the acceptability rate of babies produced by ART; this is in agreement with the study found that in Islamic law, all ARTs are allowed, provided that the source of the sperm, ovum, and uterus comes from a legally married couple during the span of their marriage.^[31] No third party should intrude upon the marital functions of sex and procreation. Surrogacy is not accepted in Islam.^[32] An excess number of fertilized embryos can be preserved by cryopreservation and may be transferred to the same wife in a successive cycle, while the marriage is intact.^[31,32] In addition to that, assisted reproduction is accepted in nearly all its forms by Judaism, Hinduism, and Buddhism, although most Orthodox Jews refuse third party involvement.^[33-35] On the contrary, assisted reproduction is totally unacceptable to Roman Catholicism, while Protestants, Anglicans, Coptic Christians, and Sunni Muslims accept most of its forms, which do not involve gamete or embryo donation. Orthodox Christians are less strict than Catholic Christians but still refuse third party involvement.^[33] Therefore, the result of this study must have been influenced by the fact that the area covered by the study is dominated by Christian (Roman Catholicism and Orthodox Churches), whose faith actually contradicted the use of ART in the treatment of childlessness. Nevertheless, this study was faced with some limitations such as challenge of getting information from the women concerning the subject matter because they believe that fertility status information is confidential and they do not like discussing such issue in a public.

Conclusion

Looking at the level of acceptability of babies conceived through ART from the perspective of a developing country like Nigeria, the acceptability of ART babies is low and this remains one of the most critical problems in infertility treatment. Therefore, it is recommended that government should do more on fertility public enlightenment so as to

increase the people's knowledge about infertility issues. It is also suggested that, since the religion, level of education, and cultural background are major factors that could promote acceptability, all training schools should include it in their curriculum, royal fathers and religious leaders should be sensitized to keep everybody abreast with the right knowledge about ART babies, and this will go a long way in correcting the misconceptions and help to address some of the identified ethical dilemmas associated with ART babies in developing countries.

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Conflicts of interest

There are no conflicts of interest.

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