



## **ATTITUDES TOWARDS EMBRYO ADOPTION AMONG INFERTILE COUPLES ATTENDING SELECTED HEALTH FACILITIES IN SOUTHEAST, NIGERIA**

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### **Abstract**

*Background:* Challenges associated with infertility have given rise to different forms of assisted reproductive technology (ART) to overcome infertility. Today, one of the ways ART is practiced is through embryo adoption. The mission of this reproductive technique is to offer individuals seeking to achieve parenthood additional choices to help them achieve their dream of reproduction. When performing in-vitro fertilization (IVF), the attitude of individuals play a critical role in shaping their decisions and actions in all spheres of life in Nigeria, including to use or not to use excess embryos from other infertile couples for reproduction. Attitudes to embryo adoption seems to be split between acceptance, reservation, and in some instances, outright rejection. Consequently, there is an unmet need for affected individuals of reproductive age that may require embryo adoption to achieve pregnancy. Until this paucity is addressed, infertility will likely remain a grave social burden to some Nigerian infertile couples especially women. Thus, the present study evaluated attitudes towards embryo adoption among infertile couples attending selected health facilities in Southeast, Nigeria. *Theoretical framework:* Theory of planned behavior which opined that socio-cultural factors that surround reproductive donation could influence attitudes towards embryo adoption was adopted as the theoretical frame work for the study. *Methods:* A questionnaire regarding attitudes towards embryo adoption was given to a total sample of 613 infertile couples attending selected health facilities in Southeast, Nigeria.

*Results:* In the overall analysis, the attitudes towards embryo adoption was negative due to some socio-demographic factors. A majority of the male and female respondents (83.03%) were only comfortable adopting embryo from a healthy anonymous stranger and carried by them in the case of women or their spouse in the case of men. A total of 99.7% agreed that they are very negatively predisposed to embryo adoption from known donor and carried by a surrogate. Approximately (81%) were very negatively predisposed to embryo adoption from



a healthy stranger and carried by a surrogate. Approximately ninety-eight per cent of the respondents agreed that the genetic origin should be anonymous to the conceived child while 100% indicated that the surrogate should remain anonymous to the conceived child.

*Conclusions:* The results of the present study indicates embracing supportive attitudes towards promoting the use of embryo adoption so as to circumvent infertility and improve reproductive health in Nigeria. Therefore, vigorous enlightenment, sensitization and cultural reorientation need to be mounted. Also, there is the need for policy directions and regulations to guide the practice in Nigeria.

**Keywords:** *Attitudes, embryo adoption, disclosure, anonymity, socio-demographic*

### **Introduction**

The inability to reproduce is recognized as a problem of public health importance globally (Oche, Anjo, Gana, Oladigbolu, Okafoagu, Umar, Oluwatobi, & Gatawa, 2018). One of the common and effective treatment for infertility today is embryo adoption which refers to the process by which another couple decides to donate the unused embryos either created with their gametes from their own IVF cycle or by egg and/or sperm donation, for the use of a third party to enable infertile couples to become parents (Sälevaara, 2019). Estimates of up to 6.5 million babies since onset of modern ART are reported (Brown, 2018). In Nigeria, accurate figures on the numbers of babies born through ART procedures in Nigeria are difficult to obtain and are hard to verify (Bamgbopa, Okonta, Ajayi, Ogbeche, Igbokwe, & Onwuzurigbo, 2018).

During IVF treatment, quite often more good-quality embryos will be created than the couples will use (Ailoje, 2018). These surplus embryos are usually frozen and stored for later use (Rodrigo, Trolice & Fernández, 2017). Embryo adoption is legal in certain countries, such as Australia, Canada, England, Finland, France, New Zealand, and USA (Goedeke & Payne, 2009; Keenan, Gissler & Finger 2012). It could be an option/alternative for couples who carry a genetic disease, where neither the male nor the female partner has viable gametes, or where couples have undergone several unsuccessful IVF treatments. Embryo adoption is cost-effective and involves lower costs than IVF treatment with egg and sperm donation (Lee & Yap, 2003). However, embryo adoption requires many ethical considerations and difficult decisions (Boivin, Appleton, Baetens, Baron, Bitzer, Corrigan, et al., 2001). On one hand, embryo adoption makes it possible for the



couple to experience pregnancy, childbirth, and early childhood (Widdows & MacCallum, 2002). On the other hand, the consequences for the child of not being genetically related to any of the parents or of having genetic siblings in other families may be psychologically difficult to handle.

There are a lot of embryos which continuously have to be discarded due to time limits for cryopreservation which could be used for treatment in selected cases of infertile couples (Fuscaldo & Savulescu, 2005). In Nigeria, couples who undergo IVF treatment may have to make a decision whether they want to donate their surplus frozen embryos or have them discarded. Most couples undergoing IVF treatment have a hard time deciding what to do with their surplus embryos, and the decision process is often stressful for parents (Hammarberg & Tinney, 2006; Provoost, Pennings, De Sutter, Gerris, Van de Velde, De Lissnyder, et al., 2009). However, in practice it is most common that the couples, either by an active decision or by not responding to requests from IVF clinics, choose to have their stored embryos discarded, even in countries where donation is a legal option (deLacey, 2005). Also, infertile couples in some societies, are still not so open-minded to accept donor embryos due to some socio-demographic and cultural factors (Banerjee & Singla, 2018). All these explain the premium put on fertility in most societies and informs the attitude and acceptability of donor assisted reproduction. In the context of this study, the attitude of infertile couples to embryo adoption in the treatment of infertility was investigated in line with some of these socio-demographic and cultural factors.

Attitudes among embryo donors and recipients have earlier been studied (McMahon & Saunders, 2009; Soderstrom-Anttila, Foudila, Ripatti & Siegberg, 2001), however, popular attitudes towards embryo adoption by infertile couples to my knowledge have not previously been reported in Southeast, Nigeria. This study therefore evaluated attitudes towards embryo adoption among infertile couples attending selected health facilities in Southeast, Nigeria.

#### *Approval by Ethics Committee*

The study was approved by the Nnamdi Azikiwe University Teaching Hospital (NAUTH) Health Research Ethics Committee with (Protocol Number: NAUTH/CS/66/VOL.14/VER.3/296/2021/053) and FMC Health Research Ethics Committee (HEREC) (Protocol number: FMC/QEH/G.596/VoL.10/585).



### *Study population*

Participants in the study were all registered consenting men and women who approached and presented themselves for embryo transfer and/or surrogacy in LIHA Awka (416) and FMC Umuahia (208). Thus, in view of the small population size, a total of 624 men and women in the age group 18–65+ years were used for this study. The age groups were chosen to reflect the reproductive part of the population and those who might be concerned about donors and recipients of embryos. Socio-demographic data of the study participants are presented in Table I.

The responses were thoroughly edited, coded and processed in a database. No fee was paid for the voluntary participation in the study. Altogether, 384 women, approximately (62%) and 229 men approximately (37%) out of 624 respondents, responded to the questionnaire. Altogether, 613 representing 99% response rates of administered questionnaires were used. Eleven (0.1%) non-consenting clients declined to participate in the study thus, eleven (11) questionnaires were not used.

### *The questionnaire*

The questionnaire consisted of two parts. Part one covered the personal data and contained 7 questions. Part two contained a total of 10 gender based statements regarding embryo donation and adoption, 5 for each gender and 1 question on disclosure or non-disclosure of the identity of the genetic origin to the conceived child. For the answers to the 10 statements on predisposition towards embryo adoption, a Likert scale where one affirms the statements in varying degrees was used. The scale was a 5-point scale and contained the options ‘not applicable’, ‘very negatively predisposed’, ‘not very sure’, ‘fairly predisposed’, and ‘very positively predisposed’. Similarly, for the answers to the statements on disclosure or anonymity, the scale was also a 5-point scale and contained the options ‘not likely at all’, ‘very unlikely’, ‘unlikely’, ‘likely’, and ‘very likely’. The questionnaire designs were identical for men and women. Attitudes towards embryo adoption are presented in Table II, III and IV.

### *Statistics*

The Statistical Package for Social Sciences (SPSS 26) software was used for coding responses and for statistical processing.



## Results /Findings

### Socio-Demographic Characteristics of Respondents

The figures are given in frequency n (%) of the total number of respondents to each question/statement.

**Table 1: Socio-Demographic Characteristics of Respondents**

Demographic Variables	GENDER			Total
	Categories	Male	Female	
Age	Young Age	83(36.2%)	250(65.1%)	333(54.3%)
	Advanced Age	146(63.8%)	134(34.9%)	280(45.7%)
	<b>Total</b>	<b>229(100%)</b>	<b>384(100%)</b>	<b>613(100%)</b>
Educational Qualification	Low Education	90(39.3%)	126(32.8%)	216(35.2%)
	High Education	139(60.7%)	258(67.2%)	397(64.8%)
	<b>Total</b>	<b>229(100%)</b>	<b>384(100%)</b>	<b>613(100%)</b>
Annual Family Income	Low Income	120(52.4%)	251(65.4%)	371(60.5%)
	High Income	109(47.6%)	133(34.6%)	242(39.5%)
	<b>Total</b>	<b>229(100%)</b>	<b>384(100%)</b>	<b>613(100%)</b>
Conception Attempts	Less than 5 years	50(21.8%)	102(26.6%)	152(24.8%)
	5-10 years	84(36.7%)	113(29.4%)	197(32.1%)
	Above 10 years	95(41.5%)	169(44.0%)	264(43.1%)
<b>Total</b>	<b>229(100%)</b>	<b>384(100%)</b>	<b>613(100%)</b>	
Religious Affiliation	Christian	228(99.6%)	383(99.7%)	611(99.7%)
	Non-Christian	1(0.4%)	1(0.3%)	2(0.3%)
<b>Total</b>	<b>229(100%)</b>	<b>384(100%)</b>	<b>613(100%)</b>	



Table 1 indicates that male and female respondents were 229(37.4%) and 384(62.6%) respectively. The result implies that a majority of the study respondents were female. More females were recruited for the study because they were more available and accessible in the fertility facilities, and went through all the treatment phases. The males on the other hand had less of the treatment process to go through and were found only on the day of pre-medical investigation. This finding is not surprising since infertility and its treatment are highly gendered in some African societies. Women in Africa remarkably bear negative societal effects of infertility more than men. The burden is often enormous that in the quest for procreation women especially those who are no longer in their most fertile reproductive age seek infertility investigations more than men. With regards to the age distribution of respondents, a significant variation was observed in the gender analysis of respondents' age. The study found that a majority (65.1%) of the female respondents were in the young age category, while (36.2%) of the male respondents were in the young age category. However, the reverse is the case in the advanced age category. A majority (63.8%) of the male respondents were in the advanced age category, while (34.9%) of the female respondents were in the advanced age category. The variation could be partly because of the number of men who participated in the study when compared to their female counterparts.

Also, the result is indicative of the health seeking behaviours of some men in African societies who would typically assume that nothing is wrong with them hence, do not seek timely health care when faced with health issue like infertility. A descriptive analysis of median and modal age of respondents calculated on the original data before transforming age into young and advanced age were 38 and 32 years respectively while the mean age of respondents was 41years. The implication of this result is that a majority of the respondents in the study area are grown and mature to supply the requisite information needed for this study. Also, the number of years that respondents have been attempting to conceive a child in their marriages was captured. It was found that a majority of male and female respondents (43.1%) indicated above 10 years. This result shows that the issue of infertility has been one of the major reproductive health problems faced by some heterosexual couples in the study area.



Furthermore, the table found that a majority of the respondents (64.8%) had higher education. This result shows that the level of educational attainment among the populace in the Southeast Nigeria is very impressive. This implies that respondents are educated enough to respond to items in the questionnaire. The distribution of respondents by annual family income indicated that respondents with low income level stood at (60.5%) however, those with high income level stood at (39.5%). Expectedly, this implies that only couples who have high level of income will be motivated to seek information concerning any available solution to infertility because they can afford the high cost of DAR. Basically, those who have low income level may not likely seek such information because they are more concerned about providing the basic needs of food, shelter and clothing. Analysis of respondents by religious affiliation found that a majority of the respondents (99.7%) were Christians and only (0.3%) were non-Christians. This finding is indicative of the predominance of Christianity in Southeast, Nigeria.

*Attitudes towards embryo adoption (Table II)*

**Table II: Attitudes towards embryo adoption**

<i>Variables</i>		<i>Total n</i> (%)	<i>GENDER</i>		<i>P</i>
			<i>Male n</i> (%)	<i>Female n</i> (%)	
Embryo adoption (EA) from close relatives (carried by you (women) or your spouse (men))	<b>Responses</b>				
	Very Negatively Predisposed	372(60.7%)	147(64.2%)	225(28.6%)	.0
	Not Very Sure	230(37.52%)	81(35.4%)	149(38.8%)	0
	Fairly Predisposed	8(1.30%)	-	8(2.1%)	
	Very Positively Predisposed	3(0.48%)	1(0.4%)	2(0.5%)	
	<b>Total</b>	<b>613(100%)</b>	<b>229(100%)</b>	<b>384(100%)</b>	
		<b>0%</b>	<b>0%</b>	<b>0%</b>	
Embryo adoption from well-known friend (carried by you (women) or your spouse (men))	Very Negatively Predisposed	613(100%)	229(100%)	384(100%)	.0
	<b>Total</b>	<b>613(100%)</b>	<b>229(100%)</b>	<b>384(100%)</b>	0
		<b>0%</b>	<b>0%</b>	<b>0%</b>	



Embryo adoption from healthy donor (carried by you (women) or your spouse (men))	Very Negatively Predisposed	20(3.2 6%)	-	20(5.2%)	.0	
	Not Very Sure	24(3.9 2%)	-	60(15.6%)	0	
	Fairly Predisposed	229(10 60(9.7 9%))	280(72.9 %)			
	Very Positively Predisposed	509(83 0%)		384(100 %)		
	<b>Total</b>	.03% <b>613(10 0%)</b>				
	Embryo adoption from known donor (carried by a surrogate)	Very Negatively Predisposed	611(99 .7%)	227(37 .0%)	384(62.6 %)	.0
	<b>Total</b>	) <b>613(10 0%)</b>	) <b>229(10 0%)</b>	<b>384(100 %)</b>		
Embryo adoption from stranger (carried by a surrogate)	Very Negatively Predisposed	499(81 .4%)	187(30 .5%)	312(50.9 %)	.0	
	Not Very Sure	114(18 .6%)	42(6.9 %)	72(11.7%)	0	
	<b>Total</b>	<b>613(10 0%)</b>	<b>229(10 0%)</b>	<b>384(100 %)</b>		

The figures are given in frequency (%) and number (n) of the total number of respondents to each question/statement. Differences between women and men are statistically evaluated according to Mann–Whitney U test.  $P < 0.05$  is set as the threshold for significance.

Table II basically focused on gender predisposition towards different embryo adoption treatments. The result shows that irrespective of the desire to have children, embryo adoption from relatives (60.7%) or well-known friends (100%) and carried by them (women) or their spouse (men) was not supported by the respondents, which suggests a negative attitude towards embryo adoption in study area. However, due to the value placed on procreation in the study area, an even larger part (83%), were in favour of embryo adoption from anonymous healthy donors and carried by them (women) or their spouse (men) which suggests a positive attitude towards embryo adoption in study area. Also, majority of the female respondents were more willing than male to adopt embryos from anonymous healthy donors and carried by them. This modality is usually viewed as a last resort which a majority of the respondents have positive attitude towards while they are negatively predisposed towards embryo adoption from well-known



donors (99.7%) or strangers (81.4%) and carried by a surrogate. This result implies that embryo adoption from anonymous healthy donors and carried by them (women) or their spouse (men) is more acceptable as a last resort than surrogacy in the study area.

*Attitudes towards embryo anonymity or disclosure*

**Table III: Attitudes towards embryo anonymity or disclosure**

<i>Variables</i>	<i>Responses</i>	<i>Frequency (n=613)</i>	<i>Percentage (%= 100)</i>
<b>Opt to disclose genetic origin to conceived child</b>			
Embryo donor	NLAA- Not likely at all	604	98.5
	L- Likely	9	1.5
	<b>Total</b>	<b>613</b>	<b>100</b>
Surrogate	NLAA- Not likely at all	613	100
	<b>Total</b>	<b>613</b>	<b>100</b>
<b>Age of disclosure</b>			
	Not Applicable	<b>604</b>	98.5
	Less than 18 years	-	-
	18 years and above	9	1.5
	<b>Total</b>	<b>613</b>	<b>100</b>

Respondents were probed further to find out their views on disclosure or anonymity of genetic origin to the conceived child and the likely age to do so if they opt for disclosure. Data in table III shows that only very few respondents (1.5%) maintained that if they opt for embryo adoption, they would likely disclose the genetic origin to the conceived child. However, almost all the respondents (98.5%) clearly indicated that they will not likely at all disclose the genetic origin to the conceived child in Southeast, Nigeria. Finally, the result shows that the few respondents (1.5%) who subscribed to disclosure indicated that the disclosure will be made to the conceived child at age 18 years and above.

In addition, respondents were asked to identify some demographic factors that may likely influence the use or non-use of DAR. A multiple regression analysis



was used to test the predictive power of each independent variable on attitudes towards embryo adoption as presented in Table IV.

**Table IV: Multiple regression analysis of the impact of demographic variables on attitudes towards DAR**

<i>Independent Variables</i>	<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>	<i>T</i>	<i>Sig.</i>
	B(Mean)	Std. Error	Beta		
(Constant)	3.517	.291		12.097	.000
Gender	-.236	.033	-.237	-7.184	.000
Income	-.709	.036	-.661	-19.488	.000
Education	-.198	.031	-.196	-6.326	.000
Age	-.218	.082	-.086	-2.653	.008
Religion	-.042	.258	-.005	-.164	.870
R=.663 <sup>a</sup>		R <sup>2</sup> = .439		F (5, 607) = 79.098, p<.000 <sup>b</sup>	

a. Dependent Variable: Predisposition towards DAR

b. Predictors: (Constant), Gender, Age, Education, Income, Religion

Results of the regression analysis in Table IV with all five demographic predictors produced  $R^2 = .439$ ,  $F(5, 607) = 79.098$ ,  $p < .000$ . The table shows that gender, education, income and age had significant positive regression weights at ( $p < .000$ ,  $p < .000$ ,  $p < .000$ , and  $p < .008$  respectively), indicating that couples with higher levels on these scales were expected to be positively predisposed towards DAR treatment in the model. The  $R^2$  which measures the explained variance is 43.9%. In other words, 43.9% of the variations in the attitudes towards DAR use by respondents are explained by the socio demographic variables in the model. The 'B' values showed that none of the socio demographic variables has a positively linear association with positive attitudes towards DAR use. This implies therefore



that none of the socio demographic variables is good predictor of positive attitudes towards DAR. The strength of the ‘T’ values shows that none of the socio demographic variables have the most important influence on future positive attitudes towards DAR. Religion did not contribute to the multiple regression model.

Also, respondents were asked to identify ways to improve attitudes towards DAR as shown in Table V.

*Measures to improve attitudes towards embryo adoption*

**Table V: Gender analysis of measures to improve attitudes towards embryo adoption (EA)**

<b>Measures to improve attitudes towards EA*Gender cross-tabulation</b>	<b>GENDE R</b>		<b>Total</b>
	<i>Male</i>	<i>Female</i>	
<b>Measures</b>			
Relevant agencies should mount vigorous enlightenment, sensitization and cultural reorientation programs using the mass and print media to sensitize and educate the general public about embryo adoption, its effectiveness as well as the associated benefits	227(99.1 %)	384(100 .0%)	611
Government should assist in developing a national policy to ensure quality practice, monitoring and documentation of the process in Nigeria	228(99.6 %)	381(99. 2%)	609
Relevant Health authorities to intensify efforts at lobbying for the Nigerian parliament to pass bills seeking for the establishment of the “Nigerian Assisted Reproduction Authority” to assist in developing national policy on the practices DAR	221(96.5 %)	379(98. 7%)	600
<b>Total</b>	<b>229</b>	<b>384</b>	<b>613</b>

Percentages and totals are based on respondents.

a. Dichotomy group tabulated at value 1.

Presented in Table V is the gender cross-tabulation of the multiple response result showing measures that can be put in place to improve attitudes towards embryo adoption among infertile couples in Southeast, Nigeria. Data analysis was



performed using the ‘Multiple Response Set’ option in the SPSS considering that the respondents were given the opportunity to choose more than one of the options presented. The overall result clearly shows that no significant variation was observed in the gender analysis of measures to enhance positive attitudes towards embryo adoption. Both male and female respondents indicated that all the measures enumerated in the Table V can be adopted at embracing positive and supportive attitudes towards the uptake of embryo adoption. This implies that both male and female respondents have similar views about the measures to enhance the use of embryo adoption in Southeast, Nigeria. The result found almost equally among both female (100%) and male (99.1%) respondents that the most fundamental measure is the need for relevant agencies to mount vigorous enlightenment programs using the mass and print media to sensitize and educate the general public about embryo adoption, its effectiveness as well as the associated benefits. Also, female respondents (99.2%) and male respondents (99.6%) indicated the need for government to develop a national policy to ensure quality practice, monitoring and documentation of the process in Nigeria. Again, female respondents (98.7%) and male respondents (96.5%) indicated that relevant health authorities should intensify efforts at lobbying for the Nigerian parliament to pass bills seeking for the establishment of the “Nigerian Assisted Reproduction Authority” to assist in developing national policy on the practices. This finding implies that all these measures were potential strategies that can be put in place to enhance positive attitudes towards embryo adoption among infertile couples in Southeast, Nigeria.

### **Discussion**

The presented results indicated a negative attitude towards embryo adoption especially from relatives, well-known friends or donor and carried by a surrogate in Southeast, Nigeria. Despite the high value respondents placed on procreation in Southeast, Nigeria, a majority of the participants in the population of this study do not have positive attitudes towards embryo adoption. The negative attitudes towards embryo adoption are consistent with the previously demonstrated negative attitudes towards embryo adoption in earlier studies (e.g., Adedokun, 2018; Banerjee & Singla, 2018). However, if respondents opt for DAR, a majority supported embryo adoption from anonymous healthy strangers/donors and carried by them (women) or their spouse (men). This modality is viewed as a last resort due to the strong desire by infertile couples to have their reproductive potentials fulfilled in Southeast, Nigeria.



The positive attitudes towards embryo adoption as a last resort, are consistent with the previously demonstrated positive attitudes towards embryo adoption (e.g., Gubernskaya, 2010). In this 2010 study, it was generally observed that positive attitudes are found among the older, less traditional, the educated, less religious and those with good income. Most importantly, positive attitude and predisposition towards embryo adoption was high among female respondents compared to male in Southeast, Nigeria. Female respondents were more willing than male to adopt embryos from anonymous healthy donors and carried by them. Previous authors have documented the impact of gender on the fertility seeking behavior of infertile couples (e.g., Ugwu, Odoh, Obi & Ezugwu, 2014; Osian, Afemikhe, Olorunfemi & Eweka, 2018). For instance, Osian et al. (2018) found that knowledge, awareness and willingness to accept gamete donation as part of ART was high among female respondents (67.5%) compared to male respondents (53.8%).

Overall, couples preferred anonymity over disclosure of any kind. A limited proportion (1.5%) of participants in the study was of the opinion that the genetic origin should be disclosed to the conceived children and age of disclosure of genetic origin should be at age 18 years and above. However, a larger proportion (98.5%) thought that genetic origin should be anonymous to the conceived children. This finding supports the work of Abieyuwa et al., (2011) in Benin, Southwest Nigeria; Omokanye, Olatinwo, Durowade, Raji, Biliaminu, and Salaudeen (2017) at Ilorin Southwest Nigeria; Oche et al. (2018) in Sokoto metropolis, North-western Nigeria, where gamete anonymity was favoured.

Similarly, a British study showed that nearly half of the mothers of children born after embryo adoption kept the origin of genetic material secret from their children (MacCallum & Keeley, 2008). Many studies suggest that parents of children being conceived through various types of donations would rather not want that the conceived child knew about the donation. The question concerning children's knowledge of the third party has been studied more in terms of gamete (i.e. egg and sperm) donation than embryo adoption (Baetens, Devroey, Camus, Van Steirteghem & Ponjaert-Kristoffersen, 2000). Embryo adoption is more complex than gamete donation, as it includes the full genetic material of the donating couple and might result into two genetic full siblings of the same age



living in the same area without knowing each other. Besides, there is a risk that the physical resemblances are commented on, and it would be traumatic for the conceived children if they formed a relationship. Embryo adoption from one couple needs to be restricted maybe to one recipient couple to prevent this (Goedeke & Payne, 2011). Also, the fact that the child is conceived by donated embryo can be revealed by chance, which could also be a traumatic experience for the child. Openness regarding the donation can prevent this.

Also, the study identified some demographic factors that potentially influence the attitudes towards embryo adoption in Southeast, Nigeria. Fundamental among identified demographic variables considered to have influence on the adoption of embryo for procreation are level of income and education. Increasing trend in acceptance was noted with increasing educational level. A positive predisposition and willingness to accept embryo adoption as part of DAR was high among couples in higher education bracket compared to those in lower educational bracket in Southeast, Nigeria. Hence, following from the assumption of theory of planned behaviour, Aflakseir and Zarei (2013) maintained that lack of education can negatively affect ones comprehension of important information and the ability to make informed decisions including the awareness of their own rights.

### **Conclusion**

This study investigated attitudes towards embryo adoption among infertile couples attending selected health facilities in Southeast, Nigeria. In the first place, attitude towards embryo adoption was negative due to glaring effects of some socio-demographic factors on the health seeking behaviours in Southeast, Nigeria. Despite the fact that conception is a critical and important aspect of many people's lives and regardless of the critical role of embryo adoption in the management of infertility, researchers have clearly made less effort to look at embryo adoption as treatment option for infertile couples after normal preferred methods of reproduction or ART techniques using self-gametes have failed. Consequently, a gap in knowledge exists regarding the adoption of embryo in the management of infertility. This calls for vigorous enlightenment, sensitization and cultural reorientation using the mass and print media to sensitize and educate the general public about embryo adoption, its effectiveness as well as the associated benefits. If embryo adoption for reproduction is to be allowed in Nigeria, policy direction, guidelines and regulations need to be developed for proper practice of this treatment strategy and to enhance its uptake in Southeast



Nigeria. Permitting embryo adoption in Nigeria would be beneficial for some infertile patients who under the current practice are left unknowingly vulnerable to infertility and its attendant consequences.

### **Limitations**

The study has a number of notable limitations. Due to the small sample size, the study relied on the data elicited from very few infertile individuals to explore attitudes towards embryo adoption in Southeast, Nigeria. The use of samples of infertile individuals from selected fertility facilities located in one region of Nigeria may also limit the applicability of such findings to the general population of other infertile individuals from other regions or from Nigeria more broadly. However, in keeping with qualitative methodology, a representational sample was not sought, and the findings are not meant to be generalizable. Secondly, the study was carried out among individuals in health facility surveys hence, further studies should extend this study to include household or general public surveys to ascertain whether the findings observed among individuals in health facility would be at variance with those in the household or general public survey. Despite these limitations, this is the first research from the social science perspective to quantitatively explore attitudes towards embryo adoption particularly in Southeast Nigeria. The study also makes important contributions to embryo adoption by providing direction for further research. For example, the study has shifted focus of reproductive health researches predominantly by medical and health sciences to the social science perspective. Also, in future, longitudinal research design to measure the impact of embryo adoption on all participants in the process, including children conceived through such procedures, as well as future health implications, is very important.

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