# CULTURAL BELIEFS AND KNOWLEDGE OF INFERTILITY TREATMENT OPTIONS AMONG MARKET WOMEN IN BENIN CITY

**STUDY**

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**A ONE-YEAR PROJECT PRESENTED TO**

**THE DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE,**

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**MAY, 2026**

## DECLARATION

We hereby declare that this project work titled **"CULTURAL BELIEFS AND KNOWLEDGE OF INFERTILITY TREATMENT OPTIONS AMONG MARKET WOMEN IN BENIN CITY"** is original and will be carried out by the under-listed students under the supervision of Doctor **(Mrs) O.E. Obarisiagbon** and **Dr. A. G. Oko-Oboh** and has not been submitted or published elsewhere in part or in whole for the award of a degree or certificate.


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## CERTIFICATION

This is to certify that this research work titled "**Cultural Beliefs and Knowledge of Infertility Treatment Options Among Market Women in Benin City.**" Was carried out in the Department of Public Health and Community Medicine, School of Medicine, College of Medical Sciences, University of Benin, Benin City, Edo State, Nigeria as part of the requirements for the award of Bachelor of Medicine, Bachelor of Surgery (MBBS) by **OKPERE MATTHEW EHIZOJIE** with matriculation number **MED1807463** and **OKOSUN EHIS OBED** with matriculation number **MED1807459** and under the supervision of **DR (MRS) O.E. OBARISIAGBON** and **DR A. G. OKO-OBOH** in the Department of Public Health and Community Medicine, School of Medicine, College of Medical Sciences, University of Benin, Benin City as part of the requirements for the award of Bachelor of Medicine, Bachelor of Surgery (MBBS).

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## DEDICATION

This project is dedicated to God Almighty who by His grace has brought us this far in this academic voyage. This work is also dedicated to our beloved ones who supported us in one way or the other, and to our supervisors and wonderful lecturers whose teachings contributed immeasurably to our becoming the medical doctor we have always aspire to be.

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| | |
|---|---|
| **ARTs:** | Assisted Reproductive Technologies |
| **CAM:** | Complementary and Alternative Medicine |
| **DLHS:** | District Level Household and Facility Survey |
| **HM:** | Herbal Medicine |
| **HRRP:** | Human Research and Reproduction Program |
| **IHCP:** | Indigenous Health Care Practices |
| **IVF:** | In Vitro Fertilization |
| **LGA:** | Local Government Area |
| **LMIC:** | Low and Medium Income Countries |
| **NSFG:** | National Survey for Family Growth |
| **PCA:** | Principal Component Analysis |
| **PID:** | Pelvic Inflammatory Disease |
| **SLT:** | Social Learning Theory |
| **UBTH:** | University of Benin Teaching Hospital |

| | |
|---|---|
| **UNIBEN:** | University of Benin |
| **UPTH:** | University of Port Harcourt Teaching Hospital |
| **WHO:** | World Health Organization |
| **SPSS:** | Statistical Package for Social Science |

## DEFINITION OF TERMS

1. **Infertility:** The inability to conceive after 12 months or more of regular unprotected sexual intercourse, as self-reported by market women in Benin City.

2. **Cultural Beliefs:** Shared ideas, values, and practices related to infertility among market women in Benin City, including beliefs about causes, consequences, and appropriate treatments.

3. **Knowledge of Infertility Treatment Options:** Awareness and understanding of both traditional and modern medical approaches to addressing infertility.

4. **Market Women:** Women engaged in trading activities within designated market.

5. **Traditional Treatment:** Treatments based on indigenous knowledge and practices, often involving herbal remedies, spiritual interventions, or traditional healers.

6. **Modern Medical Treatment:** Treatments provided by conventional healthcare providers, including medications, surgery, and assisted reproductive technologies.

7. **Socio-demographic factors:** Characteristics such as age, level of education, marital status, religion, and economic status.

8. **Questionnaire:** a research instrument that consists of a set of questions for the purpose of gathering information from respondents through survey or statistical data.

## ABSTRACT

**Background**: Infertility is a global public health concern affecting approximately one in six people of reproductive age worldwide, with a prevalence of 15.7–22% in Nigeria. Globally, infertility remains a significant reproductive health challenge and is associated with profound social, psychological, cultural, and economic consequences, particularly among women in developing countries. In many African societies, including Nigeria, infertility is often interpreted through cultural and spiritual lenses, leading to stigma, discrimination, and delayed utilization of evidence-based medical care. In Benin City, market women operate within deeply traditional cultural frameworks that significantly shape their perceptions of infertility and their health-seeking behaviour. Despite growing access to modern medical treatments, deeply ingrained cultural beliefs, limited knowledge of treatment options, and socio-demographic barriers continue to hinder appropriate care utilization in this demographic. Therefore, understanding their beliefs and knowledge of infertility treatment options is essential for designing culturally sensitive reproductive health interventions.

**Objectives**: This study aimed to assess the cultural beliefs and knowledge of infertility treatment options among market women in Benin City. Specific objectives were to identify cultural beliefs and perceptions of infertility, determine the level of knowledge of infertility

treatment options, examine the relationship between cultural beliefs and knowledge of infertility treatment options, and assess the socio-demographic factors associated with knowledge of infertility treatment options among market women in Benin City.

**Methodology:** A descriptive cross-sectional study design employing a quantitative method of data collection was used. The study was conducted among market women aged 18–65 years in four selected markets within Benin City, Edo State, Nigeria, between January 2025 and May 2026. A multi-stage sampling technique was used to select 440 respondents. Data were collected using a pre-tested, structured, interviewer- and self-administered questionnaire divided into sections on socio-demographic characteristics, cultural beliefs and perceptions, and knowledge of infertility treatment options. Cultural beliefs, perceptions, and knowledge were scored and categorized using Bloom's cut-off criteria. Data were analyzed using IBM SPSS version 27.0. Descriptive statistics were presented using frequencies, percentages, means, and standard deviations, while Chi-square tests, Fisher's exact tests, Spearman's correlation, binary logistic regression, and multiple linear regression analyses were used to determine associations and predictors. Statistical significance was set at $p < 0.05$.

**Results:** A total of 440 market women participated (100% response rate), with a mean age of 39.6 (12.5) years. The majority were married (about 11 in 20), predominantly of the Benin ethnic group, predominantly Christian (about 9 in 10), relatively educated, with a majority with at least a secondary education (about 4 in 5). Nearly three-quarters held positive cultural beliefs about infertility, while about two-thirds demonstrated positive perceptions of the condition. However, only about 2 in 5 respondents demonstrated good knowledge of infertility treatment options, with the majority showing poor knowledge. Respondents generally recognized infections, blocked fallopian tubes, hormonal imbalance, male infertility among others as causes of infertility and were aware of treatment modalities including medications, surgery, and Assisted Reproductive Technologies (ARTs). Higher educational

attainment ($p < 0.001$), Igbo ethnicity ($p = 0.008$), use of social media, health workers, family/friends, and religious centres as health information sources ($p < 0.001$), and longer years of market experience ($p = 0.017$) were significantly associated with good knowledge. Respondents with positive cultural beliefs were significantly more likely to have good knowledge compared to those with negative beliefs ($p = 0.001$), and good perception was strongly associated with good knowledge ($p < 0.001$). In multivariate analysis, tertiary education (OR = 19.335), positive cultural beliefs (OR= 2.719), and good perception (OR = 2.912) were significant independent predictors of good knowledge.

**Conclusion:** The study found that although the majority of market women in Benin City hold positive cultural beliefs and perceptions regarding infertility, a substantial proportion still harbour supernatural misconceptions, and the overall level of knowledge of infertility treatment options remains poor. Education, cultural orientation, and access to diverse health information sources are critical determinants of infertility knowledge. Comprehensive, culturally sensitive reproductive health programs targeting market women, particularly those with lower educational attainment, should be prioritized to improve knowledge, address harmful cultural beliefs, reduce stigma, and promote timely utilization of evidence-based infertility care.

**Keywords:** Cultural Beliefs, Infertility Treatment Options, Knowledge, Market Women, Benin City, Perception, Socio-demographic Factors.

# CHAPTER ONE

# INTRODUCTION

## 1.1 BACKGROUND TO THE STUDY

According to the report of World Health Organization, infertility is a global health issue affecting millions of people of reproductive age worldwide. Available data suggests that globally one in six people experience infertility in their lifetime. Infertility is a disease 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. Primary infertility is the inability to have any pregnancy, while secondary infertility is the inability to have a pregnancy after previously successful conception. WHO's International Classification of Diseases provides more information on the many primary and secondary causes of infertility in both women and

men.

Infertility may occur due to male factors, female factors, a combination of male and female factors or may be unexplained. For both women and men, however, lifestyle factors such as smoking, excessive alcohol intake and obesity have been associated with higher chances of infertility.[1]

The prevalence of infertility has increased significantly in recent years. Globally, infertility affects approximately 48.5 million couples and 186 million individuals experience infertility, with a prevalence estimated at 3.5–16.7% in low-and middle-income countries (LMIC), and as high as 30-40% in Sub-Sahara Africa.[2] However, there has been noticeable difference in the prevalence rate of infertility between the developed and developing countries.

For instance, in the United Kingdom and the United States of America, infertility is estimated to be 6% and 10% respectively. But, rate of infertility in developing countries is above 25%.

The prevalence of infertility is highest in Eastern Europe, North Africa/Middle East, Oceania, and Sub-Saharan Africa. Generally, 6% – 15.7% of couples are affected by infertility, worldwide. In Sub-Saharan Africa, the prevalence of infertility varies. It is 14.3% in The Gambia, 10.4% in Sudan while it is between 15.7% to 22% in Nigeria.[3-5]

In Nigeria, over 800,000 couples are said to have difficulty in achieving desired pregnancy and in actual fact, more than half of the gynecological consultations in our environment are infertility.[6]

Infertility has significant negative social impacts on the lives of infertile couples and particularly women, who frequently experience violence, divorce, social stigma, emotional stress, depression, anxiety and low self-esteem.[1] Childless women face dreadful conditions such as stigmatization, domestic violence, psychological trauma and death.[7-8] In resource limited societies, couples fully rely on their children for old age support.[9] Infertility as a social and personal problem in both rural and urban Nigeria having many facets, despite the country's high birth rate. Infertility can have harmful social and psychological consequences, from alienation and divorce to social stigma leading to isolation and psychological distress.[10]

Although stigma surrounding infertility is present in both developed and developing nations, it is probably more prevalent in poorer nations.[11] Infertility stigma causes interpersonal issues, guilt, anxiety, and depressive disorders.[12] In addition, it may result in psychological issues, poor self-worth and self-efficacy, and a tendency towards self-stigma. Social pressures and the stigma surrounding infertility have an impact on women's life and overall wellbeing in many spheres.[13] The adverse consequences of infertility are more obvious in developing countries.[14] Therefore, infertility is a severe social problem for women, couples, extended families and various communities.[15]

Cultural beliefs and knowledge systems significantly shape women's understanding of infertility and treatment choices. False beliefs in the field of fertility are caused by lack of knowledge.[16] These beliefs, often rooted in traditional practices, religious doctrines, and community norms, influence perceptions of causation, diagnosis, and management. Many cultures see infertility as both a medical condition and a feminine weakness.[17] These beliefs are important determinants in explaining the general public perspective of infertility, this led to discrepancies in the descriptissson of the etiology of infertility between patients and professional health care providers, affecting care provided and patient compliance with treatment.[18] False beliefs in the field of fertility are caused by lack of knowledge.[16] If women have sufficient knowledge about reproductive health, they could distinguish risky behaviors and factors that would lead to infertility from healthy behaviors that are wrongly believed to cause infertility.[19] Fertility awareness campaign believes that studying false beliefs about fertility is necessary.[16]

For example, in a study that was conducted in Saudi Arabia, 60% of participants believed that infertility was caused by evil eye or envy.[20] Some believed that if a couple adopted a child, the woman would get pregnant, while in a study that was conducted in Iran, adoption was the last solution among infertile couples and they hoped be pregnant.[21-22] Since sexual behaviors of infertile women, like others, would be affected by culture, religion, and family, misconceptions about infertility and sexual matters would cause an undesirable effect on couples' relationship.[23-24] These beliefs vary from the futility of intercourse to begging fertility gods for having a child.[25]

Bimbola (2022) claims that having children is a requirement for marriage in several regions of Africa. For instance, some men in Nigeria demand that the bride be pregnant prior to the marriage. The Yoruba community is especially prone to this. In Yoruba culture, being a mother is identical with being a woman. It is seen as a normal outcome of marriage, a way to establish one's social standing and self-worth, and an essential component of a family as one develops

inner power. In certain parts of South West Nigeria, infertility is seen as a feminine deficit, flaw, or a humiliating and demeaning condition rather than a medical issue.[26]

In contrast to Western countries, infertile couples, particularly women, encounter a variety of societal challenges in Africa, a continent renowned for its cultural heritage of pro-fertility.[27] Tabong and Adongo (2013) claim that children in sub-Saharan Africa are seen as symbols of prosperity and authority in their culture.[28] Therefore, the effects of infertility include a terrible existence filled with pain, sorrow, despair, dissatisfaction, social shame, monetary challenges, and other physiological or psychological effects.[29] Children are highly valued in traditional African society, and a childless marriage is seen as cursed. The lady in such a marriage was even called a "man" or a witch.[30] The traditional concept that having biological offspring is ethically required for everyone in Nigeria still persists.[31]

According to a study in traditional Igbo society, a childless woman is believed to be possessed by a sea spirit called 'Ogbanje' who gave birth to a spiritual child.[32] Another cause of infertility, always the reason for not having children, is seen in traditional Igbo society as a punishment from the spiritual world or his deceased father or relatives are often thought to have done a lot of evil on this earth that still haunts his children. There is evidence that sacrificing to appease certain spirits or gods solves this problem.

The Edo-speaking people vividly illustrate the pattern of cultural interpretation and meanings given to infertility by communities across Nigeria. Many traditional cultural beliefs, values, and laws remain strong. These are largely responsible for the cultural interpretation given to fertility and infertility among the Edo-speaking people of Nigeria. The Edo-speaking people of Nigeria place a high premium on child bearing and high fertility. The situation n is made stronger by Edo patriarchy. Having children is a symbol of power, wealth and prestige for men in the Benin kingdom. In particular, having a male child is regarded as being more desirable than having a

female child. According to the Benin custom, the first male child is expected to inherit all the wealth of his father regardless of the chronological age of the male child in comparison to the female children. The Edo women fear of infertility is real, since the ability to bear a child is a principal factor in determining the success or failure of a marital relationship.

According to Okonofua, the patriarchal predisposition of the Edo-speaking people probably explains their perceptions of the causes of infertility. The causes of infertility in the community are equally distributed between male and female factors, male infertility is often not culturally recognized by the people.[33] The cultural perceptions of infertility center on images of female infidelity, wrongdoings, and spiritual retributions while the men are often exonerated from any possible involvement in the causation of infertility. In general, there is a poor understanding of the anatomy and physiology of fertility and infertility among Edo-speaking people. For many people in this region, a woman is to blame for infertility. Once sexual intercourse takes place, a woman ought to get pregnant immediately. If she fails to do so, then a harmful supernatural power must have interfered with the pregnancy, preventing it from continuing. Such powers are often presented as "evil spirits," "curses," and "witchcraft." [34]

The treatment of infertility involves the use of different methods. Traditionally, the conventional treatment of infertility involves the use of ovulation inducing agents like Clomifene citrate, Letrozole, Tamoxifen or the Gonadotrophin analogues to stimulate ovulation.[35] Assisted reproductive technique is a more advanced method that is used to overcome some of the causes of infertility that are not amenable to conventional treatments. It involves ovarian stimulation, egg collection, fertilization and embryo transfer using advanced techniques. However, this service is not readily available, it is expensive, and the success rate is put at about 33% depending on many factors like patient characteristics and centre involved.[36-37]

Pressure from in-laws and the society to conceive and the advancing maternal age with associated reduction in fertility rate together with difficulty in assessing conventional medical therapies and assisted reproductive technology (ART) may influence a woman's decision to seek alternative health approaches such as Herbal Medicine (HM).[38-41]

HM is the prevalent form of traditional and complementary medicine use in Sub-Saharan Africa.[42-43] Some studies estimated the prevalence of HM for infertility treatment among women in Africa at 76.2% while that of Nigeria was put at 81.6%.[44-45] Reasons for its popularity is attributed to its low cost, accessibility, alignment with patient's cultural and religious values, and perceived efficacy and safety as well as dissatisfaction with conventional healthcare.[46-51] However, despite the popularity of traditional and complementary medicine, evidence of its efficacy and safety still remains to be determined. Secondary and tertiary health facilities especially in the developing countries are burdened with the management of life-threatening conditions like infectious diseases and the battle to reduce the high infant and maternal morbidity and mortality, as such the treatment need of patients with infertility are not given the optimal attention. Considering these challenges, infertile patients tend to resort to traditional healers earlier in their quest to overcome the challenges. Anecdotal findings showed that a large proportion of patient seeking fertility care have at one time or the other used HM for treatment of their fertility problem.[52] Traditional method of infertility treatment, the oldest
medical system in Nigeria, is the initial avenue of assessing care for 75% of Nigerians.[53] Similarly, 80% of Africans use some form of traditional medicine.[54-55] Traditional herbal medicines therefore constitute major component of primary healthcare system in rural communities.[53]

Among Edo-speaking people, mostly women seek treatment for infertility since it is believed that women are often responsible for infertility. Although male infertility is increasingly prevalent in the community, there is evidence that these are frequently resolved through several culturally approved mechanisms. First, the man would marry another wife who would be pregnant before the marriage. As a result of the pattern of beliefs about the causes of infertility, it is now known that many couples in the region often seek alternative methods of treatment rather than orthodox treatment.[56] In many cases of infertility, many couples who are members of a Pentecostal church, first resort to intense prayer, believing that since God is responsible for fertility, it is only through his instrumentality that the infertility problem can be solved. Today, several Pentecostal Churches exist in Edo State that claim to be able to give the "fruit of the womb," meaning pregnancy, to infertile couples after intense prayer. The belief that infertility is caused by a harmful supernatural power helps to fuel the belief in the efficacy of prayers in circumventing the negative influences and resolving the problem of infertility.

In Benin City, market women, who often operate within close-knit community structures, are particularly influenced by these cultural beliefs. Market women in Benin City, like many in Nigeria, are often pillars of their families and communities. Their social roles and economic activities are intrinsically linked to their reproductive capacity.

## 1.2 STATEMENT OF THE PROBLEM

Despite the increasing availability of modern medical treatments for infertility, a significant proportion of women, particularly in developing countries like Nigeria, continue to rely heavily on traditional beliefs and practices. In Benin City, this reliance is particularly pronounced among market women, a demographic group deeply embedded in traditional cultural frameworks.

Studies indicate that in many African countries including Nigeria, up to 81.6% of women initially seek traditional remedies for infertility before considering conventional medical options.[44-45] This preference is often driven by deeply ingrained cultural beliefs that attribute infertility to supernatural causes, such as witchcraft, divine punishment, or ancestral spirits[46-51].

The persistence of these beliefs leads to significant delays in seeking appropriate medical care, resulting in prolonged periods of untreated infertility and potentially irreversible damage to reproductive health.[57-59] Epidemiological figures reveal that delayed diagnosis and treatment contribute to higher rates of secondary infertility and complications such as pelvic inflammatory disease (PID) and tubal blockages.[60]

Furthermore, the financial burden of seeking multiple traditional treatments, which often prove ineffective, can exacerbate economic hardship for these women and their families. The psychological impact of this delay is profound.

Women experiencing infertility often face social stigma, marital instability, and emotional distress, compounded by the lack of effective interventions. In Nigeria, the prevalence of depression and anxiety among infertile women is significantly higher than among fertile women, with studies reporting rates as high as 40%.[29]

The reliance on traditional remedies, while culturally congruent, often lacks scientific validation and can sometimes be harmful, leading to adverse health outcomes. The limited access to and awareness of modern medical infertility treatment options among market women in Benin City further compounds the problem.

Many women are unaware of the availability and efficacy of treatments such as IVF, ovulation induction, and surgical interventions. Financial constraints, coupled with misconceptions about the safety and efficacy of these treatments, create significant barriers to access.

Studies have shown that financial limitations are a primary obstacle to accessing ART in low resource settings, with the cost of a single IVF cycle often exceeding the annual income of many families[61-62]. The lack of culturally sensitive healthcare interventions exacerbates the problem.

Healthcare providers often lack the necessary training and understanding to effectively communicate with women from diverse cultural backgrounds, leading to mistrust and poor adherence to treatment plans. This gap in cultural competency contributes to the underutilization of modern medical services and perpetuates the reliance on traditional practices.

The increasing reliance on digital health information, while potentially beneficial, also presents challenges. The proliferation of misinformation and unverified health claims online can mislead women, leading them to adopt harmful practices or forgo evidence-based treatments.

The need for reliable and culturally appropriate online resources is critical to address this issue. The social consequences of infertility, particularly in patriarchal societies, can be devastating.

Women may face ostracization, abandonment, and even violence, further compounding their psychological distress. The need for community-based interventions that address both the medical and social aspects of infertility is critical.

These interventions should engage community leaders, traditional healers, and religious leaders to promote access to appropriate care and reduce stigma[14]. In summary, the problem lies in the complex interplay between deeply ingrained cultural beliefs, limited access to modern medical treatments, and the resulting adverse health and social outcomes for market women in Benin City.

## 1.3 JUSTIFICATION OF THE PROBLEM

There is an urgent need for research that elucidates these dynamics and informs the development of culturally sensitive and effective interventions. The problem of infertility among women, is a pressing public health concern that demands immediate attention.

Infertility not only affects the reproductive health of women but also has profound social, economic, and psychological implications. The prevalence of infertility in Nigeria, ranging from 15.7% to 22%, highlights the magnitude of the issue.[3-5]

Some market women, who are often the primary economic contributors to their families, are also affected by this condition. Their social roles and economic stability are closely tied to their reproductive capacity, making infertility a critical challenge for this demographic.

The reliance on traditional beliefs and practices, while culturally significant, often leads to delayed or inappropriate treatment. Many women in Benin City attribute infertility to supernatural causes, leading them to seek remedies from traditional healers, churches, spiritualists and others rather than pursuing evidence-based medical interventions[33-34, 56].

This delay in seeking appropriate medical care can result in irreversible damage to reproductive organs and increase the risk of complications such as pelvic inflammatory disease and tubal blockages.[60] The psychological burden of infertility is substantial.

Women experiencing infertility often face social stigma, marital instability, and emotional distress. Studies have shown that infertile women have a higher prevalence of depression and anxiety compared to fertile women[10-15]. The lack of social support and culturally sensitive healthcare interventions further exacerbates this psychological burden.

The limited access to and awareness of modern medical infertility treatment options necessitates urgent intervention. Many women are unaware of the availability and efficacy of

treatments such as IVF, ovulation induction, and surgical interventions.[34-37]

Financial constraints, coupled with misconceptions about the safety and efficacy of these treatments, create significant barriers to access[57-60]. The need for culturally competent healthcare providers is paramount.

Healthcare providers must be trained to understand and respect the cultural beliefs of their patients and to communicate effectively about infertility treatment options. This will help to build trust and improve adherence to treatment plans.

The proliferation of digital health information presents both opportunities and challenges. While the internet can provide access to valuable information, it can also expose women to misinformation and harmful practices.

Community-based interventions are essential for addressing the social and cultural dimensions of infertility. Engaging community leaders, traditional healers, and religious leaders can help to promote access to appropriate care and reduce stigma.

Studies have shown that sociocultural factors heavily influence the help seeking behaviour of women with infertility. Additionally, the impact of infertility on marital stability is well documented[46].

The role of male infertility is also a topic of research, with studies exploring its perception and impact[17]. Furthermore, the need to explore the specific experience of women within the market setting is important, as their economic activity is linked to their social roles[18].

The relationship between religious beliefs and use of Assisted reproductive technologies is also an actively researched topic. The perception of the effectiveness of traditional medicine is often explored alongside western medicine.[46-51].

The impact of online health information on healthcare decisions is also an important area of study. The mental health impact of infertility is also a key area of study.

The relationship between socioeconomic status and access to infertility care is also a relevant area of study. The use of herbal medicine in the management of infertility is a cultural practice that is often explored.

The need for culturally competent care is also a key aspect of improving access to infertility treatments.

## 1.4 RESEARCH QUESTIONS

1. What are the cultural beliefs and perceptions of infertility among market women in Benin City?
2. What is the level of knowledge of infertility treatment options among market women in Benin City?
3. What is the relationship between cultural beliefs and knowledge of infertility treatment options among market women in Benin City?
4. What are the socio-demographic factors associated with knowledge of infertility treatment options among market women in Benin City?

## 1.5 AIM AND OBJECTIVES

### 1.5.1 GENERAL AIM

To assess the cultural beliefs and knowledge of infertility treatment options among market women in Benin City with a view to providing evidenced-based recommendations for improving reproductive health education and access to fertility care.

### 1.5.2 SPECIFIC OBJECTIVES

1. To identify the cultural beliefs and perceptions of infertility among market women in Benin City.
2. To determine the level of knowledge of infertility treatment options among market women in Benin City.
3. To determine the relationship between cultural beliefs and knowledge of infertility treatment options among market women in Benin City.
4. To assess the socio-demographic factors associated with knowledge of infertility treatment options among market women in Benin City.

## 1.6 SIGNIFICANCE OF THE STUDY

This study is significant for the following reasons:

1. **Contribution to Knowledge:** It will provide an in-depth understanding of the sociocultural dimensions of infertility among market women in Benin City.
2. **Informed Policy and Practice:** The findings will inform the development of culturally sensitive healthcare interventions and policies.

3. **Improved Access to Care:** It will identify barriers to accessing modern medical treatments, leading to improved access and utilization.

4. **Empowerment of Women:** The study will empower market women to make informed decisions about their reproductive health.

5. **Reduction of Stigma:** It will contribute to reducing stigma and promoting social support for women experiencing infertility.

## 1.7 SCOPE OF THE STUDY

This study will focus on market women in Benin City. It will examine their cultural beliefs, knowledge of treatment options of infertility, and the socio-demographic factors influencing their choices. The study will encompass both traditional and modern medical approaches to infertility treatment.

## 1.8 LIMITATION OF THE STUDY

1. The study is limited to market women in Benin City, potentially limiting the generalizability of the findings to other populations.

2. Reliance on self-reported data may introduce recall bias or social desirability bias.

3. Cultural sensitivities surrounding infertility may lead to underreporting or reluctance to disclose certain information.

4. The study may be limited by the availability and accessibility of participants within the market environment.

5. The study focuses primarily on women's perspectives, potentially excluding the perspectives of male partners or other family members.

6. Financial and logistical constraints may limit the sample size and the depth of data collection.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 INTRODUCTION

The global picture of infertility is not available partly due to the difficult in defining the problem. The inconsistencies are compounded by stark differences between clinical and demographic definitions. Mascarenhas et al (2012), pointed out that clinical definitions are oriented towards early detection of individual patients with the aim of starting treatment while the demographic definition attempts to measure infertility on a population level so that there is clear understanding of the magnitude, distribution and trends of the infertility problem.[63] By definition infertility is a fluid concept and is therefore difficult to define without putting it into context because different scholars define it differently. From the clinical point of view, primary infertility is defined as the inability to become pregnant or conceive after 12 months of unprotected sexual intercourse.[64]

## 2.2 CULTURAL BELIEFS AND PERCEPTIONS OF INFERTILITY AMONG MARKET WOMEN.

In 1997 a qualitative and explorative study of socio-cultural aspects of infertility and treatment options among members of the matrilineal ethnic group Macua in the north of Mozambique was conducted. The study was carried out in Montepuez and focused on two neighbourhoods: Nacate and the other, Nicuapa. The study was conducted within a period of 3 months. Data were collected by means of semi-structured interviews, participatory observations. Some numerical data were collected from the health care registers in Montepuez. Informants were contacted through the snowball method, a few informants were contacted through the consulting hours for gynaecology and obstetrics in the hospital in Montepuez. Sample size was 34 (25 infertile women without any living children and nine with one or more child).[65] Result revealed that their

explanations for their infertility more often originated from the traditional healers than from the hospital and several women sited more than one reason and some expressed their doubts about the aforementioned reasons. The traditional explanations for infertility as sited by the women may be divided according to the categories introduced by Foster and Anderson: the personalistic explanation and the naturalistic explanation.[66] The personalistic explanation most mentioned was possession by spirits, called ***majini*** or ***maleika***. Some also alluded the reason to the fact that they were married and had sexual contact with these spirits. Another personalistic explanation various informant referred to was witches. They believed that women can become infertile if they are bewitched at different moment of their life. They believed that a woman may be bewitched if someone use her pubic hair. It is also believed that women can become infertile after delivery if the umbilical cord is not treated in the culturally appropriate way. It is also believed that a woman's future fertility can be destroyed by women assisting at delivery by not burying the umbilical cord straight up. The women also believed that a woman can become bewitched by drinking tea made of particular medicinal plant.[63] The naturalistic explanation most mentioned were problems with the blood ***norro*** (local name for gonorrhea) and ***muankoko***. It is said that the blood of the husband is too hot and poisonous as such does not combine well with the blood of the woman. ***Norro*** is thought to cause infertility by destroying the woman's uterus. Finally, another naturalistic explanation given was ***muankoko***, a condition described as a red ball, coming out of the vagina, which impedes pregnancy.[63] The gap in this study is that the sample size is small and sample was obtained from only two communities.

In 2023, an ethnographic study was conducted in the Talensi and Nabdam districts of the Upper East Region of Ghana to explore the perspectives of couples on socio-cultural beliefs about infertility. The study area comprises thirteen districts, of which Talensi and Nabdam are inclusive. This study considered the subjective views on the cultural implications of infertility

among male and female participants. Purposive criterion sampling was used to select male and female partners in marriage who experienced infertility and were willing to participate in the study. Fifteen (15) Participants (8 males and 7 females) were purposefully recruited from the health facilities and communities in the study area, after having consented to be part of the study, they were interviewed. They were mostly farmers or traders and their ages ranged from 29 to 52 years. Data was collected between September 15th 2019 and December 16th 2019.

Males and females as willing individual partners in a couples' unit – took part at separate venues in sharing their experiences of their culture on infertility. The study found varied cultural beliefs and perceptions regarding infertility among females and males. Participants voiced their frustration for being perceived as witches and for that reason are punished by the 'gods'. Some said they are considered 'cursed' individuals and others were accused of promiscuity. The perceptions, as reported by the participants, are mainly related to cultural differences. Some think infertility is linked to witchcraft. Some believe that infertility is a punishment for being promiscuous in life. Participants also enunciated that infertility was a curse and a punishment from the gods and ancestors. While some think it is a spiritual curse, others think it is a punishment from the gods and disapproval of the marriage by their ancestors. The limitation to this study is that the findings cannot be generalized to other districts in Ghana. The experiences of males and females regarding infertility in other regions where different cultures exist could have also been explored to understand holistically how culture affects couples experiencing infertility, but due to the scope of the study and resource constraints, that was not possible.[67]

A cross-sectional survey was conducted between 1st April and 31st July, 2003 to assess knowledge, perceptions and practices relating to infertility among sub-fertile women at the University of Port Harcourt Teaching Hospital (UPTH), Port Harcourt. Three hundred subfertile women attending the gynecological clinic of the University of Port Harcourt Teaching Hospital

in Southern Nigeria were interviewed. Adequate sample size was calculated based on infertility prevalence rate of 15 to 19%. The total number of women attending the gynaecology clinic of the UPTH approximates 1,500 annually. Using EpiInfo version 3.01®, sample size totaled 296 at 95% confidence level. The respondents were interviewed using self-administered structured questionnaires. Result showed that 72% of the respondents perceived the causes of infertility to be pelvic infections. Other known causes reported include male factor (55%), tubal blockage (56%) and uterine fibroids (58%). Other perceived causes included promiscuity (25%), witchcraft (48%), spiritual attacks (1%) and traditional medicines (1%). Infertile women in this study were aware of the main causes of infertility but also exhibited superstitious beliefs. This may have been influenced by socio cultural factors.[68]

In 2019, a was conducted in Kwara South, Nigeria to explore how infertile persons define and describe the causes of infertility. This study was designed as a qualitative exploratory research, using qualitative in-depth interview data from 13 women and 7 men experiencing primary infertility at least two years prior were interviewed. Interviews were semi-structured using an open-ended interview question guide. All interviews were conducted at different occasions and digitally recorded with the approval of participants. Interviews were done at places chosen by research participants and in their preferred languages. Participants were recruited through snowball sampling with assistance of 2 gatekeepers.

Findings from this study showed that Infertility is culturally defined along gender, expected time frame for conception after marriage. The cultural beliefs and perception of the causes of infertility based on this study can be grouped into two categories: social and supernatural. The social category describes infertility resulting from one's social actions and inactions. These include dirtiness, waywardness/sexual promiscuity, abortions, rape, sexually transmitted

infections, drug abuse and modernization to mention a few. Supernaturally, infertility is believed to be permitted by God as “trial”, “punishment for sin” or “spiritual oppression”. Gap in this study is that the sample size is very small.[69]

## 2.3 LEVEL OF KNOWLEDGE OF INFERTILITY TREATMENT OPTIONS AMONG MARKET WOMEN

In the year 2006 – 2010, the University of Michigan’s Institute for Social Research conducted the National Survey for Family Growth (NSFG), a cross-sectional, multi-cycle survey. The survey was based on 22,682 face-to-face interviews, consisting of 10403 males and 12,279 female respondents, aged 15-44. The sample was Nationally representative, including an oversampling of Blacks, Hispanic and teenage respondents, which was incorporated into the analysis through the use of sampling weights provided by NSFG.[70] In-person interviews were administered in both English and Spanish and covered a wide range of topics including health, marriage and family planning. Sampling was restricted to female respondents aged 25-44 who were married or in a cohabiting relationship. Among the 12,279 female respondents, 4,558 women met these two criteria. Data was analyzed and result showed that among the 4,558 women in the sample, 623 sought infertility services, and among these 47.3% sought an infertility evaluation only and 52.6% received an evaluation and underwent treatment. For those who reported treatment, ovulation drug therapy was reported most often (N=2827; 86%), followed by artificial insemination N=97; 30%), surgery to correct blocked tubes (N=66; 20.1%), IVF (N=41; 12.5%).[70]

In 1997 a qualitative and explorative study of socio-cultural aspects of infertility and treatment options among members of the matrilineal ethnic group Macua in the north of Mozambique was conducted. The study was carried out in Montepuez and focused on the neighborhoods of Nacate

and Nicuapa. The study was conducted within a period of 3 months. Data were collected by means of semi-structured interviews, participatory observations. Some numerical data were collected from the health care registers in Montepuez. Informants were contacted through the snowball method. a few informants were contacted through the consulting hours for gynecology and obstetrics in the hospital in Montepuez. Sample size was 34 (25 infertile women without any living children and nine with one or more child).[63] Result revealed that all of the interviewed infertile women (except one) had been searching for medical treatment to solve their infertility. All of them visited traditional healers once or several times, while only half of them went to the hospital. The intensity of seeking medical treatment varied a lot especially with regard to the number of visits, paid to the traditional healers. Some women said that they visited 'very many', maybe 20 or 30 different traditional healers'. Others had only been once or twice. Most women first visited traditional healers and later went to the hospital. More often, the women visited herbal healers, *akulukanos*, than spiritual healers, *majini*. Most visited traditional healers lived close by, but some famous healers living farther away were visited as well. Concerning modern health care services, principally the hospital in Montepuez was mentioned. In general, shorter journeys are made to visit modern health care institutions than to visit traditional healers. Also, in general the women have to pay less for modern health care than for visits to traditional healers. From this it may be assumed that neither the physical distance nor the expenses are the (main) reason for fewer visits to the hospital in comparison to visits to traditional healers.[65] However, the gap in this study is that the study sample is small.

In 2018, a study was conducted between 30 April and 13 July in Ngaka Modiri Molema District, North West Province (one of the most rural provinces in), South Africa on the use of Indigenous Healthcare Practices (IHCPs) on the management of infertility. The study utilized a qualitative, exploratory, descriptive, and contextual approach which was aimed at gaining an in-

depth understanding of the narratives of women who used IHCPs to manage infertility in the District. The district (a rural area with a 24-hour community health center that caters for community health) has 28 wards consisting of 102 villages. The study population included women who sought the services of IHCPs to manage their infertility in the district. Participants were purposefully selected based on the characteristics of having had problems conceiving prior to them consulting IHCPs. A snowballing technique identified five participants, with the aid of IHCPs who specialized in the management of infertility. Semi-structured in-depth interviews was used to collect data from five women who used IHCPs to manage their infertility until the reaching of data saturation. The interviews were audiotaped, with the consent of participants, at their respective homes. The basis for the results was the narratives of female indigenous healthcare users who had infertility issues and opted for the services of IHCPs. The women stated that IHCPs were experts in the management of infertility, as women conceive and ultimately have viable pregnancy. Participants also reported that the community knew the practitioners based on their ability to restore fertility, therefore women refer others with infertility problems for assistance. The findings revealed that infertility outcomes depend on the conduct of the woman and her partner, as there were treatment restrictions to be followed that enhance the effectiveness of treatment. Furthermore, the women affirmed that the practitioner emphasized their compliance to the treatment and to report any strange feeling or illness, as that can be the sign of success or that treatment needs to be altered. Findings of this study divulged that women who consulted with IHCPs indicated that after a series of treatments, which included massages, they conceived and delivered healthy alive infants. The IHCPs provide holistic care to infertile women, and their spiritual and emotional status is attended to through prayers and counselling prior to consultation. The clearest limitation of this study was that many IHCPs found it difficult and became emotional explaining their infertility journey; therefore, the researcher had to look for those who were open and willing to participate

in this article.[71]

A cross-sectional survey was conducted between 1st April and 31st July, 2003 to determine Perceptions and Practices of Infertile Women Towards Infertility at the University of Port Harcourt Teaching Hospital (UPTH), Port Harcourt. Three hundred sub-fertile women attending the gynaecological clinic of the University of Port Harcourt Teaching Hospital in Southern Nigeria were interviewed. Adequate sample size was calculated based on infertility prevalence rate of 15 to 19%. The total number of women attending the gynaecology clinic of the UPTH approximates 1,500 annually. Sample size totaled 296 at 95% confidence level. The respondents were interviewed using self-administered structured questionnaires. Result showed that majority of the respondents 266 (90.1%) perceived prayer to be a treatment modality for infertility. Other treatment modalities reported included drugs by 218 (73.8%), surgery by 127 (43%) and traditional remedies by 112 (37.9%) of respondents. Traditional remedies they were aware of included oral herbs, vaginal inserts, incisions and incantations in decreasing order. Twenty-two (3%) respondents also reported abdominal massage as a treatment modality. In search of a solution, 78% had received previous treatment before presenting at the UPTH. Thirty-five percent (35%) had received traditional treatment, four percent (4%) surgical treatment, twenty-five percent (25%) medical treatment, eight percent (8%) spiritual healing and one percent (1%) abdominal massage. Forty-three percent (43%) consulted medical doctors, seven percent (7%) nurses, thirty-two (32%) traditional birth attendants, eight percent (8%) native doctors and nine percent (9%) consulted priests and ministers. Limitations of conventional treatment options have been well documented leading to the evolvement of Assisted Reproductive Techniques (ART). Fifty-three percent (53%) claimed knowledge of in vitro fertilization but only twenty-three percent (23%) were willing to use it while one percent (1%) had actually used it. As with their perceptions on causes of infertility, a significant number (37.9%) of the respondents mentioned

traditional remedies as being useful in the treatment of infertility. Their poor knowledge of management options

probably influenced their choice of unorthodox treatment.[68]

## 2.4 RELATIONSHIP BETWEEN CULTURAL BELIEFS AND KNOWLEDGE OF INFERTILITY TREATMENT OPTIONS AMONG MARKET WOMEN

In 2014, an ethno-cultural study was conducted in Montreal, Quebec, Canada to explore the use of complementary and alternative medicine (CAM) for infertility in a multicultural healthcare setting and to compare Western and non-Western infertility patients' reasons for using CAM and the meanings they attribute to CAM use. Data was collected using Quantitative semi-structured interviews using thematic analysis. An ethno-culturally varied sample of 32 heterosexual infertile couples were used. Result revealed that CAM used included lifestyle changes (such as changing of diet, exercise), alternative medicine (such as, acupuncture, herbal medicines), and religious methods (prayers, religious talismans). Patients expressed three attitudes toward CAM: desperate hope, casual optimism, and amused skepticism. Participants'

CAM use was consistent with cultural traditions of health and fertility: Westerners relied primarily on biomedicine and used CAM mainly for relaxation, whereas non-Westerners' CAM use was often influenced by culture-specific knowledge of health, illness and fertility.[72]

In 2002 a publication was made on an exploratory study conducted in the black community of South Africa to investigate the perceptions of available treatment options for infertility, and the implications of these perceptions to the mental health service provision for people who are infertile. The interviewing method was used to collect data. Semi-structured interviews were

used to collect data. The population of the study was the black South African community from both the rural (56%) and urban (44%) areas, conveniently, from the Gauteng, Northwest and Northern Provinces. A convenience and redundancy sampling methods were used to obtain 76 (30 men and 46 women) participants from their homes. The age of the participants ranged from 19 years to 76 years with a mean age of 42 years (SD = 3.9). Sixty-two (62%) percent of the respondents were biological parents, and the rest were childless by choice. The gender characteristic of the participants was seventy (70%) percent women and thirty (30%) percent men. The findings indicate that Western and African traditional medicines, counselling and, faith healing were perceived as available treatment options. Traditional marriages and adoption were considered as alternate management options. Themes relating to the acceptance of the infertility condition and preventative measures for infertility were also elicited. The reported western medical treatment included cleaning the womb, artificial insemination, surrogate, and test tube babies. The reported traditional medical treatment involved the use of herbs and performance of rituals by traditional doctors and herbalists. Traditional healers tended to slaughter a goat to appease the ancestors as part of the treatment. Infertile persons sought counselling from Social Workers. Faith healing was also an emergent theme. It was perceived that infertile people should pray for a child from God.[73] The gap, however in this study is that the sample size is small and some of the participants were childless by choice.

A descriptive cross-sectional study was conducted in Kaduna between July 2006 to March 2007 and May to October 2010 to evaluate the level of awareness and perception of assisted conception treatment among women attending fertility clinic. The study was carried out in two public hospitals (Ahmadu Bello University Teaching Hospital, Zaria and 345 Aero medical

Hospital, Kaduna) and one cosmopolitan multidisciplinary private hospital (Alba hospital, Kaduna), all located in Kaduna state, Northern Nigeria. All consenting infertile women (about 196) that attended the infertility clinic with the said duration were all interviewed in accordance with the questions on a pre-tested designed questionnaire. In the study, in-vitro fertilization popularly known as 'Test-tube baby technology' was used as reference to Assisted Reproductive Therapy (ART). The patients were personally interviewed by the doctors running the infertility clinic. Result showed that of the one hundred and ninety-six women with the diagnosis of infertility that were interviewed for this study, 150 of them have heard of ART. This gives an awareness rate of 76.5%. Analysis of the 150 patients that have heard of ART showed their mean age to be 34.8 years with an age range of 18 to 46years. Mean duration of infertility was 4.1 years with a range of 12 to 144 months. Of the 150 patients, 123 (82.0%) had secondary infertility and 27 (18.0%) presented with primary infertility. When asked about the first source of ART information, 69 (46%) patients heard from family relation, 43 (28.7%) from friend, 27 (18%) from health facility, 6 (4.0%) through the mass media and the remaining 5 (3.3%) patients could not remember the source of information. Should an ART treatment cycle cost 4000 United Sates dollars, only 4 (2.7%) patients of the 150, said they can afford the treatment. Knowledge about ART practice revealed that 76 (50.7%) of the 150 patients knew that ART treatment could fail to produce pregnancy, also 54 (36.8%) patients were aware that ART could be applied in the management of male infertility. Of the 150 patients, 14 (9.3%) and 28 (18.7%) patients knew that donor oocyte and sperm could be used for treatment in ART procedure. Only 2 (1.3%) patients had knowledge on the use of donor zygote. Awareness on cryopreservation revealed that 28 (18.7%) patients know that oocyte and sperm can be preserved for future use while only 2 (1.3%) of the 150 patients were aware of ovarian and testicular tissue preservation.[74] The gap however in this study

A number of qualitative studies aimed at exploring socio-cultural issues associated with infertility in Ile-Ife, South western Nigeria was conducted in 1997. The article was a report of a qualitative study into infertility carried out at Ife Central Local Government Area of Osun State, Southwestern Nigeria; it includes the results of 25 focus group discussions held with key informants and community leaders in the Area. The focus group discussions had three purposes: to explore local attitudes and beliefs regarding infertility; to assess the accuracy and depth of people's knowledge about the causes and appropriate treatment of infertility; and to understand the consequences of infertility and identify any gender differences in the social implications of infertility in the community. The study was carried out in the rural and urban parts of the Local Government Area in Osun State, Southwest Nigeria. Data was obtained from focus-group discussions carried out as a follow-up to a comprehensive community-based study of infertility in the LGA. In the larger study, nearly 1200 married women aged 15-45 years in the rural and urban parts of the LGA were randomly selected for interview. The sampled women were interviewed in their households with a pretested questionnaire and allocated into various fertility categories using a standard WHO protocol. To understand the social context of infertility in the area and to provide substantive explanation for the results derived from the quantitative study, a more in-depth qualitative studies was undertaken in the community.

Focus-group discussions were undertaken among key informants in the rural and urban sections of the community to provide contextual information on the social meaning of infertility in the LGA. Twenty-five focus-group discussions were conducted: 12 with women and 13 with men. A total of 105 women aged 29-63 years, and 118 men aged 30-65 years participated in the discussions. The focus groups were organized at place of occupation and place of residence of the participants, to enable the inclusion of persons from a wide range of different socioeconomic and educational strata. The discussions ranged in size from four(4) to twelve(12) participants,

with the average size of a group being nine(9) persons. Result from the article revealed that a general consensus reached by the focus-group participants was that the treatment of infertility in the community is usually directed specifically at women and that most people use three treatment outlets: churches (spiritualists), traditional healers and hospitals (orthodox medical treatment). However, there was no agreement between and within the groups on which of the three methods people prefer. Nevertheless, there was a strong sense that people often use the three treatment methods in combination and possibly in sequence; the first method chosen is often determined by the perception of the couple regarding the causes of the infertility. As most people are deeply convinced of the supernatural causes of infertility, it is not surprising that infertile people often patronize traditional healers and religious leaders very early. Orthodox medical practitioners are often consulted later when religious and traditional methods have failed to provide a solution to the infertility. Groups revealed a wide variety of traditional treatments available for infertility. Most common was the use of preparations of either boiled or fresh herbs, sometimes boiled together with roots and animal meat such as rat or goat, and either drunk by the woman, inserted into the vagina, or used to wash the body and/or genitals. Also mentioned was the use of black soap to wash the genitals and breasts. These rituals were usually carried out with incantations, usually chanted by the herbalist and keeps this information very secret. A number of different traditional methods of treatment and herbs mentioned in the focus groups included: Concoctions, Use of black soap,

Use of spiritual powers/incantations, Herbs and roots (*Egboigi*), Worshipping in Osun river, Use of red pepper, Making incision on the forehead, Use of an egg, Making sacrifices at crossroads, Use of banana, Use of a leaf (*Oloburo*), Use of red pepper (*Ataare*), Kaun and Eruwo roots, Alcohol/Schnapps, Use of Shea butter, Intercourse with herbalist, Eating the faeces of dogs and cats, Carrying goat on the back, Drinking longstanding urine, Receiving children from iroko tree (*Oroigi*), Drinking the breastmilk of lactating women, *Agunje*, *Ibor*. Mentioned in addition was

that the herbalist may also prescribe certain rituals or actions, such as the woman bathing at night at a place where roads meet, or making sacrifices of food to evil spirits that may be causing her problem, and leaving the items at a crossroads. She and her husband may also be asked to have intercourse at such a place, or she may be asked to perform rituals at the marketplace at night. Many participants acknowledged the importance of going to the hospital for tests and firmly believed that the doctors can often determine the exact cause of the infertility, and prescribe drugs to treat it. However, the medical approach is often not used immediately since biomedical factors are not recognized as prominent causes of infertility. Many people believe that Western medical treatment can only help if there is a Western medical cause of infertility. If people believe that the infertility was caused by a curse or spell, or by God, they will seek an appropriate solution, which may not include the medical practitioner. They may also seek help from traditional doctors first, and come to the medical doctor later, either for additional help or to treat a problem caused by the herbal treatments. Participants in the focus groups explained Western medical treatments as consisting of 'tests and examinations' to determine the cause, and then 'drugs, hormones and surgery' to correct the problems. In general, the more educated participants tended to give more exact names of tests and they were also more likely to identify the exact places where tests could be done. The tests often mentioned were blood tests, X-rays of the womb, ultrasound and sperm tests, but most people, especially in rural areas, just responded with the general term 'tests' and were unable to define the types of tests.[75]

## 2.5 SOCIO-DEMOGRAPHIC FACTORS ASSOCIATED WITH KNOWLEDGE OF INFERTILITY TREATMENT OPTIONS AMONG MARKET WOMEN

In 2016, a cross-sectional study was done to examine the extent of infertility and treatment seeking behavior among infertile women in India and an attempt was also made to evaluate the effects of socio-demographic factors on treatment seeking behavior among infertile woman in Indian.

The study used the data from the third round of District Level Household and Facility Survey (DLHS-3) carried out in India during 2007-08 [***International Institute for Population Sciences (IIPS), 2010. District Level Household and Facility Survey (DLHS-3), 2007-08, India. Mumbai: IIPS***.]). ***The DLHS-3 is one of the largest ever demographic and health surveys carried out in all the states and union territories of India with a sample size of 720,320 households.*** In total, 643,944 ever married women aged 15-49 years and 166,260 unmarried women aged 15-24 years were successfully interviewed. The data regarding infertility and childlessness was also collected in the survey from married women of 15-49 years for the first time ever. Married women were asked direct questions regarding infertility and treatment seeking behavior.

Regarding treatment seeking behavior, women were enquired about the type of treatment sought and the result of the treatment. The study considered a number of potential sociodemographic covariates in the analysis to understand the differentials and determinants of infertility and treatment seeking behavior. The variables used were age of the respondents (<25 years, 25–35 years, >35 years), age at marriage (<18 years, 18–30 years, >30 years), children ever born (no children, one, two, three or more than three), religion (Hindu, Muslims and others), caste (scheduled castes, scheduled tribes, other backward classes and others), place of residence (rural, urban), years of schooling (no schooling, <10 years and >=10 years of schooling), work status (working, not working). Economic status of the households was also included in the analysis and measured as wealth index. ***Wealth index is a composite measure of a household's cumulative***

***living standard.*** As this survey does not collect the direct information on income and expenditure of households, wealth index was calculated using a set of the proxy indicators, such as household ownership of selected assets, housing conditions, consumer durables, water and sanitation facilities. Wealth index score of the household was computed using Principal Component Analysis (PCA), then households were categorized into five quintiles. In this study, first two quintiles of households were categorized as "poor", third quintile of households categorized as "middle" and last two quintiles of households were categorized as "rich".

In this study, bivariate and multi-variate statistical techniques were applied to understand the extent of infertility and treatment seeking behavior among women from different socioeconomic backgrounds in India. Cross tabulations were used to understand the prevalence of infertility and treatment seeking behavior. To understand the socio-demographic association with primary infertility, Cox proportional hazard model was applied at the national level.

Further, binary logistic regression model was also used to understand the adjusted effects of socio-demographic predictors on treatment seeking behavior among infertile currently married women.

Results indicated that about 80 percent of infertile women received treatment services in the country. However, nearly half of them received allopathic treatment. Treatment received by infertile women was found to be higher among women aged more than 35 years, belonging to the religion other than Hindu or Muslims, residing in urban area, having more than 10 years of schooling and belonged to rich wealth quintiles. By caste status, more infertile women from castes other than scheduled castes or scheduled tribes went for treatment.

Variation was also noticed in types of treatment received by infertile women. About half of the infertile women (50 percent) preferred allopathic treatment. More women who attained more than 10 years of schooling (73 percent) opted allopathic treatment compared to those who never

attended school or received less education. Similarly, uptake of allopathic treatment was higher among women residing in urban areas (62 percent). On the other hand, non-allopathic treatment was popular among scheduled tribes (35 percent), poor wealth quintiles (37 percent) of infertile women. Non-Allopathic treatment includes Ayush, Traditional and Religious treatment.[76] The gap in the study is that data was also collected from unmarried women aged 15-24 years.

A descriptive cross-sectional survey was conducted in University of Benin Teaching Hospital, Benin City, Nigeria, in 2019, to determine the effect of religion, culture, cost, ethics, and husband perception on the decision of women attending a tertiary health institution in the utilization of ART.

The research enabled the researcher to survey hundreds of patients and get private information during the survey. The subjects were chosen through the probability sampling technique. The simple random technique was the sampling frame used since it is the most sensitive and valid type, and participants had homogenous attributes. The clinics, namely obstetrics, gynecology, and fertility clinic, were stratified and proportional allocation of questionnaires was given out to obstetric –266, gynecology –60, fertility clinic –30, with summation of 348. Data collection instruments were self-structured, closed ended questionnaire, administered and same retrieved. This allow the researcher to ask the same question, in the same way, sequence, and order, to different people and in different places thus enabling the researcher to reach more participants with divergent opinions at the same time.

The study found that religion, culture, cost, ethics, and husband perception were factors influencing women's decision on the utilization of ART, with mean and SD scores of 2.47 ± 1.28, 2.34 ± 1.20, 3.37 ± 1.25, 2.35 ± 1.09, and 2.33 ± 1.13, respectively.[77] However, the Gap in the study is that there is no age limit to the study and the information divulged might be limited due

to the fact that Infertility as a stigmatized health condition is a challenge to elucidating facts from these clients. More also, as information about clients' disease condition and ART procedures are confidential to these clients, they would want to keep their "secrets"
secret.

A quantitative using cross-sectional study was conducted in the Ashanti Region of Ghana in the year 2020 to explore how knowledge level, attitudes of men and their socio-demographic backgrounds influence their involvement in infertility ***treatment***. The study was underpinned by the ancient Social Learning Theory (SLT) propounded by Bandura Albert in 1977 which is still instrumental in modern social science research, which emphasizes the importance of observing and modelling the behaviours, attitudes, and emotional reactions of others coupled with motivation for an action to occur.[78]

The SLT explains human behaviour in terms of continuous reciprocal interaction between cognitive influences (knowledge, information flow, perceptions, misconceptions, among others), behavioural influences (attitudes, mannerisms, habits, actions, an among others), and socio-environmental influences [place of stay, social interactions, social-demographic factors
(age, gender, marital status, wealth status, occupational status, religious affiliations, ethnic orientation, among others). The SLT was applicable to the study on knowledge, attitudes and social demographic factors influencing males' involvement in infertility treatment due to its strong manifestation of aggression, psychological disorders, and the need for motivation when couples are unable to bring-forth children.[79] The SLT therefore espoused that, behaviour modelling is very essential for an action to occur and that collaborates the efforts needed for males to get involved in infertility treatment.

The study population involved males in their reproductive ages of 18 and 60 years who were married men or cohabiting with their partners living in eight (8) major communities in Ghana. Sample size was 423. A multi-stage sampling technique was adopted for this study. At the primary stage, three Municipalities were purposefully selected. Then simple random method was used to select 1 out of the 3 Municipalities. Adopting a stratified sampling technique, the selected Municipality (Ejisu) was clustered into eight strata. Criteria for the strata were on the basis of the population of the town and closeness or farness from the Municipal capital (Ejisu). At the third stage, simple random sampling technique was used to select proportional number of men who meet the inclusion from each of the clusters which was done by spinning a pen at the centre of the community, the household where the pen's head pointed to was the starting point for the research team where males who met the inclusion criteria were selected and interviewed. The same procedure was repeated in the other community till the required sample for each community was attained. Primary data was gathered with the use of structured questionnaires and was administered to consented people during the field work session. The questionnaire was prepared in English and administered in Twi language, which is the most widely spoken and understood language in the communities.

Result from the study revealed that a total of 341(80.61%) respondents agreed that they would undertake regular examination and treatment of disorders, 279(70.38%) opted for home-made herbal concoction, 132(68.79%) respondents preferred usage of aphrodisiac drug, 162(38.30%) of respondents agreed to perform in-vitro fertilization, with 114(26.95%) respondents affirming the use of over-the-counter drugs. In univariate and multivariate regression analysis, the results depict that socio-demographic characteristics such as marriage type, level of education, employment status, religion, income status, and ethnic orientation were more likely to be determinants for males' involvement in fertility treatment as For instance, the study revealed that married men in polygamous marriages were 6 times more likely to be involved in a fertility

treatment than married men in monogamous marriages (Adjusted OR=6.210, 95%CI=3.153 7.232). Also, married men with primary and tertiary education were 0.517 less likely (Adjusted OR=0.517, 95%CI=0.319-0.819) and 0.597 less likely (Adjusted OR=0.597, 95%CI=0.153-0.732) to be involved in fertility treatment respectively as compared to those with secondary education. Again, married men who were employed were 3 times more likely (Adjusted OR=3.331, 95%CI=2.193-3.304) to be involved in fertility treatment as compared with those who are self-employed. Moslems were 4 times more likely (Adjusted OR=4.036, 95%CI=1.420 4.304) to be involved in fertility treatment as compared to Christians. Finally, traditionalists were 0.331 less likely (Adjusted OR=0.331, 95%CI=0.193-0.364) to be involved in fertility treatment as compared to Christians.[80] However, the gap in this study is that only married men were involved in the study and women were neither involved nor their sought.

A study was conducted to determine the Knowledge, perception and attitude of infertile women to IVF at the Human Reproduction Research Program Unit of University of Benin Teaching Hospital (UBTH) Benin City which is a dedicated program for infertility research and management. The study was done between June 2007 and May 2008 after the commencement Assisted Reproduction Technology (ART) services at the UBTH with the aim of detecting factors that may influence acceptance of ART and also assess the acceptance of adoption as a last resort for infertility management. This was a questionnaire based study which surveyed about 178 infertile patients attending the Human Research and Reproduction (HRRP) unit for the first time. Female partners of infertile couples consulting for infertility for the first time at the unit (HRRP) were requested to complete a semi structured questionnaire after they were counseled and their verbal consent obtained. The questionnaire explored their demography, their knowledge of causation of infertility, and their knowledge, perception and attitude to ART and adoption. The respondents were sub grouped group using demographic criteria for the purpose of statistical

analysis. Result showed that the 178 respondents who completed the questionnaire during the study period were married. The perception of offspring from IVF was not influenced by age, occupation or marital status of the respondents. However, the women who had delivered before were more likely to see IVF babies as abnormal compared to those who have not. (p=0.00). The more educated respondents were more likely to perceive IVF babies as normal. Similarly, significantly more respondents who have been infertile for more than 4 years perceived IVF babies as normal than those who have been infertile for less than 4 years. (p=0.00). The older women (35 years or more) were significantly more willing to accept IVF babies than those younger than 35 years. (p=0.01). Also, the women who had never delivered before (nullipara) were significantly more likely to accept IVF babies than those who have not. (p=0.00). Also, significantly more women with tertiary education would accept IVF babies than those with lower education. (p=0.00). The frequency of acceptance was not different between women with secondary and those with primary education. (p=0.12). The respondents who have been married for more than 4 years showed more willingness to accept IVF babies than those who were in marriage for 4 years or less. There was no difference in acceptance between women who were married for 4-9 years and those married for 10 years or more. Only 34(19.1%) of the respondents would accept adoption as an option for the management of infertility. This low level of adoption was irrespective of their age, marital status, type of marriage- whether monogamy or polygamy, parity, educational status or

duration of infertility.[81]

# CHAPTER THREE

# METHODOLOGY

## 3.1 STUDY AREA

This research was conducted in Benin City, the capital of Edo State, among market women. Edo State is one of the 36 states in Nigeria. Geographically, it is located in the South-South geopolitical zone of Nigeria. The State was created by extracting the northern part of former Bendel State in 1991. With a land mass of about 19,7443km$^2$(square kilometres), the 22$^{nd}$ largest state by landmass. It shares borders with Kogi State to the Northeast, Anambra State to the East, Delta State to Southeast and Ondo State to the west and northwest; the Niger rivers flows along the state's eastern boundary. Edo State is currently home to an estimated population of 4,777,000 people, according to the National population commission population projection. Edo State is a diverse state that is predominantly inhabited by the Edo people, including the Edo (Benin), Esan, Etsako, Owan and Afemai and other smaller tribes. The State is also populated by people from other various tribes around the country and from different nationalities from around the world.

The capital city, Benin City, is located appropriately 25 miles north of the Benin River about 200 miles east of Lagos when measured by road distance . It is made of three local government areas which are Oredo, Egor and Ikpoba-Okha. Benin City currently has a population estimate of about 3,500,000. It has a total mass area of 1,204km$^2$ (square kilometre). It is located within

Latitude 6°20'00 N and Longitude 5°37'20 E.[82] It is bounded at the west by Ovia Northeast Local Government Area(LGA), to the east, by Orhionmwon LGA, to the north, by Uhunmwonde LGA and to the south, by Delta State.

### 3.2. STUDY DESIGN

A cross-sectional descriptive study design was employed, using a mixed method of data collection (qualitative and quantitative).

## 3.3 SCOPE OF THE STUDY

This study focused on exploring the cultural beliefs and knowledge of infertility treatment options among market women in Benin City, Nigeria. The scope of the study included the following dimensions:

### 3.3.1 GEOGRAPHICAL SCOPE:

The study was conducted in four selected markets within Benin City, Edo State, Nigeria.

### 3.3.2 DEMOGRAPHIC SCOPE

The primary participants were market women within the age range 18–65 years.

### 3.3.3 THEMATIC SCOPE

**Cultural Beliefs:** The study examined perceptions of infertility, including causes, societal stigma, and local remedies.

**Knowledge of Treatment Options:** The research assessed the level of awareness and accessibility of modern medical interventions such as assisted reproductive technologies (ART), hormonal treatments, and traditional herbal remedies.

**Influence of Societal Norms:** The role of family, religious beliefs, and community expectations in shaping attitudes towards infertility and treatment choices were explored.

### 3.3.4 METHODOLOGICAL SCOPE

The study employed a quantitative (structured questionnaires) data collection technique.

Participants were selected using a random sampling technique to ensure representation of diverse perspectives.

### 3.3.5 TIME FRAME

The research covered a defined period within which data collection, analysis, and reporting were conducted, approximately 10–12 months.

### 3.3.6 LIMITATIONS

The study was limited to market women in Benin City and may not represent all women in the region.

Cultural sensitivities and reluctance to discuss infertility may have affect data collection.

By defining these boundaries, the study aimed at providing a comprehensive understanding of how cultural beliefs shape infertility treatment decisions among market women in Benin City.

## 3.4 STUDY POPULATION

The study was carried out amongst market women ages 18-65 years in the selected markets in the selected wards in the selected local government area in Benin City, Edo State.

### 3.4.1 Inclusion Criteria

1. All market women 18 years and above who consented to participate were included.

### 3.4.2 Exclusion Criteria

1. Women who were absent during data collection
2. Women who were either ill or not willing to participate during data collection.

## 3.5 DURATION OF STUDY

The study was carried out for a period of one year from December 2024 to November 2025.

- Conceptualization and initial write up: 4 months
- Data collection: 3 months

- Analysis: 2 months
- Final write-up: 3 months

### 3.6 SAMPLE SIZE DETERMINATION

The sample size was determined using the Cochran formula:

$$n = \frac{(Z)^2 \times (Pq)}{d^2} \times DEFF \cdot 83$$

Where; n = minimum sample size for infinite population.

Z = Z-Score (Linked to 95% of confidence interval for a 5% level of significance).

P = Expected prevalence (Estimated at 22%).[4] which is the prevalence from a study carried out on the prevalence of infertility in a rural community in Nigeria in the year 2017.

q = 1- P

d = margin of error or relative desired precision (estimated at 5%).

DEFF= Design effect (correction factor).[85]

**Calculating the sample size for multi-stage design.**

Z = 1.96

P = 22% = 0.22

q = 1 – 0.22 = 0.78

DEFF = 1.5

d = 0.05

$$n = \frac{(1.96)^2 \text{ x } (0.22 \text{ x } 0.78) \text{ x } 1.5}{(0.05)^2}$$

$$n = \frac{3.8416 \text{ x } 0.1716 \text{ x } 1.5}{0.0025}$$

$$n = \frac{0.6592 \text{ x } 1.5}{0.0025}$$

n = 263.69 x 1.5

n = 395.53

**Non-Response Rate**

A 10% non-response rate was calculated and added, to account for lost and unfilled questionnaires, utilizing the formula of non-response rate

nf = n/1-nr

where;

nf = Final Minimum Sample Size

n = Minimum Sample Size

nr = Non response rate at 10%

nr = 0.1

Thus;

nf = 395.53/1-0.1

= 439.48, approximately 440.

The minimum sample size for this study was 440.

### 3.7 SAMPLING TECHNIQUE

The study was conducted among market women in Benin City using a multi-stage sampling technique comprising five (5) stages was adopted.

**STAGE ONE**: **Selection of a Local Government Area**

A local government area in Benin City was selected using simple random sampling method through a balloting process.

**STAGE TWO**: **Selection of ward**

Four wards were selected from the selected local government using simple random sampling method through a balloting process.

**STAGE THREE**: **Selection of market**

One market was selected from each of the selected ward using simple random sampling method through a balloting process.

**STAGE FOUR**: **Selection of stores/stands**

In the selected market, a list of stores/stands was made. The desired number of store/stands were selected using random sampling method.

**STAGE FIVE**: **Selection of market women**

From the selected stores/stands, where there was more than one market woman per store/stand, one market woman was selected using simple random sampling method through balloting

process.

### 3.8 METHOD OF DATA COLLECTION

Data was collected from participants using a pre-test structured interviewer-administered and self-administered questionnaire with open and closed ended questions. The questionnaire was divided into three (3) sections, two (2) sub-sections in section B and two (2) sub-sections in section C according to the study objectives as follows: Socio-demographic information; cultural beliefs and perceptions about infertility with sub-sections (cultural belief about infertility, and cultural perceptions and social impact of infertility); and knowledge of infertility and infertility treatment also with two sub-sections (knowledge of causes, diagnosis and treatment of infertility, and knowledge and awareness of infertility treatments.

The questionnaire was grouped into three sections as follows:

**SECTION A: Socio-Demographic Information**

**SECTION B: Cultural Beliefs and Perceptions of Infertility Among Market Women in Benin City**

I. **SUB-SECTION B1:** Cultural Belief About Infertility Among Market Women in Benin City.

II. **SUB-SECTION B2:** Cultural Perceptions and Social Impact of Infertility Among Market women in Benin City.

**SECTION C: Level of knowledge of infertility and infertility treatment options among market women in Benin City.**

I. **SUB-SECTION C1:** Knowledge of causes, diagnosis, and treatment of infertility among market women in Benin City.

II. **SUB-SECTION C2:** Knowledge and awareness of infertility treatments among market women in Benin City.

### 3.8.1 VALIDITY OF THE INSTRUMENT

The questionnaire was subjected to face and content validity. Face validity was established by ensuring that the items were clear, simple and relevant to the objectives of the study. Content validity was determined by submitting the instrument to experts in the department of Public Health and Community Medicine for review and approval. The supervisors examined the questionnaire for clarity, appropriateness, relevance, comprehensiveness and alignment with the study objectives. The corrections and suggestions were incorporated into the final version of the questionnaire before administration.

### 3.8.2 TRAINING OF RESEARCH ASSISTANTS

Eight (8) research assistants were trained on interviewing technique and standardization of the study tool for two days. They were undergraduates in the University of Benin (UNIBEN).

### 3.8.3. PRETESTING

The questionnaire was pretested among market women in a local government area in Edo State. Ten percent of the calculated sample size questionnaires were tested for correctness and appropriate understanding and response by respondents to the questions.

### 3.8.4 RELIABILITY OF RESEARCH INSTRUMENT

The internal consistency of the questionnaire was assessed using Cronbach's alpha reliability coefficient after pretesting. Cronbach's alpha coefficients were computed separately for belief, perception, and knowledge sections of the questionnaire. The belief scale had a Cronbach's alpha

of 0.771, the perception scale 0.757, and the knowledge scale 0.873, indicating acceptable to good reliability of the instrument.

### 3.9 DATA ANALYSIS

Quantitative and qualitative data were collected, screened for completeness, coded and analyzed using IBM Statistical Package for Social Science (SPSS) version 27.0 software to determine the frequency, percentage, mean, standard deviation (SD) and median ranges of the parameters. Univariate analysis was done to assess the distribution of variables such as the frequencies, percentages, mean, median range as well as the standard deviation of the data that were collected including the socio demographic characteristics of respondents, Cultural Beliefs About Infertility Among respondents, Level of Belief regarding infertility among respondents, Cultural Perceptions and Social Impact of Infertility Among Respondents, Level of Perception regarding infertility among Respondents, Knowledge of Causes, Diagnosis, and Treatment of Infertility Among Respondents, Knowledge and Awareness of Infertility Treatments Among Respondents, and Level of Knowledge regarding infertility among Respondents. Bivariate analysis using a Chi-square test, Fisher's Exact test, Binary Regression was also done to determine the association between level of cultural beliefs and level of knowledge of infertility treatment options, association between level of perception and level of knowledge of infertility and infertility treatment options, and Association Between Socio-demographic Characteristics and Knowledge of Infertility Treatment. Spearman's Rank correlation was also done to show the relationship between age, Belief score, Perception score and knowledge score; the relationships were represented in correlation (scatter/dot) curves. Multiple linear regression analysis of

predictors of knowledge scores was also done. Result obtained were presented using prose, frequency tables, contingency tables and charts. Level of significance was set at $p < 0.05$.

## 3.10 SCORING

### 3.10.1 Cultural Beliefs about Infertility.

Cultural belief was measured using a 7 question 5-point Likert scale ranging from strongly agree (5) to strongly disagree (1). Negatively worded items were reverse coded from strongly agree (1) to strongly disagree (5). The total belief score ranged from 7 to 35 and was categorized into negative cultural beliefs (< 21) and positive cultural beliefs (≥ 21) using the Bloom's cut-off points of < 60% for negative cultural beliefs and ≥ 60% for positive cultural beliefs.[86]

### 3.10.2 Cultural perceptions and social impact of infertility.

The Cultural perceptions and social impact of infertility was measured using a 7 question 5-point Likert scale ranging from strongly agree (5) to strongly disagree (1). Negatively worded items were reverse coded from strongly agree (1) to strongly disagree (5). The total belief and perception scores ranged from 7 to 35 and was categorized into poor perception (<28) and good perception (≥ 28) using the Bloom's cut-off points of < 80% for poor perception and ≥ 80% for good perception.[86]

### 3.10.3 Knowledge about Infertility and Infertility treatment options.

The participant's level of Knowledge of causes, diagnosis, and treatment of infertility were assessed using a 17 question 5-point Likert scale while participant's level of Knowledge and awareness of infertility treatments were assessed using a 3 multiple choice and a 4 single best option questions. The 5-poit Likert scale questions ranged from strongly agree (5) to strongly disagree (1). Negatively worded items were reverse coded from strongly agree (1) to strongly disagree (5) and single best option questions were recoded into ‘incorrect’ and ‘correct’. Total

knowledge score was computed and the total knowledge score ranged from 17 to 105 and was categorized into poor knowledge (< 80%) and good knowledge (≥ 80%) using the Bloom's cut-off points of < 80% for poor knowledge and ≥ 80% for good knowledge.[86]

### 3.11 ETHICAL CONSIDERATION

Ethical approval for the study was obtained from Ethics and Research Committee, University of Benin Teaching Hospital (UBTH), thereafter, approval was obtained from the local government council chairman and the head of market (Iye Eki). Informed consent was obtained from the respondents (market women) at point of administration of the questionnaire. Confidentiality was maintained as no name or address was requested.

Participation in the study was voluntary and respondents were informed that they could choose not to participate and withdraw from the study at any point.

### 3.12 STUDY LIMITATIONS

A possible limitation in the study was self-reporting in the questionnaire may have introduced social desirability bias. To prevent this, we ensured that measure were implemented to minimize such response bias, such as assuring participants of confidentiality of their responses and we kindly solicited for frankness and accuracy in answering the questions provided.

# CHAPTER FOUR

## RESULTS

Four hundred and forty respondents participated in the study. The results were divided into sections as follows

Section A: Reliability Statistics of the Questionnaire Subscales

Section B: Socio-demographic characteristics of respondents

Section C: Cultural beliefs and perceptions of infertility.

Section D: Level of knowledge of infertility treatment options.

Section E: Relationship between cultural beliefs and knowledge of infertility treatment options

Section F: Socio-demographic factors associated with knowledge of infertility treatment options

# SECTION A

# RELIABILITY ANALYSIS OF THE RESEARCH INSTRUMENT

**Table 1: Reliability Statistics of the Questionnaire Subscales**

| Subscales | Number of Items | Cronbach's Alpha | Interpretation |
|---|---|---|---|
| Belief | 7 | 0.771 | Acceptable |
| Perception | 7 | 0.757 | Acceptable |
| Knowledge | 37 | 0.873 | Strong |

Table 1 presents the reliability statistics of the questionnaire used for this study. The belief subscale, which consisted of 7 items, had a Cronbach's alpha coefficient of 0.771. This indicates acceptable internal consistency, showing that the items measuring cultural beliefs were sufficiently related and reliable. The perception scale, also consisting of 7 items, had a Cronbach's alpha value of 0.757. This likewise indicates acceptable reliability, suggesting that the items used to assess respondents' perceptions consistently measured the intended construct. The knowledge subscale, which comprised 37 items, produced a Cronbach's alpha coefficient of 0.873. This indicates good internal consistency, meaning that the items assessing knowledge of infertility treatment options were highly reliable and measured the same concept consistently. Overall, the Cronbach's alpha coefficients for all thtree subscales were above the acceptable threshold of 0.70, indicating that the questionnaire had satisfactory internal consistency and was reliable for data collection in this study.

## SECTION B

## SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

**Table 2: Socio-demographic characteristics of respondents (n=440)**

| Variables | Frequency (n=440) | Percent |
|---|---|---|
| **Age Group (years)** | | |
| 18 – 24 | 49 | 11.1 |
| 25 – 34 | 119 | 27.0 |
| 35 – 44 | 108 | 24.5 |
| 45 – 54 | 92 | 20.9 |
| ≥55 | 72 | 16.4 |
| **Mean (SD) = 39.6 (12.5)** | | |
| **Marital Status** | | |
| Single | 104 | 23.6 |
| Married | 245 | 55.7 |
| Widowed | 51 | 11.6 |
| Divorced | 27 | 6.1 |
| Separated | 9 | 2.0 |
| Cohabiting | 4 | 0.9 |
| **Highest Level of Education** | | |
| No formal education | 16 | 3.6 |
| Primary | 56 | 12.7 |
| Secondary | 173 | 39.3 |
| Tertiary | 195 | 44.3 |
| **Religion** | | |
| Christianity | 407 | 92.5 |
| Islam | 18 | 4.1 |
| ATR | 15 | 3.4 |
| **Ethnic Group** | | |
| Benin | 136 | 30.9 |
| Igbo | 81 | 18.4 |
| Esan | 52 | 11.8 |
| Yoruba | 31 | 7.0 |
| Urhobo | 28 | 6.4 |
| Etsako | 26 | 5.9 |
| Isoko | 20 | 4.5 |
| Owan | 18 | 4.1 |
| Ijaw | 15 | 3.4 |

**Table 2 Cont'd: Socio-demographic characteristics of respondents (n=440)**

| Variables | Frequency (n=440) | Percent |
|---|---|---|
| Hausa | 12 | 2.7 |
| Ibibio | 11 | 2.5 |
| Others* | 10 | 2.3 |
| **Number of Children** | | |
| None | 103 | 23.4 |
| 1 – 2 | 112 | 25.5 |
| 3 – 4 | 152 | 34.5 |
| ≥5 | 73 | 16.6 |
| **Mean (SD) = 1.4 (1.0)** | | |
| **Monthly Household Income (Naira)** | | |
| < 50,000 | 79 | 18.0 |
| 50,001 – 100,000 | 163 | 37.0 |
| 100,001 – 200,000 | 133 | 30.2 |
| > 200,000 | 65 | 14.8 |
| **Median = 1.0** | | |
| **Years in Market** | | |
| < 1 year | 31 | 7.0 |
| 1 – 5 years | 141 | 32.0 |
| 6 – 10 years | 120 | 27.3 |
| > 10 years | 148 | 33.6 |
| **Mean (SD) = 1.9 (1.0)** | | |
| **Source of Health Information** | | |
| Radio/TV | 241 | 54.8 |
| Family/Friends | 230 | 52.3 |
| Religious Centers | 296 | 67.3 |
| **Frequency of Listening to Radio/TV/Social Media** | | |
| Daily | 181 | 41.1 |
| Once a week | 80 | 18.2 |
| Twice a week | 40 | 9.1 |
| Never | 36 | 8.2 |

**Table 2 Cont'd: Socio-demographic characteristics of respondents (n=440)**

| Variables | Frequency (n=440) | Percent |
|---|---|---|
| **Frequency of Listening to Radio/TV/Social Media** | | |
| Three times a week | 31 | 7.0 |
| Anytime | 21 | 4.8 |
| Five times a week | 20 | 4.5 |
| Sometimes | 13 | 3.0 |
| Four times a week | 13 | 3.0 |
| **Others | 5 | 1.1 |

***Auchi: 5 (1.1%); Nupe: 2 (0.5%); Ososo: 3 (0.7%) **Rarely: 5 (1.1%)**

Table 2 presents the socio-demographic characteristics of 440 respondents. The average age of respondents is approximately 39.6 years. The largest age group is 25–34 years (27.0%), followed closely by those aged 35–44 (24.5%). A majority of the participants are married (55.7%). Regarding family size, 34.5% of respondents have 3–4 children, while 23.4% have none. The group is relatively well-educated, with 44.3% having attained tertiary education and 39.3% completing secondary education. Only 3.6% reported having no formal education. There is a heavy predominance of Christianity (92.5%) among the respondents. The most represented ethnic group is Benin (30.9%), followed by Igbo (18.4%) and Esan (11.8%). The most common monthly income bracket is 50,001 – 100,000 Naira (37.0%). Only 14.8% earn more than 200,000 Naira monthly. A significant portion of the respondents have substantial experience in the market, with 33.6% having been there for more than 10 years. Religious centers are the most common source of health information, utilized by 67.3% of respondents. This is followed by Radio/TV (54.8%) and Family/Friends (52.3%). Engagement with media is high, with 41.1% of respondents listening to the radio, watching TV, or using social media daily. Conversely, 8.2% reported never engaging with these media platforms.

## SECTION C

## CULTURAL BELIEFS AND PERCEPTION OF INFERTILITY AMONG RESPONDENTS

**Table 3A: Cultural Beliefs About Infertility Among Respondents (n=440)**

| | Strongly Disagree n (%) | Disagree n (%) | Neutral n (%) | Agree n (%) | Strongly Agree n (%) | **Mean (SD)** |
|---|---|---|---|---|---|---|
| Infertility is a punishment from God/gods | 230 (52.3) | 107(24.3) | 52 (11.8) | 30 (6.8) | 21 (4.8) | **4.1 (1.2)** |
| Infertility is a matter of destiny that cannot be changed | 205 (46.6) | 124(28.2) | 59 (13.4) | 47 (10.7) | 5 (1.1) | **3.7 (1.3)** |
| Infertility is caused by witchcraft or evil spirits | 164 (37.3) | 99 (22.5) | 79 (18.0) | 76 (17.3) | 22 (5.0) | **3.7 (1.3)** |
| Infertility can result from a curse | 86 (19.5) | 78 (17.7) | 92 (20.9) | 142 (32.3) | 42 (9.5) | **3.1 (1.3)** |
| Breaking cultural taboos can cause infertility | 101 (23.0) | 77 (17.5) | 101 (23.0) | 112 (25.5) | 49 (11.1) | **3.2 (1.3)** |
| Infertility can only be cured by spiritual intervention | 154 (35.0) | 54 (12.3) | 117 (26.6) | 72 (16.4) | 43 (9.8) | **3.5 (1.4)** |
| Infertility can be caused by spiritual husband or wife | 81 (18.4) | 47 (10.7) | 124 (28.2) | 107 (24.3) | 81 (18.4) | **2.9 (1.4)** |

Table 3A present the cultural beliefs regarding infertility among the 440 respondents. Most respondents do not view infertility as a spiritual penalty, with 230 (52.3%) strongly disagreeing and 107 (24.3%) disagreeing that it is a punishment from God/gods (Mean = 4.1 (1.2). There is a strong sentiment that infertility is not an unchangeable fate, as 205 (46.6%) strongly disagree and 124 (28.2%) disagree that it is a matter of destiny that cannot be changed [Mean (SD) = 3.7 (1.3)]. Additionally, 164 (37.3%) strongly disagree and 99 (22.5%) disagree that infertility is caused by witchcraft or evil spirits [Mean (SD)= 3.7 (1.3)]. Beliefs regarding supernatural causes are more divided among respondents; while 86 (19.5%) strongly disagree that infertility can result from a curse, a higher proportion of 142 (32.3%) agree and 42 (9.5%) strongly agree with this statement [Mean (SD) = 3.0 (1.3)]. Similarly, 112 (25.5%) agree and 49 (11.1%) strongly agree that breaking cultural taboos can cause infertility, though 101 (23.0%) remain neutral [Mean (SD) = 3.2 (1.3)]. Most respondents do not believe spirituality is the only solution, with 154 (35.0%) strongly disagreeing and 54 (12.3%) disagreeing that infertility can only be cured

by spiritual intervention [Mean (SD) = 3.5 (1.4)]. Finally, regarding the belief in a "spiritual husband or wife" as a cause, 107 (24.3%) agree and 81 (18.4%) strongly agree, although a significant 124 (28.2%) respondents are neutral on the matter [Mean (SD)= 2.9 (1.4)].

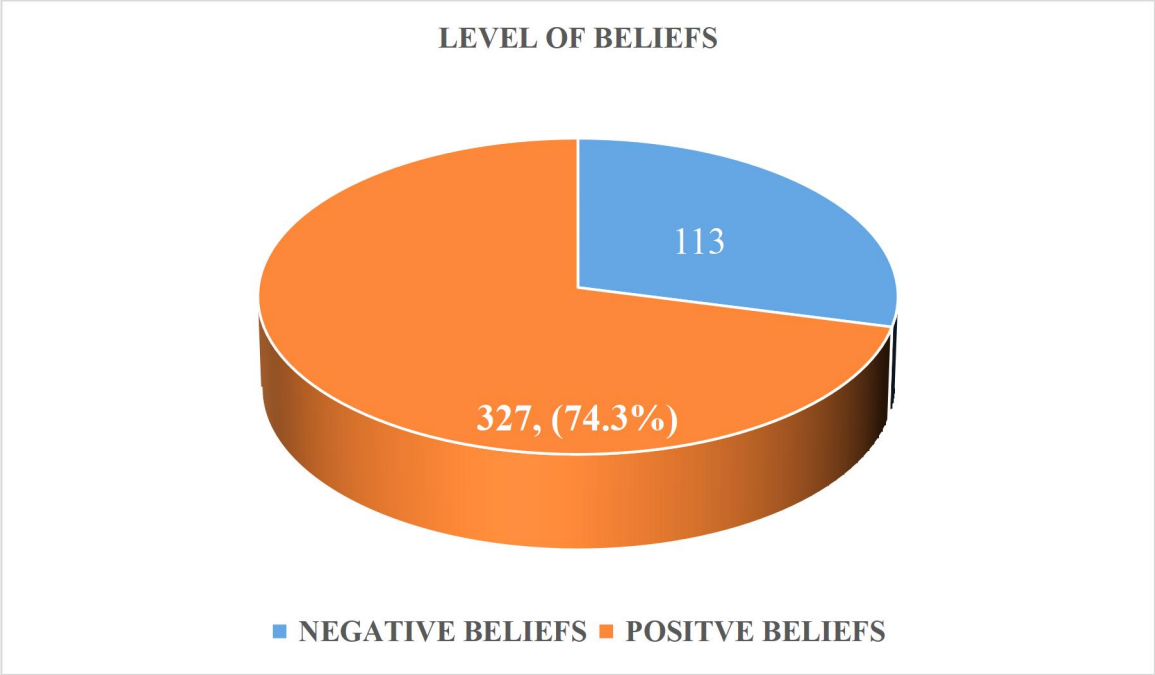


**Figure 1: Respondents' Level of Beliefs About Infertility**

Figure 1 illustrates the Level of Belief regarding infertility among the study population. A significant majority of the respondents, representing 74% of the sample, hold a positive belief system regarding infertility. This suggests that nearly three-quarters of the group maintain perspectives that likely support medical intervention, hope for treatment success, or reject harmful stigmas. Approximately one-quarter of the respondents (26%) hold a negative belief. This group may be more inclined toward views that see infertility as a permanent failure, a source of unavoidable shame, or a condition caused by supernatural factors that are difficult to overcome.

**Table 3B: Cultural Perceptions and Social Impact of Infertility Among Respondents (n=440)**

| | Strongly disagree n (%) | Disagree n (%) | Neutral n (%) | Agree n (%) | Strongly agree n (%) | Mean (SD) |
|---|---|---|---|---|---|---|
| Infertility can affect marriage stability | 14 (3,2) | 33 (7.5) | 33 (7.5) | 123 (28.0) | 237 (53.9) | **4.2 (1.10)** |
| Women with infertility are stigmatized | 8 (1.8) | 28 (6.4) | 38 (8.6) | 153 (34.8) | 213 (48.4) | **4.2 (1.0)** |
| Women are usually blamed for infertility | 4 (0.9) | 20 (4.5) | 27 (6.1) | 126 (28.6) | 263 (59.8) | **4.4 (0.9)** |
| Men are rarely blamed for infertility | 4 (0.9) | 16 (3.6) | 53 (12.0) | 123 (28.0) | 244 (55.5) | **4.3 (0.9)** |
| Infertility affects a woman's social status | 15 (3.4) | 26 (5.9) | 54 (12.3) | 171 (38.9) | 174 (39.5) | **4.1 (1.0)** |
| Cultural beliefs influence treatment decisions | 34 (7.7) | 54 (12.3) | 87 (19.8) | 158 (35.9) | 107 (24.3) | **3.6 (1.2)** |
| In our culture, it is uncommon to suspect the husband as the cause of couple's infertility | 13 (3.0) | 25 (5.7) | 79 (18.0) | 124 (28.2) | 199 (45.2) | **4.1 (1.1)** |

Table 3B presents the cultural perceptions and social impact of infertility among respondents, revealing significant gender disparities in how infertility is viewed and the weight of cultural influence on treatment. There is an overwhelming consensus regarding the strain infertility places on domestic life, as 237 (53.9%) strongly agree and 123 (28.0%) agree that infertility can affect marriage stability [Mean (SD) = 4.2 **(**1.1)]. The analysis highlights a heavy social bias against women; a combined majority of 88.4% agree or strongly agree that women are usually blamed for infertility [Mean (SD) = 4.4 (0.9)]. Conversely, men are frequently shielded from scrutiny, with 244 (55.5%) strongly agreeing and 123 (28.0%) agreeing that men are rarely blamed for infertility [Mean (SD) = 4.3 (0.9)]. This is further reinforced by the finding that it is considered culturally uncommon to suspect the husband as the cause of a couple's infertility, a

sentiment supported by 199 (45.2%) who strongly agree and 124 (28.2%) who agree [Mean (SD) = 4.1 (1.0)]. Women facing infertility deal with severe social consequences, with 213 (48.4%) strongly agreeing that they are stigmatized [Mean (SD)= 4.2 (1.0)] and 174 (39.5%) strongly agreeing that infertility negatively affects a woman's social status [Mean (SD) = 4.1 (1.0)]. Cultural beliefs also play a significant role in how respondents navigate healthcare, as 158 (35.9%) agree and 107 (24.3%) strongly agree that these beliefs influence their treatment decisions [Mean (SD) = 3.6 (1.2)]. Overall, the data underscores that infertility is not merely a medical issue but a deeply socialized experience with disproportionate impacts based on gender.

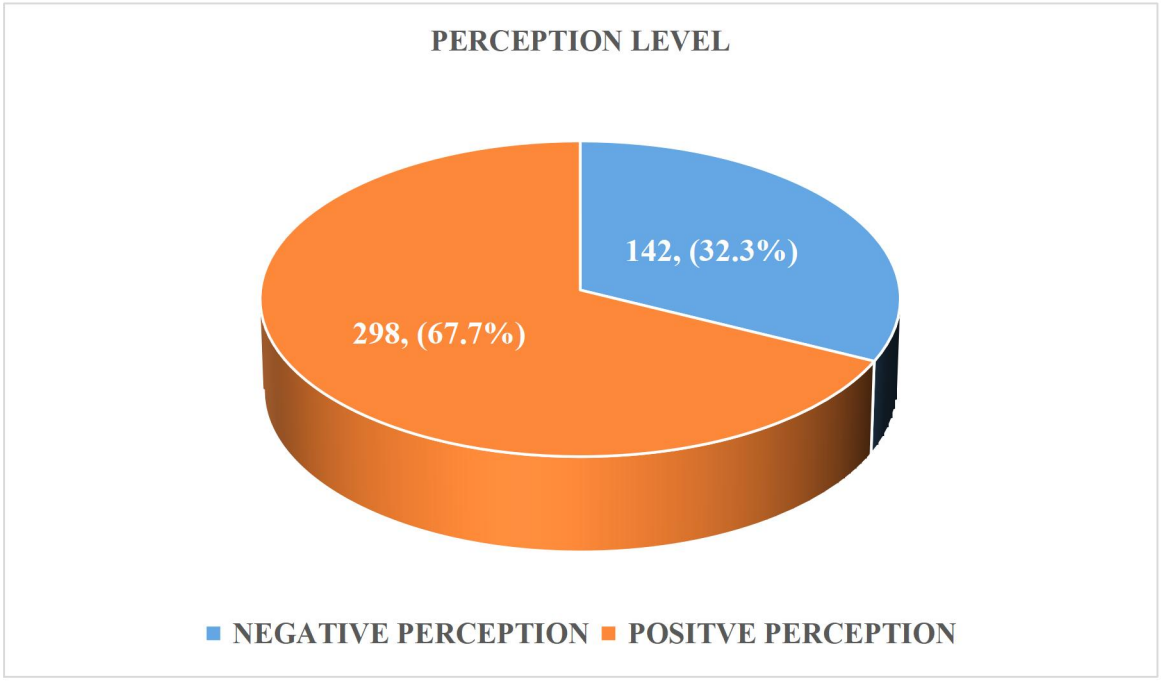


**Figure 2: Respondents' Level of Perception of infertility.**

Figure 2 illustrates the Level of Perception regarding infertility among the study participants. A significant majority of the respondents, totaling 68%, demonstrate a "Positive Perception." This indicates that more than two-thirds of the group hold views that likely align with factual understanding or positive social attitudes toward infertility. Nearly one-third of the participants (32%) are categorized as having a "Negative Perception." This suggests that a substantial portion

of the population may still hold misconceptions, negative stigmas, or inaccurate beliefs regarding the condition.

## SECTION D

## LEVEL OF KNOWLEDGE OF INFERTILITY AND INFERTILITTY TREATMENT OPTIONS

**Table 4A: Knowledge of Causes, Diagnosis, and Treatment of Infertility Among Respondents (n=440)**

| | Strong disagree n (%) | Disagree n (%) | Neutral n (%) | Agree n (%) | Strongly agree n (%) | Mean (SD) |
|---|---|---|---|---|---|---|
| Certain infections can cause infertility | 6 (1.4) | 14 (3.2) | 42 (9.5) | 97 (22.0) | 281 (63.9) | **4.4 (0.9)** |
| Hormonal imbalances can cause infertility | 4 (0.9) | 6 (1.4) | 86 (19.5) | 160 (36.4) | 184 (41.8) | **4.2 (0.9)** |
| Male infertility can cause failure to conceive | 0(0) | 6 (1.4) | 49 (11.1) | 112 (25.5) | 273 (62.0) | **4.5 (0.8)** |
| Lifestyle factors like diet, smoking, and alcohol affects fertility | 6 (1.4) | 21 (4.8) | 73 (16.6) | 146 (33.2) | 194 (44.1) | **4.1 (1.0)** |
| Chronic illnesses like diabetes can affect fertility | 22 (5.0) | 56 (12.7) | 138 (31.4) | 136 (30.9) | 88 (20.0) | **3.5 (1.1)** |
| Obesity can reduce chances of conception (fertility) | 47 (10.7) | 71 (16.1) | 109 (24.8) | 140 (31.8) | 73 (16.6) | **3.3 (1.2)** |
| Infertility can be caused by blocked fallopian tubes | 3 (0.7) | 10 (2.3) | 83 (18.9) | 145 (33.0) | 199 (45.2) | **4.2 (0.9)** |
| Infertility can be diagnosed by a medical doctor | 7 (1.6) | 10 (2.3) | 42 (9.5) | 170 (38.6) | 211 (48.0) | **4.3 (0.9)** |
| Fertility drugs exist for women | 5 (1.1) | 10 (2.3) | 79 (18.0) | 192 (43.6) | 154 (35.0) | **4.1 (0.9)** |
| Medicines prescribed by doctors can help women ovulate | 4 (0.9) | 4 (0.9) | 67 (15.2) | 211 (48.0) | 154 (35.0) | **4.2 (0.8)** |
| Men can receive infertility treatment just like women | 2 (0.5) | 3 (0.7) | 59 (13.4) | 143 (32.5) | 233 (53.0) | **4.4 (0.80** |
| Assisted Reproductive Technologies (ART) such as IVF and others exist for infertility treatment | 6 (1.4) | 8 (1.8) | 88 (20.0) | 141 (32.0) | 197 (44.8) | **4.2 (1.0)** |
| Surgery can be used to treat some cases of infertility | 3 (0.7) | 26 (5.9) | 87 (19.8) | 149 (33.9) | 175 (39.8) | **4.1 (1.0)** |
| It is important to consult a doctor early if unable to conceive and to improve treatment outcome | 4 (0.9) | 1 (0.2) | 36 (8.2) | 142 (32.3) | 257 (58.4) | **4.5 (0.7)** |
| Both partners should be evaluated for infertility | 0(0) | 8 (1.8) | 43 (9.8) | 113 (25.7) | 276 (62.7) | **4.5 (0.8)** |
| Early diagnosis increases chances of successful treatment | 1 (0.2) | 6 (1.4) | 45 (10.2) | 145 (33.0) | 243 (55.2) | **4.4 (0.8)** |
| Infertility treatment varies depending on cause | 5 (1.1) | 15 (3.4) | 63 (14.3) | 191 (43.4) | 166 (37.7) | **4.1 (0.9)** |

Table 4A presents the knowledge of causes, diagnosis, and treatment of infertility among the 440 respondents. Respondents show a strong understanding of biological causes, with 281 (63.9%)

strongly agreeing that certain infections can cause infertility [Mean SD) = 4.4 (0.9)]. Furthermore, 199 (45.2%) strongly agree that blocked fallopian tubes are a significant factor [Mean (SD) = 4.2 (0.9)], and 184 (41.8%) strongly agree that hormonal imbalances play a critical role [Mean (SD) = 4.2 (0.9)]. There is significant recognition of male factors, with 273 (62.0%) strongly agreeing that male infertility can cause failure to conceive [Mean (SD) = 4.5 (0.8)], and 233 (53.0%) strongly agreeing that men can receive treatment just like women [Mean (SD) = 4.4 (0.8)]. Lifestyle and general health factors are also well-recognized; 194 (44.1%) strongly agree that diet, smoking, and alcohol affect fertility [Mean (SD) = 4.1 (1.0)], though there is less certainty regarding the impact of obesity (16.6% strongly agree; [Mean (SD) = 3.3 (1.2)] and chronic illnesses like diabetes (20.0% strongly agree; [Mean (SD) = 3.5 (1.1)]. Trust in clinical diagnosis and early intervention is exceptionally high, with 257 (58.4%) strongly agreeing on the importance of early consultation [Mean (SD) = 4.5 (0.7)] and 243 (55.2%) strongly agreeing that early diagnosis increases the chances of successful treatment [Mean (SD) = 4.4 (0.8)]. Knowledge of diverse medical treatments is prevalent; 197 (44.8%) strongly agree that Assisted Reproductive Technologies (ART) such as IVF exist Mean (SD) = 4.2 (1.0), 192 (43.6%) agree that fertility drugs exist for women [Mean (SD) = 4.1 (0.9)], and 175 (39.8%) strongly agree that surgery can be used to treat some cases [Mean (SD) = 4.1 (1.0)]. Finally, there is overwhelming support for a comprehensive approach to infertility management, as 276 (62.7%) strongly agree that both partners should be evaluated to ensure better outcomes [Mean (SD) = 4.5 (0.8)].

**Table 4B: Knowledge and Awareness of Infertility Treatments Among Respondents (n=440)**

| Variables | Frequency | Percent |
|---|---|---|
| **Awareness of Assisted Reproductive Technologies (ART)**** | | |
| I have heard of In Vitro Fertilization (IVF) | 384 | 87.3 |
| I have heard of Intrauterine Insemination (IUI) | 90 | 20.5 |
| I have heard of Intracytoplasmic Sperm Injection (ICSI) | 46 | 10.5 |
| I have heard of Surrogacy | 220 | 50.0 |
| I have heard of Egg Donation | 181 | 41.1 |
| **Modern infertility treatments include**** | | |
| Ovulation drugs | 245 | 55.7 |
| IVF | 354 | 80.5 |
| IUI | 119 | 27.0 |
| Surgery | 238 | 54.1 |
| Herbal remedies | 25 | 5.7 |
| Spiritual Cleansing | 3 | 0.7 |
| **Lifestyle changes that improve fertility**** | | |
| Healthy diet | 331 | 75.2 |
| Reduce alcohol | 312 | 70.9 |
| Regular exercise | 174 | 39.5 |
| Stop smoking | 293 | 66.6 |
| Reduce stress | 304 | 69.1 |
| **Doctors can use a donor's sperm or egg if a couple cannot use their own** | | |
| No | 7 | 1.6 |
| I Don't Know | 167 | 38.0 |
| Yes | 266 | 60.5 |
| **Infertility treatment is available in public/government hospitals in the city/region** | | |
| No | 113 | 25.7 |

| | | |
|---|---|---|
| Yes | 327 | 74.3 |

**Table 4B Cont'd: Knowledge and Awareness of Infertility Treatments Among Respondents (n=440)**

| Variables | Frequency | Percent |
|---|---|---|
| **Visiting a traditional healer is the only effective way to treat infertility** | | |
| No | 334 | 75.9 |
| I Don't Know | 97 | 22.0 |
| Yes | 9 | 2.0 |
| **People's usual first place of visit for infertility treatment in the community** | | |
| Traditional healer | 51 | 11.6 |
| Church/Religious centres | 55 | 12.5 |
| Health facility | 322 | 73.2 |
| Family advice | 12 | 2.7 |

** Multiple Choice questions

Table 4B presents the level of knowledge and awareness of infertility treatments among the 440 respondents. In Vitro Fertilization (IVF) is the most widely recognized treatment, known by 384 respondents (87.3%). Surrogacy is also relatively familiar, with exactly half of the respondents (220, 50.0%) indicating awareness. However, more specialized procedures such as Intrauterine Insemination (IUI) and Intracytoplasmic Sperm Injection (ICSI) are less well known, with awareness levels of 90 (20.5%) and 46 (10.5%) respectively. In terms of broader treatment knowledge, a majority of respondents (266, 60.5%) are aware that doctors can use donor eggs or sperm, although a substantial proportion (167, 38.0%) remain uncertain. When asked to identify modern infertility treatments, IVF again ranked highest (354, 80.5%), followed by ovulation-

inducing drugs (245, 55.7%) and surgical interventions (238, 54.1%). Only a small minority incorrectly identified herbal remedies (25, 5.7%) and spiritual cleansing (3, 0.7%) as modern treatment methods. Regarding lifestyle factors that may improve fertility, most respondents identified maintaining a healthy diet (331, 75.2%), reducing alcohol intake (312, 70.9%), reducing stress (304, 69.1%), and stopping smoking (293, 66.6%) as beneficial. Regular exercise was the least recognized factor, cited by 174 respondents (39.5%). Concerning accessibility, 327 respondents (74.3%) believe that infertility treatment services are available in public or government hospitals within their region. Additionally, the majority (322, 73.2%) reported that health facilities are the usual first point of care in their community. Alternative options such as churches or religious centers (55, 12.5%) and traditional healers (51, 11.6%) are less commonly chosen as initial points of treatment. Most respondents (334, 75.9%) do not believe that traditional healers are the only effective means of treating infertility, indicating a general preference for medical approaches.

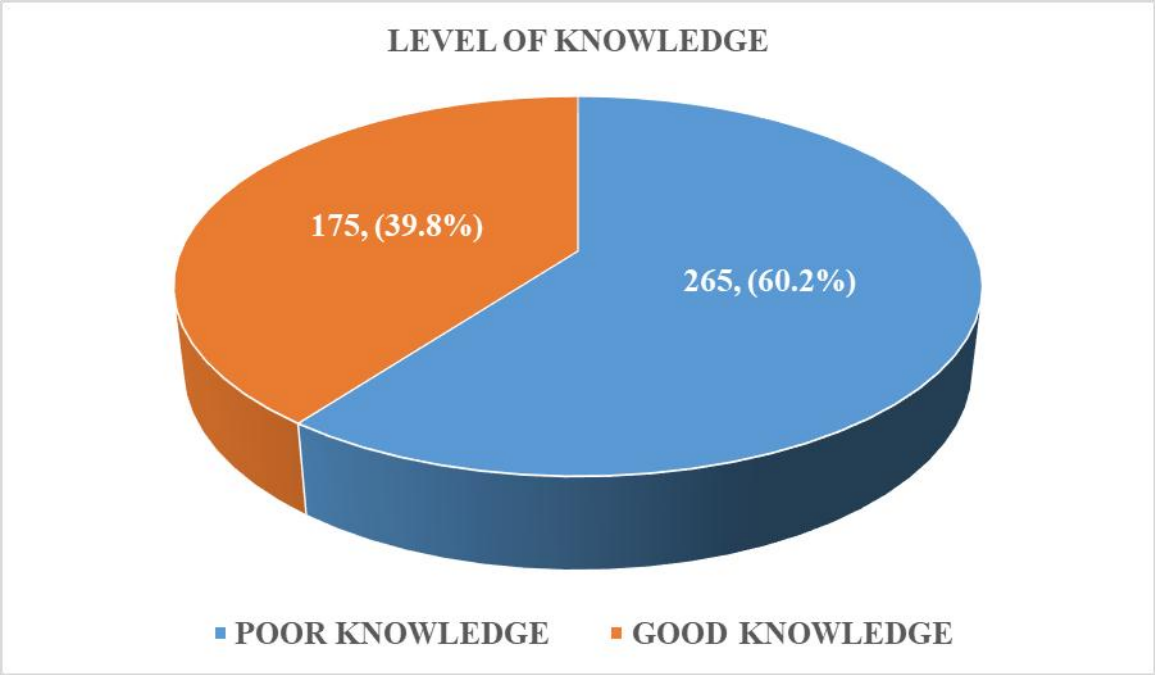


**Figure 3: Respondents' Level of Knowledge of infertility treatment option**

Figure 3 depicts the Level of Knowledge regarding infertility among the study population. A clear majority of the participants, representing 60% of the sample, are categorized as having a poor level of knowledge concerning infertility. This indicates that a large portion of the group lacks a comprehensive understanding of the technical causes, diagnostic procedures, or modern treatment \options. The remaining 40% of respondents demonstrate a good level of knowledge. While significant, this is the smaller portion of the group, suggesting that less than half of the respondents are well-informed on the clinical aspects of conception and infertility.

## SECTION E

## RELATIONSHIP BETWEEN CULTURAL BELIEFS AND KNOWLEDGE OF INFERTILITY TREATMENT OPTIONS

**Table 5A: Association Between Level of Cultural Belief and Level of Knowledge**

| | Level of Knowledge | | Chi-square | p-value |
|---|---|---|---|---|
| | **Good Knowledge n= 175 (%)** | **Poor Knowledge n= 265 (%)** | | |
| **Level of Cultural Belief** | | | 12.636 | **0.001** |
| Positive Belief | 146 (44.6) | 181 (55.4) | | |
| Negative Belief | 29 (25.7) | 84 (74.3) | | |

Table 5A presents a bivariate analysis between respondents' cultural beliefs and level of knowledge The analysis revealed statistically significant association between the respondents cultural belief and knowledge of infertility ($\chi^2 = 12.636$, $p = 0.001$). Among respondent with negative cultural beliefs, a substantial majority (n=84, 74.3%) demonstrated poor knowledge, while a minority (n=29, 25.7%) possessed good knowledge. In contrast, respondents with positive beliefs showed a more balanced distribution, though a slight majority (n=181, 55.4%) still fell into the poor knowledge category. Notably, respondents with positive beliefs were significantly more likely to have good knowledge, at (n=146, 44.6%), compared to their counterparts with negative beliefs. Overall, the data suggests that positive cultural beliefs are associated with higher levels of knowledge within this study group.

**Table 5B: Association Between Level of Perception and Level of Knowledge**

| | Level of Perception | | Chi-square | p-value |
|---|---|---|---|---|
| | **Good Perception n= 298 (%)** | **Poor Perception n= 142 (%)** | | |
| **Level of Knowledge** | | | 18.202 | **<0.001** |
| Good Knowledge | 139(79.4) | 36 (20.6) | | |
| Poor Knowledge | 159 (60.0) | 106 (40.0) | | |

Table 5B presents a bivariate analysis between respondents' level of perception and their level of knowledge regarding infertility treatment options. The analysis revealed a statistically significant association between the respondents' perception and their objective knowledge of the subject matter ($\chi^2$ = 18.202, p < 0.001). Among respondents with poor knowledge, a majority (n=159, 60.0%) were found to have good perception, while a smaller portion (n=106, 40.0%) held poor perception. In contrast, respondents with good knowledge demonstrated a much stronger lean toward positive views, with a substantial majority (n=139, 79.4%) possessing good perception and only a minority (n=36, 20.6%) falling into the poor perception category. Notably, respondents with good knowledge were significantly more likely to exhibit good perception levels compared to those with poor knowledge. Overall, the data suggests that higher levels of knowledge are strongly associated with more favorable perception scores within this study group.

## SECTION F

## SOCIO-DEMOGRAPHIC FACTORS ASSOCIATED WITH KNOWLEDGE OF INFERTILITY TREATMENT OPTIONS

**Table 6: Association Between Socio-demographic Characteristics and Knowledge of Infertility Treatment**

| Variables | Level of Knowledge | | Test Statistics | p-value |
|---|---|---|---|---|
| | Good Knowledge n= 175 (39.8) | Poor Knowledge n= 265 (60.2) | | |
| **Age** | | | **8.765[a]** | **0.067** |
| 18-24 | 14 (28.6) | 35 (71.4) | | |
| 25-34 | 54 (45.4) | 65 (54.6) | | |
| 35-44 | 34 (31.5) | 74 (68.5) | | |
| 45-54 | 41 (44.6) | 51(55.4) | | |
| ≥55 | 32(44.4) | 40(55.6) | | |
| **Marital Status** | | | **8.046[b]** | **0.142** |
| Single | 39 (37.5) | 65 (62.5) | | |
| Married | 104 (42.4) | 141 (57.6) | | |
| Divorced | 7(25.9) | 20 (74.1) | | |
| Widowed | 21 (41.2) | 30 (58.8) | | |
| Cohabiting | 3 (75.0) | 1 (25.0) | | |
| Separated | 1 (11.1) | 8 (88.9) | | |
| **Highest Level of Education** | | | **52.19[a]** | **< 0.001** |
| No formal Education | 2 (12.5) | 14 (87.5) | | |
| Primary | 15 (26.8) | 41 73.2) | | |
| Secondary | 44 (25.4) | 129 (74.6) | | |
| Tertiary | 114 (58.5) | 81 (41.5) | | |
| **Religion** | | | **7.202[a]** | **0.027** |
| Christianity | 166 (40.8) | 241 (59.2) | | |
| Islam | 8 (44.4) | 10 (55.6) | | |
| African Traditional Religion (ATR) | 1 (6.7) | 14 (93.3) | | |

**Table 6 Cont'd: Association Between Socio-demographic Characteristics and Knowledge of Infertility Treatment**

| VARIABLES | Level of Knowledge | | Test Statistics | p-value |
|---|---|---|---|---|
| | Good Knowledge n = 175 (39.8) | Poor Knowledge n =265 (60.2) | | |
| **Ethnic Group** | | | **23.791[a]** | **0.008** |
| Benin | 42 (30.9) | 94 (69.1) | | |
| Esan | 19 (36.5) | 33 (63.5) | | |
| Etsako | 11 (42.3) | 15 (57.7) | | |
| Owan | 9 (50.0) | 9 (50.0) | | |
| Yoruba | 14 (45.2) | 17 (54.8) | | |
| Igbo | 45 (55.6) | 36 (44.4) | | |
| Hausa | 1 (8.3) | 11 (91.7) | | |
| Urhobo | 7 (25.0) | 21 (75.0) | | |
| Isoko | 9 (45.0) | 11 (55.0) | | |
| Ijaw | 8 (53.3) | 7 (46.7) | | |
| Others | 10 (47.6) | 11 (52.4) | | |
| **Number of Children** | | | **7.276[a]** | **0.064** |
| None | 42 (40.8) | 61 (59.2) | | |
| 1-2 | 37 (33.0) | 75 (67.0) | | |
| 3-4 | 72 (47.4) | 80 (52.6) | | |
| > 5 | 24 (32.9) | 49 (67.1) | | |
| **Monthly household income** | | | **7.818[a]** | **0.050** |
| <50,000 | 37 (46.8) | 42 (53.2) | | |
| 50,001-100,000 | 64 (39.3) | 99 (60.7) | | |
| 100,001-200,000 | 42 (31.6) | 91 (68.4) | | |
| >200,000 | 32 (49.2) | 33 (50.8) | | |

**Table 6 Cont'd: Association Between Socio-demographic Characteristics and Knowledge of Infertility Treatment**

| VARIABLES | Level of Knowledge | | Test Statistics | p-value |
|---|---|---|---|---|
| | Good Knowledge n = 175 (40.2) | Poor Knowledge n = 265 (60.2) | | |
| **Years in Market** | | | **10.146[a]** | **0.017** |
| < 1 year | 6 (19.4) | 25 (80.6) | | |
| 1-5 years | 52 (36.9) | 89 (63.1) | | |
| 6-10 years | 46 (38.3) | 74 (61.7) | | |
| > 10 years | 71 (48.0) | 77 (52.0) | | |
| **Radio/TV as source of health information** | | | **18.787[a]** | **< 0.001** |
| No | 57 (28.6) | 142 (71.4) | | |
| Yes | 118 (49.0) | 123 (51.0) | | |
| **Social media as source of health information** | | | **36.352[a]** | **< 0.001** |
| No | 86 (29.7) | 204 (70.3) | | |
| Yes | 89 (59.3) | 61 (40.7) | | |
| **Health Workers as source of health information** | | | **40.028[a]** | **< 0.001** |
| No | 85 (29.2) | 206 (70.8) | | |
| Yes | 90 (60.4) | 59 (39.6) | | |
| **Family/Friends as source of health information** | | | **30.939[a]** | < 0.001 |
| No | 55 (26.2) | 155 (73.8) | | |
| Yes | 120 (52.2) | 110 (47.8) | | |
| **Religious centres as source of health information** | | | **8.779[a]** | **0.003** |
| No | 43 (29.9) | 101 (70.1) | | |
| Yes | 132 (44.6) | 164 (55.4) | | |
| **Frequency of listening to Radio/TV/Social media** | | | **30.353[a]** | **< 0.001** |
| Never | 15 (41.7) | 21 (58.3) | | |
| Once a week | 16 (20.0) | 64 (80.0) | | |

**Table 6 Cont'd: Association Between Socio-demographic Characteristics and Knowledge of Infertility Treatment**

| VARIABLES | Level of Knowledge | | Test Statistics | p-value |
|---|---|---|---|---|
| | Good Knowledge n = 175 (40.2) | Poor Knowledge n 265(59.8) | | |
| **Frequency of listening to Radio/TV/Social media** | | | **30.353[a]** | **< 0.001** |
| Twice a week | 10(25.0) | 30 (75.0) | | |
| Three times a week | 16 (51.6) | 15 (48.4) | | |
| Four times a week | 7 (53.8) | 6 (46.2) | | |
| Five times a week | 6 (30.0) | 14 (70.0) | | |
| Daily | 92 (50.8) | 89 (49.2) | | |
| ***Others** | **13 (33.3)** | **26 (66.7)** | | |
| ***Others** | | | **0.336[b]** | **1.000** |
| *Anytime | 7 (33.3) | 14 (66.7) | | |
| *Sometimes | 4 (30.8) | 9 (69.2) | | |
| *Rarely | 2 (40.0) | 3 (60.0) | | |

a= Chi-square ($\chi^2$) b= Fisher's Exact test

Table 6 presents a bivariate analysis assessing the relationship between respondents' socio-demographic characteristics and their knowledge of infertility treatment. The analysis revealed no statistically significant association between the age of the respondents and their level of knowledge ($\chi^2$ = 8.765, p = 0.067). However, respondents in the age range 18–24 years recorded the highest proportion of poor knowledge (n=35, 71.4%) compared to other age cohorts, such as those aged 25–34 years, who had a higher rate of good knowledge (n=54, 45.4%). Similarly, marital status did not significantly influence knowledge (Fisher's exact = 8.046, p = 0.142), although separated individuals reported the highest rate of poor knowledge (n=8, 88.9%) while those cohabiting reported the highest rate of good knowledge (n=3, 75.0%). In contrast, the highest level of education was significantly associated with knowledge ($\chi^2$ = 52.19, p < 0.001), with tertiary-educated respondents demonstrating the highest proportion of good knowledge (n=114, 58.5%) compared to those with no formal education (n=2, 12.5%). Religion also showed a significant impact ($\chi^2$ = 7.202, p = 0.027), where those practicing African Traditional Religion (ATR) had the highest rate of poor knowledge (n=14, 93.3%). Ethnic group was another significant factor ($\chi^2$ = 23.791, p = 0.008), with the Igbo group showing the highest good knowledge rate (n=45,

55.6%) and the Hausa group the lowest (n=1, 8.3%). Regarding economic and experience-related factors, monthly household income was significantly associated with knowledge ($\chi^2$ = 7.818, p = 0.050), as was the number of years spent in the market ($\chi^2$ = 10.146, p = 0.017), where those with over 10 years of experience showed the highest good knowledge (n=71, 48.0%). The number of children did not reach statistical significance ($\chi^2$ = 7.276, p = 0.064). Furthermore, sources of health information were highly significant predictors of knowledge (p < 0.001), including Radio/TV ($\chi^2$ = 18.787), Social Media ($\chi^2$ = 36.352), Health Workers (($\chi^2$ = 40.028), and Family/Friends ($\chi^2$ = 30.939), with those utilizing these sources consistently reporting higher rates of good knowledge than those who did not. Religious centers as a source of information also showed a significant association with knowledge ($\chi^2$ = 8.779, p = 0.003). Finally, the frequency of media consumption was significantly associated with knowledge ($\chi^2$ = 30.353, p < 0.001), with daily users recording the highest rate of good knowledge (n=92, 50.8%) compared to those who listened only once a week (n=16, 20.0%). This level of knowledge was also strongly linked to cultural perspectives; a separate bivariate analysis confirmed a statistically significant relationship between cultural beliefs and knowledge ($\chi^2$ = 12.636, p = 0.001), where participants with positive beliefs demonstrated a much higher proportion of good knowledge (44.6%) than those with negative beliefs (25.7%)

**Table 7: Binary Logistic Regression Analysis of the Predictors of Good Knowledge regarding Infertility Treatment among Market Women in Benin City**

| Variable | B (regression coefficient) | ODDS RATIO | 95% CI FOR ODDS RATIO | | p-value |
|---|---|---|---|---|---|
| | | | Lower | Upper | |
| **Age Groups** | | | | | |
| 18-24 years | | 1 | | | |
| 25-34 years | 0.774 | 2.168 | 0.810 | 5.803 | 0.124 |
| 35-44 years | -0.024 | 0.976 | 0.284 | 3.352 | 0.970 |
| 45-54 years | 0.494 | 1.639 | 0.469 | 5.732 | 0.439 |
| ≥ 55 years | 1.077 | 2.937 | 0.699 | 12.330 | 0.141 |
| **Marital Status** | | | | | |
| Single | | 1 | | | |
| Married | 0.313 | 1.368 | 0.430 | 4.349 | 0.596 |
| Divorced | -0.419 | 0.658 | 0.132 | 3.271 | 0.609 |
| Widowed | 0.461 | 1.585 | 0.358 | 7.028 | 0.544 |
| Cohabiting | 0.178 | 1.195 | 0.090 | 15.935 | 0.839 |
| Separated | -0.019 | 0.981 | 0.084 | 11.473 | 0.988 |
| **Highest Level of Education** | | | | | |
| No formal Education | | 1 | | | |
| Primary | 1.567 | 4.794 | 0.736 | 31.208 | 0.101 |
| Secondary | 1.327 | 3.770 | 0.602 | 23.619 | 0.156 |
| Tertiary | 2.962 | 19.335 | 3.113 | 120.094 | 0.001 |
| **Religion** | | | | | |
| Christianity | | 1 | | | |
| Islam | 0.435 | 1.545 | 0.935 | 6.040 | 0.532 |
| African Traditional Religion (ATR) | -1.428 | 0.240 | 0.026 | 2.215 | 0.208 |
| **Ethnic group** | | | | | |
| Benin | | 1 | | | |
| Esan | 0.439 | 1.550 | 0.667 | 3.603 | 0.308 |
| Etsako | 0.977 | 2.657 | 0.819 | 8.621 | 0.104 |
| Owan | 1.084 | 2.955 | 0.845 | 10.339 | 0.090 |
| Yoruba | 0.183 | 1.200 | 0.443 | 3.252 | 0.719 |
| Igbo | 0.984 | 2.676 | 1.327 | 5.395 | 0.006 |
| Hausa | -2.145 | 0.117 | 0.013 | 1.063 | 0.057 |
| Urhobo | 0.238 | 1.269 | 0.434 | 3.706 | 0.664 |
| Isoko | 1.058 | 2.881 | 0.874 | 9.495 | 0.082 |
| Ijaw | 1.142 | 3.133 | 0.856 | 11.459 | 0.084 |

| | | | | | |
|---|---|---|---|---|---|
| Others | 1.550 | 4.711 | 1.496 | 14.832 | 0.008 |

**Table 7 Cont'd: Binary Logistic Regression Analysis of the Predictors of Good Knowledge regarding Infertility Treatment among Market Women in Benin City**

| Variable | B (regression coefficient) | ODDS RATIO | 95% CI FOR ODDS RATIO | | p-value |
|---|---|---|---|---|---|
| | | | Lower | Upper | |
| **Number of children** | | | | | |
| None | | 1 | | | |
| 1-2 | -0.446 | 0.640 | 0.201 | 2.040 | 0.451 |
| 3-4 | 0.659 | 1.933 | 0.547 | 6.834 | 0.306 |
| ≥ 5 | -0.134 | 0.875 | 0.217 | 3.519 | 0.850 |
| **Monthly household income** | | | | | |
| < 50,000 | | 1 | | | |
| 50,001-100,000 | -0.746 | 0.474 | 0.238 | 0.945 | 0.034 |
| 100,001-200,000 | -1.807 | 0.164 | 0.074 | 0.362 | < 0.001 |
| > 200,000 | -0.753 | 0.471 | 0.198 | 1.118 | 0.088 |
| **Years in market** | | | | | |
| < 1 year | | 1 | | | |
| 1-5 years | 1.091 | 2.979 | 0.912 | 9.732 | 0.071 |
| 6-10 years | 1.392 | 4.024 | 1.171 | 13.830 | 0.027 |
| ≥ 10 years | 1.490 | 4.435 | 1.217 | 16.165 | 0.024 |
| **Health Information Sources:** | | | | | |
| **Radio/TV** | | | | | |
| No | | 1 | | | |
| Yes | 0.306 | 1.358 | 0.849 | 2.173 | 0.202 |
| **Social Media** | | | | | |
| No | | 1 | | | |
| Yes | 0.400 | 1.492 | 0.875 | 2.542 | 0.142 |
| **Health Workers** | | | | | |
| No | | 1 | | | |
| Yes | 0.881 | 2.413 | 1.466 | 3.971 | < 0.001 |
| **Family/Friends** | | | | | |
| No | | 1 | | | |
| Yes | 0.864 | 2.372 | 1.472 | 3.822 | < 0.001 |
| **Religious Centres** | | | | | |
| No | | 1 | | | |
| Yes | 0.963 | 2.620 | 1.624 | 4.226 | < 0.001 |
| **Frequency of listening to Radio/TV/Social media** | | | | | |
| Never | | 1 | | | |
| Once a week | -1.050 | 0.350 | 0.148 | 0.827 | 0.017 |

**Table 7 Cont'd: Binary Logistic Regression Analysis of the Predictors of Good Knowledge regarding Infertility Treatment among Market Women in Benin City**

| Variable | B (regression coefficient) | ODDS RATIO | 95% CI FOR ODDS RATIO | | p-value |
|---|---|---|---|---|---|
| | | | Lower | Upper | |
| **Frequency of listening to Radio/TV/Social media** | | | | | |
| Twice a week | -0.762 | 0.467 | 0.176 | 1.238 | 0.126 |
| Three times a week | 0.401 | 1.493 | 0.568 | 3.928 | 0.416 |
| Four times a week | 0.491 | 1.633 | 0.456 | 5.851 | 0.451 |
| Five times a week | -0.511 | 0.600 | 0.187 | 1.921 | 0.389 |
| Daily | 0.370 | 1.447 | 0.702 | 2.985 | 0.317 |
| Others | -0.357 | 0.700 | 0.274 | 1.791 | 0.457 |
| **Usual First Place of Visit for Infertility Treatment** | | | | | |
| Traditional healer | | 1 | | | |
| Church/Religious centres | 0.591 | 1.805 | 0.786 | 4.149 | 0.164 |
| Health facility | 0.798 | 2.220 | 1.139 | 4.327 | 0.019 |
| Family advice | -0.537 | 0.585 | 0.113 | 3.025 | 0.522 |
| **Doctors can use a donor's sperm or egg if a couple cannot use their own** | | | | | |
| No | | 1 | | | |
| I Don't Know | -0.485 | 0.616 | 0.114 | 3.315 | 0.572 |
| Yes | 1.022 | 2.778 | 0.530 | 14.571 | 0.227 |
| **Infertility is available in public/government hospitals in your city/region** | | | | | |
| No | | 1 | | | |
| Yes | 1.664 | 5.279 | 3.017 | 9.238 | < 0.001 |
| **Visiting a traditional healer is the only effective way to treat infertility** | | | | | |
| No | | 1 | | | |
| I Don't Know | -3.158 | 0.042 | 0.015 | 0.118 | < 0.001 |
| Yes | -0.705 | 0.494 | 0.122 | 2.008 | 0.324 |
| **Level of Beliefs** | | | | | |
| Negative Beliefs | | 1 | | | |
| Positive Beliefs | 1.000 | 2.719 | 1.667 | 4.434 | < 0.001 |
| **Level of Perception** | | | | | |
| Poor Perception | | 1 | | | |
| Good Perception | 1.069 | 2.912 | 1.852 | 4.579 | < 0.001 |

**CI = Confidence Interval; *reference category**

Table 7 presents a binary logistic regression analysis identifying the independent predictors of good knowledge regarding infertility treatment among the respondents. This multivariate model highlights that while several socio-demographic factors were assessed, only a few variables emerged as significant determinants of health literacy in this context. A critical finding of the model is the influence of education; respondents with tertiary education were 3.6 times more likely to possess good knowledge compared to those with no formal education (OR = 3.626, 95% CI: 1.050–12.519, p = 0.041), reinforcing the role of formal schooling in health outcomes. Conversely, certain information-seeking behaviors were associated with a lower likelihood of high knowledge levels. For instance, respondents who only listened to media once a week were significantly less likely to have good knowledge compared to those who never listened (OR = 0.350, 95% CI: 0.148–0.827, p = 0.017). Similarly, individuals who identified religious centers as a source of health information were 61% less likely to demonstrate good knowledge than those who did not (OR = 0.389, 95% CI: 0.233–0.648, p < 0.001). Furthermore, the analysis revealed that respondents with positive cultural beliefs were more than twice as likely to have good knowledge compared to those with negative beliefs (OR = 2.062, 95% CI: 1.157–3.676, p = 0.014). This suggests that cultural orientation significantly shapes an individual's receptiveness to and understanding of medical information. Other factors, such as age, marital status, and the preferred first place of visit for treatment, did not show statistically significant associations in this final model, indicating that education, media engagement, and cultural perspectives are the primary drivers of infertility knowledge in this study population.

**Table 8: Spearman's Rank Correlation Coefficient (ρ) and Descriptive Statistics for Age, Belief, Perception and Knowledge Scores (n = 440)**

| Variables | Mean ± SD | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 1. Age (years) | 39.58 ± 12.54 | 1.000 | | | |
| 2. Belief Score | 24.06 ± 5.86 | (ρ =-0.215, p < 0.001)** | 1.000 | | |
| 3. Perception | 28.88 ± 4.55 | (ρ = 0.136, p < 0.01)* | (ρ = -0.099, p < 0.05)* | 1.000 | |
| 4. Knowledge Score | 81.45 ± 10.52 | (ρ = -0.006, p > 0.05)* | (ρ = 0.280, p < 0.001**) | (ρ = 0.382, p < 0.001)** | 1.000 |

**Values are Spearman's rho (ρ)**

****Correlation is significant at p < 0.001**

***Correlation is significant at p < 0.05**

Table 8 presents the mean, standard deviation, and Spearman's rank correlation coefficients among respondents' age, belief score, perception score, and knowledge score. The mean age of respondents was 39.58 ± 12.54 years, while the mean scores for belief, perception, and knowledge were 24.06 ± 5.86, 28.88 ± 4.55, and 81.45 ± 10.52 respectively.

The correlation analysis shows a weak but statistically significant negative relationship between age and belief score ($\rho = -0.215$, $p < 0.001$), indicating that increasing age is associated with slightly lower belief scores. Age had a very weak positive but statistically significant relationship with perception score ($\rho = 0.136$, $p < 0.004$), while its relationship with knowledge score was negligible and not statistically significant ($r = -0.006$). Belief score showed a weak negative and statistically significant relationship with perception score ($\rho = -0.099$, $p < 0.05$), suggesting that higher belief scores are slightly associated with lower perception scores. However, belief scores had a weak to moderate positive and statistically significant relationship with knowledge score ($\rho = 0.280$, $p < 0.001$), indicating that better knowledge is associated with stronger belief patterns. Perception scores also showed a weak to moderate positive and statistically significant relationship with knowledge score ($\rho = 0.382$, $p < 0.001$), suggesting that improved knowledge is associated with better perception. Overall, the relationships are generally weak to moderate, indicating that while the variables are statistically related, the strength of association is limited, and other unmeasured factors may play a more substantial role in shaping belief, perception, and knowledge outcomes.

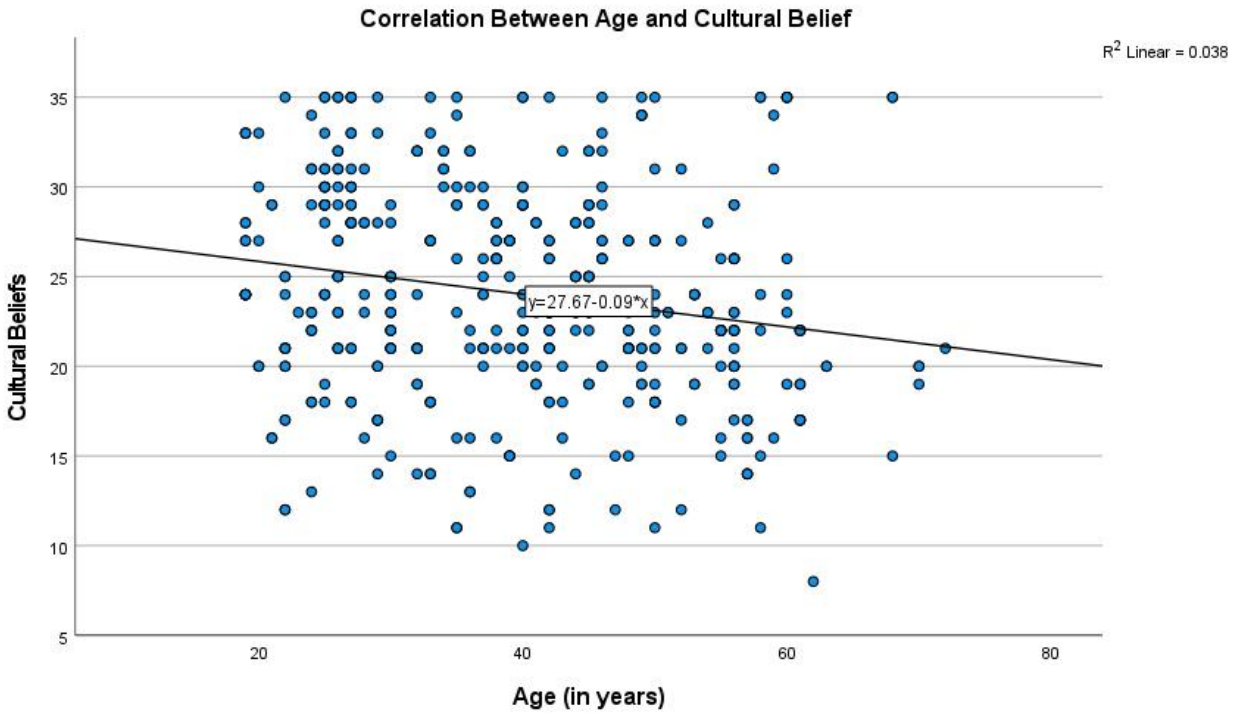


**Figure 4: Correlation Curve Showing the Relationship Between the Actual Age of respondents and their Cultural Belief Score regarding infertility treatment.**

Figure 4 is a correlation curve showing the relationship between **Age** and **Cultural Beliefs** among the study participants. The scatter plot reveals a **negative linear relationship**, indicating that as the age of the respondent increases, there is a slight downward trend in their cultural belief scores. This inverse relationship is mathematically represented by the regression equation **y = 27.67 - 0.09x**, which suggests that for every additional year of age, the cultural belief score is predicted to decrease by **0.09 units**. The strength of this correlation is quantified by a Coefficient of Determination ($\mathbf{R^2}$) of **0.038**. This value indicates that age explains only **3.8%** of the variance in cultural beliefs, signifying a very weak correlation. Visually, the data points are widely dispersed across the graph, particularly between the ages of 20 and 60, where cultural belief scores range drastically from as low as 10 to as high as 35. This high level of variance suggests that while a minor downward trend exists, cultural beliefs are likely influenced more heavily by

other socio-demographic factors rather than age alone. The presence of older individuals with relatively low scores (near age 80) compared to the dense cluster of younger participants with higher scores further reinforces this subtle decline.

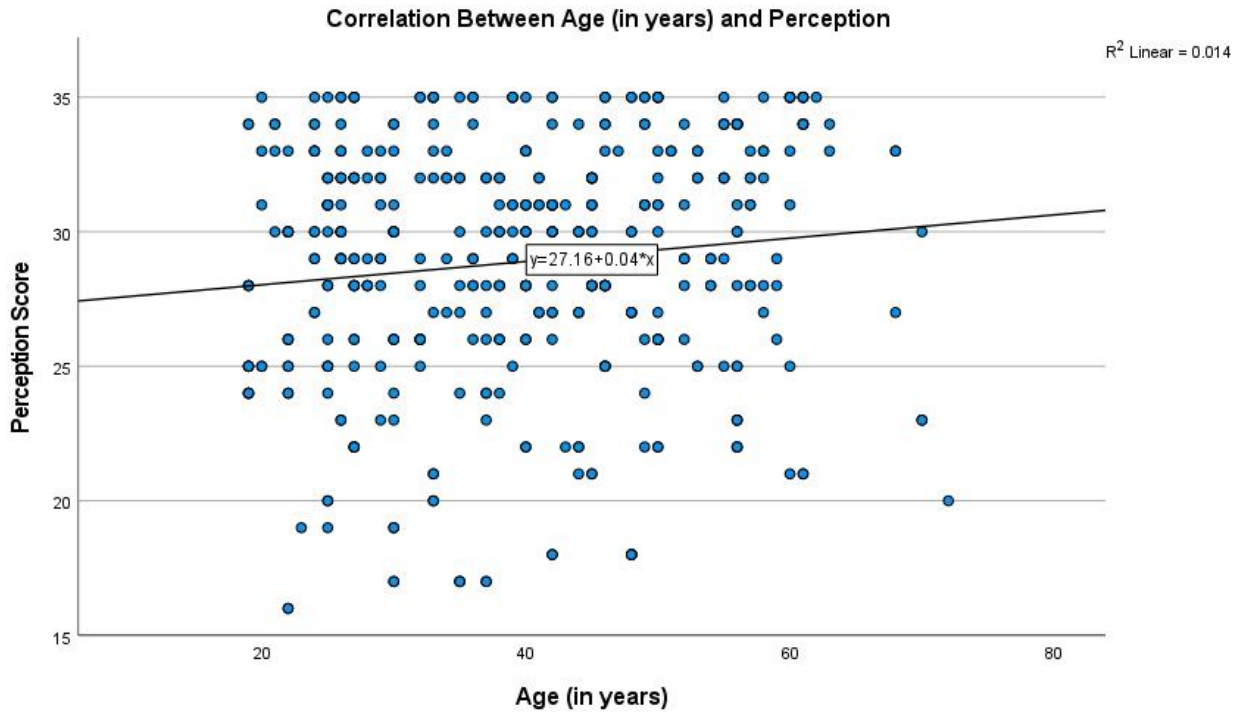


**Figure 5: Correlation Curve Showing the Relationship Between the Actual Age of respondents and their Cultural Perception Score regarding infertility treatment.**

Figure 5 is a correlation curve showing the relationship between the chronological age of the participants and their perception scores regarding infertility treatment. The scatter plot identifies a **marginal positive linear association**, which is mathematically represented by the regression equation $y = 27.16 + 0.04x$. According to this model, the predicted perception score starts at a baseline of **27.16** and increases by a nominal **0.04 units** for every one-year increase in age.

Despite the upward trajectory of the line of best fit, the statistical strength of the relationship is notably low, as evidenced by the **Coefficient of Determination ($R^2$) of 0.014**. This value indicates that age accounts for a mere **1.4%** of the variance in perception scores, while the vast majority of the variation (**98.6%**) is attributable to other factors. The high degree of scatter and the dense clustering of data points across the age spectrum, particularly between the ages of 20

and 60, confirm that age is not a robust predictor of perception in this study. This suggests that views on infertility treatment are relatively heterogeneous and are likely influenced more significantly by other factors rather than the age of the respondent.

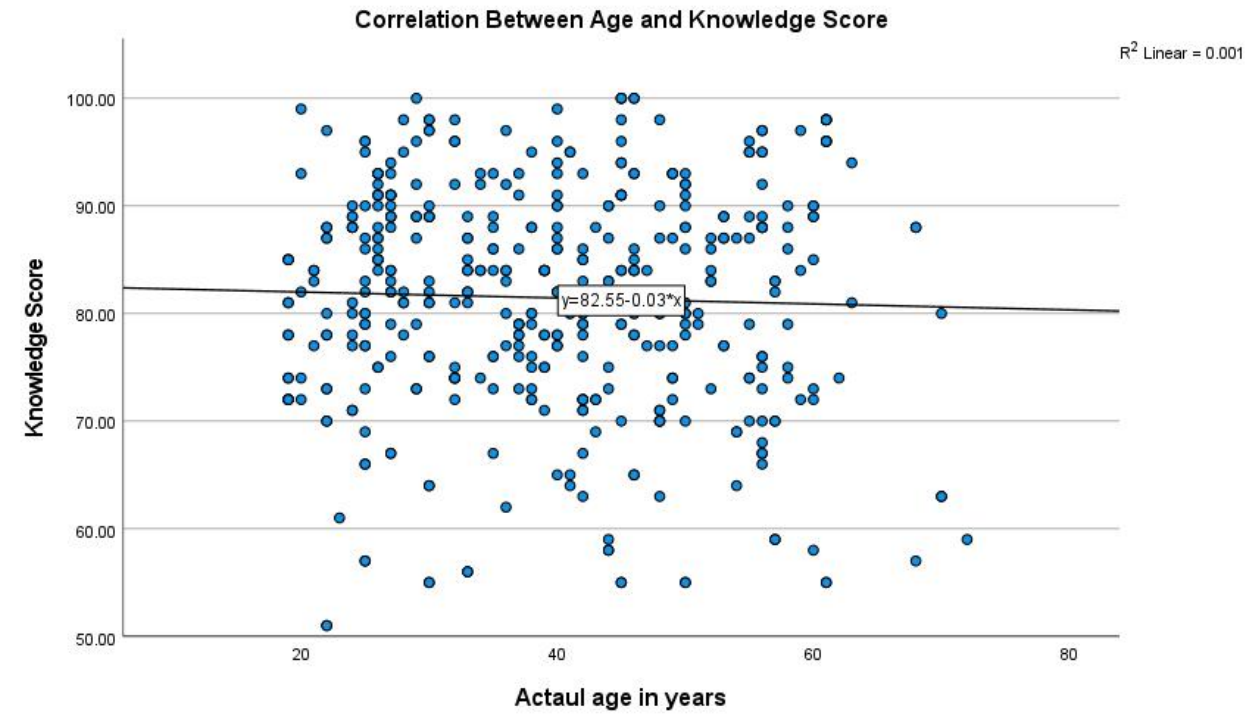


**Figure 6: Correlation Curve Showing the Relationship Between the Actual Age of respondents and their Total Knowledge Score regarding infertility treatment.**

Figure 6 is a correlation curve showing the relationship between the actual age of the respondents in years and their Total Knowledge Score regarding infertility treatment. The scatter plot utilizes a linear regression model to map the distribution of the 440 data points across the two continuous variables. The regression line equation is formulated as y = 82.55 - 0.03x, demonstrating a negligible, slightly negative slope. This visual representation is mathematically quantified by a coefficient of determination ($R^2$) of 0.001, which signifies that variation in age accounts for a mere 0.1% of the variance in the knowledge scores. This graphical analysis strongly reinforces the study's bivariate findings, which established that there is no statistically significant association between a respondent's age and their clinical literacy on the subject ($\chi^2$ =

8.765, p = 0.067). The heavy concentration of data points across all age cohorts between the 70.00 and 95.00 score marks visually confirms that medical knowledge regarding infertility is relatively uniform across generations, indicating that interventions to improve health literacy do not need to be age-segregated but should target other, more influential socio-demographic determinants.

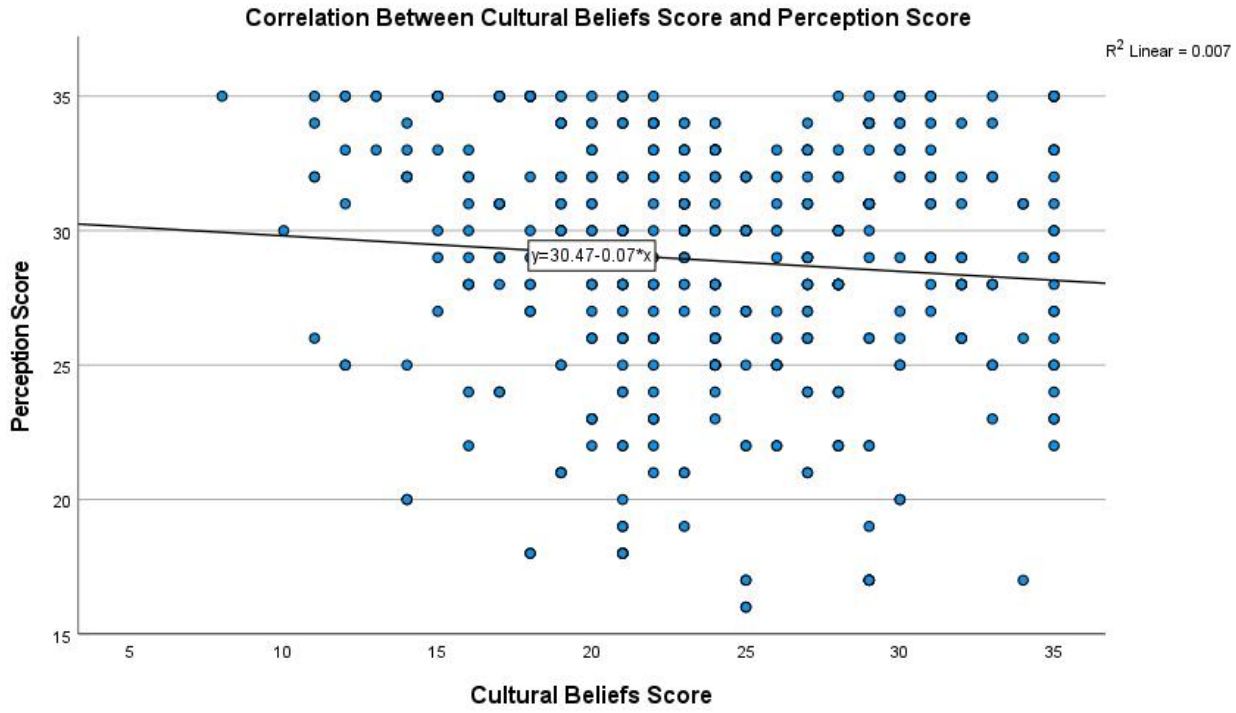


**Figure 7: Correlation Curve Showing the Linear Relationship between Respondents' Cultural Beliefs Score and their Corresponding Perception Score Regarding Infertility Treatment.**

Figure 7 is a correlation curve showing the linear relationship between the respondents' Cultural Beliefs Score and their corresponding Perception Score regarding infertility treatment. The scatter plot visually charts the concurrent distribution of these two continuous variables across the 440 study participants, featuring an overlaid linear regression line to model the overall trend. The established regression equation is formulated as $y = 30.47 - 0.07x$, demonstrating a marginal, slightly negative slope which suggests a very weak inverse relationship between an individual's cultural beliefs and their overall perception score. The mathematical predictive strength and fit of this model are substantiated by a coefficient of determination ($R^2$) of 0.007. This shows that the variation in cultural beliefs scores accounts for a mere 0.7% of the total variance observed in the

respondents' perception scores, indicating that the two constructs operate largely independently within this population. While the high dispersion and heavy clustering of data points between the perception scores of 20.00 and 35.00 show that most participants maintain moderate-to-high perceptions regardless of where they fall on the beliefs scale, the near-flat regression line confirms the absence of a strong or operationally meaningful linear dependency. This provides a critical empirical evidence that while both cultural beliefs and cultural perceptions separately act as significant determinants of objective clinical knowledge, they do not strongly conflate or interact with one another suggesting that perceptions of infertility treatment are likely shaped by more immediate factors, such as personal experience or healthcare quality, rather than ingrained beliefs alone.

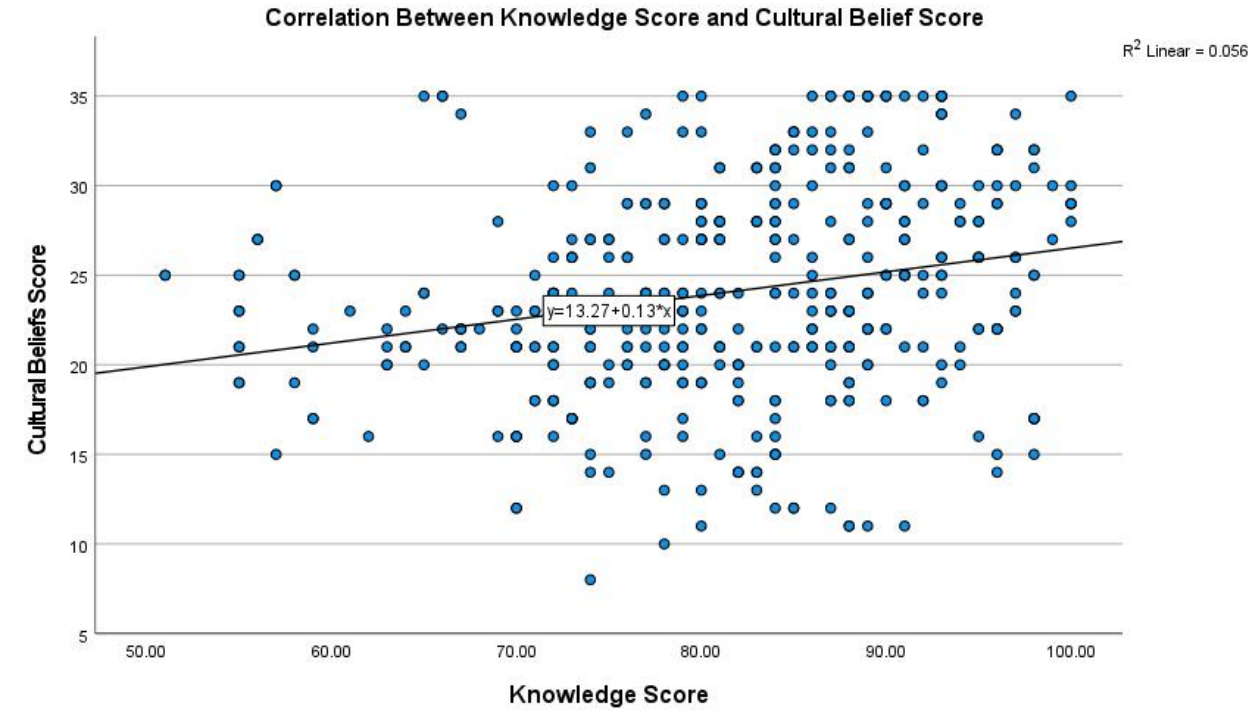


**Figure 8: Correlation Curve Showing the Linear Relationship between Respondents' Knowledge Score and their Corresponding Cultural Beliefs Score Regarding Infertility Treatment.**

Figure 8 is a correlation curve showing the linear relationship between the respondents' **Knowledge Score** and their **Cultural Beliefs Score** regarding infertility treatment. The scatter plot displays the simultaneous distribution of these two continuous variables, with an overlaid linear regression line used to model the predictive trend across the study population. The regression equation is formulated as $y = 13.27 + 0.13x$, which demonstrates a positive slope; this indicates that as respondents' objective knowledge scores increase, their cultural belief scores also tend to rise toward more progressive or positive levels. The statistical strength of this relationship is substantiated by a coefficient of determination ($R^2$) of **0.056**. This value denotes

that approximately 5.6% of the total variance observed in the respondents' cultural belief scores can be explained by their level of knowledge regarding infertility. While the relatively low $R^2$ suggests that cultural beliefs are influenced by a wider array of socio-demographic factors, the positive direction of the regression line provides critical empirical evidence that improving clinical knowledge is linked to more favorable cultural frameworks. This analysis adds a layer of statistical depth, proving that health literacy and cultural paradigms do not exist in isolation but share a measurable linear connection.

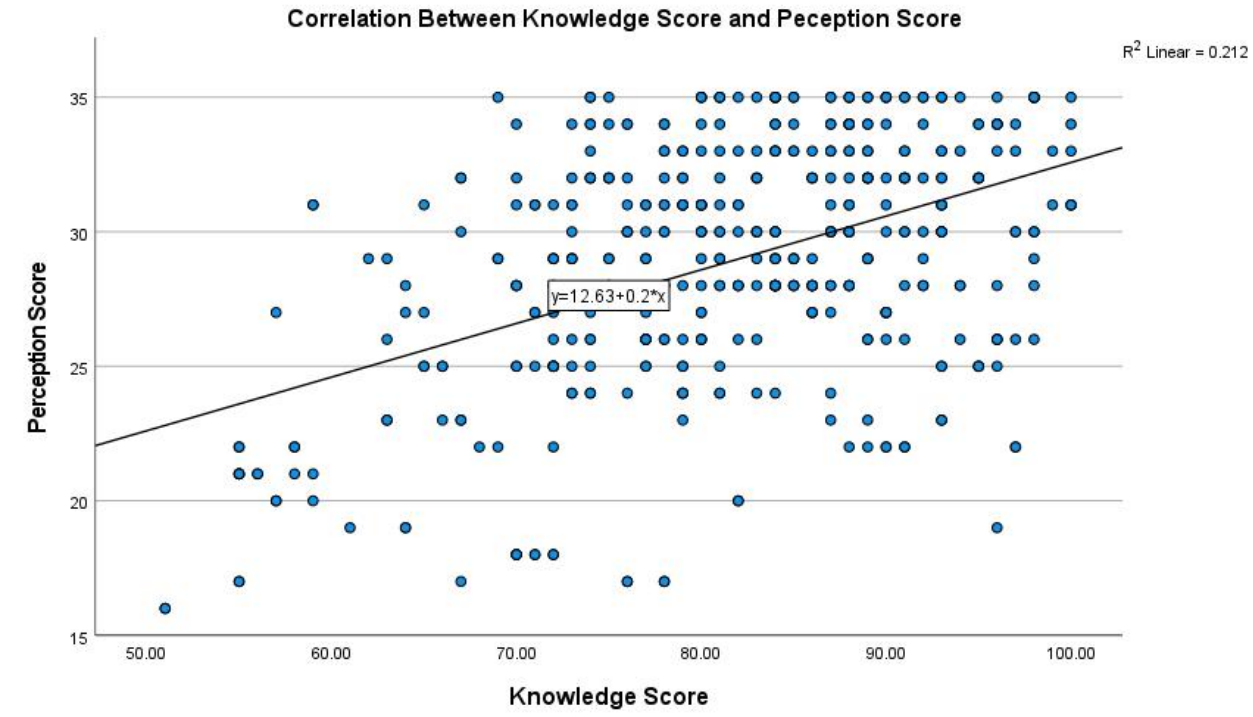


**Figure 9: Correlation Curve Showing the Linear Relationship between Respondents' objective Knowledge Score and their Corresponding Perception Score Regarding Infertility Treatment.**

Figure 9 is a correlation curve showing the linear relationship between the respondents' objective Knowledge Score and their corresponding Perception Score regarding infertility treatment. The scatter plot graphically maps the concurrent distribution of these two continuous variables across the 440 study participants, overlaying a clear best-fit linear regression line. The established regression equation is formulated as y = 12.63 + 0.2x, demonstrating a steady, positive slope which indicates that an increase in objective medical knowledge is systematically paired with more favorable and progressive cultural perceptions of infertility. The mathematical strength and predictive value of this model are substantiated by a coefficient of determination ($R^2$) of 0.212. This denotes that the variation in respondents' knowledge scores accounts for an impressive 21.2% of the total variance observed in their perception scores, establishing knowledge as a

highly robust independent predictor. This empirical visualization serves as a crucial validator for the study's multivariate binary logistic regression model, which independently demonstrated that individuals with a "Good Perception" possessed significantly higher odds of maintaining strong health literacy (AOR = 2.912, 95% CI: 1.852 - 4.579, $p < 0.001$). By displaying a high density of overlapping data points moving progressively upward toward the top-right quadrant, this figure provides definitive visual proof for your project that dismantling superstitious or negative cultural frameworks goes hand-in-hand with cultivating accurate clinical literacy within the community.

**Table 9: Multiple Linear Regression Analysis of Predictors of Knowledge Scores**

| Variable | *B* | *SE* | *β* | *t* | *p-value* | *95% CI(Lower)* | *95% CI (Upper)* |
|---|---|---|---|---|---|---|---|
| Constant | 38.405 | 3.653 | - | 10.515 | < 0.001 | 31.226 | 45.584 |
| Perception Score | 1.129 | 0.094 | 0.489 | 12.004 | < 0.001* | 0.944 | 1.314 |
| Belief Score | 0.487 | 0.074 | 0.272 | 6.594 | < 0.001* | 0.342 | 0.633 |
| Aye (in years) | -0.032 | 0.035 | -0.038 | -0.924 | 0.356 | -0.100 | 0.036 |

**Model Summary:**

***R = 0.539; $R^2$ = 0.291; Adjusted $R^2$ = 0.286***

***$F_{(3.436)}$ = 59.636; p* < 0.001**

***Significant at *p* < 0.05**

Table 9 presents the results of the multiple linear regression analysis showing the predictive relationship between perception, cultural beliefs, age, and the knowledge scores of the respondents. The model yielded a coefficient of multiple correlation (*R)* of 0.539 and a coefficient of determination ($R^2$) of 0.291, suggesting that the independent variables explain 29.1% of the variation in knowledge scores. The overall model was statistically significant *(F* = 59.636, $p < 0.001$). The 95% Confidence Intervals (CI) provide the perception score, the CI [0.944, 1.314] does not include zero, reinforcing its status as a significant positive predictor. This narrow interval indicates high precision in the estimate of the relationship between perception and knowledge. Similarly, the beliefs score showed a significant positive association with a CI of [0.342, 0.633]. Notably, the CI of age [-0.100, 0.036] crosses zero, which statistically explains why age was not a significant predictor in the study ($p < 0.356$). These results emphasize that while age is not a major factor, enhancing perception and addressing belief systems are pivotal for improving knowledge of infertility and infertility treatment within the study population

# CHAPTER FIVE

# DISCUSSION

This chapter presents the discussion of findings from this study. The study assessed the cultural beliefs and perceptions of infertility, evaluated the level of knowledge of infertility treatment options, examined the relationship between cultural beliefs and knowledge of infertility treatment options and identified socio-demographic factors associated with knowledge of infertility treatment among 440 market women in Benin City.

The findings are discussed in line with the study objectives and existing empirical literature. This chapter also presents the public health implications of the findings, conclusion, and recommendations.

The study found that the respondents were predominantly young and middle-aged women, with the largest proportion within the 25–34 years age category, while the mean age of respondents was approximately 39.6 years. More than half of the respondents were married, and a substantial proportion had between three and four children. The respondents were relatively educated, as a large proportion had secondary and tertiary education, while only a small proportion had no formal education. Christianity was the predominant religion among respondents, and the Benin ethnic group constituted the highest proportion. A considerable proportion earned moderate monthly income and had spent (50,001- 100,000 naira) several years in market trading. These findings may be attributed to the fact that women within the economically productive and reproductive age groups dominate trading activities in urban markets. The relatively high educational attainment observed among respondents may reflect increasing female access to education in urban settings such as Benin City. The predominance of married women is expected because fertility and childbearing are culturally linked to marriage in most Nigerian societies.

The findings are consistent with a study conducted in Benin City, Edo State, Nigeria in 2021 which reported that most respondents were married and relatively educated.[87] Similarly, the findings agree with a study conducted in Kumasi, Ghana in 2020 where adults within reproductive age groups constituted the majority of respondents in infertility-related studies.[88] However, the findings differ from reports from rural communities in Northern Ghana published in 2019 where lower levels of formal education among women were reported.[89]

The public health implication of these findings is that reproductive health interventions targeted at infertility awareness and treatment uptake are more likely to succeed when directed at economically active women within reproductive age groups. Educational status also appears important in influencing health-seeking behaviour and understanding of infertility treatment options. Therefore, reproductive health education programs should particularly target younger women, women with lower educational attainment, and women in informal occupations. Government agencies, healthcare providers, and non-governmental organizations should also intensify market-based reproductive health campaigns and ensure culturally appropriate health communication.

The study also revealed that although many respondents rejected extreme supernatural explanations of infertility such as punishment from gods, destiny, witchcraft, and evil spirits, a substantial proportion still believed that infertility could result from curses, violation of cultural taboos, or spiritual factors. Furthermore, many respondents believed that prayer and spirituality play important roles in infertility management. These findings suggest that while modernization and education may have reduced some traditional misconceptions regarding infertility, deeply rooted cultural and spiritual beliefs still significantly influence perceptions of infertility among market women in Benin City.

Possible reasons for these findings may include the strong influence of religion, cultural socialization, family traditions, and long-standing African beliefs regarding fertility and

womanhood. In many African societies, fertility is culturally associated with social fulfillment, continuity of lineage, and marital stability. Consequently, infertility is often interpreted through both biomedical and spiritual lenses. In addition, the persistence of traditional beliefs may be reinforced by inadequate reproductive health education and widespread community narratives linking infertility with supernatural causes.

The findings are similar to those from a study conducted in Accra, Ghana in 2023 where infertility was associated with spiritual attacks, curses, and supernatural forces.[90] The findings also agree with a study conducted in Ibadan, Oyo State, Nigeria in 2022 which reported persistent beliefs linking infertility with punishment and witchcraft.[91] However, the findings differ from reports from London, United Kingdom in 2021 where infertility was predominantly perceived as a biomedical condition.[92]

The persistence of cultural misconceptions regarding infertility has major public health implications. Such beliefs may delay hospital presentation, encourage dependence on unverified traditional remedies, worsen psychological distress, and reduce the utilization of evidence-based infertility services. Women may also experience stigma, discrimination, marital instability, emotional trauma, and social isolation due to these beliefs. Public health interventions should therefore incorporate culturally sensitive reproductive health education while engaging traditional rulers, religious leaders, market associations, and community influencers in correcting misconceptions regarding infertility. Health promotion programs should emphasize that infertility may result from both male and female factors and that effective medical interventions are available.

The study found that respondents generally demonstrated good knowledge regarding several biomedical causes and treatment options for infertility. A large proportion correctly identified infections, blocked fallopian tubes, hormonal imbalance, and male infertility as causes of infertility. Respondents also recognized that men could receive infertility treatment just like

women. Knowledge regarding lifestyle-related risk factors such as smoking, alcohol use, and unhealthy diet was relatively good, although knowledge concerning obesity and chronic illnesses was comparatively lower. The study further revealed awareness of infertility treatment modalities such as medications, surgery, and Assisted Reproductive Technologies (ARTs).

The relatively high knowledge observed among respondents may be explained by increasing access to education, exposure to health information through media and social networks, urban residence, and previous interactions with healthcare facilities. Furthermore, infertility is a highly sensitive social issue in Nigeria, and women may actively seek information due to societal pressure to bear children.

These findings are consistent with a study conducted in Port Harcourt, Rivers State, Nigeria in 2022 where respondents demonstrated awareness of infections, tubal blockage, and male infertility as causes of infertility.[93] Similarly, findings from a study conducted in Benin City, Edo State, Nigeria in 2021 showed that many respondents had knowledge of IVF and assisted reproductive technologies.[87] The findings also agree with a study conducted in Abuja, Nigeria in 2020 where awareness of assisted reproductive technology was relatively high among women attending fertility clinics.[94] However, misconceptions regarding infertility treatment options still persisted among some respondents.

The public health implication is that improved knowledge alone may not automatically translate into positive health-seeking behaviour because cultural beliefs, cost of treatment, fear, stigma, and religious influences may still hinder utilization of orthodox infertility care. Nonetheless, improving knowledge remains essential for promoting timely diagnosis and treatment. Health education interventions should therefore focus not only on awareness creation but also on correcting misconceptions regarding infertility causes and treatment. Government and healthcare institutions should strengthen reproductive health literacy through radio programs, social media

campaigns, market outreach programs, and integration of infertility education into routine reproductive healthcare services.

The study showed that respondents perceived prayer, orthodox medicine, surgery, and traditional remedies as viable treatment options for infertility. Although many respondents acknowledged the importance of medical treatment, cultural and spiritual approaches remained influential. Some respondents also demonstrated awareness of assisted reproductive technologies such as IVF, though willingness to utilize such services appeared lower compared with awareness levels. These findings may be due to high treatment costs, fear of treatment failure, religious concerns, limited access to fertility centers, and social misconceptions surrounding assisted reproductive technologies. In many Nigerian communities, infertility treatment is often pursued through multiple pathways simultaneously, including hospitals, traditional healers, and religious institutions.

The findings are similar to those from a study conducted in Port Harcourt, Rivers State, Nigeria in 2021 where prayer, traditional remedies, and spiritual healing were commonly perceived as treatment modalities for infertility.[95] Likewise, studies conducted in Lagos, Nigeria in 2022 and Johannesburg, South Africa in 2020 revealed that infertile couples frequently combined orthodox, traditional, and spiritual treatment methods.[96,97]

The public health implication is that delayed presentation to healthcare facilities may worsen infertility outcomes and increase emotional and financial burden on affected women and families. Inappropriate or harmful traditional practices may also lead to reproductive complications. Healthcare providers should therefore adopt culturally competent approaches when counseling infertile women and couples. Government should improve access to affordable fertility services, subsidize assisted reproductive technologies, and strengthen regulation of harmful traditional infertility practices. Religious and traditional institutions should also be engaged as partners in promoting appropriate infertility care.

The study demonstrated a statistically significant relationship between cultural beliefs and knowledge of infertility treatment options. Respondents with more positive cultural beliefs were more likely to possess good knowledge regarding infertility treatment compared to respondents with negative cultural beliefs. Similarly, perception scores showed a significant relationship with knowledge scores.

This finding suggests that cultural orientation strongly influences how women interpret infertility information and utilize reproductive health knowledge. Women with more positive perceptions toward biomedical explanations and treatment approaches are likely to seek health information and utilize orthodox care more readily than women who strongly adhere to negative cultural misconceptions.

The findings are consistent with a study conducted in Toronto, Canada in 2021 where cultural background influenced participants' understanding and utilization of infertility treatment methods.[98] Similarly, studies conducted in Benin City, Edo State, Nigeria in 2022 demonstrated that beliefs regarding supernatural causes of infertility strongly shaped treatment-seeking behaviour.[99] However, unlike many Western populations where biomedical understanding predominates, cultural and spiritual frameworks continue to significantly shape infertility perceptions in African settings.

The public health implication is that interventions aimed at improving infertility knowledge may produce limited outcomes if cultural beliefs are not simultaneously addressed. Reproductive health programs should therefore integrate behavioural change communication strategies capable of modifying harmful cultural misconceptions while respecting beneficial cultural values. Community engagement, culturally adapted health education, and involvement of trusted opinion leaders are critical for improving infertility-related knowledge and treatment uptake.

The study further revealed that educational attainment was significantly associated with knowledge of infertility treatment options. Respondents with tertiary education were

substantially more likely to possess good knowledge compared with respondents who had no formal education. Although age and marital status were not statistically significant predictors, younger respondents demonstrated relatively poorer knowledge levels compared with older respondents.

The likely explanation for this finding is that education improves access to health information, enhances comprehension of medical concepts, and promotes positive health-seeking behaviour. Educated women may also have greater exposure to media, internet resources, and healthcare interactions. Conversely, women with lower educational attainment may rely more heavily on traditional explanations and informal information sources.

The findings are consistent with studies conducted in New Delhi, India in 2021, Kumasi, Ghana in 2020, and Benin City, Edo State, Nigeria in 2021 which showed that higher educational attainment was significantly associated with better knowledge and greater utilization of infertility treatment services.[88,100,87] However, the finding that age was not a significant predictor differs from some studies that reported increased infertility knowledge among older women due to greater reproductive experience.

The public health implication is that women with lower educational attainment remain particularly vulnerable to misinformation, delayed healthcare utilization, and harmful infertility practices. Public health interventions should therefore prioritize reproductive health education among women with limited formal education. Simplified and culturally appropriate educational materials should be developed in local languages and disseminated through markets, churches, community meetings, and electronic media.

The study revealed weak but statistically significant correlations among age, belief score, perception score, and knowledge score. Increasing age was associated with slightly lower belief scores but slightly higher perception scores, while age showed no significant relationship with knowledge scores. Furthermore, perception and belief scores significantly predicted knowledge

scores in the multiple regression analysis, whereas age was not a significant predictor. Educational attainment also independently predicted good knowledge.

These findings suggest that cognitive and sociocultural factors exert stronger influence on infertility knowledge than chronological age alone. Women who possess positive perceptions and fewer harmful cultural beliefs are more likely to acquire accurate infertility-related information.

The findings support the Social Learning Theory which emphasizes that behaviour and knowledge acquisition are influenced by social interaction, environmental exposure, attitudes, and beliefs. Similar findings were reported from a study conducted in Kumasi, Ghana in 2020 where socio-demographic and psychosocial factors significantly influenced infertility treatment involvement.[2]

The public health implication is that infertility interventions should move beyond simple awareness campaigns and incorporate psychosocial and behavioural approaches that address attitudes, beliefs, perceptions, and community influences. Multidisciplinary reproductive health interventions involving health educators, psychologists, community leaders, and healthcare professionals are therefore necessary.

# CONCLUSION

The study revealed that most market women in Benin City hold positive cultural beliefs about infertility and demonstrate good perceptions of the condition, although a notable minority still attribute infertility to supernatural causes such as curses and taboos.

The level of knowledge of infertility treatment options was poor among the majority of respondents, with only a minority demonstrating good knowledge.

A statistically significant relationship was found between cultural beliefs and knowledge, as respondents with positive beliefs were more likely to have good knowledge compared to those with negative beliefs.

Socio-demographic factors including higher education level, Igbo ethnicity, higher income, longer market experience, and frequent media consumption were significantly associated with better knowledge, while age and number of children showed no significant association.

## RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proposed:

### TO THE FEDERAL MINISTRY OF HEALTH AND SOCIAL WELFARE

Leverage the newly validated National Sexual and Reproductive Health Policy to mandate the integration of fertility awareness and basic infertility management into the National Reproductive Health Policy framework, ensuring tertiary hospitals receive ring-fenced funding to establish functional fertility units.

### TO THE NATIONAL HEALTH INSURANCE AUTHORITY

Revise the Basic Health Care Provision Fund guidelines to explicitly include infertility diagnostic tests and ovulation-inducing medications as reimbursable services under the equity plan for vulnerable women, aligning with Edo State's existing model of enrolling indigent populations into health insurance.

### TO THE EDO STATE GOVERNMENT AND THE OFFICE OF THE FIRST LADY

Expand the ongoing primary healthcare revitalisation efforts by establishing dedicated "Fertility Corners" in at least six newly upgraded Primary Health Centres across the three senatorial districts, offering initial counselling and basic fertility screening.

### TO THE EDO STATE PRIMARY HEALTH CARE DEVELOPMENT AGENCY

Adapt the training modules currently used for family planning and immunisation to create a standardised "Community Fertility Counsellor" toolkit, training newly recruited healthcare workers and community health promoters to address infertility alongside maternal health.

**TO THE EDO STATE MINISTRY OF HEALTH AND MARKET LEADERS**

Utilise the newly inaugurated State Market Leaders structure to pilot a "Market Health Champions" programme, training selected Iye-Ekis (market leaders) in basic fertility referral pathways, leveraging the recent recognition of market women as critical stakeholders in community health.

**TO THE UNIVERSITY OF BENIN TEACHING HOSPITAL FERTILITY CENTRE**

Partner with the Society for Family Health to design a "Self-Care for Fertility" digital toolkit (SMS and WhatsApp based), providing market women with accurate, low-literacy information on ovulation tracking and when to seek help, circumventing the need for expensive data or smartphones.

**TO RELIGIOUS AND TRADITIONAL LEADERS IN BENIN CITY**

Partner with civil society organisations currently training leaders to include specific modules on infertility stigma, transforming faith-based spaces into referral hubs rather than solely spiritual healing centres.

**TO MARKET WOMEN ASSOCIATIONS**

Institutionalise a mandatory "Health Savings and Action Plan" within existing cooperative structures, dedicating a small fraction of weekly contributions specifically to reproductive health screening and emergency treatment funds.

**TO HEALTHCARE PROVIDERS IN EDO STATE**

Complete the World Bank IMPACT Project-supported training on respectful maternity care, extending the curriculum to include "Empathetic Infertility Counselling" to address the psychological distress identified in this study.

**TO THE UNIVERSITY OF BENIN TEACHING HOSPITAL DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE**

Evaluate the effectiveness of the IMPACT Project's health education model on reducing maternal mortality and adapt its data collection tools to specifically measure reductions in infertility-related stigma and treatment delays in intervention markets

## REFERENCES


1. World Health Organization. Infertility. [Internet]. Geneva: WHO; 2025 [cited 2025 March 22]. Available from: https://www.who.int/health-topics/infertility#tab=tab_1

2. Chiware TM, Vermeulen N, Blondeel K, Farquharson R, Kiarie J, Lundin K, et al. IVF and other ART in low- and middle-income countries: a systematic land scape analysis. Hum Reprod Update. 2021;27(2):213-228. doi:10.1093/humupd/dmaa047.

3. Eze UA, Okonofua FE. High prevalence of male infertility in Africa: Are Mycotoxins to Blame? Africa Journal of Reproductive Health. 2015;19(3): 4-7.

4. Fehintola AO, Fehintola FO, Ogunlaja OA, Awotunde TO, Ogunlaja IP, Onwudiegwu U. Social meaning and consequences of infertility in Ogbomoso, Nigeria. Sudan Journal of Medical Sciences. 2017;12(2):63-77. DOI 10.18502/sjms.v12i2.917

5. Oriji PC, Kiridi EK, Allagoa DO, Omietimi JE, Orisabinone IB, Makinde OI, et al. Pattern of tubal pathology in infertile women undergoing hysterosalpingography at the Federal Medical Centre, Yenagoa, Bayelsa State, Nigeria. Yenagoa Med J 2020 Jan;2(1).

6. Orazulike NC, Fiebai PO, Okpani AO. Knowledge, perceptions and practices of infertile women towards infertility at the University of Port Harcourt Teaching Hospital (UPTH), Port Harcourt. Trop J Obstet Gynaecol. 2006 Oct;23(2):114-117.

7. Nwosu IA. Socio-cultural aspects of infertility and associated health implications in a rural Nigerian community. South South Journal of Culture and Development. 2011;13(2):86-116.

8. Kaadaaga HF, Ajeani J, Ononge S, Alele PE, Nakasujja N, Manabe YC and Kakaire O. Prevalence and factors associated with use of herbal medicine among women attending an infertility clinic in Uganda. BMC Complementary and Alternative Medicine. 2014; 14:27.

9. Adewunmi AA, Etti EA, Tayo AO, Rabiu KA, Akindele RA, Ottun TA and Akinlusi FM. Factors associated with acceptability of child adoption as a management option for infertility

among women in a developing country. International Journal Women's Health. 2012; 4:365–372.

10. Taebi M, Kariman N, Montazeri A, Majd HA. Infertility stigma: A qualitative study on feelings and experiences of infertile women. International Journal of Fertility & Sterility 2021; 15(3), 189.

11. Gerrits T, Kroes H, Russell S, Van Rooij F. Breaking the silence around infertility: A scoping review of interventions addressing infertility-related gendered stigmatization in low- and middle-income countries. Sexual and Reproductive Health Matters 2023; 31(1), 2134629. https://doi.org/10.1080/26410397.2022.2134629.

12. Kiani Z, Simbar M, Hajian S, Zayeri F. The prevalence of depression symptoms among infertile women: A systematic review and meta-analysis. Fertility Research and Practice 2021; 7(1), 6. https://doi.org/10.1186/s40738-021-00098-3.

13. Taebi M, Kariman N, Montazeri A, Majd HA. Infertility stigma: A qualitative study on feelings and experiences of infertile women. International Journal of Fertility & Sterility 2021; 15(3), 189.

14. van Balen F and Gerrits T. Quality of Infertility care in poor resource areas and the introduction of new reproductive technologies. 2001. https://num rep.OxfordJournalsOrgci/content.html 16th June, 2021.

15. Nwosu IA and Onwe F. The Plight of Infertile Women In Nigeria. Journal of Policy and Development Studies. 2015; 9:3:39-46.

16. Bunting L, Boivin J. Knowledge about infertility risk factors, fertility myths and illusory benefits of healthy habits in young people. Hum Reprod 2008;23:1858-64.

17. Aldemir S, Eser A, Ozturk Turhan N, Dalbudak E, Topcu M. Relation of anxiety and depressive symptoms with perceived social support according to gender within infertile couples. Dusunen Adam Journal of Psychiatry and Neurological Sciences 2015; 28(4), 328.

18. Fehintola A O, Fehintola F O, Ogunlaja OA, Awotunde TO, Ogunlaja I P, Onwudiegwu U. Social meaning and consequences of infertility in Ogbomoso, Nigeria. Sudan Journal of Medical Science 2017; 12(2), 63–77.

19. Cates W, Farley TM, Rowe PJ. Worldwide patterns of infertility: Is Africa different? Lancet 1985;2:596-8.

20. Al-Jaroudi DH. Beliefs of subfertile Saudi women. Saudi Med J 2010;31:425-7. Lamb EJ, Leurgans S. Does adoption affect subsequent fertility? Am J Obstet Gynecol 1979;134:138-44.

21. Bokaie M, Farajkhoda T, Enjezab B, Heidari P, Karimi Zarchi M. Barriers of child adoption in infertile couples: Iranian's views. Iran J Reprod Med 2012;10:429-34.

22. Simons Leslie G, Burt Callie H, Tambling Rachel B. Identifying Mediators of the Influence of Family Factors on Risky Sexual Behavior. J Child Fam Stud 2013;22:460-70.

23. Peterson B, Boivin J, Norré J, Smith C, Thorn P, Wischmann T. An introduction to infertility counseling: A guide for mental health and medical professionals. J Assist Reprod Genet 2012;29:243-8.

24. Nelson CJ, Shindel AW, Naughton CK, Ohebshalom M, Mulhall JP. Prevalence and predictors of sexual problems, relationship stress, and depression in female partners of infertile couples. J Sex Med 2008;5:1907-14.

25. Read J. ABC of sexual health: Sexual problems associated with infertility, pregnancy, and ageing. BMJ 1999;318:587-9.

26. Doğan YÖ, Duman M, Durgun OY. The relationship between gender perception levels and infertility distress of infertile women in a university hospital, Turkey. Journal of Health Research 2022; 36(1), 150–157.

27. Adeoye BD. Demographic characteristics as determinants of the use of health care services: A case of Nsukka, Southeast Nigeria. Open Journal of Social Sciences 2015; 3(12), 23–28.; Jousse L. Discrimination and gender inequalities in Africa: what about equality between women and men? Translated by Vandermuntert C. France: Gender in Geopolitics Institute; 2021.

28. Tabong PT-N, Adongo PB. Understanding the social meaning of infertility and childbearing: A qualitative study of the perception of childbearing and childlessness in Northern Ghana. PLoS One. 2013;8(1):e54429.

29. Hasanpoor-Azghdy SB, Simbar M, Vedadhir A. The emotional psychological consequences of infertility among infertile women seeking treatment: Results of a qualitative study. Iranian Journal of Reproductive Medicine 2014;12(2), 131.

30. Ikeke MO. The unethical nature of abuse of childless women in African traditional thought/practice. East African Journal of Traditions, Culture and Religion 2021;3(1), 12–22.

31. Ademiluka SO. Taking a holistic view of the biblical perspectives on childlessness: implications for Nigerian Christians and the church in Nigeria. HTS Teologiese Studies/Theological Studies. 2021. Available from: (https://www.ajol.info/index.php/hts/article/view/211861).

32. Onyekelu A. The socio-cultural implication of infertility in Igbo society: Anambra State as example. Odezuruigbo: An International Journal of Igbo, African and Communication Studies. 2020;3(1). Available from:(https://nigerianjournalsonline.com/index.php/ODEZURUIGBO/article/view/1152).

33. Okonofua FE, Snow RC, Kane T, Wyshak G. "Prevalence and Risk Factors for Infertility in Southwest Nigeria." In Frank van Balen, Trudie Gerrits, and Marcia Inhorn, eds., Proceedings of a Conference on Social Science Research on Childlessness in a Global Perspective 1999 175-186. Amsterdam: SCO-Kohnstamm Instituut, 2000.

34. Okonofua F. Pregnancy that does not stay: perception of fertility and infertility among rural Edo women in Nigeria. In: Bledsoe C, editor. Discovering normality in health and the reproductive body. Proceedings of a Workshop Heald at the program of Africa Studies Northwestern University; 2001Mar 9-10. PAS Working Papers Number 11. Evanston (IL): Program of African Studies Northwestern University; 2002. p. 63-9.

35. Franik S, Eltrop SM, Kremer JA, Kiesel L, Farquhar C. Aromatase inhibitors (letrozole) for subfertile women with polycystic ovary syndrome. Cochrane Database Syst Rev. 2018;5(5):CD010287.

36. Gnoth C, Maxrath B, Skonieczny T, Friol K, Godehardt E, Tigges J. Final ART success rates: a 10 year survey. Hum Reprod 2011;26(8):2239–2246.

37. Edwards RG, Fishel SB, Cohen J, Fehilly CB, Purdy JM, Slater JM, et al. Factors influencing the success of in vitro fertilization for alleviating human infertility. J In Vitro Fert Embryo Transf 1984;1(1):3–23.

38. Dunson DB, Baird DD, Colombo B. Increased infertility with age in men and women. Obstet Gynecol 2004; 103(1): 51–56. 14.

39. Inhrorn MC, Patrizio P. Infertility around the globe: new thinking on gender, reproductive technologies, and global movements in the 21st century. Hum Repro Update 2015;21(4):411-26. doi: 10.1093/humupd/dmv016.

40. Horbst V. "You need someone in a grand boubou," in ¨ barriers and means to access ARTs in West Africa. Infertility. 2012;21(21):46–52.

41. Ndegwa SW. Affordable ART in Kenya: The only hope for involuntary childlessness, Facts, Views and Vision. Obstet Gynaecol 2016; 8(2): 128–130.

42. Kretchy IA, Owusu-Daaku F, Danquah SI. Patterns, and determinants of the use of complementary and alternative medicine: a cross-sectional study of hypertensive patients in Ghana. BMC Complementary and Alternative Medicine2014; 14:44. doi: 10.1186/1472-6882-14-44.

43. James PB, Bah AJ, Kondorvoh IM. Exploring self-use, attitude and interest to study complementary and alternative medicine (CAM) among final year undergraduate medical, pharmacy and nursing students in Sierra Leone: a comparative study. BMC Complement Altern Med. 2016; 16:121. doi: 10.1186/s12906-016-1102-4.

44. Erku DA, Mekuria BA. Prevalence and Correlates of Complementary and Alternative Medicine Use among Hypertensive Patients in Gondar Town, Ethiopia. Evidence Based Complement Altern Medicine 2016, 2016: 6987636.doi: 10.1155/2016/6987636.

45. Kaadaaga HF, Ajeani J, Ononge S, Alele PE, Nakasujja N, Manabe YC, et al. Prevalence and factors associated with use of herbal medicine among women attending an infertility clinic in Uganda. BMC Complement Alternat Med 2014; 14:27. 21.

46. Li S, Odedina S, Agwai I, Ojengbede O, Huo D, Olopade OI. Traditional medicine usage among adult women in Ibadan, Nigeria: a cross-sectional study. BMC Complement Med Ther 2020;20(1):93.

47. Bamidele JO, Adebimpe WO, Oladele EA. Knowledge, attitude and use of alternative medical therapy amongst urban residents of Osun State, Southwestern Nigeria.AfrJ Trad Complement Alternat Med 2009; 6(3) 281–288.

48. Gari A, Yarlagadda R, Wolde-Mariam M. Knowledge, attitude, practice, and management of traditional medicine among people of Burka Jato Kebele, West Ethiopia. J Pharm and Bioallied Sci 2015; 7(2) 136–144.

49. Onyiapat JL, Okoronkwo IL, Ogbonnaya NP. Complementary and alternative medicine use among adults in Enugu, Nigeria. BMC Complement Altern Med 2011; 4(11)19.

50. Hughes GD, Aboyade OM, Beauclair R, Mbamalu ON, Puoane TR. Characterizing Herbal Medicine Use for Noncommunicable Diseases in Urban South Africa, Evidence-Based Complement Alternat Med 2015;2015:736074. doi: 10.1155/2015/736074.

51. Opara ER, Osayi KK. Factors Affecting Utilization of Herbal Medicine as Livelihood Alternatives among Residents of Imo State: The Role of social work Professionals. J Hum Soc Sci 2016; 21(5) 66–78.

52. Maduka NR, Okubor OP. Prevalence and Predictors for use of Herbal medicine in the treatment of Infertility in a secondary Health facility in South-South Nigeria. Niger Med J 2024;65(3):255-265. https://doi.org/10.60787/nmj-v65i3-402.

53. Nwosu IA, Ekpechu J, Njemanze VC, Popoola B and Ololo K. Comprehensive Health Care System Without Traditional Medicine: A Distorted Approach. Studies on EthnoMedicine. 2019; 13:1:2736.

54. WHO. Traditional Medicine Strategy 2002–2005. Geneva, Switzerland. 2002. whqlibdoc.who.int/hq/2002/who_edm_trm_2002.1.p df.

55. Tilburt JC and Kaptchuk TJ. Herbal medicine research and global health: an ethical analysis. Bulletin of the World Health Organization. 2008; 86: 594–599.

56. Okonofua, FE, Harris D, Zerai A, Odebiyi A, Snow RC. "The Social Meaning of Infertility in Southwest Nigeria." Health Transition Review 1997; 7: 205-220.

57. Eze UA and Okonofua FE. High prevalence of male infertility in Africa: Are Mycotoxins to Blame? Africa Journal of Reproductive Health. 2015;19(3): 4-7.

58. Geraldine M and Venkatesh T. Lead poisoning as a result of infertility treatment using herbal remedies. Arch Gynecol Obstet. 2007;275:4:279–281.

59. Otieno LS, McLigeyo SO and Luta M. Acute renal failure following the use of herbal remedies. East African Medical Journal. 1991;68:12:993–998.

60. Pavletic AJ, Wolner-Hanssen P, Paavonen J, Hawes SE, Eschenbach DA. Infertilityfollowing pelvic inflammatory disease. Infect Dis Obstet Gynecol. 1997; 7 (3). 145-52. dio:10.1002/9SICI)1098-0997(1999)7:3<145::AID-IDOG6>3.0.CO;26.PMID:10371473;PMCID:PMC:PMC1784727.

61. Gnoth C, Maxrath B, Skonieczny T, Friol K, Godehardt E, Tigges J. Final ART success rates: a 10 year survey. Hum Reprod 2011;26(8):2239–2246.

62. Edwards RG, Fishel SB, Cohen J, Fehilly CB, Purdy JM, Slater JM, et al. Factors influencing the success of in vitro fertilization for alleviating human infertility. J In Vitro Fert Embryo Transf 1984;1(1):3–23.

63. Mazor MD, Simons HF. Infertility: medical, emotional and social considerations. New York: Human Sciences Press. 1984)

64. Mascarenhas MN, Flaxman SR, Boerma T, Vanderpoel S, Stevens GA. National, Regional, and Global Trends in Infertility Prevalence Since 1990: A Systematic Analysis of 277 Health Surveys. PLoS Med. 2012; 9(12): e1001356. doi:10.1371/journal.pmed.1001356)

65. Foster GM, Anderson BG. Medical Anthropology. New York. Wiley, 1978.

66. Gerrits T. Social and cultural aspects of infertility in Mozambique. Patient Education and Counselling. 1997; 31: 39-48

67. Kuug AK, James S, Sihaam JB. Exploring the cultural perspectives and implications of infertility among couples in the Talensi and Nabdam Districts of the upper east region of Ghana. Contraception and Reproductive Medicine. 2023;8:28. doi: 10.1186/s40834023-00225-z

68. Orazulike NC, Fiebai PO, Okpani UO. Knowledge, Perception and Practices of Infertile Women Towards Infertility at the University of Port Harcourt Teaching Hospital (UPTH), Port Harcourt. Trop J Obstet Gynaecol. 2006; 23(2): 114-117.

69. Iwelumor OS, Shariffah SJ, Babatunde SK, Muhammed FH. Sociocultural Perceptions of Infertility: Insights from a Quanlitative Study of Infertile Individuals. Asia Proceedings of Social Sciences. 2019; 4(2) 165-167. DOI:10.31580/apss.v4i2.790)

70. Kessler LM, Craig BM, Plosker SM, Reed DR, Quinn GP. Infertility evaluation and treatment among women in the United States. Fertil Steril. 2013; 661-666

71. Baakeleng BG, Pienaar AJ, Sithole PM, Mashego SL. Narratives of Women with Infertility Who Use Indigenous Practices to Conceive, North West Province, South Africa. The Oriental Anthropologist.2023; 23(1) 88 –102. DOI:
10.1177/0972558X221128174

72. Suzanne CR, Marie-Eve C, Rob W, Ian G, Togas T, Phyllis Z. Complementary and Alternative Medicine Use in Infertility: Cultural and Religious Influences in a Multicultural Canadian Setting. The Journal of Alternative and Complementary Medicine 2014 20:9, 686-692. https://doi.org/10.1089/acm.2013.0329

73. Mabasa LF. Sociocultural aspects of infertility in a Black South African community. Journal of Psychology in Africa. 2002 Jan 1;12(1):65-79.

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

75. Okonofua FE, Harris D, Odebiyi A, Kane T, Snow RC. The social meaning of infertility in Southwest Nigeria. Health Transition Review 7, 1997, 205-220.

76. Sarkar S, Gupta P. Socio-Demographic Correlates of Women's Infertility and Treatment Seeking Behavior in India. J Reprod Infertil. 2016;17(2):123-32. PMID: 27141468; PMCID: PMC4842234.

77. Olorunfemi O, Osunde NR, Osian EA, Tope-Fakua LA, Fadipe OO. The relationship between religion, culture, cost, ethics, and husband perception with the decision of women's utilization of Assisted reproductive technology as method of infertility management. J Nurs Midwifery Sci 2021;8:268-73.

78. https://www.simplypsychology.org/bandura.html.

79. Patel A, Sharma PSVN, Kumar P, Binu VS. Sociocultural determinants J Women's Health Care, Vol. 10 Iss. 3 No: 522 of infertility stress in patients undergoing fertility treatments. J Hum Reprod Sci. 2018;11(2):172-179.

80. Aba AP, Kofi AM, Kwasi BJ, Peter T, Perditer O, Easmon O. (2021) Knowledge, Attitudes and Socio-Demographic Factors Associated with Males' Involvement in Fertility Treatment in Ghana. J Women's Health Care. 2021; 10(3):522. doi:10.35248/2167-0420.21.10.522.

81. Aziken ME, Orhue AA, Kalu OO, Osemwemkha PA. Knowledge, perception and attitude of infertile women in Benin City, Nigeria to the causation of infetility and in vitro fertilisation and embryo transfer. Tropical Journal of Obstetrics and Gynaecology. 2010;27(2):40-5.

82. Isichei-Ukah BO, Akinnibosun O, Igbinosa EO. Assessment of Staphylococcus aureus prevalence in vegetables sold at local markets in Benin City: implications for food safety. African Journal of Health, Safety and Environment. 2023; 4(2): 79-87. DOI: 10.52417/ajhse.v4i2.419.

83. SMART. Sampling Methods and Sample Size Calculation for the SMART Methodology, 2012 :16-17.

84. Adetoro OO, Ebomoyi EW. The prevalence of infertility in a rural Nigerian community. Afr J Med Med Sci. 1991;20(1):23-7. PMID: 1905466.

85. Ashwin, S, Avinash AS, Som PD, Arati DP. Sample Size Calculation in Biostatistics, with Special Reference to unknown population. *International Journal for Innovative Research in multi-Disciplinary field*, 2020; ISSN:2455-0620.6(7):236-238. Available on: www.IJIRMF.com. (Assessed: 7th March, 2025)

86. Bloom, BS.(1956) Taxonomy of Educational Objectives: The Classification of Educational Goals. New York: Longmans.

87. Ehiaghe FA, Agholor KN, Iribhogbe OI. Knowledge and perception of infertility treatment among women attending fertility clinics in Benin City, Nigeria. Niger J Clin Pract. 2021;24(6):822-829.

88. Alhassan A, Essuman SK, Agyeman F. Socio-demographic factors influencing infertility treatment involvement in Kumasi, Ghana. Int J Reprod Med. 2020;2020:1-8.

89. Anaman-Torgbor JA, Badasu DM. Cultural beliefs and infertility among women in Northern Ghana. BMC Womens Health. 2019;19(1):123-130.

90. Ofori AA, Kretchy IA, Asiedu-Danso M. Cultural perceptions and beliefs regarding infertility among women in Accra, Ghana. PLoS One. 2023;18(4):e0284211.

91. Adeyemi AS, Olugbenga-Bello AI. Perception of infertility and associated cultural beliefs among women in Ibadan, Oyo State, Nigeria. Afr Health Sci. 2022;22(3):244-252.

92. Harper JC, Hammarberg K, Simopoulou M. Perceptions of infertility and fertility treatment in London, United Kingdom. Hum Fertil (Camb). 2021;24(4):256-264.

93. Briggs ND, Kalio DG, John CT. Knowledge of infertility causes and treatment among women in Port Harcourt, Rivers State, Nigeria. Niger Postgrad Med J. 2022;29(2):95-102.

94. Mohammed-Durosinlorun A, Giwa-Osagie O. Awareness and acceptance of assisted reproductive technology among women attending fertility clinics in Abuja, Nigeria. Trop J Obstet Gynaecol. 2020;37(2):215-221.

95. Okafor NI, Joe-Ikechebelu NN. Treatment-seeking behaviour among infertile women in Port Harcourt, Rivers State, Nigeria. Niger J Med. 2021;30(1):66-73.

96. Akinloye O, Truter EJ. Utilization of traditional and orthodox infertility treatment methods among couples in Lagos, Nigeria. Afr J Reprod Health. 2022;26(1):88-97.

97. Dyer SJ, Patel M. Psychosocial impact of infertility treatment pathways in Johannesburg, South Africa. Facts Views Vis Obgyn. 2020;12(1):45-53.

98. Peterson BD, Pirritano M, Christensen U. Cultural influences on infertility treatment utilization in Toronto, Canada. J Obstet Gynaecol Can. 2021;43(5):610-617.

99. Osadolor HB, Igbinovia EO. Traditional beliefs and infertility treatment-seeking behaviour among women in Benin City, Edo State, Nigeria. Niger Health J. 2022;22(1):33-41.

100. Sharma S, Mittal S, Aggarwal P. Awareness and knowledge regarding infertility and assisted reproductive technology among women in New Delhi, India. Int J Community Med Public Health. 2021;8(5):2281-2287.

## APPENDIX

## APPENDIX I

## QUESTIONNAIRE

### CULTURAL BELIEFS AND KNOWLEDGE OF INFERTILITY TREATMENT OPTIONS AMONG MARKET WOMEN IN BENIN CITY

**Dear respondent, we are final-year medical students carrying out a project research to assess the cultural beliefs and knowledge of infertility treatment options among market women in Benin City. All information provided will be kept confidential.**

**PLEASE NOTE: This questionnaire asks about your cultural beliefs on infertility and infertility treatment options.**
**Some of the languages used is explicit, and you may find that uncomfortable. However, it is done this way to make the question as clear and understandable as possible.**
**DO NOT WRITE YOUR NAME, AS YOUR RESPONSE IS ANONYMOUS, THANKS FOR YOUR RESPONSE.**

**SECTION A: DEMOGRAPHIC AND BACKGROUND INFORMATION**

1. Age (years): _____
2. Marital Status: ☐ Single. ☐ Married. ☐ Divorced. ☐ Widowed. ☐ Cohabiting. ☐ Separated
3. Highest Level of Education: ☐ No formal education. ☐ Primary. ☐ Secondary. ☐ Tertiary

4. Religion: ☐ Christianity ☐ Islam ☐ Traditional ☐ Others: (specify)_____

5. Ethnic Group: ☐ Benin. ☐ Esan. ☐ Etsako. ☐ Owan. ☐ Yoruba. ☐ Igbo. ☐ Hausa ☐ Urhobo. ☐ Isoko. ☐ Ijaw. ☐ Itsekiri. ☐ Others: (specify)_____

6. Number of Children: ☐ None. ☐ 1–2 ☐ 3–4 ☐ ≥5

7. Monthly Household Income (₦): ☐ <50,000 ☐ 50,001–100,000 ☐ 100,001–200,000 ☐ >200,000

8. Years in Market: ☐ <1 year ☐ 1–5 years. ☐ 6–10 years. ☐ >10 years

9. Source of Health Information: ☐ Radio/TV ☐ Social media ☐ Health workers ☐ Family/Friends ☐ Religious centers

10. Frequency of Listening to Radio/Watching TV for Health Topics: ☐ Never ☐ Once a week ☐ Twice a week. ☐ Three times a week ☐ Four times a week ☐ Five times a week ☐ Daily ☐ Others:(specify)_____

**SECTION B: CULTURAL BELIEFS AND PERCEPTION ABOUT INFERTILITY**

**SECTION B 1: CULTURAL BELIEFS ABOUT INFERTILITY**

**Please tick [ ✓] as applicable: Strongly Agree (SA) | Agree (A) | Neutral (N) | Disagree (D) | Strongly Disagree (SD)**

| | Statement | SA | A | N | D | SD |
|---|---|---|---|---|---|---|
| 11 | Infertility is a punishment from God or the gods | | | | | |
| 12 | Infertility is a matter of destiny that cannot be changed | | | | | |
| 13 | Infertility is caused by witchcraft or evil spirits | | | | | |
| 14 | Infertility can result from a curse | | | | | |
| 15 | Breaking cultural taboos can cause infertility | | | | | |
| 16 | Infertility can only be cured by spiritual intervention | | | | | |
| 17 | Infertility can be caused by spiritual husband or wife | | | | | |

**SECTION B 2: CULTURAL PERCEPTION ABOUT INFERTILITY**

**Please tick [ ✓] as applicable: Strongly Agree (SA) | Agree (A) | Neutral (N) | Disagree (D) | Strongly Disagree (SD)**

| | Statements | SA | A | N | D | SD |
|---|---|---|---|---|---|---|
| 18 | Infertility can affect marriage stability. | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 19 | Women with infertility are stigmatized | | | | | |
| 20 | Women are usually blamed for infertility | | | | | |
| 21 | Men are rarely blamed for infertility | | | | | |
| 22 | Infertility affects a woman's social status | | | | | |
| 23 | Cultural beliefs influence treatment decisions | | | | | |
| 24 | In our culture, it is uncommon to suspect the husband as the cause of a couple's infertility | | | | | |

**SECTION C: KNOWLEDGE OF INFERTILITY TREATMENTS**

**Please tick [ ✓] as applicable: Strongly Agree (SA) | Agree (A) | Neutral (N) | Disagree (D) | Strongly Disagree (SD)**

| | Statement | SA | A | N | D | SD |
|---|---|---|---|---|---|---|
| 25 | Certain infections can cause infertility | | | | | |
| 26 | Hormonal imbalances can cause infertility | | | | | |
| 27 | Male infertility can cause failure to conceive | | | | | |
| 28 | Lifestyle factors like diet, smoking, and alcohol affect fertility | | | | | |
| 29 | Chronic illnesses like diabetes can affect fertility | | | | | |
| 30 | Obesity can reduce chances of conception (fertility) | | | | | |
| 31 | Infertility can be caused by blocked fallopian tubes | | | | | |
| 32 | Infertility can be diagnosed by a medical doctor | | | | | |
| 33 | Fertility drugs exist for women. | | | | | |
| 34 | Medicines prescribed by doctors can help women ovulate | | | | | |
| 35 | Men can receive infertility treatment just like women. | | | | | |
| 36 | Assisted reproductive technologies (ART) such as IVF and others exist for infertility treatment | | | | | |
| 37 | Surgery can be used to treat some cases of infertility. | | | | | |
| 38 | It is important to consult a doctor early if unable to conceive and to improve treatment outcome | | | | | |
| 39 | Both partners should be evaluated for infertility | | | | | |
| 40 | Early diagnosis increases chances of successful treatment | | | | | |
| 41 | Infertility treatment varies depending on cause | | | | | |

42. Which of the following modern fertility treatment/Assisted Reproductive Technology (ART)methods have you heard of? ***(YOU CAN CHOOSE MORE THAN ONE OPTION)***

☐ Invitro Fertilization (IVF). ☐ Intrauterine Insemination (IUI)

☐ Intra Cytoplasmic Sperm Injection (ICSI). ☐ Surrogacy. ☐ Egg Donation

☐ Others (Please Specify)_____

43. Where do people usually go first for infertility treatment in your community? ***(CHOOSE ONLY ONE OPTION)***

☐ Traditional healer ☐ Church/Religious centres. ☐ Health facility ☐ Family advice

☐ Others: (please specify)_____

44. Which are modern treatments? ***(YOU CAN CHOOSE MORE THAN ONE OPTION)***

☐ Ovulation drugs. ☐ IVF ☐ IUI ☐ Surgery ☐ Herbal remedies ☐ Spiritual cleansing

45. Is it true that doctors can use a donor's sperm or egg if a couple cannot use their own?

☐ Yes. ☐ No. ☐ I Don't Know

46. Lifestyle changes that improve fertility? *(YOU CAN CHOOSE MORE THAN ONE OPTION)*

☐ Healthy diet ☐ Reduce alcohol ☐ Exercise regularly ☐ Stop smoking

☐ Reduce stress

47. Do you know that infertility treatment is available in public/government hospitals in your city/region? ☐ Yes. ☐ No.

48. Visiting a traditional healer is the only effective way to treat infertility.

☐ Yes. ☐ No. ☐ I Don't Know

## APPENDIX II

## INFORMED CONSENT FORM

**TITLE OF STUDY: CULTURAL BELIEFS AND KNOWLEDGE OF INFERTILITY TREATMENT OPTIONS AMONG MARKET WOMEN IN BENIN CITY.**

**INSTITUTION:** Department of Public Health and Community Medicine, College of Medicine, University of Benin, Benin city, Edo state, Nigeria.

**NAMES OF PRINCIPAL INVESTIGATORS:** OBED EHIS OKOSUN AND OKPERE EHIZOJIE MATTHEW.

**SUPERVISOR:** DR(MRS) O. E OBARISIAGBON

**PURPOSE OF THE RESEARCH:** The purpose of the research is to assess the Cultural Beliefs and Knowledge Of Infertility Treatment Options Among Market Women In Benin City.

**PROCEDURES INVOLVED IN THE STUDY:** In this study questions will be asked regarding the Cultural Beliefs and knowledge of Infertility Treatment Options Among Market Women In Benin City.

**CONFIDENTIALITY:** All data collected will be treated with utmost confidentiality. Participants who volunteered to take part in the study will be given a unique study number and data will be collected without including the names of the participant taking part in the study. Participant's information will be stored safely, secured by codes in computers using only the identification number. All those handling the data will not at any time reveal respondent's identity.

**FINANCIAL SPONSORSHIP:** The research is self-sponsored.

**FINANCIAL COMPENSATION:** There will be no payment for this participation.

**VOLUNTARY PARTICIPATION:** Your participation in this study is entirely voluntary and if you desire to withdraw out of this study any time, no punitive measure will be meted out against you on account of your withdrawal. Your refusal to participate or withdrawal from the study, will not involve any negative consequences or loss of benefits to which you are otherwise entitle to.

**RISK:** It is not expected that any harm will come to you because of your participation in this study. The study does not entail any activity that would result in harm to you.

**BENEFIT:** This study will help assess the Cultural Beliefs and knowledge of Infertility Treatment Options Among Market Women In Benin City. The result obtained from this research will contribute to important research that may help improve public health promotion strategies and improves knowledge.

**CERTIFICATE OF CONSENT**

The content of the form has been read and explained to me. I have had the opportunity to ask questions on the procedure, purpose and requirements for this study which were explained to me in detail.

(A) I voluntarily consent to take part in this research ( )

(B) I do not consent in this research ( )

**NAMEOF**

**PARTICIPANT:**_____

**SIGNATURE OF PARTICIPANT:**_____

**THUMB PRINT (if applicable):** _____

**DATE OF SIGNED CONSENT:** _____

**SIGNATURE OF RESEACHER:** _____

**CONTACT INFORMATION:**

**OKPERE EHIZOJIE MATTHEW,**

Department of Public Health and Community Medicine,

School of Medicine,

College of Medical Sciences,

University of Benin.

Benin city,

Edo State,

Nigeria.

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**OBED EHIS OKOSUN**

Department of Public Health and Community Medicine,

School of Medicine,

College of Medical Sciences,

University of Benin,

Benin city, Edo State,

Nigeria.

Phone number: +2348107693288 | Email: okosunehisobed@yahoo.com

**ETHICS AND RESEARCH COMMITTEE,**

University of Benin Teaching Hospital,

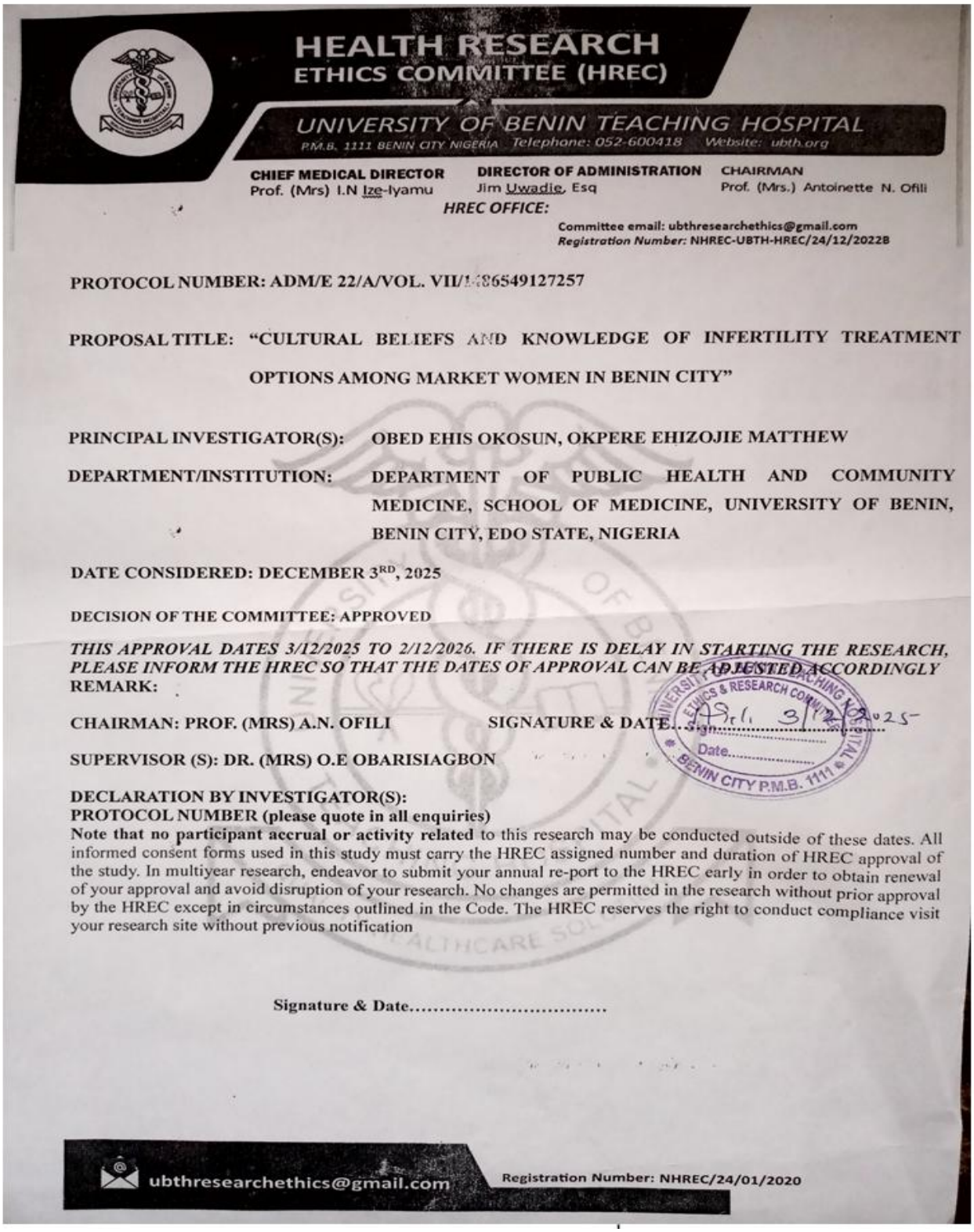
Benin City.

Phone number: 07063331337

Email: ubthresearchethics@gmail.com

## APPENDIX III

## ETHICAL APPROVAL



HEALTH RESEARCH
ETHICS COMMITTEE (HREC)

UNIVERSITY OF BENIN TEACHING HOSPITAL
P.M.B. 1111 BENIN CITY NIGERIA Telephone: 052-600418 Website: ubth.org

CHIEF MEDICAL DIRECTOR
Prof. (Mrs) I.N Ize-Iyamu

DIRECTOR OF ADMINISTRATION
Jim Uwadie, Esq

CHAIRMAN
Prof. (Mrs.) Antoinette N. Ofili

HREC OFFICE:
Committee email: ubthresearchethics@gmail.com
Registration Number: NHREC-UBTH-HREC/24/12/2022B

PROTOCOL NUMBER: ADM/E 22/A/VOL. VII/1486549127257

PROPOSAL TITLE: "CULTURAL BELIEFS AND KNOWLEDGE OF INFERTILITY TREATMENT OPTIONS AMONG MARKET WOMEN IN BENIN CITY"

PRINCIPAL INVESTIGATOR(S): OBED EHIS OKOSUN, OKPERE EHIZOJIE MATTHEW

DEPARTMENT/INSTITUTION: DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE, SCHOOL OF MEDICINE, UNIVERSITY OF BENIN, BENIN CITY, EDO STATE, NIGERIA

DATE CONSIDERED: DECEMBER 3RD, 2025

DECISION OF THE COMMITTEE: APPROVED

*THIS APPROVAL DATES 3/12/2025 TO 2/12/2026. IF THERE IS DELAY IN STARTING THE RESEARCH, PLEASE INFORM THE HREC SO THAT THE DATES OF APPROVAL CAN BE ADJUSTED ACCORDINGLY*

REMARK:

CHAIRMAN: PROF. (MRS) A.N. OFILI SIGNATURE & DATE.....

SUPERVISOR (S): DR. (MRS) O.E OBARISIAGBON

ETHICS & RESEARCH COMMITTEE
Date.....
BENIN CITY P.M.B. 1111

DECLARATION BY INVESTIGATOR(S):
PROTOCOL NUMBER (please quote in all enquiries)
**Note that no participant accrual or activity related** to this research may be conducted outside of these dates. All informed consent forms used in this study must carry the HREC assigned number and duration of HREC approval of the study. In multiyear research, endeavor to submit your annual re-port to the HREC early in order to obtain renewal of your approval and avoid disruption of your research. No changes are permitted in the research without prior approval by the HREC except in circumstances outlined in the Code. The HREC reserves the right to conduct compliance visit your research site without previous notification

Signature & Date.....

ubthresearchethics@gmail.com Registration Number: NHREC/24/01/2020

## APPENDIX IV

## PLAGIARISM CLEARANCE FORM

INTELLECTUAL PROPERTY & TECHNOLOGY TRANSFER OFFICE (IPTTO)

Vice Chancellor's Office
University of Benin
PMB1154, Benin City, Nigeria

# CLEARANCE FORM

DATE: 19/05/2026

NAME: OKPERE MATTHEW EDI20110

MATRIC NO: MED180763

DEPARTMENT: MEDICINE

FACULTY: MEDICINE

SESSION OF GRADUATION: 23/24

DIRECTOR
DATE
IPTTO (VCO)
UNIVERSITY OF BENIN, BENIN CITY
Head Of Unit (IPTTO)

**INTELLECTUAL PROPERTY & TECHNOLOGY TRANSFER OFFICE (IPTTO)**

*Vice Chancellor's Office*
*University of Benin*
*PMB1154, Benin City, Nigeria*

# CLEARANCE FORM

DATE: 19/05/2026

NAME: OKOSUN OBEN ~~EFFS~~

MATRIC NO: MED/18/7459

DEPARTMENT: MEDICINE

FACULTY: MEDICINE

SESSION OF GRADUATION: 23/24

DIRECTOR
DATE .....
IPTTO (VC's)
UNIBEN, BENIN CITY.

Head Of Unit (IPTTO)