African Journal of Health, Nursing and Midwifery
ISSN: 2689-9418
Volume 3, Issue 1, 2020 (pp. 1-12)
www.abjournals.org

KNOWLEDGE AND PERCEPTION OF INVITRO-FERTILIZATION AMONG WOMEN OF CHILDBEARING AGE IN AKURE SOUTH LOCAL GOVERNMENT

Mary Idowu Edward (Ph.D)[1], Modupe Motunrayo Adamolekun[1] and Victoria Busayo Oguntuase[2]

[1]Faculty of Nursing Science, University of Medical Sciences, Ondo City, Ondo State, Nigeria
[2]University of Medical Sciences Teaching Hospital, Akure, Ondo State, Nigeria

ABSTRACT: *Infertility is a significant family, social and cultural problem due to high premium placed on having children in Nigeria and Africa at large. In-vitro fertilization (IVF) is one of the procedures in managing infertility. However, it is still a new phenomenon in the developing countries. This is due to the level of knowledge and perception. This study investigated the knowledge and perception of IVF among women of childbearing age in Akure South Local Government secretariat. The research methodology makes use of a descriptive research design, eighty-eight women of childbearing age were selected using non-probability convenient sampling technique and data were collected through the use of self-structured questionnaires. The findings of the study showed that majority of the respondents have heard about of IVF. The chi-square (X^2) value of the hypothesis showed that there is significant relationship between the knowledge and perception of in-vitro fertilization among the respondents p = 0.01. In conclusion, the study established that the level of knowledge and perception of IVF is high. However, there is still need to enlighten the public on the advantages of IVF so as to reduce infertility among women of childbearing age.*

KEYWORDS: Infertility, In-Vitro Fertilization (IVF), Childbearing Age, Infertility, Nigeria

INTRODUCTION

Infertility is a reproductive condition in which a couple have difficulty to achieve a pregnancy after at least 1 year of regular unprotected sexual intercourse. In the US, infertility is a growing problem: over the last several decades, age-related infertility has become increasingly prevalent as a relatively larger portion of women have deferred childbearing due to effective birth control methods, safe and legal abortions, better access to college education, and greater participation in the labor market (Buckles, 2008).

Since the beginning of the 1980s, diagnostic treatment options and Assisted Reproductive Therapy (ART) for infertility have advanced dramatically in terms of effectiveness as well as availability. ART now includes several different options which consist of clinical treatment and laboratory procedures such as in vitro fertilization (IVF), gamete intra-fallopian transfer (GIFT), zygote intra-fallopian transfer (ZIFT), embryo cryopreservation, oocyte or embryo donation, and gestational surrogacy.

Americans have been utilizing more and more ART, mostly in the form of IVF. In 1995, an estimated 6.7 million women had impaired fecundity of which 42 percent had received some form of infertility services. In 2002, an estimated 7.3 million women had fecundity problems

and about 42% had received some form of medical assistance. The most commonly used infertility services are the non-invasive methods including medical advice, infertility testing, and ovulation drugs. ART, including IVF, is utilized by less than one percent of women, but the number of children conceived through ART is quite high (Gulcin. and Jungmin., 2010). The Center for Disease Control and Prevention (CDC) reports indicate that in 1996, 20,840 babies were conceived using ART this figure more than doubled by 2006 when it soared to 54,656 (CDC, 2008).

In-vitro fertilization (IVF) procedure is one of the options in managing infertility. It involves fertilizing the egg from the female with the spermatozoa from the male outside the human body. It is a common practice in the developed world. However, it is still a new phenomenon in the developing countries. This is due to the level of awareness and acceptability, worsened by cost which is still beyond the reach of the poor masses in the developing countries is one of the options in managing infertility.

Despite the technological advances, ART remains a risky, complex, and expensive endeavour. Such infertility treatments are costly both in terms of money and time. The total cost of a successful delivery using IVF ranged between $44,000 and $211,940 in 1992 and the average cost was estimated to be more than $50,000 in 2001. ART may also have significant adverse health effects on both the mothers and babies, especially as a result of the increased prevalence of multiple gestations. In particular, triplet and higher order multiple pregnancies lead to a greater chance of complications such as prematurity and maternal morbidity. Between 1980 and 1997, the number of annual live born babies from twin gestation rose by 52 percent, while the number of high orders multiple gestations increased by 404 percent these growth rates are mostly attributed to ART (Bernal, Moriguchi, Nagypal 2008).

The first IVF birth in sub Saharan Africa was led by the Dapo Ashiru and Giwa-Osagie team on March 17, 1989, at the Lagos University Teaching Hospital (LUTH), Idi-Araba 4,21. According to Ashiru21, Nigeria has recorded 40% increase in IVF pregnancy success rate from 10% in the 70s to 50% in the 2010s. The first IVF birth in Anambra state was achieved by Joseph Ikechebelu‘s team on August 6th, 2011, at Life Specialist Hospital, Nnewi (Okafor, Joe-Ikechebelu and Ikechebelu, 2017). Of the various treatment options available for the treatment of infertility, none of treatment procedures have had an impact on the society as much as in vitro-fertilization. There is no difference from a pregnancy established without fertility therapy and is not considered high risk. In-vitro fertilization is meant for couples who had no hope of having a “biologically related” child with bilateral tubal occlusion being the most common underlying cause (Okwelogu, Azuike, Ikechebelu and Nnebue, 2012).

Reproduction that occurs through IVF has an edge over adoption because the couples contribute the spermatozoa and the egg. In Nigeria, there has been a lot of research works on infertility but knowledge and perception of IVF among the infertile couples is still very poor in some areas. According to Okafor, et al, 2017 Some couples view IVF as a good option, however, many others are hesitant about it because there are a lot of misconceptions about IVF in Nigeria and in Igbo land in particular. IVF is perceived as a new phenomenon shrouded in secrecy and stigma due to social and cultural encumbrances, norms and values about natural process of reproduction, ignorance, and religious sentiments.

Objectives of the Study

Broad Objective

This study is to assess the knowledge and perception of women of child bearing age about in-vitro fertilization.

The specific objectives of the study are:

- To assess the perception of women about infertility.
- To assess the knowledge of women of childbearing age about in-vitro fertilization.
- To ascertain the perception of women of childbearing age about in-vitro fertilization.

Significance of the Study

Assessment of the knowledge and perception of women about in-vitro fertilization as one of the treatments of infertility will assist researcher to identify the need for creation of awareness among the infertile couples. This will invariably enhance the uptake of in-vitro fertilization as way to achieve pregnancy by infertile couples as well the society at large.

Research Questions

- What is the perception of women of child bearing age about infertility?
- What is the knowledge of women of childbearing age about in-vitro fertilization?
- What is the perception of women of childbearing age about in-vitro fertilization?

Hypothesis

H_0: There is no significant relationship between the knowledge and perception of invitro-fertilization among women of child bearing age.

LITERATURE/THEORETICAL UNDERPINNING

Infertility has posed a lot of challenges to infertile couples. Many Africa countries including Nigeria see having children as paramount in marriage. This is due to premium placed on fertility as a result of roles children fulfil in the family and the society (Adebiyi, Ameh, Avidime.and Muazu, 2011) Some of these women had primary infertility while some had secondary infertility. A woman becomes an object of ridicule among husband relatives when she finds it difficult to have at least a child after some years of marriage. Some even arrange alternative woman for the husband outside the wedlock.

According to Lamaran. Natasha, Baffah, Nasiru and Kirsten (2016). Many of the respondents had poor knowledge of risk factors for infertility while others believed in supernatural causes. majority (73.6%) believed that women bear the blame for infertility and 40.4% see it as a reason for the man to take another wife. Though invitro fertilisation offers hope for infertile couples but according to Okafor, Joe-Ikechebelu and Ikechebelu (2017): there is erroneous opinion in this part of the world that test-tube babies are abnormal or unnatural.

Health Belief Model

Health belief model is applied to knowledge and perception of in-vitro fertilization among child bearing women. The following perceptions serves as the main constructs of the model: perceived seriousness, perceived susceptibility, perceived benefits, perceived barriers, modifying variables, cues to action and self-efficacy. Each of these perceptions individually or in combination, is used to explain perception of women of child bearing age towards infertility and in-vitro fertilisation.

Perceived Susceptibility- this is a woman's assessment of her chances of not getting pregnant. This concept motivates women of childbearing age to want to have babies by attending fertility clinic to seek fertility service in the hospital.

Perceived Seriousness- this is a woman's judgments to the severity of her infertility status based on the medical information or knowledge, it may also come from the beliefs she has about the difficulties to conceive which could create or the effect it would have on her life in general.

Perceived Benefit- this is woman's conclusions as to whether the invitro-fertilization is a better option than the measures she has adopted before. Women wanting to conceive tend to adopt the new method of fertility measures when they belief the new assisted reproductive technology (IVF) will increase their chances of getting pregnant.

Perceived Barriers- this is the woman's opinion as to what will stop her from adopting the new method of fertility treatment measures (IVF). In order for the IVF method to be adopted, the woman needs to believe the benefits of this method outweigh the consequences of not being able to conceive. This enables the barriers to be overcome and the new method to be adopted.

Modifying Variables- this is a woman's personal factors that affect whether the IVF is adopted. The woman's culture, educational level, past experiences, skills and motivation are the characteristics that influence the woman's perception.

Cues to Action-. The factors that can motivate the woman to act include events, people or things that move the woman in changing her mind to adopt IVF as a means to have her own child. Examples include pressures from the woman's in-laws due to inability to conceive, husband threatening to marry a second wife, seeing a friend being able to conceive and have babies, attending naming ceremony of other people.

Self-Efficacy- If the woman beliefs that adopting IVF will be useful for her to have her own child, and think she is capable of getting it done for herself, the chances are that shet will give it a trial.

METHODOLOGY

A descriptive research designed was utilised to assess the knowledge and perception of invitro-fertilization among women of reproductive age in Akure South Local Government secretariat, Akure, Ondo State Nigeria. South Local Government secretariat located along Oba Adesida road, about 1km away from Oja Oba market, with about 15 departments and about 186 workers and 112 of them are women of child bearing age. The secretariat is headed

by a Chairman. The target population are the women of child bearing age in Akure South Local Government Secretariat. The sample size was determined using Taro Yamane formular (1968). A convenient non experimental sampling technique was used to select 88 respondents among women of childbearing age.

The instrument for data collection was researchers designed questionnaire comprising of four sections: A, B, C, and D containing closed ended questions. Section A focused on of socio-demographic data, section B focused on the perception of infertility, section C consist of the knowledge of women of childbearing age about in-vitro fertilization, section D- focused on the perception of women of childbearing age about in-vitro fertilization. The instrument was given to experts to be reviewed, corrected and critiquing to ensure face and content validity. Test re-test method was used to establish the reliability of the instrument. The instrument was administered to 10 women of child bearing age on two consecutive occasions in the State Secretariat in Akure South local government area of Ondo State. The score was determined by using Cronbach alpha and was discovered to be reliable with score of 0.67.

Data was collected through distribution of questionnaires to the randomly selected group of women. Data was analysed using descriptive statistical method such as table and percentages were used for presentation of result and statistical package for social sciences

RESULTS/FINDINGS

Table 1: Distribution of Respondent in Socio - Demographic Data

Variables	Variables	(n-88)	%
Age	20 – 25	10	11.36
	26 – 30	14	15.91
	31- 35	18	20.45
	36– 40	24	27.27
	Above 40	22	25.00
Religion	Christianity	66	75.00
	Islam	22	25.00
	Traditional	0	0.00
Ethnic Group	Yoruba	84	95.45
	Igbo	4	4.55
Marital Status	Single	4	4.55
	Married	80	90.91
	Divorced	2	2.27
	Widow/Widower	2	2.27
Educational Qualification	Secondary	24	27.27
	Tertiary	64	72.73
Occupation	Trader	0	0.00
	Civil Servant	88	100.00
	Private Worker	0	

Marital Union	Not yet Married	4	4.55
	Monogamy	76	86.36
	Polygamy	8	9.09
Number of Children	None	8	9.09
	Less than 3	48	54.55
	Above 3	32	36.36

The table1 above shows the socio demographic data of all the respondents, and it shows that 11.3% of the respondent are within the age range 20-25 years, (27.2%) are within the age range of 26-40 while 22 respondents (25%) are between the age 40-60. it also shows that majority of the respondent are married (90%.9) 4% are single, 2% are divorced, 2% are widow and 86.3% practiced monogamy. The result of their religion shows that 75% also had tertiary education. Greater percentage of the respondent (75%) are Christian and 25% are Muslim and most of them (70%) were from Yoruba ethnic group majority of respondent **Table** are civil servant and 27.2 had secondary education and 74.7% had tertiary education. percentage of respondent with no children are 9%, less than three children 54.5%, more than three children are 36.3%.

Table 2: Perception of Women of Childbearing Age About Infertility

Variable	**Response**	**Frequency**	**Percentage**
Have you heard about infertility before	Yes	86	97.73
	No	2	2.27
If yes, what is your source of information	(a) families and friends	26	30.23
	(b) health care facilities	38	44.19
	(c) mass media	22	25.58
What do you understand by infertility	(a) infertility is the inability to give birth	2	2.33
	(b) infertility is the inability to get pregnant	84	97.67
What do you think cause infertility	(a) irregular menstruation	70	81.40
	(b) inadequate sexual intercourse	14	16.28
	(c) witch craft	2	2.33
Who is the person to be blamed for infertility	(a) husband	20	23.26
	(b) wife	16	18.60
	(c) None	48	55.81
	(d) Both	2	2.33
Who is to seek for fertility treatment	(a) couple	74	86.05
	(b) wife alone	10	11.63
	(c) husband alone	2	2.33
Do you see infertility as a disease	Yes	30	34.88
	No	56	65.12
Do you believe it is treatable	Yes	86	100.00
	No	0	0.00

Table 2 above showed the knowledge of infertility among the respondents. Larger percentage (97.7%) have heard about what infertility is, 44.1% source of information was from the health care facilities,30.2% of the respondent heard from families and friends 25.5% from social media and the majority of the respondents (77.6%) were able to understand what infertility means. Greater percentage of the respondents (81.4%) also believed that infertility is caused by irregular menstruation. The greater percentage of respondents believed that none should be blamed for the infertility of the couple. More than half of the respondents believed that infertility is not a disease. All of them believed that it can be treated.

TABLE 3: Knowledge of Childbearing Age About Invitro-Fertilization

Variable	Response	(n-68)	%
Have you heard about invitro fertilization before	Yes	68	77.27
	No	20	22.73
If yes, what is your source of information	(a) Families and friends	16	23.53
	(b) Health care facility	32	47.06
	(c) Mass media	20	29.41
What do you understand by invitro fertilization	(a) it is fertilization of an egg inside the woman's body	20	29.41
	(b) it is the fertilization of an egg by sperm outside the woman's body	46	67.65
	(c) I don't know	2	2.94
Do you know hospitals to access invitro fertilization	Yes	38	55.88
	No	30	44.12
Are you aware that invitro fertilization could fail	Yes	62	91.18
	No	6	8.82
Do you know it could be applied for male infertility	Yes	16	23.53
	No	52	76.47
Are you aware that donor egg and sperm could be used for treatment	Yes	10	14.71
	No	58	85.29
Are you aware that invitro fertilization treatment is expensive	Yes	62	91.18
	No	6	8.82
Do you believe that invitro fertilization could be used to treat genetic fertility disorder	Yes	6	8.82
	No	62	91.18

Table 3 showed the knowledge of the respondents on invitro-fertilization. Majority, 76.7%, have heard about IVF and 22.7% have not heard about IVF before 47%, heard form health care facilities, (23%) from families and friends and 16.2% from mass media. Also, more than half of the respondents, 67.65%, believe that IVF is the fertilization of egg by sperm that

occur outside the woman body, Among the respondents 55.8% knows the hospital to access IVF while the rest do not know. Majority of the respondents (91.1%) are aware that IVF could fail, Majority, 76.4%%, knew IVF could not be applied for male infertility treatment. Larger percentage, 85.2%, believed that donor egg and sperm cannot be used for the treatment. Among the respondents, 91.8% knew that IVF is very expensive. However, 91.8% of respondent believes that IVF cannot be used for treatment of genetic disorder

Table 4: Perception of Women of Children Age about In-vitro Fertilization

Variable	Strongly Agree	Agree	Strongly Disagree	Disagree
In-vitro - fertilization is a good option in the treatment of infertility	36 (52.94)	28 (41.18)	2 (2.94)	2(2.94)
Babies born through in-vitro - ferilization are healthy	38(55.88)	24(35.29)	4 (5.88)	2(2.94)
Invitro- fertilization is expensive	38(55.88)	24(35.29)	0(0)	6(8.82)
In-vitro fertilization is done in tertiary institution	24(35.29)	30(44.12)	10(14.71)	4 (5.88)
Babies conceive through in-vitro fertilization are normal and natural baby	26(38.24)	36(52.94)	2 (2.94)	4 (5.88)
Babies born through in-vitro fertilization are not normal and not natural	12(17.65)	4 (5.88)	36(52.94)	16(23.53)
In-vitro –fertilization should be encouraged in the society	22(32.35)	38(55.88)	6(8.82)	2(2.94)

Table 4 above show the perception of IVF, from the above table, more than half, 52.9%, of the respondents strongly agreed that IVF is a good option in the treatment of infertility. Among the respondents, 58.8% strongly agreed that babes born through IVF are healthy. Greater percentage 55.8% of the respondent strongly agree that IVF is expensive. Majority 44.1%, also agreed that IVF is done in tertiary institution. More than half, 52.9%, of the respondents believed that babies conceived through IVF are normal and natural. However more than half, 52.9%, strongly disagreed that babies born through IVF are neither normal nor natural. A little number more than half, 55.8%, agreed that IVF should be encouraged in the society while 32.3% strongly agreed with this,

Hypothesis

H_0: There is no significant relationship between the knowledge and perception of invitro-fertilization of the respondent.

Table 5: Relationship Between the Knowledge and Perception of In-vitro Fertilization of the Respondent.

Variable		Response		Total
		Yes	No	
What do you understand by in-vitro fertilization?	It is fertilization of an egg inside the woman's body.	20	0	20
	It is the fertilization of an egg by sperm outside the woman's body	46	0	46
	I don't know	2	0	2
Total		68	0	68

Table 6: Chi Square Analysis of the Respondent on In-vitro Fertilization

Chi-square Test

Test	Value
Chi-square	43.176
Df	2
Sig	0

The chi-square (X^2) value of the question that addressed the stated hypothesis was computed. The analysis reveals an X^2 value of 43.176 as shown in table 3. This X^2 value is greater than the X^2 critical value of 5.991 (for p=0.05) and 9.210 (for p=0.01) from the statistical table at a degree of freedom (df) of 3 and significant level of 0.000. The null hypothesis is therefore rejected meaning that there is significant relationship between the knowledge and perception of invitro-fertilization of the respondents.

DISCUSSION OF FINDINGS

A total number of 88 women of childbearing stage were involved in the study and data collected through a well-structured questionnaire. 27.2% the respondents falls between the age range of 35-40 years this agrees with the study of Adebiyi et al (2011), 196 women attending infertility clinic were interview and their mean age was 34.8 years, also majority of the respondents (74.2%) had tertiary education,(75%) were Christians and Findings also revealed that majority of the respondents (100%) are Yoruba,(90%) are married, while (76%.) practiced monogamy marriage.

On the level of information heard about infertility, out of the 88 women that participated, 97.7% had heard about infertility before, (38.4%) got their information from health care facilities, (13.2%) from family and friends, (30.2%). On the knowledge of the respondents about infertility, (97.6%) had good knowledge of infertility while (81.7%) of the respondents

thought the cause of infertility was as a result of irregular menstruation. However, this finding does not agree with Lamaran, et al, (2016) which stated that many (81%) of the respondents had poor knowledge of risk factors for infertility and over 80% believed in supernatural causes. There is low level of knowledge of infertility among infertile women in Bauchi and women bear the blame for infertility.

The findings also reveal that majority of the women have heard about in-vitro fertilization before this is in support of the study carried out by Adebiyi et al(2011) who stated that out of the 196 infertile women interviewed, 150 (76.5%) have heard of Assisted Reproductive Technology treatment but on the other hand Okwoelogu ,et al, (2012) out of the 500 that participated in the study only 37.6 of the respondent were aware of in-vitro fertilization Sources of information were mainly health facility (30.4%). Adebiyi and his colleagues, also found out that out of 176 infertile women interviewed in Northern Nigeria, about 76.5% had heard of assisted reproductive techniques but more than 50% were not sure if the babies from IVF were normal or natural. The study also agrees with Abayomi et al (2017) who stated that One hundred and eighty-eight (37.6%) of the women were aware that in-vitro fertilization practice exists, 37.2% of those who were aware accepted to undergo IVF procedure.

This study also shows that 30.4% of the respondent heard from health facility and 16.2% heard from families and friends which agree with findings of Adebiyi et al (2011) that sources of information of the one hundred and ninety-six women used are mainly from family relations 46% and friends 28.7%.

Findings from this study further reveals that 91.8% of the respondent believe that in-vitro fertilization could fail and only 23.5% knew that it can be applied to male infertility this in support of Adebiyi et al in his study 50% of the patient knew that in-vitro fertilization can fail to produce pregnancy, also 36.8% of the patient knew that donor egg and sperm could be for treatment. Knowledge about ART practice revealed that 76 (50.7%) of the 150 patients knew that ART treatment could fail to produce pregnancy14 (9.3%) and 28 (18.7%) patients knew that donor oocyte and sperm could be used for treatment.

The chi-square (X^2) value of the question that addressed the stated hypothesis reveals an X^2 value of 43.176. This X^2 value is greater than the X^2 critical value of 5.991 (for p=0.05) and 9.210 (for p=0.01) from the statistical table at a degree of freedom (df) of 3 and significant level of 0.000. This implies that the null hypothesis should be rejected, that is, there is significant relationship between the knowledge and perception of in-vitro fertilization by the respondents.

Implications for Nursing

- Nurses should counsel clients on promotion of health and reproductive activities such as reproductive investigations in order to detect early any reproductive dysfunctions and reduce the psychological and social effects of infertility on women.
- It is important for nurses to educate women and couples on the need to adopt healthy lifestyle and regular reproductive check-up as this help to reduce modifiable risk factors for infertility, such as, smoking, alcohol consumption, abortion, chemotherapy.
- Nurses should also explain to clients where to access reproductive health services and facilities including fertility services.

CONCLUSION

Conclusively, the result of this study shows that women of child bearing age of Akure South Local Government have a good knowledge of infertility, its causes and who to seek for fertility treatment but some still think women should be blame for infertility and some still believe that infertility is a disease. Majority of the respondents are knowledgeable about in-vitro fertilization but have poor knowledge of how to assess it and do not know if egg and sperm donor can be used in the treatment. Finally, there is significant relationship between the knowledge and perception of in-vitro fertilization by the respondents.

RECOMMENDATIONS

With regards to the result of the research work, the following recommendations are made;

- There should be a continuous education and adequate counselling on various methods of assisted reproductive technologies (ART) by health care providers at every given opportunity.
- Nurses should take the campaign of IVF and all other method of ART to women and couples at work places, market places, institutions and organizations.
- Single women who desire to have babies should be given access to IVF and other ART services.
- Government should give priority to infertility issues in government health care facilities.
- Government should pay for infertility services as done for other reproductive health programs.

REFERENCES

Abayomi, A. Victor, A.,. Oluwafunmilola,.B., Ifeoluwa, O., Happines, A. & Bamgboye,. M, (2017). Awareness, Knowledge and Practice of IVF. Medcrave International Journal of Pregnancy and Child Birth, Volume 2(1).:5-12. DOI: 10.15406/ipcb.2017.02.00007

Adesiyun, A. , Ameh, N. , Avidime, S. and Muazu, A. (2011) Awareness and perception of assisted reproductive technology practice amongst women with infertility in Northern Nigeria. *Open Journal of Obstetrics and Gynecology*, **1**, 144-148. doi: 10.4236/ojog.2011.13027.

Alanz, .K., Lewis, F., & Rimer, .B. (1997): Health Behaviour and Health Education: theory Research and Practice (2nd edition). San Francisco, Jossey-bass.

Bitler.M, (2008): Effects of Increased Access to Infertility Treatment on Infant and Child Health: Evidence from Health Insurance Mandates," Working Paper.

Buckles.K, (2008): Understanding the Returns to Delayed Childbearing for Working Women," American Economic Review Papers and Proceedings, 98(2), page 403-407.

Caplan, A. (2009): Ethics and octuplets: Society is responsible," Philadelphia Inquirer, February 6.

Centers for Disease Control and Prevention (CDC). Various years. Assisted Reproductive Technology Success Rates: National Summary and Fertility Clinic Reports, Atlanta, GA:CDC.

Lamaran, D., Natasha, .A., Baffah, A., Nasir, .U. & Kirsten,.B. (2016): Knowledge of Infertility. International Journal of Women's Health and Reproduction Sciences, Volume 4, No 3,July 2016, Page 103-109.

Obioha.J, Ikechebelu. J, Eleje. G, Uchenna. J and Joe-Ikechebelu. N, (2014): Knowledge and Attitude of Nurses towards IVF. A Prospetive Cohort Study of Gyneacological Cases; September, 2014.

Obioha.J, Ikechebelu.J, Eleje.G, Uchenna.J and Joe-ikechebelu. N, (2014): Knowledge and Attitude of Nurses towards IVF. A Prospective Cohort Study of Gyneacological Cases; September, 2014.

Okafor, N.I., Joe-Ikechebelu, N.N. and Ikechebelu, J.I. (2017): Perceptions of Infertility and In Vitro Fertilization Treatment among Married Couples in Anambra State, Nigeria African Journal of Reproductive Health December 2017; 21 (4):66

Okwelogu, .I., Azuike, .E., Ikechebelu, .J. & Nnebue, .C., (2012): In-Vitro Fertilization Practice: Awareness and Perceptions AmongWomen Attending Fertility Clinics in Okija, Anambra State, Nigeria AFRIMEDIC Journal of Clinical Practice, Volume 3. No 2, page 1-90, ,ec 2012.

Stretcher,.S. & Rosen, S. (1997): The Health Belief Model US Department of Health and Human Services (US DHHS). 2008. The AFCARS Report 14: Preliminary FY 2006 Estimates as of January 2008. Washington, DC: Child Welfare Information Gateway, US DHHS.

Van Voorhis, B. J. (2007). \In Vitro Fertilization," New England Journal of Medicine, 356(4), page, 379-386.