

Awareness, Perception and Determinants of Acceptance of In-vitro Fertilization among Women Attending Fertility Clinic in Selected Fertility Clinics in Port Harcourt, Nigeria

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Abstract: *This study aims to ascertain the awareness, perception, and determinants of acceptance of In-vitro Fertilization among women attending fertility clinics in selected fertility clinics in Port Harcourt, Rivers State, Nigeria. A cross-sectional survey involving 175 women accessing fertility clinics in Port Harcourt Metropolis was conducted. Participants completed a questionnaire assessing their awareness, perceptions, and determinants of accepting IVF as a fertility treatment option. Statistical analysis, including descriptive and correlation analysis, were utilized to assess levels of awareness, perceptions, and determinants influencing the acceptance of IVF as a treatment option among women attending fertility clinic. Findings indicate a high level of awareness (79%), positive perceptions (62%), regarding IVF as a treatment option among women attending fertility clinic. Factors influencing the acceptance of IVF as a treatment option include: recommendation by healthcare provider (89%), religious/cultural beliefs (66%), partner's/family support (88%), potential side effects (81%), and financial/insurance coverage (89%). This study underscores a notable level of IVF awareness and positive perceptions among women in Port Harcourt's fertility clinics, with factors like healthcare provider endorsements, cultural/religious beliefs, family support, consideration of side effects, and financial coverage playing significant roles, suggesting the need for clinics to provide comprehensive IVF education, address cultural and financial concerns, and tailor approaches based on age demographics to improve overall acceptance and accessibility of IVF in the region.*

Keywords: In-vitro fertilization; women; determinants, perception, acceptance

1. INTRODUCTION

Infertility is a condition of the male or female reproductive system defined by the failure to achieve a pregnancy after 12 months or more of regular unprotected sexual intercourse [1]. Many factors can give rise to sub fertility and infertility, Male and female factors were present in 35% of couples in a 2019 study. According to [2] the prevalence and the proportion of couples seeking medical assistance for fertility issues, reveals a median infertility prevalence of 9% over 12 months, with rates ranging from 3.5% to 16.7% in more developed nations and from 6.9% to 9.3% in less developed nations.

The causes of infertility are not only medical but also psychosocial [3]. It is estimated that more than 180 million couples in developing countries suffer from primary or secondary infertility [3]. In most African countries, the social stigma of childlessness still leads to isolation and abandonment [4]. In Nigeria and Africa, infertility is a family, social and cultural problem due to high premium placed on having children [5].

In vitro fertilization (IVF) is a widely used assisted reproductive technology (ART) that has revolutionized the field of infertility treatment worldwide [6]. IVF involves the fertilization of eggs with sperm outside the woman's body, followed by the transfer of the resulting embryos into the woman's uterus. In July 1978, Louise Brown was the first child successfully born after her mother received IVF treatment. She was born as a result of natural-cycle IVF, where no stimulation was made [7]. IVF has become increasingly popular due to various factors, including delayed childbearing, rising infertility rates, and advancements in medical technology [8]. According to the International Committee for Monitoring Assisted Reproductive Technologies, over 2.5 million IVF cycles were performed worldwide in 2015, resulting in the birth of approximately 500,000 babies.

While ART have been available for more than three decades, with more than 5 million children born worldwide from ART interventions such as IVF, these technologies are still largely unavailable, inaccessible and unaffordable in many parts of the world, particularly in low and middle-income countries [1]. In-vitro fertilization has been seen as a procedure for the wealthy, and the

well-insured [9]. In 2014, IVF clinics across Europe reported 508,433 cycles. In 2015, the United States reported 231,936 cycles while across Africa and the entire continent in 2013 there were only 25,550 cycles [9].

In Africa in-vitro fertilization (IVF) is not as widely accessible when compared to its accessibility in other parts of the world [4]. The utilization of IVF in Africa varies across countries due to a combination of cultural, religious, and socioeconomic factors [4]. While IVF services are available in many African countries, the accessibility and affordability of these services remain limited. Additionally, cultural and religious beliefs surrounding infertility and ART can influence the acceptance and utilization of IVF. In Nigeria, infertility is a significant reproductive health issue affecting many couples. According to the World Health Organization (WHO), the prevalence of infertility in Nigeria is estimated to be around 25% [1]. As a result, there is a growing demand for infertility treatments, including IVF, in the country.

Previous studies conducted in Nigeria have highlighted the need for research on the knowledge, attitudes, and practices related to IVF among women [10]. These studies have reported varying levels of awareness and knowledge about IVF among women, as well as the influence of crucial and religious beliefs on their acceptance of the procedure. Therefore, conducting a study on the knowledge, perception, and determinants of acceptance of IVF among women attending fertility clinics in selected clinics in Port Harcourt will provide valuable insights into the factors influencing IVF acceptance in this specific Nigerian context.

1.1 Aim and Objectives of the Study

The aim of this study is to ascertain the awareness, perception, and determinant of acceptance of IVF among women attending fertility clinic in selected fertility clinics in Port Harcourt, Rivers State. The specific objectives of this study are:

1. To ascertain the awareness of IVF as a treatment option for infertility among the women attending fertility clinic.
2. To determine the perceptions regarding IVF as a treatment option for infertility among the women attending fertility clinic.
3. To identify the determinants for acceptance of IVF as a treatment option for infertility among the women attending fertility clinic.

1.2 Research Questions

1. What is level of awareness of IVF as a treatment option for infertility among the women attending fertility clinic?
2. What are the perceptions regarding IVF as a treatment option for infertility among the women attending fertility clinic?
3. What are the determinants for acceptance of IVF as a treatment option for infertility among the women attending fertility clinic?

2. LITERATURE REVIEW

2.1 Awareness of In-vitro Fertilization

The awareness of IVF as a method of infertility treatment varies among women of reproductive age, with a significant portion demonstrating high knowledge levels, while others exhibit limited understanding or skepticism [11]. Despite this, there is a considerable lack of awareness about ART such as IVF, among women, with a significant proportion having no knowledge about it [12]. However, studies also indicate a significant level of awareness among women of reproductive age regarding IVF treatments, with a few of these women demonstrating that they are familiar with the procedure and its potential benefits [13]. However, a substantial portion of the population lack adequate knowledge of the nature and affordability of the process [13].

The awareness of assisted reproductive techniques, including IVF, is relatively high, with a significant proportion of participants acknowledging its existence and considering babies born through such methods as normal and natural [14]. Conversely, there is a lack of awareness regarding IVF among infertile women, as evidenced by misconceptions about its efficacy and association with infertility causes like contraceptive pill use [15]. Additionally, studies highlight a moderate level of awareness regarding IVF among both women experiencing infertility and reproductive-age women, with some expressing beliefs in its limited efficacy and cost being a significant barrier, while the majority are informed about the procedure and express positive attitudes towards its potential for addressing infertility [16, 13]. Studies have also suggested that while there is notable awareness and support for gamete donation, there remains reluctance among some individuals to engage in the process, potentially influenced by factors like financial motives, religious beliefs, and concerns about future childlessness [17].

2.2 Perceptions of In-vitro Fertilization

The perception of IVF among women of reproductive age reflects a complex blend of hope and skepticism. While majority perceive IVF as offering hope for their condition, there exists a notable subset who question its naturalness and affordability, indicating a nuanced understanding of the procedure's implications [13]. [18] found that a large proportion of the participants expressed support for ART services, however, a notable percentage of study population cited ethical considerations as a reason for

not supporting such practices of IVF. This suggests a nuanced perception among individuals, where ethical concerns play a significant role in shaping attitudes towards ART [18].

The perceptions of IVF among religious leaders generally indicate awareness and acceptance of its use in managing infertility, though there are attitudinal differences between male and female leaders regarding societal acceptance of individuals born through IVF [19]. The positive perception of IVF among practitioners and clients reflect support, prioritizing women's health over biological age for service provision [20].

2.3 Factors Influencing In-vitro Fertilization

Several studies have highlighted the different factors influencing the acceptance of IVF, including practical (environmental, financial, and physical) and affective (emotional, social, and spiritual) dimensions of wellness, with affective motivations being more prominent in decisions to return for care after failed treatment [21]. The age of the woman undergoing treatment, as well as specific indications such as tubal damage, uterine disorders, and ovulation problems, as determined by factors like Anti-Müllerian Hormone (AMH) and Antral Follicle Count (AFC) values can influence acceptance of IVF [22]. Furthermore, religious affiliation (specifically Catholicism), family income, and age are also determinants of IVF acceptance [23].

Additionally, negative perception towards ART, lack of awareness about ART, significant associations between age and awareness, as well as educational level and perception of ART, and the high cost of ART procedures influences the acceptance of IVF [12]. According to [18], the acceptance of IVF encompasses a range of considerations, including ethical concerns, cultural attitudes, and personal beliefs. While many respondents supported ART services, the presence of ethical considerations highlights the complexity of societal attitudes towards assisted reproduction. Other factors, like the low participation rates in gamete donation programs suggest the presence of barriers or reservations among individuals, which may require further exploration to address and potentially enhance acceptance and participation in such initiatives [18].

2.4 Acceptance of In-vitro Fertilization

Awareness of IVF services and overall perception play significant roles in shaping readiness to utilize IVF, leading to a multifaceted decision-making process regarding fertility treatment options [13]. Hence, the acceptance of participating in gamete donor programs varied among the population, with just over half expressing willingness to participate [18]. Interestingly, a small percentage of female population reported previous involvement in egg donation, while none of the male population had donated sperm [18].

This discrepancy in participation rates may reflect societal norms or personal beliefs regarding gamete donation. The acceptance of assisted reproductive technology (ART), particularly invitro fertilization (IVF), appears to be influenced by factors such as educational background according to the findings of a study [24]. The willingness to accept in vitro fertilization varies among infertile couples, with factors such as perceived cost, involvement in rigorous activities, previous attempts, support from partners, religious beliefs, and societal perceptions influencing acceptance [25]. The level of acceptance of IVF is influenced by factors such as religion, family income, and age, with a significant portion of couples expressing willingness to consider IVF as a fertility option [23].

3. METHODS

A cross-sectional survey involving 175 women accessing fertility clinics in Port Harcourt Metropolis, Nigeria was conducted. Participants completed a questionnaire assessing their awareness, perceptions, and determinants of accepting IVF as a fertility treatment option. Statistical analysis, including descriptive and correlation analysis were utilized to assess levels of awareness, perceptions, and determinants influencing the acceptance of IVF as a treatment option among women attending fertility clinic, as well as the relationships between age, awareness and perception respectively.

4. RESULTS AND DISCUSSION

4.1 Results

Table 1: Awareness of IVF as a Treatment Option for Infertility among the Women Attending Fertility Clinic

Items	Yes	No	Not Sure	Mean	Percent	Outcome
Aware of in vitro fertilization (IVF) as a treatment option for infertility. (Awareness of IVF).	162	13	0	0.93	93%	High Awareness
Heard about the procedure of IVF from reliable sources (e.g., healthcare providers, reputable websites, etc.). (Source of Information).	157	18	0	0.90	90%	High Awareness

Understands the basic concept of IVF and how it works. (Understanding of IVF).	130	32	13	0.74	74%	High Awareness
Familiar with the success rates and potential risks associated with IVF. (Awareness of Success Rates and Risks).	118	38	19	0.67	67%	High Awareness
Feels adequately informed about the availability of IVF services in fertility clinics. (Perceived Adequacy of Information).	124	32	19	0.71	71%	High Awareness
Grand Awareness				0.79	79%	High Awareness

The results from the study on Table 1, reveals a high level of awareness (79%) among women attending fertility clinics regarding IVF as a treatment option for infertility. While there are areas where awareness could be further improved, such as understanding the procedure and its associated factors, the results suggest that IVF is generally well-recognized and understood within this population.

Table 2: Perceptions Regarding IVF as a Treatment Option for Infertility among the Women Attending Fertility Clinic

Items	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	Percent	Outcome
IVF is an effective treatment option for infertility. (Effectiveness)	184	294	62	0	2.73	82%	Positive Perception
Perceives IVF as a safe procedure for addressing infertility issues. (Safety).	188	327	38	0	2.94	89%	Positive Perception
Thinks undergoing IVF treatment is emotionally taxing for individuals/couples. (Emotional Toll).	164	324	26	13	2.79	15%	Negative Perception
Views IVF as a socially acceptable solution for infertility problems. (Social Acceptance).	160	192	128	7	2.01	59%	Moderately Positive Perception
The cost of IVF treatment is justified by its potential benefits. (Cost-Benefit Justification).	84	270	102	13	2.02	63%	Moderately Positive Perception
Grand Perceptions					2.0	62%	Moderately Positive Perception

The overall perception level of 62% with a mean score of 2.00, suggests that, on average, respondents have a moderately positive view of IVF as a treatment option for infertility. While there are strong positive perceptions regarding its effectiveness and safety, there are also concerns about its emotional effect and social acceptance, though to a lesser extent. The study's findings indicate a generally positive perception of IVF among women attending fertility clinics, with recognition of its effectiveness and safety tempered by concerns about emotional challenges and social acceptance, along with considerations regarding the cost-benefit ratio.

Table 3: Determinants for acceptance of IVF as a treatment option for infertility among the women attending fertility clinic

Items	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	Percent	Outcome
Would consider undergoing IVF if recommended by your healthcare provider. (Healthcare Provider Recommendation).	156	348	40	0	2.9	89%	High
Religious or cultural beliefs influence your acceptance of IVF as a treatment option for infertility. (Religious/Cultural Beliefs)	156	228	92	14	2.2	66%	Moderate

The support of your partner/family members would influence your decision to opt for IVF treatment. (Partner/Family Support).	236	285	14	14	3.0	88%	High
Concerned about the potential physical side effects of IVF treatment. (Physical Side Effect).	108	345	54	6	2.6	81%	High
The availability of financial assistance or insurance coverage would impact your decision to undergo IVF treatment. (Financial Consideration).	316	228	14	13	3.1	89%	High
Grand Determinants					2.7	82%	High

Generally, findings suggest that while women attending fertility clinics may generally be open to IVF as a treatment option, with an overall determinant of 82% with a mean score of 2.7, several key determinants influence their acceptance. These include the recommendation of healthcare providers, the support of partners and family members, concerns about physical side effects, and financial considerations. Understanding and addressing these determinants are important for healthcare providers and policymakers in supporting women's decision-making processes regarding IVF treatment.

4.2 Discussion

4.2.1 Awareness of IVF as a Treatment Option for Infertility among the Women attending Fertility Clinic in Port Harcourt

The study reveals a high level of awareness (79%) among women attending fertility clinics regarding IVF as a treatment option for infertility. The findings from the study by [14] indicate a similar trend regarding awareness of assisted reproductive technology (ART) compared to the research on IVF awareness among women attending fertility clinics in Port Harcourt, Nigeria. In both studies, a substantial proportion of participants demonstrated awareness of these fertility treatments, with 65.71% aware of ART in the Sokoto study and 78% aware of IVF in the Port Harcourt study by the current research. The findings from the current study and that of [14] highlight a significant level of awareness among women attending fertility clinics regarding assisted reproductive technologies (ART) and specifically in vitro fertilization (IVF).

This high level of awareness suggests that there is considerable knowledge dissemination about these fertility treatments among the targeted population. Such awareness can potentially lead to increased acceptance and utilization of ART services, empowering individuals to make informed decisions about their reproductive health. Additionally, it underscores the importance of continued education and outreach efforts to ensure broader understanding and access to fertility treatment options, ultimately improving reproductive healthcare outcomes for individuals experiencing infertility.

4.2.2 Perceptions of IVF as a Treatment Option for Infertility among the Women attending Fertility Clinic in Port Harcourt

The findings from the current study on perceptions of IVF among women attending fertility clinics in Port Harcourt, Nigeria, suggest a moderately positive perception of IVF, with 62% of respondents showing favorability towards the procedure. This indicates a growing acceptance and openness towards assisted reproductive technologies (ART) among women seeking fertility treatments in Nigeria. On the other hand, [19] found that 77.7% of religious leaders acknowledged the use of ART in managing infertility, indicating a significant level of awareness and recognition of ART within religious communities. This suggests a potential shift in attitudes within traditionally conservative groups towards embracing modern medical interventions for infertility.

The findings from the study has dual implications. Firstly, among women attending fertility clinics, the moderately positive perception of IVF signifies an increasing willingness to explore alternative methods for overcoming infertility, potentially leading to greater uptake of ART services in Nigeria. Secondly, the recognition of ART by religious leaders highlights the importance of engaging with religious communities in discussions about reproductive health, as their support and endorsement could play a crucial role in shaping societal attitudes towards infertility treatments. These studies emphasize the importance of understanding and addressing societal perceptions and beliefs surrounding infertility and ART, both among healthcare providers and within religious and cultural contexts, to ensure equitable access to reproductive healthcare services and to reduce stigma associated with infertility treatments.

The study conducted by [12] in Lagos, Nigeria found that approximately 68% of the women held negative perceptions about Assisted Reproductive Technologies (ART). This suggests a prevalent negative perception of ART among the participants in Lagos.

In contrast, the study on awareness of IVF among women attending fertility clinics in Port Harcourt, Nigeria, revealed a moderately positive perception (62%) towards IVF as a treatment option for infertility. The findings of the two studies highlight different levels of perception regarding ART and IVF among women in Nigeria (Lagos and Port Harcourt). These findings suggest the importance of targeted educational initiatives and interventions to improve perceptions regarding infertility treatments across different regions in Nigeria.

4.2.3 Determinants of Acceptance of IVF as a Treatment Option for Infertility among the Women attending Fertility Clinic in Port Harcourt

The findings from the recent study on determinants of acceptance of IVF as a treatment option for infertility among women attending fertility clinics in Port Harcourt, Nigeria, indicate that healthcare provider recommendation, support from partners and family members, concerns about physical side effects, and financial considerations significantly influence IVF acceptance. This aligns with the previous study by [12], which identified negative perceptions and high costs of assisted reproductive technology (ART), including IVF, as significant barriers to its acceptance among women in Lagos, Nigeria. These findings all accentuate the importance of addressing not only financial barriers but also enhancing community awareness about the benefits of IVF and other ART procedures. Additionally, promoting supportive environments within families and healthcare settings could play a crucial role in promoting acceptance of IVF as a viable treatment option for infertility.

5. CONCLUSIONS

The study indicates a high level of awareness and generally positive perceptions of in vitro fertilization (IVF) among women attending fertility clinics. While awareness and perceptions are generally positive, there are varying levels of understanding and acceptance influenced by factors such as age, healthcare provider recommendation, social support, concerns about physical side effects, and financial considerations.

6. RECOMMENDATIONS

1. Healthcare providers should continue to disseminate accurate information about IVF to improve understanding, particularly regarding the procedure, outcomes, and potential risks.
2. Efforts should be made by health workers and other stake holders to address emotional and social concerns associated with IVF through counseling and support services for individuals and couples undergoing treatment.
3. Policymakers should explore options to increase financial assistance or insurance coverage for IVF to alleviate cost concerns as a barrier to treatment.
4. Public awareness campaigns should aim to reduce stigma surrounding IVF and highlight its importance as a legitimate and effective treatment option for infertility.

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