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Awareness of infertility and utilization of fertility treatment and services among couples in Imo State

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Abstract
This study investigates the prevalence, contributing factors, awareness, and psychological and social impacts of infertility among couples in Imo State, Nigeria. Infertility is a growing public health concern, particularly in developing countries where cultural and societal pressures around childbearing are strong. Using a mixed-methods approach, data was collected from 100 couples experiencing infertility. The results revealed a high infertility rate of 30%, with secondary infertility being more prevalent than primary infertility. Key contributing factors identified include Polycystic Ovary Syndrome (PCOS) and stress, highlighting the need for early diagnosis and management of these conditions. The findings also indicate low levels of awareness and utilization of fertility treatments, with only 40% of respondents aware of available options, a reflection of potential gaps in reproductive health education and access to fertility services. Psychological impacts were significant, as 70% of participants reported experiencing mental health challenges such as depression, anxiety, and low self-esteem, often exacerbated by societal and familial pressures. However, social support systems, including family and religious communities, were found to play a critical role in helping couples cope with the psychological strain of infertility. The study identified key barriers to treatment, including financial constraints and limited awareness, emphasizing the need for comprehensive interventions that address both medical and psychosocial aspects of infertility. Recommendations include establishing accessible fertility centers, integrating mental health support into fertility care, implementing public health campaigns to raise awareness, and developing policies to reduce financial barriers. This study provides valuable insights into the complex nature of infertility in Imo State and offers evidence-based recommendations to improve reproductive health outcomes and support systems for affected couples.

Keywords: Secondary infertility, Polycystic Ovary Syndrome (PCOS), stress, financial constraints

Introduction

Infertility is a global health issue that affects millions of couples worldwide, leading to significant social, psychological, and economic implications (Sharma and Shrivastava, 2022) [10]. The World Health Organization (WHO) defines infertility as the inability to conceive after one year of regular, unprotected sexual intercourse. This condition impacts not only the physical health of individuals but also their emotional and mental well-being, often leading to feelings of guilt, shame, and depression. According to recent estimates by the WHO, approximately 48 million couples and 186 million individuals globally are affected by infertility (WHO, 2023; 2024) [14, 15]. This widespread prevalence underscores the urgent need for comprehensive reproductive health services and support systems. In sub-Saharan Africa, including countries like Nigeria, the burden of infertility is particularly pronounced. In some regions, infertility rates are estimated to be as high as 30-40%, significantly exceeding the global average of around 15% (Huang *et al.,* 2023) [4]. The high prevalence in these areas is attributed to various factors, including infectious diseases, inadequate healthcare infrastructure, and socio-cultural practices (Bongaarts, 2020) [2].

In Nigeria, infertility presents a significant public health concern with distinct rates for primary and secondary infertility. The prevalence of primary infertility, defined as the inability to conceive after one year of unprotected intercourse with no prior pregnancies, stands at approximately 5%. In contrast, secondary infertility, which refers to the inability to conceive following a previous pregnancy, affects about 8% of the population (WHO, 2004) [13].

The causes of infertility in Nigeria are diverse and multifaceted, encompassing a range of environmental, occupational, genetic, and infectious factors. Environmental issues, such as exposure to pollutants and toxins, can impair reproductive health. Occupational hazards, including prolonged exposure to chemicals and heavy metals, also play a significant role. Genetic factors may predispose individuals to reproductive issues, and infectious diseases, particularly sexually transmitted infections (STIs), are prevalent contributors to infertility (Siristatidis *et al.,* 2020) [11]. Infertility impacts both men and women, with both genders being equally affected in approximately 40% of cases. Among women, the most common causes of infertility include ovulatory disorders, which account for 25% of cases. These disorders can result from hormonal imbalances, polycystic ovary syndrome (PCOS), or other endocrine disruptions. Fallopian tube damage, responsible for 20% of infertility cases, often results from pelvic inflammatory disease (PID), endometriosis, or previous surgeries. Uterine or peritoneal abnormalities, such as fibroids or adhesions, contribute to another 10% of cases (Esan *et al.,* 2022) [3]. Despite the advancements in medical science, the causes of infertility remain unknown in approximately 30% of cases. This highlights the complexity

of reproductive health and the need for continued research and comprehensive diagnostic approaches to uncover these elusive factors.

Women with infertility are particularly vulnerable to intimate partner violence, exacerbating their challenges and adding layers of trauma to their experiences (Sharifi *et al*., 2022) [9]. Couples dealing with infertility often grapple with feelings of helplessness, powerlessness, frustration, and social segregation. Developing coping mechanisms for the associated social isolation becomes a crucial part of their journey.

In Imo State, the problem of infertility is particularly pressing due to the high cultural value placed on childbearing. Imo State, located in southeastern Nigeria, has a population of approximately 5 million people, predominantly of Igbo ethnicity. The Igbo culture places great importance on childbearing and large families, often viewing childlessness as a personal tragedy and a social stigma (Omeike *et al.,* 2017) [6]. Despite the significance of this issue, there remains a lack of comprehensive data on the prevalence of infertility among married couples in Imo State. This gap in knowledge hampers the development of targeted interventions and policies to address infertility in the region. This study aims to investigate the prevalence of infertility among married couples in Imo State, examining key factors that may contribute to fertility challenges. By shedding light on the extent of the issue and its potential causes, the study hopes to inform public health initiatives and provide recommendations for improving access to fertility care and education in the region. Understanding infertility within this local context is essential for addressing the unique cultural, economic, and healthcare challenges that couples face in their quest for parenthood.

Infertility is a significant global health issue with profound social, psychological, and economic implications. In Nigeria, particularly in Imo State, the problem is exacerbated by cultural norms that place high value on childbearing. Despite an estimated primary and secondary infertility prevalence of 17.4%and 34.1% respectively among Nigerian couples (Polis *et al*, 2017) [7], there is a dearth of region-specific research on the prevalence and factors contributing to infertility in Imo State. This lack of localized data hampers the development of targeted interventions and policies to address infertility effectively in the region.

The Igbo culture, predominant in Imo State, views childlessness as a personal tragedy and social stigma, potentially leading to psychological distress, marital discord, and social isolation for affected couples. Furthermore, limited access to advanced reproductive technologies and potential environmental factors unique to the region may compound the issue. Without a comprehensive understanding of the specific factors affecting infertility in Imo State, healthcare providers and policymakers lack the necessary information to develop effective strategies for prevention, management, and treatment of infertility in this population.

Materials and Methods

1. Research Design

This research employed a quantitative methodology to provide a comprehensive understanding of infertility factors in Imo State.A cross-sectional survey was conducted to gather numerical data on the prevalence of infertility and associated factors. This will allow for statistical analysis and the identification of significant correlations and risk factors.

2. Study Area

In order to facilitate comparison analysis, the study was carried out in both urban and rural Imo State, Nigeria Nekede (Rural) (5.4207° N, 7.0767° E) and Owerri Municipal (Urban) (5.4682° N, 7.0176° E) (Figure 3.1). Nigeria's South-East geopolitical zone contains Imo State, which is bordered to the north by Anambra State, to the west and south by Rivers State, and to the east by Abia State. The Imo River, which meanders along the eastern boundary of the state, is the source of its name. Owerri serves as the state capital, and the "Eastern Heartland" is the state motto.

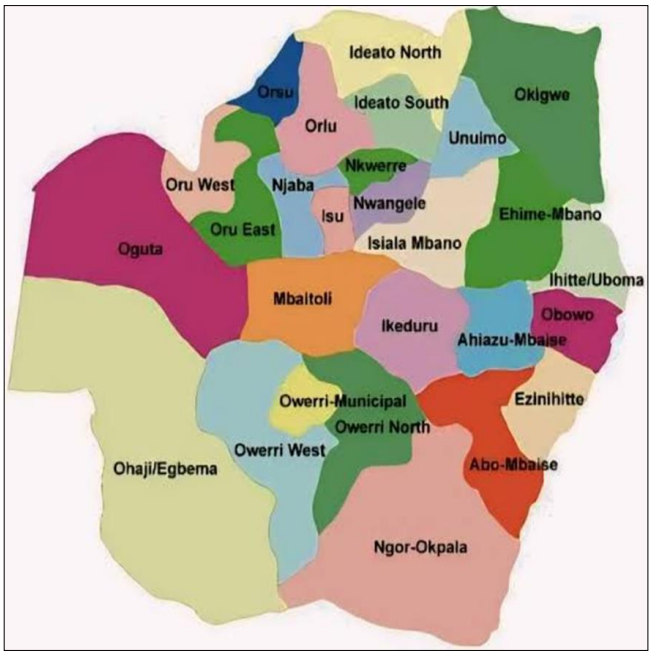

Fig 1: (A) Showing map of Imo state

Fig 1: (B) Owerri and environs where study was conducted.

3. Study Population and Sampling
The target population consists of married couples in Imo State who have been trying to conceive for at least one year without success. Both males and females were included in the study to provide a balanced understanding of male and female infertility.

4. Sample Size
The sample size was calculated using the Cochran formula for prevalence studies, assuming a 95% confidence level and an estimated infertility prevalence of 30% based on previous studies in Nigeria. This will yield a sample size of approximately 500 couples to allow for robust statistical analysis.

5. Sampling Technique
A multistage sampling technique will be used to select participants:
First stage: Stratification of Imo State into urban and rural Local Government Areas (LGAs); Second stage: Random selection of communities within the selected LGAs and Final stage: Systematic random sampling of households within each community to select eligible participants. Households will be selected based on a predefined sampling interval.

6. Data Collection Instrument
A structured questionnaire was developed for data collection and presented in Appendix. The questionnaire will be divided into the following sections:
Demographic Information: Age, gender, education level, occupation, income level, and duration of marriage.

Reproductive History: History of pregnancy attempts, number of children (if any), history of miscarriages, history of sexually transmitted infections, and any known reproductive health issues.

Infertility Status: Questions will focus on whether couples have been diagnosed with primary or secondary infertility, the duration of infertility, and any medical interventions sought.

Health-Seeking Behaviors: Data on visits to health facilities, types of treatment sought (e.g., medical, traditional, or religious), and barriers to accessing healthcare services.

Knowledge and Attitudes: Participants' knowledge of infertility causes and treatments, as well as their perceptions of social stigma related to infertility.

7. Data Collection Procedure
Recruitment: Trained data collectors will visit selected households in the communities to recruit participants. Only couples who have been actively trying to conceive for at least one year will be eligible.

Questionnaire Administration: The questionnaires will be administered in person by trained field staff who will provide guidance to participants and ensure the accuracy of responses. Data collection will be conducted over a 4-6-week period.

Language: The questionnaire will be translated into the local language (Igbo) where necessary, and data collectors fluent in both English and Igbo will be employed to administer the questionnaires.

8. Data Analysis
Collected data were analyzed using Originpro and Microsoft excel statistical software. Descriptive statistics (frequenciesand percentages) were calculated to summarize the demographic and infertility-related data. Furthermore, to assess the relationship between socio-demographic factors and infertility, linear regressionwas used while significant differences between variables were determined by One-way Analysis of Variance (ANOVA). A p-value of less than 0.05 were considered statistically significant in all analyses.

9. Ethical Considerations
Written informed consent were obtained from all participants before data collection. Participants were assured of the confidentiality of their responses, and their participation was voluntary. All personal information was anonymized, and participants will be assigned unique identification codes. Data werestored securely and was only be accessible to authorized research personnel.

Results
The results of the study are presented in alignment with the research questions and hypotheses formulated at the beginning of the investigation. Each section of the analysis addresses specific research questions, providing detailed insights into the data collected. Where applicable, the findings are analyzed in relation to the hypotheses, and statistical methods are used to test the validity of these hypotheses. This structured approach ensures that the study systematically answers the key inquiries posed, while also evaluating whether the data supports or refutes the initial assumptions. In doing so, the results offer a clear understanding of the prevalence and factors contributing to infertility among married couples in Imo State, as well as the psychological, social, and medical dimensions explored in the study.

1. Demographic characteristics
The results for the respondent demographic characteristics are presented in Appendix while the distribution is presented in Figure 4.1. In total, 100 respondents participated in the survey. The demographic data of the respondents (couples) reveals several key insights. In terms of age distribution, the majority of respondents (35%) fall within the 35-44 age group, while 25% are aged 45-54, and another 25% are 55 years and above. The younger age groups, 18-24 and 25-34, each represent 10% of the sample (Figure 4.1A). Regarding gender, the sample is evenly split, with 50% male and 50% female participants. When looking at the duration of marriage, most respondents (40%) have been married for 6-10 years, while 35% have been married for more than 10 years (Figure 4.1B). A smaller percentage (20%) have been married for 1-5 years, and only 5% have been married for less than one year (Figure 4.1C). In terms of educational attainment, 40% of respondents have tertiary education, making it the most common education level. Secondary education accounts for 25%, and 20% have only primary education. A smaller percentage (10%) hold postgraduate qualifications, while 5% have informal or other forms of education (Figure 4.1C). This demographic

summary highlights a well-rounded sample, with balanced gender representation, a range of marital durations, and a predominance of respondents with higher education qualifications.

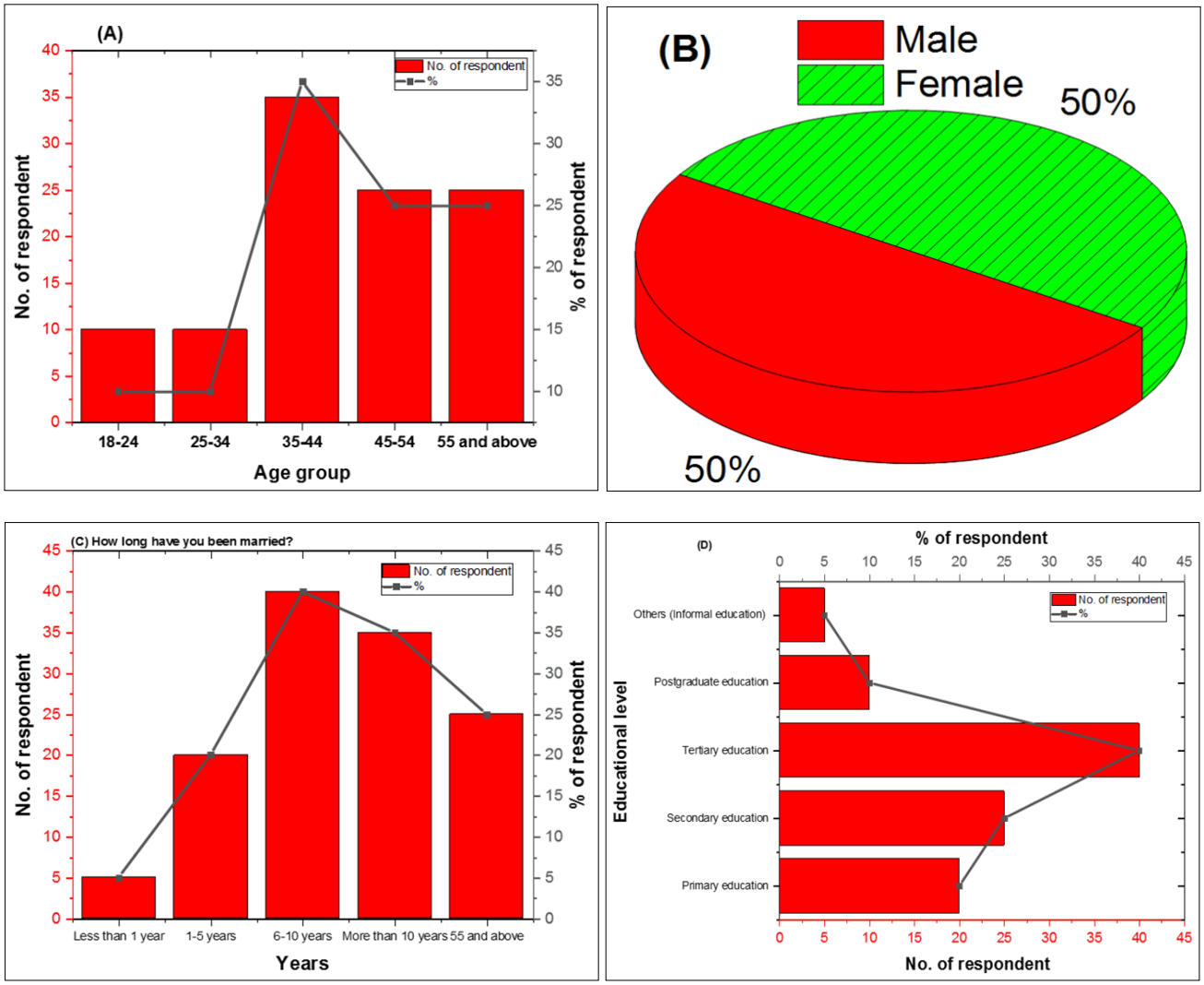

Figure 2: Demographic characteristics respondents showing distribution of (A) age, (b) gender (c) years of marriage and (D) educational level.

2. Research question 1: What is the prevalence of infertility among married couples in Imo State?

The response results on questions regarding the prevalence of infertility among couples in Imo State is presented in Table 3.1. The results of the study reveal significant insights into the prevalence of infertility among married couples in Imo State. A majority of respondents (70%) reported that they had been actively trying to conceive, while 30% indicated that they had not made any attempts to conceive a child. Among those who had been trying, 36% had been attempting for more than 5 years, 29% for 3-5 years, 28% for 1-2 years, and only 7% for less than one year. Furthermore, when asked if they had been diagnosed with infertility, 30% of respondents acknowledged having an infertility diagnosis, while 70% had not. Among those diagnosed, the majority (67%) were dealing with secondary infertility, which refers to difficulty conceiving after a previous pregnancy, while 33% were diagnosed with primary infertility, indicating no prior pregnancies. This data illustrates that infertility is a significant issue for many couples in the region, particularly in the form of secondary infertility, with a large proportion of couples having struggled to conceive for extended periods.

Table 1: Respondents results on prevalence of infertility among couples

Questions	No. of respondent	%
Have you and your spouse been trying to conceive a child?		
Yes	70	70
No	30	30
If yes, how long have you been trying to conceive?		
Less than 1 year	5	7
1-2 years	20	28
3-5 years	20	29
More than 5 years	25	36
Have you and your spouse been trying to conceive a child?		
Yes	30	30
No	70	70
If yes, was the diagnosis for		
Primary infertility (no prior pregnancies)	10	33
Secondary infertility (difficulty conceiving after a previous pregnancy)	20	67

3. Research question 2: What are the factors contributing to infertility among couples in Imo State?

The response results on questions regarding the factors contributing to infertility among couples in Imo State in Table 3.2. The results addressing the factors contributing to infertility among married couples in Imo State provide key insights into both medical conditions and lifestyle habits. According to the data, 30% of respondents reported that either they or their spouse had a known medical condition that could affect fertility, such as hormonal disorders or reproductive organ issues. In contrast, 70% did not report any known medical conditions affecting fertility. When asked about specific medical conditions that could contribute to infertility, 100% of respondents with fertility issues identified polycystic ovary syndrome (PCOS) as a significant factor. No respondents reported infections, endometriosis, low sperm count, blocked fallopian tubes, or other issues. In terms of lifestyle factors, 100% of respondents cited excessive stress as a potential contributing factor to infertility. However, none of the respondents indicated smoking, alcohol consumption, drug use, or exposure to environmental toxins as factors affecting fertility. These findings highlight that PCOS and excessive stress are the most significant factors contributing to infertility in this sample, while other medical and lifestyle factors appear to have a negligible impact.

Table 2: Respondents results on factors contributing to infertility

Questions	No. of respondent	%
Do you or your spouse have any known medical conditions that could affect fertility (e.g., hormonal disorders, reproductive organ issues, etc.)?		
Yes	30	30
No	70	70
Have either of you experienced any of the following that might affect fertility?		
Infections (e.g., sexually transmitted infections)	0	0
Endometriosis	0	0
Polycystic ovary syndrome (PCOS)	100	100
Low sperm count or motility	0	0
Blocked fallopian tubes	0	0
Do you or your spouse engage in any of the following lifestyle habits that could affect fertility?		
Smoking	0	0
Alcohol consumption	0	0
Drug use	0	0
Excessive stress	100	100
Exposure to environmental toxins	0	0
None of the above	0	0

4. Research question 4: What is the level of awareness and utilization of fertility treatments and services in Imo State?

The response results on questions regarding the level of awareness and utilization of fertility treatments and services in Imo State among couples in Imo State in Table 3.3. The results addressing the level of awareness and utilization of fertility treatments and services in Imo State reveal important insights. In terms of awareness, only 40% of respondents reported being aware of available fertility treatments or services, while a majority (60%) were unaware of these services. When asked whether they had sought medical advice or fertility treatment, 40% indicated that they had, whereas 60% had not. Among those who had sought treatment, 25% used medications to enhance fertility, such as Clomid, while another 25% turned to traditional or herbal remedies. Surgery (e.g., for blocked tubes) was used by 25%, and assisted reproductive technology (ART) like IVF was utilized by 12%. Additionally, artificial insemination was used by 13% of respondents seeking fertility treatment. For those who did not seek treatment, the primary reasons were lack of awareness and high cost, each cited by 33.5% of respondents. Other factors included fear of treatment (17%), religious or cultural beliefs (8%), and a lack of qualified establishments for fertility treatment (8%). These findings suggest that both limited awareness and financial barriers significantly hinder the utilization of fertility treatments in Imo State, with a substantial proportion of individuals turning to traditional remedies or experiencing other obstacles to accessing care.

Table 3: Respondents results on awareness and use of fertility treatments

Questions	No. of respondent	%
Are you aware of available fertility treatments or services in Imo State?		
Yes	40	40
No	60	60
Have you or your spouse sought medical advice or fertility treatment for infertility?		
Yes	40	40
No	60	60
If yes, what type of treatment or service have you used?		
Medications to enhance fertility (e.g., Clomid, etc.)	10	25
Assisted reproductive technology (e.g., IVF)	5	12
Surgery (e.g., for blocked tubes, etc.)	10	25
Traditional/herbal remedies	10	25
Other (Artificial insemination)	5	13
If no, what are the reasons for not seeking fertility treatment?		
Lack of awareness	20	33.5
High cost	20	33.5
Fear of treatment	10	17
Religious or cultural beliefs	5	8
Other (lack of qualified establishments for fertility treatment)	5	8

5. Research question 5: What are the psychological and social impact of infertility on affected couples in Imo State?

The results on the psychological and social impact of infertility on affected couples in Imo State is presented in Table 3.4. This result provides valuable insights into the emotional and relational effects. Regarding the impact on relationships, 40% of respondents reported that infertility had significantly strained their relationship with their spouse, while 20% indicated it had caused a somewhat strained relationship. On a positive note, 30% of respondents stated that infertility had strengthened their relationship, and 10% reported no impact at all. In terms of psychological effects, 70% of respondents acknowledged experiencing depression or other psychological effects such as anxiety and low self-esteem due to infertility, while 30% reported no such effects. When asked about societal or family pressure, 30% of respondents felt pressure from society or family due to their fertility challenges, while the

remaining 70% did not feel any such pressure. To cope with the psychological and social effects of infertility, 38% of respondents relied on support from family or friends, 25% turned to religious or spiritual guidance, and 25% found support from their spouse. A smaller proportion (12%) sought professional counseling. Finally, 30% of respondents felt that infertility had affected their standing or reputation within the community, while 70% believed it had not impacted their social standing. These findings underscore the significant emotional strain infertility places on couples, particularly in terms of relationship dynamics and psychological well-being, while also highlighting the role of family, friends, and spiritual support in coping with these challenges.

Table 4: Respondents results on psychological and social impact

Questions	No. of respondent	%
How has infertility affected your relationship with your spouse?		
No impact	10	10
Somewhat strained	20	20
Significantly strained	40	40
Strengthened our relationship	30	30
Have you experienced any psychological effects due to infertility (e.g., anxiety, depression, low self-esteem)?		
Yes (depression)	70	70
No	30	30
Do you feel societal or family pressure due to your fertility challenges?		
Yes	30	30
No	70	70
How do you cope with the psychological and social effects of infertility?		
Support from spouse	20	25
Professional counseling	10	12
Support from family or friends	30	38
Religious or spiritual guidance	20	25
Do you feel that infertility has affected your standing or reputation in the community?		
Yes	30	30
No	70	70

Discussion, Conclusion and Recommendations

Discussion of findings

1. Prevalence of infertility among couples in Imo State

The findings on infertility prevalence among couples in Imo State reveal significant patterns that both align with and deviate from previous research, highlighting the region's unique reproductive health challenges. This study documented that 30% of respondents had received an infertility diagnosis, a figure notably higher than the global prevalence rate of 17% reported by the World Health Organization (WHO, 2023) [14]. This elevated prevalence emphasizes that infertility is a critical and urgent concern within this community. Several socio-economic, cultural, and healthcare factors likely contribute to this higher rate, reflecting a broader trend observed in many African contexts.

The prevalence estimate of 30% in Imo State is consistent with research conducted in various regions of Nigeria and Sub-Saharan Africa. For example, Ebomoyi and Adetoro (1991) documented infertility rates ranging from 20% to 35% in several Nigerian states. These rates have often been attributed to region-specific factors, such as inadequate healthcare infrastructure, socio-economic disparities, and traditional reproductive health practices. The consistently high rates observed in different studies suggest that infertility in Sub-Saharan Africa may have multifaceted and culturally embedded causes that necessitate targeted interventions.

2. Primary vs. Secondary Infertility Distribution

A particularly significant aspect of this study is the distribution between primary and secondary infertility cases. The research found that 67% of diagnosed infertility cases were secondary, while 33% were primary. This distribution contrasts with the findings of Ebomoyi and Adetoro (1991), who reported a lower prevalence of primary infertility at 9.2% and secondary infertility at 21.1%. However, the observed trend of secondary infertility being more prevalent than primary infertility is consistent with broader research on reproductive health patterns in Sub-Saharan Africa.

The higher prevalence of secondary infertility in Imo State may be attributed to several factors. Research by Okonofua *et al.* (2022) [5] has pointed out that secondary infertility is often linked to complications arising from previous pregnancies, postpartum infections, unsafe abortion practices, and inadequate maternal healthcare. In regions where healthcare infrastructure is limited, women may not receive appropriate or timely medical attention for complications that arise during or after childbirth. These untreated conditions can lead to scarring, infections, or other reproductive health issues, thereby contributing to higher rates of secondary infertility.

Additionally, traditional birthing practices and the reliance on untrained birth attendants may exacerbate these issues. Cultural factors, such as the high societal value placed on large families, often drive women to have multiple pregnancies, which can increase the risk of reproductive complications. For instance, postpartum infections may be left untreated due to a lack of healthcare resources or the normalization of traditional postpartum recovery methods. Unsafe abortion practices are another major contributing factor, as the lack of access to safe reproductive healthcare services leads some women to seek unsafe and harmful procedures. These practices can result in severe complications, including infertility.

a significant psychological and social burden in this region.

Factors contributing to infertility among couples in Imo State

The findings regarding factors contributing to infertility among married couples in Imo State reveal intriguing patterns that both align with and diverge from existing literature. This study found that 30% of respondents reported having medical conditions negatively impacting fertility, which is consistent with research by Abebe *et al*. (2020) [1], who observed similar prevalence rates of fertility-impairing medical conditions in developing countries. This high prevalence underscores the significant influence of reproductive health issues on infertility in the region, emphasizing the necessity for early diagnosis, preventive strategies, and effective management.

One of the most striking findings from this study is that 100% of respondents experiencing infertility identified Polycystic Ovary Syndrome (PCOS) as a significant factor contributing to their fertility challenges. PCOS is a hormonal disorder that affects women of childbearing age and is typically characterized by symptoms such as irregular menstrual cycles, the formation of ovarian cysts, and elevated levels of male hormones (androgens). These hormonal imbalances often lead to difficulties in ovulation, which is a key factor affecting fertility. Additional

symptoms may include weight gain, acne, excessive hair growth, and persistent challenges with conception (Waghmare and Shanoo, 2023) [12].

The exceptionally high prevalence of PCOS reported in this study stands in contrast to global statistics published by the International Federation of Gynecology and Obstetrics, which estimate that PCOS affects 8-13% of women of reproductive age worldwide (Yasmin *et al.,* 2022) [17]. This disparity suggests that PCOS may either be more common in the Imo State sample or more frequently diagnosed than in other global populations. The contrast raises questions about potential genetic predispositions, environmental factors, or heightened diagnostic focus specific to this region.

Several factors could contribute to the high prevalence of PCOS observed in this study. Wolf *et al.* (2018) [16] noted that PCOS is often underdiagnosed or misdiagnosed in many African settings due to limited access to healthcare resources. Thus, the heightened awareness and potential focus on PCOS diagnosis in Imo State, compared to other regions, may explain the discrepancy. Additionally, there may be specific environmental or genetic influences unique to the population in Imo State that increase either the occurrence or the severity of PCOS symptoms. For instance, environmental factors such as dietary patterns, exposure to endocrine-disrupting chemicals, or genetic susceptibility could play a significant role.

Moreover, the high incidence of PCOS among women experiencing infertility highlights the critical need for reproductive health interventions specifically targeting the disorder. Early diagnosis and effective management of PCOS could significantly improve fertility outcomes for affected women. Such programs may include hormonal therapies, lifestyle interventions like weight management and stress reduction, and educational initiatives to raise awareness about the disorder. Furthermore, healthcare providers should consider incorporating routine hormonal evaluations and PCOS screenings into standard reproductive health assessments to address infertility challenges more effectively. Enhancing community awareness about the symptoms and implications of PCOS could empower women to seek timely medical support, ultimately aiding in more effective and holistic infertility management.

Conclusion

This study has provided valuable insights into the prevalence, contributing factors, awareness, and impacts of infertility among married couples in Imo State, offering a comprehensive understanding of the challenges faced by affected individuals and the broader societal implications. The findings indicate that infertility affects a significant proportion—30%—of couples in the region, with secondary infertility, where couples struggle to conceive after a previous pregnancy, being more prevalent than primary infertility. This higher prevalence of secondary infertility is consistent with patterns observed in other parts of Sub-Saharan Africa and may be attributed to factors such as postpartum infections, inadequate maternal healthcare, and other reproductive health complications.

Among the major contributing factors identified, Polycystic Ovary Syndrome (PCOS) and stress stand out as significant. PCOS, a hormonal disorder affecting women of reproductive age, is particularly prevalent among the respondents with fertility issues, highlighting the importance of early diagnosis and effective management of this condition. Stress, another significant factor, underscores the role of psychological health in fertility. These findings emphasize the need for healthcare interventions that address both physical and psychological contributors to infertility, as stress management and mental health support could play a crucial role in improving fertility outcomes.

The study also found that awareness and utilization of fertility treatments among respondents are relatively low, with only 40% of couples aware of available treatments or services. This low level of awareness may reflect a broader lack of access to reproductive health information and services in the region, limiting couples' ability to seek timely and appropriate treatment. It also highlights the potential impact of social stigma or cultural beliefs that may discourage seeking medical intervention for infertility. The limited use of fertility treatments suggests a need for targeted public health campaigns to educate communities on reproductive health options and encourage early consultation for fertility issues.

The psychological impact of infertility is another significant finding, with 70% of couples reporting mental health challenges, including depression, anxiety, and feelings of low self-esteem. These psychological effects are often compounded by societal and familial pressures, particularly in communities where childbearing is highly valued. However, the study also found that social support systems, such as family, friends, and religious communities, play a critical role in helping couples cope with these challenges. This underscores the importance of integrating mental health services and support groups into fertility care, providing couples with both professional and communal resources to manage the emotional toll of infertility.

The study further identified several key barriers to seeking and receiving infertility treatment, with lack of awareness and financial constraints being the most prominent. Many couples are either unaware of available fertility treatments or unable to afford them due to high costs, which restricts their access to necessary medical care. This highlights the urgent need for interventions that address both medical and psychosocial aspects of infertility. Affordable treatment options, public awareness campaigns, and community-based support systems are essential to ensure that couples in Imo State can access the care they need without financial hardship or social stigma.

In conclusion, this study sheds light on the multifaceted nature of infertility in Imo State, encompassing not only the biological and medical challenges but also the psychological, social, and economic barriers that couples face. Addressing these issues through a combination of healthcare, public health, and policy interventions could improve outcomes for affected couples, reduce the stigma associated with infertility, and foster a more supportive environment for those facing reproductive health challenges. These findings highlight the importance of a holistic approach to infertility care, one that considers the full spectrum of needs—medical, psychological, and social—of individuals and couples affected by infertility.

Recommendations

Based on the study's findings, several key recommendations are proposed to improve the support and care for infertile couples:

1. Healthcare System

Establish comprehensive fertility care centers in accessible locations to ensure that all couples have access to proper diagnosis and treatment.

Integrate mental health services into fertility treatment programs to help couples cope with the emotional challenges of infertility.

Develop subsidized treatment programs for low-income couples to reduce the financial burden of infertility treatments.
Implement regular training programs for healthcare providers to enhance their knowledge and skills in managing infertility.

2. Public Health Initiatives
Launch widespread fertility awareness campaigns to educate the public on infertility issues, treatment options, and preventive care.
Develop community-based support programs that offer counseling, education, and peer support to affected couples.
Create educational programs on preventive fertility care, focusing on healthy lifestyle practices and early diagnosis of fertility issues.
Establish support groups for couples dealing with infertility to foster community solidarity and emotional resilience.

3. Policy Development
Develop policies for insurance coverage of fertility treatments to make such treatments more affordable and accessible.
Create guidelines for fertility treatment standardization to ensure that services are delivered consistently and ethically.
Establish regulations for fertility treatment providers to maintain high standards of care and prevent exploitation.
Implement policies supporting workplace fertility treatment leave, enabling couples to seek care without compromising their employment.

4. Support Services
Establish counseling services specifically tailored to the needs of infertile couples, addressing both emotional and psychological concerns.
Create financial support systems to assist couples in affording fertility treatments, particularly those with limited resources.
Develop peer support networks to connect couples with others facing similar challenges, providing shared experiences and coping strategies.
Implement couple-focused intervention programs to address the relationship strain that often accompanies infertility.

Contribution to Knowledge
This study has made several important contributions to the understanding of infertility in Imo State:

Conflict of interest
The authors declared that there is no conflict of interest regarding the publication of this manuscript.

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