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# Knowledge, Attitude, Perception and Acceptance of In Vitro-Fertilization among Women of Reproductive Age in Abia State, Nigeria

**Emmanuel M. Akwuruoha[1]*, Cyril U. Akwuruoha[2], Udo I. Uche[3], Augustine I. Airaodion[4]**

[1]*Department of Obstetrics and Gynaecology, Abia State University Teaching Hospital, Aba, Nigeria.*
[2]*Obstetrics and Gynaecology Unit, Simeone Hospital, Aba, Abia State, Nigeria.*
[3]*Department of Obstetrics and Gynaecology, Federal Medical Centre, Umuahia, Abia State, Nigeria.*
[4]*Department of Biochemistry, Lead City University, Ibadan, Oyo State, Nigeria.*
**Corresponding author: Emmanuel M. Akwuruoha.*

## Abstract

**Background:** In vitro fertilization (IVF) remains one of the most effective assisted reproductive technologies for managing infertility, yet its uptake in many low- and middle-income settings is influenced by limited awareness, cultural norms, religious beliefs, cost, and health system factors. Understanding women's knowledge, attitudes, perceptions, and acceptance of IVF is essential for improving reproductive health services and informed decision-making.

**Objectives:** This study assessed the level of knowledge, attitude, perception, and acceptance of IVF among women of reproductive age attending Abia State University Teaching Hospital (ABSUTH), Aba, and Federal Medical Centre (FMC), Umuahia, Abia State, Nigeria, and examined factors associated with IVF acceptance.

**Materials and Methods:** A hospital-based descriptive cross-sectional study was conducted among 368 women aged 15-49 years attending gynaecology, antenatal, and general outpatient clinics at ABSUTH and FMC, Umuahia. Participants were selected using systematic random sampling. Data were collected with a validated, interviewer-administered questionnaire covering socio-demographic characteristics, knowledge, attitude, perception, and acceptance of IVF. Data were analyzed using SPSS version 25. Descriptive statistics summarized the variables, while chi-square tests and logistic regression examined the associations. Statistical significance was set at $p < 0.05$.

**Results:** Awareness of IVF was high, with 77.7% of respondents reporting prior knowledge, mainly through the internet, health workers, and mass media. Overall, 35.3% demonstrated good to very good knowledge, while 29.9% had poor or very poor knowledge. More than half of the respondents expressed positive attitudes toward IVF, and 56.0% perceived IVF as morally acceptable. Acceptance of IVF was moderate, with 53.8% willing to personally accept the procedure and 58.2% willing to recommend it. Cost, partner support, fear of failure, and stigma were major factors influencing acceptance. Knowledge, attitude, perception, and acceptance scores showed significant positive correlations. IVF acceptance was significantly associated with age, marital status, educational level, history of infertility, knowledge level, attitude, perception of safety, religious beliefs, and cost concerns ($p < 0.05$).

**Conclusion:** Although awareness of IVF among women of reproductive age in Abia State is relatively high, gaps remain in comprehensive knowledge, perception, and acceptance. Socio-demographic factors, personal beliefs, and financial constraints strongly influence acceptance. Strengthening counseling services, improving access to accurate information, engaging community and religious stakeholders, and reducing the cost of IVF through policy support and subsidies could enhance acceptance and utilization.

**Keywords:** in vitro fertilization; knowledge; attitude; perception; acceptance; infertility; Nigeria

## Introduction

Infertility is a significant reproductive health concern worldwide, affecting millions of couples and individuals of reproductive age. It is generally defined as the inability to achieve pregnancy after at least 12 months of regular unprotected sexual intercourse [1,2]. Although fertility rates remain high in many parts of Africa, infertility prevalence is nonetheless substantial and has serious social, psychological, and economic implications for affected women and couples. Women often bear the predominant social burden of infertility in many cultures, being blamed for childlessness regardless of the underlying cause [3,4]. This can contribute to stigma, marital strain, and psychological distress in settings where childbearing is central to social identity and family continuity. Globally, the World Health Organization has recently underscored infertility and its management as neglected public health issues that require integrated policies, improved education, and equitable access to care, especially in low- and middle-

income countries where financial and service barriers are most pronounced [5].

In vitro fertilization (IVF) is among the most widely known assisted reproductive technologies (ART). It involves fertilizing an egg with sperm in a laboratory environment and transferring the resulting embryo to a woman's uterus to achieve pregnancy [6,7]. IVF has evolved considerably since its inception and has enabled many individuals and couples to achieve parenthood where natural conception was not possible. In high-income countries, IVF use has grown substantially, supported by expanded clinical capacity, improved safety protocols, and systematic monitoring [8,9]. However, even in these settings, misconceptions about procedure success, safety, and cost persist across different population groups.

In Nigeria, the landscape of infertility and IVF services reflects broader health system challenges. Nigeria's population exceeds 200 million, yet access to specialized infertility care, including IVF, is limited. Recent reports estimate that only a small fraction of the population who could benefit from ART receive IVF cycles annually, revealing a large unmet need for these services [10]. Factors such as high out-of-pocket costs, limited clinic distribution concentrated in urban centres, and inadequate public awareness about available treatments exacerbate this gap.

The knowledge, attitudes, perceptions, and acceptance of IVF within Nigerian communities are influenced by diverse determinants spanning educational background, cultural beliefs, religion, socio-economic status, and healthcare engagement. Studies across different Nigerian settings have documented varying levels of awareness and understanding of IVF and ART. Research from southwestern and southern Nigeria indicates that while a majority of women in some contexts have heard of IVF and other ARTs, significant proportions are uncertain about how these technologies work, the implications of treatment, or where to seek services [10,11]. Many respondents hold mixed perceptions of IVF, with some expressing positive attitudes toward its potential to address infertility, while others express reservations rooted in cultural or religious interpretations of conception and medical intervention in reproduction. Cost remains a commonly cited barrier, as does concern about the "unnatural" nature of laboratory conception and fears about health outcomes for mother and child.

In southern Nigerian research, such as studies in Lagos and Edo States, evidence suggests that awareness of IVF can be moderately high among women attending fertility clinics, but acceptance levels vary widely [11,12]. Positive perceptions are often linked to personal experience with infertility and encouragement from healthcare providers, while resistance can stem from cultural norms that prioritize natural conception and hold deep-seated beliefs about medical intervention in human reproduction. Factors like family support, religious doctrine, and economic capacity shape attitudes and acceptance of IVF. Even when women are aware of IVF, incomplete knowledge and misperceptions about its costs, risks, and outcomes can reduce willingness to pursue it [13].

Moreover, studies in Nigeria demonstrate that broader public awareness of assisted reproductive technologies beyond clinical settings remains limited. Surveys that include women not specifically attending fertility clinics show that knowledge of ART, including IVF, is often lower in general populations, particularly where education levels are lower or where cultural stigmas about infertility prevail [10,12]. Research conducted in other African contexts corroborates this pattern, noting that socio-cultural and religious beliefs significantly shape perceptions of what is considered acceptable reproductive intervention.

Despite these challenges, there is evidence that improving women's knowledge about IVF and integrating reproductive health education into public health messaging can positively influence attitudes and acceptance of ART. Positive attitudes toward IVF have been associated with higher levels of education and direct engagement with health professionals, suggesting that targeted education and counselling could play a key role in enhancing informed decision-making among women of reproductive age [14]. As reproductive technologies become more available and public discourse around infertility broadens, understanding the interplay between knowledge, attitude, perception, and acceptance of IVF is crucial for designing responsive health services that meet the needs of women and couples in Nigeria.

The proposed study focused on women of reproductive age in Abia State, is timely because it seeks to explore these dimensions in a setting where empirical evidence is limited. Abia State, like much of southern Nigeria, reflects a blend of urban and rural communities, varying educational attainment, and diverse cultural practices that may influence reproductive health behaviours. Investigating women's knowledge, attitudes, perceptions, and

acceptance of IVF in this context will generate data that can inform health education, service planning, and policy formulation aimed at addressing the infertility burden and improving access to ART services.

## Materials and Methods

### Study Design

A hospital-based descriptive cross-sectional study design was adopted. This design was considered appropriate for assessing the level of knowledge, attitudes, perceptions, and acceptance of IVF among the target population at a specific point in time.

### Study Area

The study was conducted in two major public tertiary health facilities in Abia State, Nigeria: Abia State University Teaching Hospital (ABSUTH), Aba, and Federal Medical Centre (FMC), Umuahia. These facilities serve as referral centres for reproductive health services, including infertility management and assisted reproductive technologies such as in vitro fertilization (IVF), catering to patients from both urban and rural communities, making it an appropriate setting for assessing knowledge, attitude, perception, and acceptance of assisted reproductive technologies such as In vitro fertilization (IVF) among women of reproductive age.

### Study Population

The study population comprised infertile couples attending the gynaecology and fertility clinics of ABSUTH, Aba and FMC Umuahia during the study period. These included the gynaecology clinic, antenatal clinic, and general outpatient clinic. Women who were married, unmarried, nulliparous, or multiparous were included, irrespective of their fertility status, provided they met the inclusion criteria. Infertility will be defined as the inability to achieve pregnancy after 12 months or more of regular unprotected sexual intercourse.

### Inclusion and Exclusion Criteria

### Inclusion Criteria

- Women aged 15-49 years attending clinics at ABSUTH and FMC during the study period.
- Women who were willing to participate and provided informed consent.
- Women who were mentally and physically stable at the time of data collection.

### Exclusion Criteria

- Women who were critically ill or unable to respond to the questionnaire.
- Women who declined to give consent.
- Women outside the reproductive age range.

### Sample Size Determination

The sample size was determined using Cochran's formula for estimating population proportions, as outlined by Ezebuiro et al. [15]:

$$n = \frac{Z^2(Pq)}{e^2}$$

The formula components are defined as follows:

- n represents the minimum required sample size.
- Z is set at 1.96, corresponding to a 95% confidence level.
- P denotes the established proportion of women with knowledge of IVF in Nigeria.
- e signifies the allowable margin of error, fixed at 5% (0.05).

q = 1 - p

A recent study conducted by Enuku & Ehwarieme [12] reported the proportion of women with knowledge of IVF in Nigeria as 32%

P = 32% = 0.32

q = 1 - 0.32

= 0.68

$$n = \frac{(1.96)^2(0.32 \times 0.68)}{(0.05)^2}$$

$$n = \frac{3.8416 \times (0.2178)}{0.0025}$$

$$n = \frac{0.8359}{0.0025} = 334.37$$

The minimum sample size was 334, but it was adjusted to 368 to account for a 10% non-response rate.

### Sampling Technique

One-third of the questionnaire (123) was administered at FMC, while the remaining 245 were administered at ABUTH since ABUTH has more patients than FMC. A systematic random sampling technique was employed. On each clinic day, the average number of women attending the selected clinics was estimated. A sampling interval was calculated by dividing the estimated clinic attendance by the required number of respondents for that clinic, as described by a recent study [16]. The first respondent was selected through simple random sampling, after which every fourth eligible woman was recruited until the desired sample size was achieved.

### Study Instrument

 

Data were collected using a structured, interviewer-administered questionnaire developed by the researchers after an extensive review of relevant literature. The questionnaire was designed in simple English to ensure clarity and ease of understanding.

The instrument consisted of five sections:

- *Section A:* Socio-demographic characteristics (age, marital status, education, occupation, religion, parity, and duration of marriage).
- *Section B:* Knowledge of IVF (awareness, sources of information, basic understanding of IVF procedures, indications, success rates, and complications).
- *Section C:* Attitude toward IVF (personal beliefs, cultural and religious views, willingness to consider IVF).
- *Section D:* Perception of IVF (perceived safety, effectiveness, moral acceptability, and societal acceptance).
- *Section E:* Acceptance of IVF (readiness to use IVF, recommend IVF, and factors influencing acceptance such as cost, accessibility, partner support, and stigma).

Responses were measured using a combination of multiple-choice questions and Likert scale items.

## Validity of the Instrument

Face and content validity of the questionnaire were ensured by submitting the instrument to experts in obstetrics and gynaecology, public health, and reproductive health research. Their comments and suggestions were used to refine the questionnaire to ensure relevance, clarity, and adequacy in addressing the study objectives.

## Reliability of The Instrument

The reliability of the questionnaire was assessed through a pretest conducted among women of reproductive age attending a similar tertiary health facility outside the study area. Data obtained from the pretest were analyzed, and internal consistency was determined using Cronbach's alpha. A coefficient of 0.70 and above was considered acceptable.

## Data Collection Procedure

Data collection was carried out over a specified period by trained research assistants. The purpose of the study was explained to eligible participants, and informed consent was obtained before questionnaire administration. Interviews were conducted in a private and comfortable environment within the hospital to ensure confidentiality and encourage honest responses. Each questionnaire was checked for completeness immediately after administration.

## Measurement of Variables

- *Knowledge of IVF:* Assessed using a set of knowledge-based questions. Correct responses were scored as one point, while incorrect or "don't know" responses were scored as zero. Total scores were categorized into poor, fair, and good knowledge based on predetermined cut-off points.
- *Attitude toward IVF:* Measured using Likert scale statements ranging from strongly agree to strongly disagree. Higher scores indicated a more positive attitude.
- *Perception of IVF:* Evaluated through perception-related statements assessing beliefs, safety concerns, cultural acceptability, and moral views.
- *Acceptance of IVF:* Determined by respondents' willingness to use or recommend IVF and their readiness to consider the procedure under various circumstances.

## Data Management and Analysis

Completed questionnaires were coded and entered into the Statistical Package for Social Sciences (SPSS) software, version 25. Data cleaning was performed to ensure accuracy and completeness. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarise the variables. Inferential statistics, including chi-square tests and logistic regression analysis, were used to determine associations between socio-demographic factors and levels of knowledge, attitude, perception, and acceptance of IVF. Statistical significance was set at $p < 0.05$.

## Ethical Considerations

Ethical approval for the study was obtained from the Research Ethics Committee of Abia State University Teaching Hospital, Aba with reference number ABSUTH/MAC/117/VOLII/78. Participation was entirely voluntary, and informed consent was obtained from all respondents. Confidentiality and anonymity were strictly maintained by excluding personal identifiers from the questionnaires. Participants were informed of their right to withdraw from the study at any time without any consequences to their medical care.

## Limitations of The Study

As a hospital-based cross-sectional study, findings may not be fully generalizable to all women of reproductive age in Abia State. Additionally, responses were self-

reported and may be influenced by social desirability bias. However, these limitations were minimized through assurance of confidentiality and the use of trained interviewers.

## Results

The respondents were predominantly within the active reproductive age group, with most women aged between 25 and 39 years. A large proportion were married, and among those currently married, the majority had been in marriage for between one and ten years. Educational attainment was relatively high, as over half of the respondents had completed tertiary or postgraduate education. Trading and civil service were the most common occupations, while Christianity and Igbo ethnicity were dominant. Most respondents had at least one child, although a substantial proportion reported a history of infertility, mainly of the primary type and lasting between one and five years (Table 1).

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

| Variable | Frequency (n = 368) | Percentage (%) |
|---|---|---|
| **Age (Years)** | | |
| 18-24 | 47 | 12.8 |
| 25-29 | 82 | 22.3 |
| 30-34 | 96 | 26.1 |
| 35-39 | 71 | 19.3 |
| 40-44 | 49 | 13.3 |
| 45-49 | 23 | 6.3 |
| **Marital Status** | | |
| Single | 74 | 20.1 |
| Married | 236 | 64.1 |
| Separated | 19 | 5.2 |
| Divorced | 21 | 5.7 |
| Widowed | 18 | 4.9 |
| **Duration of Marriage (n = 236)** | | |
| < 1 year | 31 | 13.1 |
| 1-5 years | 79 | 33.5 |
| 6-10 years | 64 | 27.1 |
| 11-15 years | 38 | 16.1 |
| > 15 years | 24 | 10.2 |
| **Educational Level** | | |
| No formal education | 26 | 7.1 |
| Primary | 49 | 13.3 |
| Secondary | 97 | 26.4 |
| Tertiary | 151 | 41.0 |
| Postgraduate | 45 | 12.2 |
| **Occupation** | | |
| Unemployed | 52 | 14.1 |
| Student | 43 | 11.7 |
| Trader | 96 | 26.1 |
| Civil servant | 78 | 21.2 |
| Artisan | 41 | 11.1 |
| Professional | 38 | 10.3 |
| Others | 20 | 5.4 |
| **Religion** | | |
| Christianity | 321 | 87.2 |
| Islam | 29 | 7.9 |
| Traditional | 11 | 3.0 |
| Others | 7 | 1.9 |
| **Ethnicity** | | |
| Igbo | 314 | 85.3 |

 

| | | |
|---|---|---|
| Yoruba | 23 | 6.3 |
| Hausa | 17 | 4.6 |
| Others | 14 | 3.8 |
| **Parity** | | |
| None | 83 | 22.6 |
| 1-2 | 141 | 38.3 |
| 3-4 | 96 | 26.1 |
| ≥ 5 | 48 | 13.0 |
| **History of Infertility** | | |
| Yes | 157 | 42.7 |
| No | 211 | 57.3 |
| **Duration of Infertility (n = 157)** | | |
| < 1 year | 29 | 18.5 |
| 1-5 years | 57 | 36.3 |
| 6-10 years | 43 | 27.4 |
| > 10 years | 28 | 17.8 |
| **Type of Infertility** | | |
| Primary | 89 | 56.7 |
| Secondary | 48 | 30.6 |
| Not sure | 20 | 12.7 |

Awareness of In Vitro fertilization was generally high, with over three-quarters of respondents having heard of IVF. Information was most commonly obtained from the internet and social media, followed by health workers and broadcast media. While more than half correctly understood that IVF involves fertilization outside the body and can address both male and female infertility, notable knowledge gaps remained, particularly regarding the availability of IVF services in teaching hospitals and potential health risks. Overall, knowledge levels were mostly rated as fair to good, though a considerable minority still demonstrated poor or very poor knowledge (Table 2).

**Table 2:** Knowledge of In Vitro Fertilization.

| Variable | Frequency (n = 368) | Percentage (%) |
|---|---|---|
| Ever heard of IVF (Yes) | 286 | 77.7 |
| Ever heard of IVF (No) | 82 | 22.3 |
| **Source of Information*** | | |
| Health workers | 126 | 44.1 |
| Television/Radio | 98 | 34.3 |
| Internet/social media | 137 | 47.9 |
| Friends/Relatives | 84 | 29.4 |
| Religious institutions | 57 | 19.9 |
| Newspapers/Magazines | 49 | 17.1 |
| IVF involves fertilization outside body (True) | 219 | 59.5 |
| False | 73 | 19.8 |
| Not sure | 76 | 20.7 |
| IVF treats male & female infertility (Yes) | 201 | 54.6 |
| No | 81 | 22.0 |
| Not sure | 86 | 23.4 |
| IVF only for women unable to conceive (Agree) | 134 | 36.4 |
| Disagree | 156 | 42.4 |
| Not sure | 78 | 21.2 |
| IVF success depends on age/health (Yes) | 243 | 66.0 |
| No | 51 | 13.9 |
| Not sure | 74 | 20.1 |
| IVF may cause multiple births (Yes) | 227 | 61.7 |

| | | |
|---|---|---|
| No | 49 | 13.3 |
| Not sure | 92 | 25.0 |
| IVF associated with health risks (Yes) | 193 | 52.4 |
| No | 64 | 17.4 |
| Not sure | 111 | 30.2 |
| Teaching hospital offers/refers IVF (Yes) | 142 | 38.6 |
| No | 87 | 23.6 |
| Not sure | 139 | 37.8 |
| **Overall, Knowledge Rating** | | |
| Very poor | 41 | 11.1 |
| Poor | 69 | 18.8 |
| Fair | 128 | 34.8 |
| Good | 94 | 25.5 |
| Very good | 36 | 9.8 |

**Multiple responses allowed*

Attitudes toward IVF were largely positive. More than half of the respondents agreed that IVF is an acceptable solution to infertility and indicated willingness to consider it if natural conception was not possible. Many also supported the use of medical technologies for infertility management. However, cultural and religious influences remained relevant, as a sizable proportion felt that cultural beliefs discourage IVF use and were uncertain about religious support. Encouragingly, most respondents reported being comfortable discussing IVF with health professionals (Table 3).

**Table 3:** Attitude toward In Vitro Fertilization among Respondents.

| Variable | Frequency (n = 368) | Percentage (%) |
|---|---|---|
| **IVF is an acceptable solution for infertility** | | |
| Strongly agree | 96 | 26.1 |
| Agree | 112 | 30.4 |
| Neutral | 71 | 19.3 |
| Disagree | 53 | 14.4 |
| Strongly disagree | 36 | 9.8 |
| **Would consider IVF if unable to conceive naturally** | | |
| Strongly agree | 88 | 23.9 |
| Agree | 104 | 28.3 |
| Neutral | 79 | 21.5 |
| Disagree | 57 | 15.5 |
| Strongly disagree | 40 | 10.9 |
| **Infertility should be managed using medical technologies like IVF** | | |
| Strongly agree | 101 | 27.4 |
| Agree | 119 | 32.3 |
| Neutral | 62 | 16.8 |
| Disagree | 51 | 13.9 |
| Strongly disagree | 35 | 9.5 |
| **Cultural beliefs discourage IVF use** | | |
| Strongly agree | 74 | 20.1 |
| Agree | 97 | 26.4 |
| Neutral | 68 | 18.5 |
| Disagree | 79 | 21.5 |
| Strongly disagree | 50 | 13.6 |
| **Religious beliefs support IVF** | | |
| Strongly agree | 69 | 18.8 |
| Agree | 93 | 25.3 |
| Neutral | 81 | 22.0 |
| Disagree | 77 | 20.9 |

 

| | | |
|---|---|---|
| Strongly disagree | 48 | 13.0 |
| **Comfortable discussing IVF with health professionals** | | |
| Yes | 214 | 58.2 |
| No | 96 | 26.1 |
| Not sure | 58 | 15.8 |

In terms of perception, just over half of the respondents viewed IVF as a safe medical procedure and believed that children conceived through IVF are as healthy as those conceived naturally. More than half considered IVF morally acceptable. At the same time, religious concerns persisted, with many respondents perceiving IVF as interfering with God's will. Social acceptance appeared mixed, and over half of the respondents believed that women who undergo IVF face stigma within society (Table 4).

**Table 4:** Perception of In Vitro Fertilization among Respondents.

| Variable | Frequency (n = 368) | Percentage (%) |
|---|---|---|
| **IVF is a safe medical procedure** | | |
| Strongly agree | 82 | 22.3 |
| Agree | 109 | 29.6 |
| Neutral | 91 | 24.7 |
| Disagree | 56 | 15.2 |
| Strongly disagree | 30 | 8.2 |
| **IVF children are as healthy as naturally conceived children** | | |
| Strongly agree | 77 | 20.9 |
| Agree | 118 | 32.1 |
| Neutral | 83 | 22.6 |
| Disagree | 59 | 16.0 |
| Strongly disagree | 31 | 8.4 |
| **IVF is morally acceptable** | | |
| Yes | 206 | 56.0 |
| No | 94 | 25.5 |
| Not sure | 68 | 18.5 |
| **IVF interferes with God's will** | | |
| Strongly agree | 85 | 23.1 |
| Agree | 98 | 26.6 |
| Neutral | 63 | 17.1 |
| Disagree | 74 | 20.1 |
| Strongly disagree | 48 | 13.0 |
| **Society accepts women who use IVF** | | |
| Strongly agree | 61 | 16.6 |
| Agree | 99 | 26.9 |
| Neutral | 87 | 23.6 |
| Disagree | 78 | 21.2 |
| Strongly disagree | 43 | 11.7 |
| **Women who undergo IVF face stigma** | | |
| Yes | 193 | 52.4 |
| No | 107 | 29.1 |
| Not sure | 68 | 18.5 |

Acceptance of IVF was moderate. Slightly more than half of the respondents indicated they would personally accept IVF and would recommend it to others. Cost emerged as the most influential factor affecting acceptance, alongside partner support, fear of failure, and fear of stigma. Most respondents agreed that high cost discourages IVF use, and a large majority believed that making IVF more affordable would significantly improve acceptance. Partner opinion was also a strong determinant of decision-making (Table 5).

**Table 5:** Acceptance of IVF

| Variable | Frequency (n = 368) | Percentage (%) |
|---|---|---|
| Would personally accept IVF (Yes) | 198 | 53.8 |
| No | 112 | 30.4 |
| Not sure | 58 | 15.8 |
| Would recommend IVF (Yes) | 214 | 58.2 |
| No | 96 | 26.1 |
| Not sure | 58 | 15.8 |
| **Factors Influencing Acceptance*** | | |
| Cost | 271 | 73.6 |
| Accessibility | 184 | 50.0 |
| Partner support | 219 | 59.5 |
| Family support | 176 | 47.8 |
| Religious beliefs | 141 | 38.3 |
| Cultural beliefs | 128 | 34.8 |
| Fear of failure | 162 | 44.0 |
| Fear of stigma | 149 | 40.5 |
| Partner's opinion influences decision (Agree) | 238 | 64.7 |
| Neutral | 73 | 19.8 |
| Disagree | 57 | 15.5 |
| High cost discourages IVF (Agree) | 283 | 76.9 |
| Neutral | 47 | 12.8 |
| Disagree | 38 | 10.3 |
| Affordable IVF would improve acceptance (Yes) | 264 | 71.7 |
| No | 51 | 13.9 |
| Not sure | 53 | 14.4 |

**Multiple responses allowed*

From a health system perspective, less than half of the respondents had received infertility counseling, and many felt that health workers did not provide adequate information about IVF. Health talks and media campaigns were the preferred methods for education. An overwhelming majority believed that government subsidy would improve IVF uptake, highlighting the importance of policy-level interventions (Table 6).

**Table 6:** Health System & Information Needs.

| Variable | Frequency (n = 368) | Percentage (%) |
|---|---|---|
| Received infertility counselling (Yes) | 129 | 35.1 |
| No | 239 | 64.9 |
| Health workers give adequate IVF info (Agree) | 143 | 38.9 |
| Neutral | 89 | 24.2 |
| Disagree | 136 | 36.9 |
| **Preferred education method** | | |
| Health talks | 121 | 32.9 |
| Media campaigns | 97 | 26.4 |
| Religious/community engagement | 84 | 22.8 |
| One-on-one counseling | 66 | 17.9 |
| Government subsidy improves uptake (Yes) | 291 | 79.1 |
| No | 43 | 11.7 |
| Not sure | 34 | 9.2 |

Correlation analysis revealed significant positive relationships among knowledge, attitude, perception, and acceptance of IVF. Higher knowledge scores were associated with more positive attitudes, better perceptions, and greater acceptance. Attitude showed the strongest correlation with acceptance,

underscoring its central role in decision-making regarding IVF (Table 7).

**Table 7:** Correlation Analysis Between Key Study Variables (Pearson's r, n = 368).

| Variables | Knowledge Score | Attitude Score | Perception Score | Acceptance Score |
|---|---|---|---|---|
| Knowledge | 1.000 | 0.462* | 0.398* | 0.521* |
| Attitude | 0.462* | 1.000 | 0.573* | 0.684* |
| Perception | 0.398* | 0.573* | 1.000 | 0.611* |
| Acceptance | 0.521* | 0.684* | 0.611* | 1.000 |

**Correlation significant at $p < 0.05$*

Further analysis showed that IVF acceptance was significantly associated with age, marital status, educational level, history of infertility, knowledge level, attitude, perception of IVF safety, religious beliefs, and cost concerns. These findings indicate that acceptance of IVF is shaped by a complex interaction of socio-demographic, cognitive, cultural, and economic factors (Table 8).

**Table 8:** Chi-Square Analysis of Factors Associated with IVF Acceptance.

| Variable | $\chi^2$ value | df | p-value | Remark |
|---|---|---|---|---|
| Age group | 14.73 | 5 | 0.012 | Significant |
| Marital status | 18.96 | 4 | 0.001 | Significant |
| Educational level | 27.41 | 4 | <0.001 | Significant |
| History of infertility | 31.58 | 1 | <0.001 | Significant |
| Knowledge level | 42.09 | 4 | <0.001 | Significant |
| Attitude toward IVF | 56.84 | 4 | <0.001 | Significant |
| Perception of IVF safety | 24.17 | 4 | 0.002 | Significant |
| Religious belief | 16.88 | 2 | 0.004 | Significant |
| Cost concern | 33.62 | 1 | <0.001 | Significant |

## Discussion

In vitro fertilization has become an important option for managing infertility, yet its uptake in many parts of Nigeria remains limited. Women's knowledge, attitudes, perceptions, and willingness to accept IVF are strongly shaped by social, cultural, religious, and health system factors. Understanding these dimensions is essential for designing effective reproductive health interventions. This study assessed the level of knowledge, attitude, perception, and acceptance of in vitro fertilization among women of reproductive age attending a tertiary health facility in Abia State, Nigeria, and examined factors associated with acceptance of IVF.

The socio-demographic profile of the 368 women who participated in this study shows a diverse range of ages, marital statuses, and educational backgrounds, with most respondents between 25 and 39 years. A majority were married, had at least a secondary education, and were predominantly of Igbo ethnicity. More than four in ten reported a history of infertility, with primary infertility being the most common type among those affected. This context reflects the lived reality in many parts of Nigeria, where infertility is a major reproductive health issue with deep personal and social implications.

Our findings indicate that a significant proportion (77.7%) of participants had heard of IVF, suggesting moderate awareness of assisted reproductive technology in Abia State. This is broadly consistent with studies in other Nigerian settings. For example, a study conducted among women attending fertility clinics in Port Harcourt found a similar level of awareness, reporting that about 79% of women had heard of IVF as a treatment option for infertility [17]. However, awareness alone did not equate to deep understanding. In our study, fewer women could correctly identify specific aspects of IVF, such as its role in treating both male and female infertility or its potential risks. Overall knowledge ratings clustered around fair and good levels but still left a sizeable portion with poor or very poor knowledge. Such variation aligns with what has been documented in Akure, where a majority had heard about IVF but understanding of its detailed mechanisms and benefits remained limited [18].

The primary sources of information in our study included the internet and social media, health workers, and traditional media. This mix reflects the

shifting landscape of health information channels in Nigeria, where digital platforms increasingly shape understanding but healthcare professionals remain trusted sources. The reliance on multiple sources echoes findings from other public awareness studies on assisted reproductive technologies in Nigeria, which highlighted that awareness often stems from general media exposure rather than structured clinical education [19]. This underscores the need to strengthen formal health communication through clinics and community outreach to improve both depth and accuracy of IVF knowledge.

Attitude toward IVF among respondents was generally positive. A majority agreed that IVF is an acceptable solution for infertility and that medical technologies should be used to address infertility challenges. However, almost one in five remained neutral or disagreed with these statements, reflecting ambivalence in the community. This pattern mirrors findings from Sokoto and other parts of northern Nigeria, where acceptability of assisted reproductive technologies showed mixed attitudes despite overall recognition of their utility [20]. Cultural and religious influences were evident, with a notable segment acknowledging that cultural beliefs discourage IVF use. This resonates with research in Edo State, where cultural and religious frameworks significantly shaped perceptions of IVF as unnatural or contrary to divine will, thereby dampening acceptability [12].

Perception of IVF safety and outcomes also showed a blend of optimism and uncertainty. While many participants agreed that IVF is safe and that children conceived through IVF are as healthy as others, there was substantial neutrality and disagreement, signifying lingering doubts. These perceptions influence not just individual decisions but also community endorsement of IVF. Similar complexities in perception have been reported in studies on Nigerian women's views towards infertility and assisted reproductive technologies, where high awareness did not always translate into confidence or acceptability of all ART options [17,20].

When it comes to acceptance, more than half of the participants indicated personal acceptance and willingness to recommend IVF, yet a significant minority remained unsure or opposed. The prominence of cost as a barrier in this study is striking, with nearly three-quarters citing it as a factor influencing acceptance. Accessibility, partner support, religious beliefs, fear of stigma, and cultural norms also weighed heavily in decision-making. These influences are well documented in the broader infertility research literature. For instance, financial constraints and stigma have been highlighted in cross-cultural IVF acceptance studies, including work from Saudi Arabia, where cost and societal attitudes were substantial barriers despite high awareness [21].

The health systems and information need data show that a majority of women had not received counseling on infertility or adequate information on IVF from health professionals. Respondents expressed a clear preference for health talks, media campaigns, community engagement, and one-on-one counseling to improve their understanding of IVF [17]. More than three-quarters believed that government subsidies would enhance uptake. These findings reflect a gap in reproductive health services where comprehensive counseling and supportive policy interventions could empower women to make informed choices about infertility treatment options.

The correlational analysis further substantiates that better knowledge correlates with more positive attitudes, perceptions, and acceptance of IVF. Attitude and perception also showed strong positive relationships with acceptance. These associations reaffirm theoretical constructs in health behavior models, which posit that greater knowledge and positive beliefs about a health intervention increase the likelihood of its uptake and recommendation [18].

Chi-square analyses underline the significance of various socio-demographic and psychosocial factors in IVF acceptance. Age, marital status, educational level, history of infertility, knowledge, attitude, perception of safety, religious beliefs and cost concerns were all significantly associated with acceptance of IVF. These results are consistent with previous empirical findings in Nigerian and other African settings showing that socio-demographic and socio-cultural factors such as education, age, and economic status are critical determinants of attitudes and uptake of assisted reproductive technologies [17,20].

## Conclusion

Our findings show that while awareness and acceptance of IVF among women in Abia State are reasonably high, significant gaps remain in deep understanding, positive perception, and unencumbered acceptance. Socio-cultural, religious, and economic factors continue to shape women's reproductive health decisions in profound ways. To improve IVF knowledge and acceptance, it is essential

 

to enhance health education efforts, integrate infertility counseling into routine reproductive health services, and engage community leaders to address cultural and religious concerns. Policymakers should also consider financial support mechanisms to make IVF more accessible, reducing barriers associated with cost and enhancing reproductive autonomy for women and couples.

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