



Research Paper

Assessment Of Infertility Among Couples Attending The Fertility Clinic In The Rivers State University Teaching Hospital (RSUTH) Port Harcourt, Nigeria

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Abstract

This study looked at infertility among couples attending the fertility clinic in the Rivers State University Teaching Hospital (RSUTH) Port Harcourt, Nigeria. What informed the study was that other researchers focused on the awareness and knowledge of infertility but failed to consider the treatment options available to couples with infertility. The objectives that guided the study were assessing the level of knowledge, the attitude and management options available to couples attending the fertility clinic in the RSUTH, PH. The study adopted the descriptive cross sectional design. The respondents were 86. The instrument for data collection was a questionnaire developed and validated by the researchers. The test retest method was used in establishing the reliability coefficient of the instrument at 0.88. The mean, frequency and chi-square statistics were used in analyzing the data. The results showed that the mean age for this study was 32 years \pm 6.47SD. Thirty-six percent (36%) of the respondents were unable to achieve any pregnancy with the mean duration of being 16 years \pm 7.1SD. Ninety percent (90%) of the respondents believe infertility can be treated; however the only available treatment for infertility in RSUTH is fertility drugs. It was concluded that irrespective of the positive attitude of respondents, other management options such as Assisted Reproductive Technique (ARTs) were not made available. It was finally recommended that other methods used in the management of infertility should be provided in a subsidized rate by the government in tertiary hospitals.

Keywords: Infertility, Couples, Fertility clinic, attending.

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I. Background to the study

The desire of every couple is to become parents within the first and second year of married life. While many couples have this dream fulfilled, some even regulate when they have gotten the number of children they want, some have more than they can cater for while there are quite a number of others who do not have even one child no matter how hard they try. Infertility has remained a substantial source of worry among couples, cutting across decades and is expected to continue even into the nearest future (Copen, and Stephen, 2013).

Infertility is a problem which affects both men and women with almost equal frequency. However, women bear the brunt of this societal stigma in most of the cases. For women, pregnancy and motherhood are developmental milestones that are highly emphasized by our culture and a proof of her womanhood and justification of her place in the family (Ekwere et. al., 2015). Women are verbally or physically abused in their own homes, deprived of their inheritance, sent back to their parents, ostracized, looked down upon by society, or even have their marriage dissolved or terminated if they are unable to conceive (Ali et al., 2011). For the man, children bring social status and proof of virility, an attitude that boosts the male ego. The infertile man, more often than not, has a deflated sense of self-worth and self-fulfillment and might be looked down upon and often taunted by his peers in the society. Infertility among Nigerians is therefore seen as a humiliating personal tragedy for the couple but especially so for the female partner.

In Nigeria, infertility has been shown to have a high prevalence and in most cases is a social stigma for the childless couple. For example, several studies show a shocking prevalence rate of infertility in various parts of the country with 4.0% in North Central, 15.7% North West (Panti and Sununu, 2016); 15.4% in South East (Obuna et. al., 2012) and 48.1% in South West.

The need for further enlightenment of the populace on factors contributing to infertility has been emphasized in literatures (Aziken et. al., 2010). The ability of couples to live fully satisfying lives and achieve a better quality of life is largely dependent on their perception of the crisis situation and the coping strategies adopted. The need to therefore ascertain the perception of couples about infertility is brought to the fore as stakeholders in healthcare all over the world have implicated gender equality as an important index to drive sustainable development. If nurses, government and policy makers are aware of people's perception about infertility, it will help them develop programs to educate the populace and correct certain misconceptions. Enlightening the populace ought to be based on evidence gathered through researches, hence the impetus for this study and the need for the study to determine the treatment options of infertility among couples attending fertility clinic in the Rivers State Teaching Hospital (RSUTH), Port Harcourt Rivers State.

Statement of Problem

Every human being has a right to the enjoyment of the highest attainable standard of physical and mental health. Individuals and couples have the right to decide the number, timing and spacing of their children. Infertility can negate the realization of these essential human rights. Marriage, they say, is for companionship and procreation. The expectation of parents is for their children to procreate within the first year of marriage. Where this does not happen, pressure for grandchildren is mounted on the couples by the parents. According to Panti and Sununu (2016), infertility no doubt remains a global health problem and a socially destabilizing condition for couples, carrying several stigmas and a cause of marital disharmony. The impact of infertility on couples can be overwhelming with emotional and psychosocial concerns (Mittal et. al., 2015). One out of six couples face infertility related complications worldwide (Pittman, 2013). Couples with infertility experience significantly more anxiety, depression, and stress, Iruo, et al (2021); all of which could contribute to marital distress and divorce (Schanz et. al., 2011).

Infertility worldwide remains a major gynaecological problem with devastating psychosocial effect on the couple (Odejide et. al., 1986, 2013). Infertility is today a palpable problem in many families in Nigeria. It is a common reason for routine gynaecological consultations. Infertility is a source of distress for couples as societal norms and perceived religious dictums may equate infertility with failure on a personal, interpersonal, emotional or social level. Its negative impact on the peace and stability of the affected families is becoming conspicuously increasing every day (Animasahun, et. al., 2013). Awareness, knowledge and attitude regarding infertility among couples have been the focus of numerous studies. Some of these studies have also focused on the causes of infertility; however, studies on the management options of infertility especially in Port Harcourt, Rivers State are very few; hence this study. Also, diagnosis and treatment of infertility are not prioritized in national population and development policies and reproductive health strategies are rarely covered through public health financing making it difficult for low-income earners to access quality fertility care. An assessment of the treatment options available and known by the couple should be addressed to curb the myths and stigma on couples with infertility.

Aim of study

This study will investigate the knowledge, attitude and management options of infertility among couples attending the fertility clinic in Rivers State University Teaching Hospital.

Specific Objectives

The specific objectives of this study are to:

- i. To assess the level of knowledge of the couples on infertility issues.
- ii. To assess the attitude of the couple on infertility issues.
- iii. To assess the management options available for the couples attending the fertility clinic in RSUTH.

Research Questions

- i. What is the level of knowledge of couples attending the fertility clinic of RSUTH on infertility?
- ii. What is the attitude of couples attending fertility clinic in RSUTH?
- iii. What are the treatment/management options available for the couples attending the fertility clinic at RSUTH?

Research Hypothesis

- i. There is no significant difference between the knowledge of the husbands and that of the wives on fertility issues.
- ii. There is no significant difference between the attitude of the husbands and that of their wives on fertility issues.

II. Literature Review

A couple is generally considered infertile if they are unable to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse without use of contraceptives (WHO, 2010; Sami et. al., 2012). It could also be defined as 12 months of appropriately timed intercourse that does not result in conception. The World Health Organization defines infertility as the inability of couples of reproductive age to impregnate or conceive and carry a pregnancy to live birth within two years of exposure to the risk of pregnancy (Animasahun et. al., 2013). The World Health Organization recommends modifying the clinical infertility definition for use in epidemiological research as follows: "The absence of conception in 24 months of regular unprotected intercourse." WHO proposed to extend the period of trying to get pregnant from 12 to 24 months, because it had been found that many couples who did not get pregnant in a period of 12 months, did eventually get pregnant without treatment (Odek et. al., 2014). It also includes the inability to carry a pregnancy to the delivery of a live baby (Uadia and Emokpae, 2015). Infertility could be classified as either primary or secondary.

Definitions of primary infertility vary between studies, but the operational definition, put forth by the WHO, defines primary infertility as the "Inability to conceive within two years of exposure to pregnancy (i.e. sexually active, non-contracepting, and non-lactating) among women 15 to 49 years old". 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 (WHO, 2018). It also refers to couples who have never conceived. Secondary infertility is usually defined as the inability to conceive for after having conceived at least once before (Ghadir et. al., 2013).

Causes of Infertility

Both partners in relationship contribute to potential fertility and both may be sub fertile. The female factors contribute almost half in the etiologies of infertility followed by male factors (30-40%), and the rest are attributed to a mixture of both or by problems unknown. In the male reproductive system, infertility is most commonly caused by problems of ejection of semen, absence or low levels of sperm, or abnormal shape (morphology) and movement (motility) of the sperm. Infertility may be caused by a number of different factors, in either the male or female reproductive systems. However it is occasionally not possible to explain the exact causes of infertility. In the female reproductive system, infertility may be caused by a range of abnormalities of the ovaries, uterus, fallopian tubes, and the endocrine system, among others (WHO, 2018). In the female reproductive system, the following can contribute to causing infertility: tubal disorders such as blocked fallopian tubes, which are in turn caused by untreated sexually transmitted infections (STIs) or complications of unsafe abortion, postpartum sepsis which causes secondary infertility or abdominal/pelvic surgery; uterine disorder which could be inflammatory in nature (such as endometriosis), congenital in nature (such as septate uterus), or benign in nature (such as fibroids); disorders of the ovaries, such as polycystic ovarian syndrome (PCOS) and other follicular disorders; disorders of endocrine system causing imbalances of reproductive hormones. The endocrine system includes hypothalamus and the pituitary glands. Examples of common disorders affecting this system include pituitary cancers and hypopituitarism. Infertility in the male may be caused by: obstruction of the reproductive tract causing dysfunctions in the ejection of semen. This blockage can occur in the ejaculatory ducts and seminal vesicles, these blockages are commonly due to injuries or infections of the genital tract; hormonal disorders leading to abnormalities in hormones produced by the pituitary gland, hypothalamus and testicles (pituitary or testicular cancers); testicular failure to produce sperm, for example due to varicoceles or

medical treatments that impair sperm-producing cells (such as chemotherapy); abnormal sperm function and quality. Conditions or situations that cause abnormal shape (morphology) and movement (motility) of the sperm negatively affect fertility. For example, the use of anabolic steroids can cause abnormal semen parameters such as sperm count and shape. (Gore AC et. al., 2015).

The biological and social factors including stress due to economic status, religious attitudes, age at marriage, urbanization leading to modernization, higher literacy, contraceptive usage and nuclear families play a significant role in lowering fertility (Mittal et. al., 2015). Sexually transmitted infections (STIs) are generally considered the leading preventable cause of infertility worldwide, especially in developing countries (Adamson, Krupp, Alexandra, Jeffery, Arthur and Purnima, 2011). The causes of infertility have also been categorized into four main causes; male infertility when it is principally due to poor semen parameters, female infertility when infertility is due to factors such as occlusions of fallopian tubes, uterine or endometrial abnormalities, abnormal cervix and anovulation in female partner (Uadia and Emokpae, 2015).

Impact of sexually transmitted diseases

Sexually transmitted infections (STIs) are common problems that are associated with male factor infertility. A study conducted to identify potential risk factors for male infertility in southern Nigeria indicated that there were associations between male infertility and previous exposures to sexually transmitted diseases, unorthodox medication (native medication) and moderate to heavy alcohol consumption. Men who reported having repeated episodes of penile discharge, painful micturition, genital ulcers and testicular pain were more likely to be infertile.

Another study of a group of 500 males investigated for infertility in Kano, Northern Nigeria, reported 40.8% prevalence of male factor infertility. The organisms isolated were *Staphylococcus aureus*, *Escherichia coli*, *Candida* species, the mixed growth of *S. aureus* and *E. coli* and *Streptococcus* species. Seminal fluid infection contributed in no small measure to reduced sperm density, asthenospermia, and teratospermia. *S. aureus* that contributed the most to seminal fluid infection has always been dismissed by most practitioners as mere contamination, hence of no significance. It was concluded in that report that in the management of male factor infertility, this micro-organism should be treated and no longer ignored. The study also observed that the rate (percent) of infection increased from normospermic 14.8%, oligospermic 35.2%, severe oligospermic 44.1%, to azoospermic 74.7%. These infections of seminal fluid often lead to a decrease in the number of spermatozoa and the suppression of their fertility capacity. Microbial infection of the seminal fluid was observed to be the major cause of male infertility. The negative influence of pathogenic micro-organisms on sperm cells' reproductive potential has been observed. Evidence that *Chlamydia trachomatis*, *Ureaplasma urealyticum* affect fertility and that *Mycoplasma hominis* cause tail abnormalities of spermatozoa abound. The five factors that contribute to overall sperm quality such as sperm motility, speed, density, morphology (shape and size) and liquefaction are all affected by STIs (Onyeka et. al., 2012).

Factors Associated with Infertility among Couples

This could be genetic, physical abnormalities, injuries, drugs, infections of the genital tract, radiation, toxins or unexplained. The major causes of male factor infertility in Nigeria are infection and hormonal abnormalities. Other studies have focused on the contributions of environmental factors, such as diet and toxic elements, cultural behaviors, and genetic factors, and that a fifth of the men tested positive for antibodies to *Chlamydia*.

Life style

The role that life style plays in the development of infertility has generated a considerable amount of interest. These are the modifiable habits and ways of life that can influence human health and fertility. Many life style factors such as age at which one starts a family, nutrition, body weight, and substance abuse can impact adversely on fertility (Sharma, et. al., 2013).

Age

The age at which a person starts a family may affect fertility in both males and females because fertility peaks and decreases with increasing age. In males, the levels of testosterone decrease as men age and semen parameters deteriorate progressively as from 35 years (Stewart and Kim, 2011; Kimberly et. al., 2012). After 40 years of age, men have significantly more DNA damage in the semen as well as poor sperm indices (Varshini et. al., 2012).

Nutrition

Food rich in antioxidants are potentially beneficial for fertility while the consumption of diets high in proteins and fats were reported to impact negatively on fertility (Onyeka, et. al., 2012). Antioxidants play important roles in the body by scavenging reactive oxygen species (ROS) which are produced as by-products of

cellular respiration. The endogenous antioxidants present in the body help to eliminate or prevent their harmful effect, but over production of these ROS in the absence of adequate amount of antioxidants results in oxidative stress which may negatively impact on sperm function (motility, decreasing membrane integrity and DNA damage).

Hormonal abnormalities

Endocrinologic disorders and infertility are common all over the world. Because several authors have suggested that infertility in Africa is due to the high prevalence of sexually transmitted diseases, we decided to evaluate the contributions of endocrine abnormalities to infertility in the male in Kano, Nigeria. Hormonal abnormalities were detected in 22% oligospermic, 40.7% in severe oligospermic and 42.7% in azoospermic male subjects.

The pretesticular and the testicular causes are mainly endocrine disorders originating from the hypothalamic-pituitary-gonadal axis that have adverse effects on spermatogenesis. Male fertility is critically dependent upon the normal hormonal environment. Therefore, appropriate evaluation and treatment of the sub-fertile men are critical in the delivery of suitable care to the infertile couple. The pattern of abnormalities observed in oligospermia was hypergonadotropic-hypogonadism and hypogonadotropic-hypergonadism, while hypogonadotropic-hypogonadism and hyperprolactinaemia were observed in severe oligospermic males. Also, primary hypogonadism, secondary hypogonadism and hyperprolactinaemia were observed in azoospermic males. Evidence in man suggests that luteinizing hormone (LH) and FSH through the action of testosterone are required for the initiation and maintenance of spermatogenesis. Testosterone, in addition, is important in maintaining the seminiferous epithelium. This action of testosterone is mediated through androgen receptors within the Sertoli cell. Male hypogonadism may indicate an impaired synthesis of testosterone by the Leydig cells or insufficient spermatogenesis due to seminiferous tubular dysfunction. This is so because extensive biochemical communication occurs in the Leydig cells and the tubules. When there is a disturbance in the hormone releasing processes the whole process leading to spermatogenesis is disrupted.

The Increase in serum FSH level in azoospermia may reflect decreased testicular activity resulting in changes in normal feedback mechanism between the testes and the hypothalamic-pituitary axis. Hyperprolactinaemia was observed in two patients with oligospermia and six azoospermic males coupled with low semen volume. The mechanism by which hyperprolactinaemia leads to infertility in the male is not well understood, but it may lead to reduced gonadotropin releasing hormone (GnRH) secretion by slowing the frequency of GnRH pulses, thereby reducing LH and FSH pulsatility. It may also alter the positive feedback mechanism on the hypothalamus.

Hormonal profile of a group of azoospermic males was evaluated and it was observed that 40% of all azoospermic subjects had abnormal hormonal levels while 60% had normal hormonal values and 45% of the subjects had testicular pathology. It was concluded that endocrinopathies are common in azoospermia and their contribution to male infertility is great. Other studies in Nigeria recognized that azoospermia is a common finding among infertile males. The condition was present in 6.5% of males attending a general infertility clinic and 35% in those attending male infertility clinics (Marinho, 1986 in Uadia and Emokpae, 2015).

The major causes of azoospermia such as failure of spermatogenesis and obstruction of the ductal system especially the vas deferens have been studied. It was observed that blockage of the vas deferens was not a major cause of azoospermia in Nigeria. This observation was corroborated by findings that only one subject was fructose positive of all azoospermia evaluated for seminal fructose. Seminal fluid fructose is usually done for all azoospermia to ascertain the presence or absence of vas deferens. Fructose produced in the seminal vesicles is androgen dependent and serves as a source of energy for ejaculated sperm cells. It is absent in subjects with congenital absence of vas deferentia who have no seminal vesicles and those with bilateral ejaculatory duct obstruction.

Histological examination of testicular biopsies in azoospermic condition showed that the condition was due to primary testicular defects in half of the subjects investigated. Among the abnormalities detected were spermatogenic arrest, testicular atrophy, and hypospermatogenesis. The chromosomal abnormality was observed in one subject as a genetic factor contributory to male factor infertility.

Erectile dysfunction

In a retrospective study of 115 subjects with ED, we observed different patterns of hormonal abnormalities in 48.7% of the subjects. These include primary hypogonadism (10.4%), hypogonadotropin (26.1%) and isolated low FSH (12.2%). No endocrine disorder was observed in 51.3% of the subjects. It was concluded that endocrine disorders are common in patients with ED and, therefore, essential in the management of these patients (Emokpae, et. al., 2006). The findings of reproductive hormone derangements in ED may further complicate the reproductive potentials of the patients.

Female infertility

Female factor infertility can be divided into several categories: cervical or uterine, ovarian, tubal and other (Ugwu, et. al., 2012).

Abnormalities or damage to the fallopian tube interferes with fertility and is responsible for abnormal implantation such as ectopic pregnancy (Adegbola et. al., 2013). Obstruction of the distal end of the fallopian tubes may result in hydrosalpinx and pyosalpinx. Other tubal factors associated with infertility are either congenital or acquired.

Congenital absence of the fallopian tubes can be due to spontaneous torsion in utero followed by necrosis and reabsorption. Elective tubal ligation and salpingectomy are acquired causes. Tubal factors are responsible for 25 to 30% of infertility cases, with salpingitis being the most common cause, representing more than half of the cases. Estimates show that after one episode of pelvic inflammatory disease (PID), an 11% risk of tubal infertility is present.

Attitude of Couples Facing Infertility

In a now-classic article, Mahlstedt described a series of losses experienced by the infertile couple that helps better understand why the emotional reaction to infertility can be so intense. These losses include loss of self-esteem, relationships, health, and financial security. The infertile person has a loss of self-esteem by repeatedly attempting to achieve a desired goal (having a baby) but failing to achieve it. When unable to have a child, the failure challenges and may begin to erode their self-esteem. The problem can be significantly worse when the individual has been highly successful in other areas of life and has not developed the coping skills to deal with failure and loss.

A second loss can be the real or feared loss of important relationships. This includes the marital relationship and relationships with family and friends. The marital relationship can be strained or lost because of fears that the fertile partner will leave the infertile partner. Even though a couple is working together toward a common goal, the emotional pain associated with infertility and the stress of the evaluation and treatment may make it difficult for each individual to provide the necessary emotional support for each other. Unfortunately, this occurs at a time when each needs the emotional support and intimacy provided by the other. When they cannot meet each other's needs, each partner may withdraw and isolate themselves.

An additional strain on the relationship may be the changes in the couple's sex life. Several writers have noted that infertile couples have sexual difficulties. Sex may become a reminder of the couple's failure to have a child. The increased intrusion into the sexual habits of the couples by the medical team's recommendation for timed intercourse, frequent intercourse, or limited intercourse may make sex feel like a chore. The intimacy and pleasure usually derived from sexual relations may be identified as another loss by the couple. In addition to marital difficulties, the infertile couple may also experience strain in relationships with family and friends. They may isolate themselves from their family and friends because they consider infertility a private problem that they are uncomfortable sharing. They may also often feel misunderstood when they do share their feelings. They assume and believe that no one else can understand the true intensity of their emotional pain. Unfortunately, they are often right. When they hear over and over that all they need to do is relax and they will conceive, they begin to withdraw. They may stop attending family celebrations, such as baby showers, christenings, Mother's Day, or religious holidays when other family members may bring their children with them. The couple begins to feel left out and stops associating with those who have children. Friends who are pregnant may also be avoided by the infertile couple because they are a reminder that others can get pregnant with ease. The infertile woman's loss of relationships can deprive her of social support, which can compound feelings of isolation and depression.

A third loss related to infertility is the loss of health. The female patient may spend a great deal of time in the infertility clinic for tests and treatments. Although she is not really sick, she may begin to identify with the sick role and begin to feel that her physical health is compromised. In addition, women may also report feeling ill because of the side effects of some of the hormonal medications used to enhance fertility.

A fourth loss is the potential loss of financial security. Infertility treatment, especially in countries that do not mandate insurance coverage of infertility treatment, can be extremely expensive. An associated problem is the concern about job security for women. Because women are often the primary focus of the evaluation or treatment, they often have to miss considerable amounts of work. This may place their job in jeopardy. In addition, they often fear telling their employer the reason for their absences, because the employer may assume the treatment will be successful and the woman will be leaving her job. If the employer assumes that the woman will be leaving her job to have a child, the woman may become vulnerable to being laid off or dismissed.

In a study carried out in Indonesia, half of participants in both groups identified infertility not as a disease (56.3 and 49.6% among participants in Jakarta and East Sumba respectively). When the couples in the study were asked who should be investigated first among infertile couples; majority of the participants in Jakarta answered that both husband and wife should be investigated. One third of participants in East Sumba thought that women should be investigated first (Achmad K. H., Victor P. A. & Stephanie W., 2019).

According to a study carried out in Iran, almost all women (95.9%) and men (94.5%) considered it acceptable for couples to seek medical treatment for infertility. Almost 76% of women and 78.4% of men endorsed this method as an acceptable solution for infertile couples. Equal numbers of respondents accepted or rejected the idea of surrogacy. Approximately, 47% of 18–25 year olds expressed a completely negative view of surrogacy, in contrast to 28.2% of participants older than 45. Using donated eggs was considered acceptable by 35.4% of women and 32.8% of men. However, many more men than women opposed the use of donated sperm (50% of women versus 68% of men. How couples face and respond to infertility is culturally conditioned. Some cultures promote traditional therapies, such as herbal medicine, spells, fortune-telling and visits to holy places. Others oppose biomedical cures and address infertility through social networks, adoption, divorce and remarriage and some follow medical treatments (Ahmadi & Bamdad, 2017).

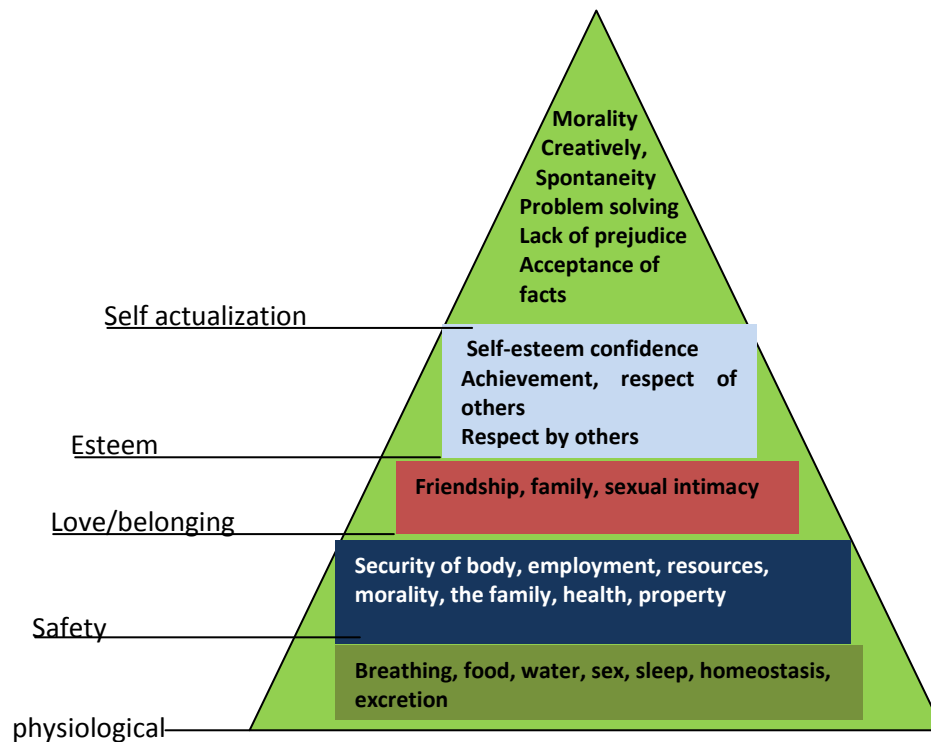
Management of Infertility

Fertility care encompasses the prevention, diagnosis and treatment of infertility. Equal and equitable access to fertility care remains a challenge in most countries: particularly low and middle-income countries (LMIC). Fertility care is rarely prioritized in national universal health coverage benefit package (WHO, 2018). Availability, access, and quality of interventions to address infertility remain a challenge in most countries. Male infertility can be managed through counseling, hormonal and drug therapy as well as surgical intervention. The prognosis depends on the duration of infertility, primary or secondary infertility, results of the seminal analysis, age and fertility status of the female partner (Jungwirth, Diemer, Dohle, Giwercman, Zopa, Krausz, *et al.*, 2012). Depending on the life style of the subject, he could be counseled against heavy smoking, alcohol abuse, use of anabolic steroids, engaging in extreme sports, wearing of thermal underwear and occupational exposure to heat sources. The use of antioxidant supplements such as Vitamins E, A and C, zinc, selenium and antibiotics administration may help to improve semen quality. In subjects with endocrine abnormalities, the use of drugs and endocrine replacement therapies may be helpful. Surgical treatment may be carried out to correct pathological conditions that include varicocele and epididymal obstruction. Anejaculation can be treated by vibro-stimulation or electro-ejaculation techniques (Damani and Shaban, 2008). However, with most infertility attributable to idiopathic oligospermia and other sperm abnormalities, interventions have failed to resolve this condition. Improvements in technologies have made assisted reproductive techniques possible (Damani and Shaban, 2008). Techniques such as intra uterine insemination, *in vitro* fertilization, sperm extraction techniques, and micro assisted fertilization are now available. These procedures are beyond the reach of the ordinary man on the street, hence the urgent need for government and other donor agencies to assist in the treatment of male infertility.

Broadly, treatment options for infertility can be classified into three (3) major groups which are the pharmacological (medicines such as clomifene citrate, tamoxifen, metformin, gonadotrophins, gonadotrophin-releasing hormone and dopamine agonists), the surgical (fallopian tube surgery, Endometriosis, fibroids, Polycystic Ovary Syndrome-PCOS, surgical extraction of the sperm, correcting an epididymal blockage) and Assisted Reproductive Techniques or Assisted Conception (intrauterine insemination with (SO + IUI) or without (IUI) super ovulation, in vitro fertilisation (IVF), Egg and Sperm donation and Surrogacy).

Theoretical Framework

This research is guided by Abraham Maslow's Hierarchy of Needs which was propagated by Abraham Maslow in 1943. He identified certain needs of the individual that ought to be met at certain times while some needs are to be met at all times. The theory has five basic needs of human wants or accomplishment which are prioritized from lowest to highest level of needs. According to Dohney, Cook and Stopper (2007), Maslow noted that the person's human needs are identified in terms of a hierarchy. Lower level needs must be met before energy can be directed towards higher level needs. It is presented in ascending order as shown in the illustration below.



Source: © Alan Chapman 2001-4 based on Maslow's hierarchy of needs from [http:// www.businessballs.com](http://www.businessballs.com). Maslow stated that these needs are prioritized hence the lower level needs must be satisfied first before the higher level needs. When one level of need is met, an individual then moves to another level. Physiological Needs is the most important and common to all needs described.

Physiological Needs

This is the lowest and the first level of need identified by Maslow's law. It contains the basic essential human needs for optimal living and survival e.g. oxygen, food, water and sex etc. individuals seek to meet up with these needs on daily basis.

According to Tay and Diener (2011), the satisfaction of physiological needs in infertile couples can be denied in marriages. There is lowered or loss of sexual desire, arousal and frequency of orgasm by infertile couples compared with their counterparts. In this case, sex seems useless due to their inability to produce children. Conflict and tension in the homes may lead to depression and restlessness which may result in insomnia. For this, the satisfactions of their physiological needs are neglected.

Safety and security needs

According to Tay and Diener (2011), for optimal performance, human being needs to be secured and protected from harm in all aspects of life. This includes physical safety from family violence, health, wellbeing, economic safety, financial security and personal security e.g. job, marriage, properties etc. Couples with infertility are bombarded with embarrassments and insults in their communities and are denied their rights during communal sharing. The men also face humiliation from their friends and families which sometimes leads to pressure on men to divorce their wives or engage in polygamy.

Love and belongings

Kenrick (2010) opines that the need to love, to be loved and feel belonged in the society is the desire of every individual. This is achieved through living a happy life and having an ideal family relationship. In marriages, due to the problems caused by infertility, marriage instabilities, hatred, conflict, separation, crises and divorce leave couples love diminished.

Self-esteem needs: (worth and values)

According to Vanbaten and Bos (2009), esteem presents the normal human desire to be accepted and valued by others. For this, every human has a need to have self-esteem and to be respected by people. Imbalance of this level of needs leads to low self-esteem. In relation to marriages, a reproductive marriage is balanced of

self-esteem, recognition, worth and value. On the other hand, in infertile marriages, these needs are not met. Couples with infertility experience depression, perceived loss of control e.t.c. over many aspects of their lives and social isolation.

Self-actualization

This level of need pertains to what a person's full potentials are. Willard (2012) submits that in every marriage, couples self-actualization goal is the desire to be fertile, reproduce a child and become an ideal parent. The inability to conceive and bear a child after marriage results in the feeling of disappointment in a couple's reproductive live, thereby hindering their self- actualization goal.

Application of the theory to the study

Every human being has a right to the enjoyment of the highest attainable standard of physical and mental health. Individuals and couples have the right to decide the number, timing and spacing of their children. Infertility can negate the realization of these essential human rights. Maslow's Hierarchy of Needs and its relationship to the study of the assessment of infertility among couples in marriages shows that the various hierarchy of needs of every human e.g. physiological needs, safety and security needs, self-esteem needs and self-actualization needs are essential needs that are important in every life processes that the couples face. But due to the problem of infertility, these needs may become jeopardized, denied, altered and neglected. For instance, in Physiological needs, the desire for sexual intercourse among the couples becomes more like a 'duty' than an enjoyable way to express love for each other. Every married couple's self -actualization needs are achievement of child birth to maintain the existence of family name in years to come. But with infertility these needs are not met. Couples with infertility see themselves as failures to their reproductive right and unfulfilled life.

Furthermore, they may end up not loving themselves. The man will deny the woman of care e.g. food, money, personal security, health and in turn may not receive care. Their sense of worth and value becomes worthless. Conflicts may set in leading to divorce and separate problems, couples needs become jeopardized and this impact negatively on their quality of life but with fertility, these needs can be achieved.

Empirical Review

Pattern/Profile of Infertility in Nigeria and other countries

Panti and Sununu (2014) in their prospective study conducted at the Gynecological Department of the Usmanu Danfodiyo University Teaching Hospital (UDUTH), Sokoto determined the prevalence, causes, and clinical pattern of infertility between 1st January, 2011 and 31st July, 2011 where all the patients that presented with infertility within the study period were recruited into the study. Relevant demographic, clinical, and laboratory/radiological data were documented using a structured questionnaire. Findings showed that out of a total of 1,264 new gynecological cases seen during the study period, the prevalence of infertility was 15.7%. Primary infertility constituted 32.8%, while secondary infertility was 67.2%. Previous history of evidence of genital infection including lower abdominal pain (78.8%) and vaginal discharge (76.6%) were common. Female gender-related causes of infertility accounted for 42.9%; male causes accounted for 19.7%. Both partners contributed to infertility in 16.7%, while no cause was found in 20.7% of patients. Chronic pelvic pain, previous vaginal discharge, and dyspareunia were the commonest features being present in 156(78.8%), 152(76.6%), and 132(66.7%) patients, respectively. In conclusion, the study shows a dominance of secondary infertility with probable genital tract infection being a major contributor.

A retrospective descriptive study by Ekwere et. al., (2007) based on findings from clinical files of infertile couples presenting at gynaecology and fertility clinics showed that the obvious causes of infertility constituted 58% in females, 30% in males and 12% in both partners. Primary infertility was found in 69.7% of males and 34.5% of females; secondary infertility in 30.3% of males and 65.5% of females. Infection appears to be a strong predisposing factor to infertility in both male and female patients. By the time of consultation, they had been married for a mean period of 6years (range 1 – 12years) whilst the women had been married for a mean period of 4years (1 – 15years). Mean age of the males was 33.3 ± 5.7 years with a range of 23 – 50years; that of the females was 25.8 ± 3.2 years with a range of 16 – 39years. The peak incidence of infertility among the male population was in the 30 – 34years age group where among the females it was seen in the age group 20 – 24years. No female older than 39 years sought for medical help about infertility.

Sule et. al., (2008) conducted a survey of the prevalence and common causes of infertility in women aged between 15 and 55 years in four hospital centers in Osun State, located in the SouthWestern part of Nigeria between 2001 – 2003. The incidence of high infertility in women was established in all the centers; (Obafemi Awolowo University Teaching Hospital, Ile-Ife), 59.4%, (Obafemi Awolowo University Teaching Hospital, Ilesa), 47.7%, (Ladoke Akintola University Teaching Hospital, Oshogbo), 54.8% and (General Hospital, Ikire),

44.2%. 77.5% was recorded for a high rate of secondary Infertility, while primary Infertility was 22.5%. The commonest causes of infertility in this environment were: the tubal factor, uterine factor, and ovarian factor representing 39.5%, 30% and 13% respectively. The least common causes were cervical factor, pelvic infection disease (PID), and endometriosis which were seen in 3%, 5.5% and 2.5% of the subjects respectively. There was also prevalence of infertility between the ages: 15 – 25 years at the rate of 17%, while 26 – 35 years at the rate of 31.5%. The majority of the cases occurred between the ages of 36 – 45 at the rate of 50.5% and between 46 – 55 years at the rate 1%. The age range was 15 – 55 years with a mean of 35 years. The mean weight was 62kg with a range of 40 – 74kg.

Sultana, Tanira, Adhikary, Keya and Akhter (2014) carried out a cross sectional study was to explain the causes of infertility among the couple attending infertility unit and found that the age group of 25-30 years was the most vulnerable as they represented 52% of primary and 51.42% of secondary infertility. Among the 110 sub-fertile couples, 43.63% had female factor problems; 20% were suffering from male factor problems. In 21.81% of cases both male and female were responsible. In 14.54% cases, there were no causes, and, therefore, remain unexplained infertility. Among women, primary sub-fertility was 68.18%, secondary sub-fertility was 31.81% and among men, it was 79% and 21% respectively. Most of the infertile couples (43.64%) were trying for 2-5 years. In this study, most common cause was ovarian dysfunction (33.63%). Among them, anovulation with regular menstruation was found in 60%, polycystic ovarian disease in 32%, hyperprolactinaemia in 16% cases. Bilateral tubal occlusion was found in 8% and pelvic adhesions in 24% by doing laparoscopy. In addition, 10% of patients had endometriosis. Fibroid uterus was found in 26% cases. Among the primary sub-fertility cases, common causes were anovulation with regular menstruation (14.66%) and polycystic ovarian disease (12%). 40% of secondary sub-fertility was related with menstrual regulation (MR). Among male factors, azoospermia was found in 6.36% cases, oligozoospermia in 10.9% cases, asthenozoospermia 18.18%, teratozoospermia was in 6.36% cases.

In the study conducted by Ali, Sophie, Imam, Khan, Ali, Shaikh and Farid-ul-Hasnain (2011), participants were asked about their views on infertility and marital outcomes. The majority of participants did not think male or female infertility were grounds for divorce (Ninety one percent of them did not consider female infertility as grounds for divorce, as opposed to 59% who did not consider male infertility as grounds for divorce). However, 57% believed that female infertility is a valid reason for a man to have a second marriage. Out of the people who were in favor of the second marriage, 70% were male ($p < 0.05$). On inquiring who they thought was being blamed for infertility in the society, most of the respondents replied that it is usually the woman (86%). Participants were further asked about the social acceptability of various options available for infertile couples. Out of the people who were aware of fertility drugs for treatment (11% of total participants), 94% considered it to be acceptable. However, having a test-tube baby was not socially acceptable to the majority (55%) of patients who knew about it (22% of total participants). People were quite positive about the option of adopting a child and 92% agreed upon adoption as an option for infertile couples.

In a study carried out in Ibadan, more than half (54.5%) reported a history of primary infertility while 45.5% had secondary infertility, out of the clients with secondary infertility, 15.3% still want more children even after two children, while 6.4% desired to have more children after having three. Fifty-two per cent of the respondents held a negative attitude towards the use of ART. More than half (53.0%) preferred spiritual exercise (praying and fasting) as an alternative to the uptake of ARTs, while 50.8% would not encourage the spouse to make use of the services. However, 64.1% would encourage anyone to access ART services with 50.0% expressing non-religious sentiments towards ARTs (Akande, Dipeolu & Ajuwon, 2019)

Global Epidemiology and burden of infertility in Nigeria

An average prevalence rate of 10-15% in the developed countries (Alvarez, 2006), Infertility rates among married couples in African countries range from 15% to 30% (Umeora, Mbazor and Okpere, 2007), with the prevalence of infertility has been notably highly variable in sub-Saharan Africa ranging from 20-46%. This has been attributed to high rate of sexually transmitted diseases, complications of unsafe abortions, and puerperal pelvic infections (Idrisa, 2005).

Due to a dearth of reliable statistics on fertility and other demographic issues in Nigeria, the actual prevalence of infertility is not known. Official statistics however puts the rate of childlessness at 11% (Nigerian Fertility Survey Ekwere, et. al., 2007). The true figure could be much higher. But institutional-based incidence of infertility reported in some parts of Nigeria are 4.0% from Ilorin (North central) (Abiodun, Balogun and Fawole, 2007), 15.4% from Abakaliki (South east), (Obuna, Ndukwe, Ugboma, Ejikeme and Ugboma, 2012), 48.1% from and Oshogbo (South west) (Adeyemi, Adekanle and Afolabi, 2009). In the southwest, male factor was reported to be responsible for 42.4% infertility cases (Ikechebelu, Adinma, Orie and Ikegwuonu, 2003), while in Maiduguri, North-Eastern Nigeria, infertility is the reason for about 40% of all gynecological consultations (Idrisa, Kawuwa, Habu and Adebayo, 2003). In Kano, 40.8% prevalence was reported, 46% in Ile-Ife (Uadia and Emokpae, 2015) and 55-93% was observed in Enugu Eastern Nigeria for male factor infertility (Chukudebelu, 1978 in Uadia and Emokpae, 2015).

Experiences from clinical practice in Nigeria indicate that infertility is a major burden on clinical service delivery in Nigeria. Several reports indicate that infertility is the most frequent reason for gynecological consultation in Nigeria (Owolabi, Fasubaa and Ogunniyi, 2013). More than 50% of gynecological caseloads are as a result of infertility consultations and over 80% of laparoscopic investigations are for management of infertility (Orhue and Aziken, 2008).

III. Research Method

Study Area

The Rivers State University Teaching Hospital (RSUTH) formerly Braithwaite Memorial Specialist Hospital (BMSH) is a government owned hospital named after Elder Corwen Braithwaite, an Australian doctor and a pioneer of surgery. It is located in old Government Residential Area (Old GRA) Rivers State, a neighborhood in Port Harcourt and is operated by the Rivers State Hospital Management Board. It was established in March 1925 as a Nursing Home and originally served as a medical facility for the Colonial Masters senior civil servants. It became a General Hospital and has since gained status as a 'Specialist Health Institution' It was later transformed into a state-of-the-art Teaching Hospital by State Governor His Excellency, Chief Barr. Nyesom Ezenwo Wike CON for the training of medical students and other health professionals from the Rivers State University in the year 2018. (Rivers State University Teaching Hospital, 2021).

Officially recognized by the Federal Ministry of Health, Braithwaite Memorial Specialist Hospital is ranked among the largest hospitals in the Niger Delta. The facility has 375 licensed beds and 731 medical staff members. Its departments include Medicine, Paediatrics, Laboratories, Radiology, Family Medicine, Obstetrics and Gynaecology, Anaesthesia, Surgery, Pathology, ophthalmology, Accident Centre and the Surgical Medical Emergency. Other departments include; Nursing, Finance, Pharmacy, Maintenance and General Administration (Rivers State University Teaching Hospital, 2021).

The fertility clinic is well patronized by the people, with clinic days from Monday to Friday every week. From available records, approximately, 6 clients are seen on every clinic day amounting to an estimate of 130 clients in a month.

Study Design

The study adopted a descriptive study design in order to assess infertility and the management options available for couples attending infertility clinic in the Rivers State University Teaching Hospital (RSUTH), Port Harcourt Rivers State. Polit and Beck (2012) opines that the purpose of descriptive studies is to observe, describe, and document aspects of a situation as it naturally occurs.

Population of Study

The target population comprised all clients having problems of Infertility in Rivers State, and accessible populations were those with infertility problems who attended the Fertility clinic of Rivers State University Teaching Hospital (RSUTH), Port Harcourt Rivers State during the period of the study. From the accessible population numbered 130 individuals of both gender were expected to visit the clinic within the period of data collection. Individuals or couple aged 18 and above who had been trying to get pregnant for 1 year or experiencing childbearing problems at the time and were willing to give informed consent were recruited for the study.

The sample size for this study was obtained using the Taro Yamane Formula.

Instrument for data collection

Data were collected using a questionnaire designed by the researchers. The questionnaire consisted of four sections (A, B, C, and D); Section A contains five items on socio-demographic characteristics of the respondents' their age, sex, marital status and religion. Section B contained items on knowledge of couples about infertility. Section C elicits information about attitude of couples towards infertility. Section D comprises items on management options utilized by couples.

Reliability of Instrument

The reliability of the instrument was determined using the test-retest method. Ten copies of the instrument were administered to couples attending the fertility clinic in University of Port Harcourt Teaching Hospital, Rivers State and were re-administered two weeks later. The reliability coefficient of 0.99 was gotten using the Chronbach's alpha reliability coefficient (Chronbach's alpha is a measure of internal consistency, which is how closely related a set of items are as a group).

Method of Data Analysis

The collected data was analyzed using the statistical program; Statistical Package for Social Sciences (SPSS). The data was subjected to descriptive (i.e., frequency distribution tables, percentages, proportions, bar charts, pie charts, mean and standard deviations) and inferential (Chi-square) statistics. Descriptive statistics was used

to describe characteristics of the study participants and the study variables; while the Chi-square test was used to analyze associations between variables. The level of statistical significance was set at $p \leq 0.05$.

Ethical Consideration

The project was submitted to the ethical committee of the hospital for approval. All data collected were handled confidentially. None of the participating respondents were identified by name at any point during data collection/manuscript preparation. With the desire to make the answers in the survey as reliable as possible, the participants were informed that the data collection is voluntary and totally anonymous; hence, informed consent was obtained.

Data Analyses

Table 1: Socio-demographic data of respondents

Variables	Category	Frequency (n=86)	Percentage (%)
Gender	Male	18	20.9
	Female	68	79.1
Age bracket	20 – 25	11	12.8
	26 – 31	26	30.2
	32 – 37	29	33.7
	38 – 43	15	17.4
	44 – 49	5	5.8
	Mean Age	32.9	SD \pm 6.47
Marital status	Single	11	12.8
	Married	38	44.2
	Divorced/Separated	17	19.8
	Cohabiting	14	16.3
	Widowed	6	6.9
Duration of marriage	2 – 7	9	23.7
	8 – 13	13	34.2
	14 – 19	8	21.1
	20 – 25	6	15.8
	26 – 31	2	2.3
	Mean Duration	13.2	SD \pm 7.1
Religion	Catholic	15	17.4
	Anglican	20	23.3
	Pentecostal	42	48.8
	Muslim	7	8.1
	Others	2	2.3
Level of education	No formal education	2	2.3
	Primary education	6	6.9
	Secondary education	24	27.9
	Tertiary education	54	62.8
Variables	Category	Frequency (n = 86)	Percentage (%)
Number of pregnancies achieved	0	31	36.0
	1	40	46.5
	2	99	10.4
	3	66	6.9
	4 or more	-	-
	Mean Number of Pregnancies	0.9	SD \pm 0.44
Number of living children	0	33	38.4
	1	38	44.2
	2	9	10.4
	3	6	6.9
	4 or more	-	-
	Mean Number of Children	0.9	SD \pm 0.44
Duration of infertility	1 – 5	4	10.5
	6 – 11	5	13.2
	12 – 17	12	31.6
	18 – 23	11	28.9
	24 – 29	6	15.8
	Mean Duration of Infertility	16.1	SD \pm 7.1
Infertility in the family (nuclear or extended)	Yes	10	11.6
	No	76	88.4

Table 1 contd.

Table 1 above shows the socio-demographic variables of respondents. The mean age of respondents was 32.9 ± 6.47 . Majority, 79.1% of the respondents were females while 20.9% were males. On the marital status of respondents, 44.2% were married, while 12.8% were single and 6.95 were widowed. Furthermore, the

mean duration of marriage was 13.2 ± 7.1 . Majority of the respondents had attained a level of tertiary education which constituted 62.8% of the total population. A greater number, 88.4% of respondents did not report fertility in the family. However, 36.0% were unable to achieve any pregnancy while 46.5% able to achieve one pregnancy with a mean duration of infertility being 16.1 ± 7.1 . Most of the respondents, 44.2% reported to have only one living child.

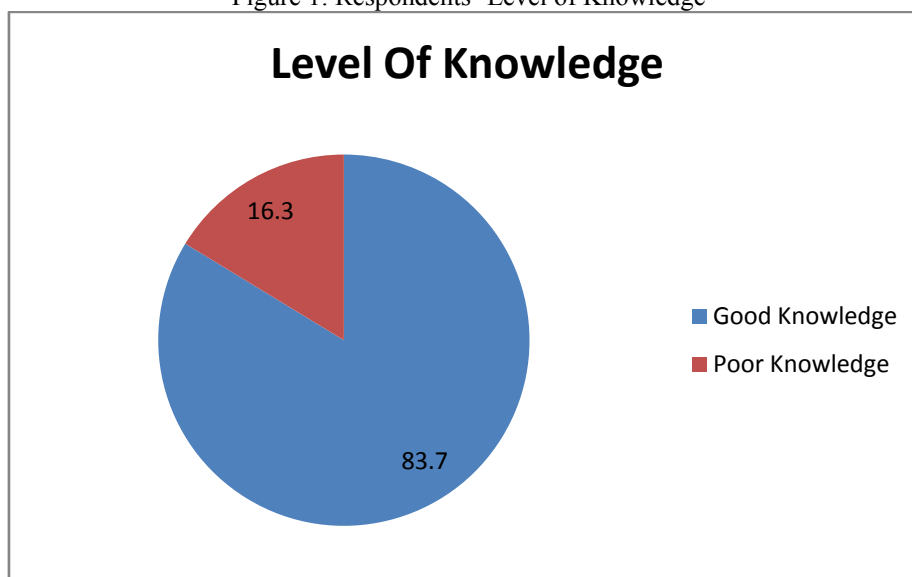
Research question 1: What is the level of knowledge of couples on infertility?

Table 2: Knowledge of Respondent on Infertility

Variables	Category	Frequency (n = 86)	Percentage (%)
Infertility is the inability to achieve a pregnancy after how long?	6 months	5	5.8
	12 months	43	50.0
	18 months	26	30.2
	24 months	12	13.9
Types of infertility include:	Primary	86	100
	Secondary	86	100
	Tertiary	29	33.7
Who can be affected by infertility?	Man	80	93.0
	Woman	84	97.7
	Both	86	100
	None	2	2.3
Cause and risk factors of infertility in women:	STIs	86	100
	Abnormal Menstruation	84	97.7
	Smoking	75	87.2
	Alcohol consumption	70	81.4
	HIV/AIDS	38	44.1
	Diabetes mellitus	26	30.2
	Drugs	79	91.9
	Genetic make-up	82	95.3
	Evil spirits	68	79.1
	Witchcraft/curse	66	76.7
	Tubal obstruction	84	97.7
	Polycystic ovarian Syndrome	80	93.0
Causes and risk factors of infertility in men:	Smoking	76	88.4
	Alcohol consumption	80	93.0
	Erectile dysfunction	85	98.8
	Diabetes mellitus	46	53.5
	HIV/AIDS	40	46.5
	Pelvic surgery	75	87.2
	Genetic make-up	81	94.2
	Evil spirits	63	73.3
	Witchcraft/curse	67	77.9
	Low sperm count	86	100
Infertility can be treated	Yes	78	90.7
	No	8	9.3

In table 2 above, the level of knowledge of respondents on infertility was represented. 50.0% of respondents agreed that infertility is the inability to achieve a pregnancy after 12 months, whereas 5.8%, 30.2% and 13.9% all agreed that infertility is the inability to achieve a pregnancy after 6, 18 and 24 months respectively. All respondents, 100% agreed that there are primary and secondary types of infertility, while a smaller proportion, 33.7% of the total population agreed that there is a tertiary type of infertility. All respondents, 100% also agreed that infertility can affect both men and women, while 2.3% of the population believes that infertility can affect neither the man nor woman. Regarding the causes and risk factors of infertility in women, 100% agreed that sexually transmitted infections (STIs) can cause infertility, whereas 95.3% agreed that infertility is caused by genetic make-up, 79.1% and 76.7% agreed that infertility can be caused by evil spirits and witchcraft/curse respectively. On the other hand, 98.8% of respondents agreed that erectile dysfunction is a cause and risk factor of infertility in men. All respondents, 100% agreed that low sperm count is a cause of infertility in men. Majority, 90.7% agreed that infertility can be treated. The percentage level of knowledge of couples is shown in figure 1 below. Figure 1 shows that the total level of knowledge of the respondents is 83.7% which indicates good knowledge, while the remaining 16.3% signifies poor knowledge.

Figure 1: Respondents' Level of Knowledge



Research Question 2: What is the attitude of couples towards infertility?

Table 3: Attitude of couples towards Infertility using a 5 – point likert scale

Variables	SA	A	N	DA	SDA	Mean	Interpretation
Infertility is a disease	20 23.3%	56 65.1%	2 2.3%	6 6.9%	2 2.3%	4.00	Negative
Infertility is a reason for divorce	46 53.5%	26 30.2%	4 4.7%	2 2.3%	8 9.3%	4.16	Negative
Infertility is a reason for another marriage	12 13.9%	14 16.3%	2 2.3%	12 13.9%	48 55.8%	2.26	Negative
Treatment is needed for infertility	76 88.4%	9 10.5%	1 1.2%	-	-	4.87	Negative
Who should be first investigated?	70 81.4%	15 17.4%	20 23.3%	13 15.1%	-	5.77	Positive
a. Husband	79 91.8%	16 18.6%	-	17 19.8%	11 12.8%	5.86	Positive
b. Wife	83 96.5%	30 34.9%	-	-	-	6.22	Positive
c. Both	36 41.9%	21 24.4%	13 15.1%	31 36.0%	4 4.7%	4.30	Negative
Preferred means for treatment:	63 73.3%	33 38.4%	20 23.3%	14 16.3%	2 2.3%	6.24	Positive
a. Traditional healers	81 94.2%	84 97.7%	9 10.5%	6 6.9%	2 2.3%	9.09	Positive
b. Church	11 12.8%	9 10.5%	25 29.1%	17 19.8%	8 9.3%	2.42	Negative
c. Health care providers	79 91.9%	57 66.3%	16 18.6%	12 13.9%	5 5.8%	8.14	Positive
d. Others	80 93.0%	78 90.7%	4 4.7%	3 34.9%	1 1.2%	8.50	Positive
It is acceptable to use fertility drugs	59 68.6%	67 77.9%	8 9.3%	6 6.9%	4 4.7%	7.01	Positive
It is acceptable to use Assisted Reproductive Techniques (ARTs)				-	-	4.26	Negative
Associated causes for non-use of ARTs:				-	-	4.71	Negative
a. No knowledge (ignorance)			-	-	-	6.67	Positive
b. Partner disagrees			-	-	-	5.60	Positive
c. No funds (finance)			-	-	-	5.56	Positive
d. Too expensive (high cost)							
Overall total mean							

Scale: 0 – 5.00 – Negative,

5.01 – 10.00 – Positive

Table 3 above represents the attitude of respondents toward infertility. 65.1% agrees that infertility is a disease, while 53.5% agrees that infertility is a reason for divorce, however 55.8% disagrees that infertility should be a reason for another marriage. In terms of treatment of infertility, 88.4% agrees that infertility should be treated while in investigations, 96.5% agrees that both the husband and the wife should both be investigated. 41.9% of the respondents preferred the traditional healers, 73.3% preferred the church as a means of treatment of infertility, and majority (94.2%) preferred the health care providers.

Furthermore, 91.9%, agrees that a couple should adopt when they are unable to achieve pregnancy, 93.0% agreed to the use of fertility drugs while 68.6% agreed to the use of assisted reproductive techniques (ARTs) in the treatment of infertility.

Finally, majority (90.7%) agrees that assisted reproductive techniques (ARTs) are too expensive, hence the non-use of the technique as a means of treatment, similarly, majority (76.7%) agrees that another associated cause for the non-use of ARTs is no finance to fund the procedure.

Research Question 3: What are the treatment/management options available for the couples?

As regards the treatment options available to couples at Rivers State University Teaching Hospital (RSUTH), it was discovered that the only available option was the use of fertility drugs majorly to treat secondary infertility. Assisted Reproductive Techniques (ARTs) such as In vitro fertilization (IVF), Gamete Intrafallopian transfer (GIFT), Zygote Intrafallopian transfer (ZIFT), Egg donation, intrauterine insemination (IUI), Donor sperm insemination (DSI), intra cytoplasmic sperm inject (ICSI), and gestational carrier (GS): Surrogate, were not available at the fertility clinic, although patients were referred to other fertility clinics in the state to carry out the procedure.

Research Hypothesis:

1. There is no significant difference between attitude of the husbands and that of their wives on infertility.
2. There is no significant relationship between the attitude of the husbands and that of their wives on infertility.

Decision rule: If the calculated (X^2) > theoretical (X^2) the p-value < 0.05, then reject the null hypothesis hence there is a significant association but if the theoretical (X^2) > calculated (X^2) the p-value > 0.05 then will not reject the null hypothesis hence there is no significant association.

Table 4: Chi-square result on the Knowledge of Husbands and their Wives

Variables	Husbands	Wives	Total	X ²	p-value	df	
Poor knowledge		10	21	31	2.91	0.088	1
High knowledge		9	46	55			
Total		19	67	86			

Table 4 above showed the result of Chi-square on the relationship between the knowledge of husbands on infertility and that of their wives. The result revealed that there is a difference between the knowledge of husbands and that of their wives at $p > 0.05$.

Table 5: Chi-square result on the Attitude of Husbands and their Wives

Variables	Wives	Husbands	Total	X^2	p-value	df
Negative attitude	28	4	32	5.277	0.021	1
Positive attitude	35	19	54			
Total	63	23	86			

Table 5 showed the result of Chi-square on the relationship between the attitude of husbands and that of their wives. The result revealed no significant relationship between the attitude of husbands and that of their wives towards infertility at $p < 0.05$. These findings suggest that the attitude of husbands does not influence the attitude of their wives.

IV. DISCUSSION OF RESULTS

The result of this study showed that the mean age was 32 years \pm 6.47 which is similar to the study carried out by Ekwere et. al., (2015) and more than half of the respondents were between the ages of 30 and 39 years of age, it was also reflected that 79.0% of the population were females which are all similar to the study in Ibadan (Akande, et. al. 2019). This study shows that majority, 44.2% were married, 19.8% divorced/separated, 12.8% were single, 16.3% were cohabiting and 6.9% were widowed. In terms of marital status, the highest duration of marriage by respondents was 8 – 13 years with a percentage rate of 34.2% and the mean duration of marriage in this study was shown to be 13.2 ± 7.1 . 46.5% of the population was able to achieve 1 pregnancy, while 36.0% were unable to achieve any pregnancy. This indicates that 36.0% of the population suffered from primary infertility which is similar to a study carried out in Sokoto by Panti & Sununu (2014). Out of the 46.5% of the population who had achieved 1 pregnancy, the number of respondents with 1 living child reduced to 44.2%, this indicates that 4.9% of the population had either lost the child during pregnancy, labour, childbirth or infancy. 31.6% of the population had 12 – 17 years duration of infertility which is in contrast with a study

carried out by Ekwere et. al., (2015). This study also showed that greater percentage 88.4% reported that infertility was not found in the family.

Fifty per cent (50.0%) of the population were aware that infertility is the inability to achieve a pregnancy after 12 months of sexual intercourse, on the other hand, 5.8% of the respondents stated that infertility results when there is an inability to conceive after 6 months of sexual intercourse. However, 13.9% of the respondents agreed that infertility is the absence of conception after 24 months of unprotected sexual intercourse which agrees to the definition by WHO to extend the timeline from 12 to 24 as some couples who are unable to conceive in the first 12 months are able to conceive within 24 months through a study carried out by Odek, Masinde and Egesah, (2014). All of the respondents agreed that infertility can affect both the man and the woman; similarly all respondents agreed that sexually transmitted infections (STIs) can cause infertility, this finding is similar to the study carried out in Iran by Ahmadi & Bamdad, (2017), however, 79.1% and 76.7% believes that evil spirits and witchcraft/curse can cause infertility respectively in women. Similarly, 73.3% and 77.9% believe that infertility in men can be caused by evil spirits and witchcraft/curse. More than half of the respondents agreed that infertility can be treated. The percentage level of knowledge of the respondents was 83.7%, this indicates that the respondents had good knowledge of infertility, which further implies that awareness programs on infertility were effective.

Less than 50% of the respondents agreed that infertility is a disease which is similar to a study by Achmad et. al. (2019) which leads them to believe that infertility is caused by mystical powers/witchcraft. Similarly, less than half of the respondents agreed that infertility is a reason for another marriage. Although more than half of the respondents agreed that infertility is a reason for divorce. Majority of respondents agreed that treatment is needed for infertility. Also, in carrying out investigations on infertile couples, almost all respondents agreed that both husband and wife should be investigated. This also agrees with the study by Achmad et. al. (2019). Regarding the preferred means of treatment, 41.9% agreed to traditional healers, 73.3% preferred the church, 94.2% preferred the healthcare providers which disagrees with the study by Achmad et. al. (2019) and 12.8% preferred other methods of treatment.

Furthermore, majority of the respondents in this study agreed that a couple should adopt if they are unable to have a child which is in agreement with Achmad et. al. in this study, 93.0% of the respondents agreed to the use of fertility drugs, on the contrary a lesser percentage 68.6 agreed to the use of ARTs. Furthermore, respondents reported associated causes for the non-use of ARTs in which the highest percentage rate was that of the cost which had 90.7% of the population, also, majority 76.7% of the respondents stated that there was no finance to fund the procedure. It was also discovered that the overall attitude of the respondents was positive.

As regards the treatment options available to couples in RSUTH, the only method available is the use of fertility drugs which is used in the treatment of secondary infertility. Clients who had primary infertility and are willing to use the ART method, it is not readily available in the facility and at such; clients are referred to a private fertility clinic to carry out the procedure.

It was discovered that there was no significant relationship between that attitude of husbands and that of their wives with a p-value < 0.05 ($X^2 = 5.277$, $df = 1$, p-value = 0.021) and it was also revealed that there was a significant difference with the knowledge of husbands and that of their wives with a p-value > 0.05 ($X^2 = 2.91$, $df = 1$, p-value = 0.088)

Implications of findings to Nursing

Improving Knowledge: Nurses are front liners and remain indispensable in the promotion of positive views about issues relating to health in general and infertility in particular. The wrong notion expressed by some respondents in this study is critical and this may influence the ability of the couples to cope and also impact on their psychological wellbeing. Nurses therefore, are to identify couples with poor knowledge about infertility while conducting comprehensive assessment and interview and target interventions that will help correct these misconceptions or wrong views held by the couples. This study revealed that most couples believe that infertility is not a disease hence it is caused by evil spirits, witchcraft/curse. Nurses can lead change by educating the couples and the populace about the causes and risk factors of infertility. A nationwide campaign aimed at educating the masses on infertility related issues and discouraging stigmatization/discrimination should also be implemented.

Addressing Need of Couples: A very disturbing finding in this study is the fact that the management options available to the couples with infertility were limited; hence nurses should carry out their roles as patients' advocates to speak on behalf of the patients for the provision of other methods of treatment of infertility in the facility so as to provide holistic nursing care that. This will enable more couples faced with this challenge to get prompt and appropriate management. Nurses should therefore double their efforts in providing counseling for couples who attend infertility clinics, emphasize spousal support and assist them in adopting better management options.

Summary of the Study

Reproduction/procreation is one of the reasons for marriage, but when couples are unable to procreate it serves as a major concern to them, their family and relatives. This inability makes them sought for help in order to treat their condition. Numerous studies has been done on awareness, knowledge and attitude of individuals to infertility but little or no study has been carried out to assess the management options available to couples who seek medical attention in Port Harcourt, Rivers State.

This study employed a descriptive cross-sectional method to assess the knowledge, attitude and management options available to couples attending the fertility clinic in Rivers State University Teaching Hospital (RSUTH). The respondents had good knowledge of infertility with a percentage level of knowledge of 83.7%. Respondents also exhibited positive attitude towards infertility, however management options of infertility available was limited to only fertility drugs. Couples were unable to choose from a variety of methods including Assisted Reproductive Techniques (ARTs) which were unavailable at the fertility clinic in RSUTH. This reveals that couples are not allowed to choose the management method suitable for them as their choice was limited to one method alone. Nurses should work with the obstetricians and gynecologists in order to request for other methods of management including the ARTs. Nurses are closer to the patients and community at large, hence they are in better positions to give adequate information on infertility and advocate for couples who are faced with this challenge, including giving them psychological support so as to render holistic care for the couples.

V. Conclusion

The study showed a positive attitude to infertility but there were no variety of options made available in the facility to enable the couples make their choice on the different methods of assisted reproductive techniques (ARTs).

VI. Recommendation

Majority of the respondents had good knowledge of infertility and demonstrated a positive attitude towards infertility but there were little or no available methods of treatment. However, the following should be done:

1. The government should provide and subsidize other methods for the treatment of infertility in the different tertiary hospitals in the state and nation at large.
2. Nurses should champion health education programs and community outreaches so as to create awareness and discourage the stigmatization/discrimination of couples experiencing infertility including other possible barriers to seeking prompt medical care should be prevented
3. Counseling sessions for couples should be all inclusive and comprehensive enough to educate them on possible causes of infertility, advising males to avoid wearing of tight/heat producing under wears and also correcting wrong perceptions about infertility.
4. Nurse administrators in the clinical setting should ensure the provision of training and seminar for nurses caring for couples at the infertility clinic in order to empower them with knowledge, attitude and skill needed to provide holistic care and reduce the psychological impact of infertility among couples.
5. Nurses should support and assist couples with infertility by helping them adopt better coping strategies and exploring other management options

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