Master ofScience in Public Health

Frequency of Infertility & Its Impact on Quality of Life among the Women of Reproductive Age in Public and Private Hospitals of Rawalakot Azad Kashmir

By

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Frequency of Infertility & Its Impact on Quality of Life among the Women of Reproductive Age in Public and Private Hospitals of Rawalakot Azad Kashmir

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DECLARATION

In submitting this dissertation, I certify that I have read and understood the rules and regulations of DPH and QAU regarding assessment procedures and offenses and formally declare that all work contained within this document is my own apart from properly referenced quotations.

I understand that plagiarism is the use or presentation of any work by others, whether published or not, and can include the work of other candidates. I also understand that any quotation from the published or unpublished works of other persons, including other candidates, must be identified as such by being placed inside quotation marks and a full reference to their source must be provided in proper form.

This dissertation is the result of an independent investigation. Where my work is indebted to others, I have made acknowledgments.

I declare that this work has not been accepted in substance for any other degree, nor is it currently being submitted in candidature for any other degree.

_____

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ABSTRACT

Abstract

Background: This research aimed to access the frequency of infertility and its consequent impact on the quality of life (QOL) among women of reproductive age in both public and private hospitals in Rawalakot, Azad Kashmir. Given the substantial impact of infertility on well-being, understanding these dynamics is critical for enhancing healthcare support in this region.

Methods: Employing a cross-sectional design, the study surveyed 170 married women diagnosed with infertility from October 2023 to March 2024. Data was collected through a modified questionnaire based on the Fertility Quality of Life (FertiQOL) and WHOQOL -BREF tools. Statistical analyses involved descriptive statistics (Frequency, Percentages, Mean, and Standard Deviation) in outlining key demographic data and inferential statistics (Kruskal Wallis and Mann Whitney) for the association between dependent and independent variables.

Results: In this study, the most common demographic among the respondents was women aged 30-39 years, making up 45.3% of the participants, all of whom were married. Significant variations in the quality of life were observed with respect to the duration of marriage and educational attainment, with notable statistical significance ($p=0.00$ for both). For occupational status and monthly income, psychological health scores differed significantly ($p=0.001$ for occupation, $p=0.002$ for income), indicating that these socioeconomic factors play critical roles in influencing quality of life among the studied population. Geographic location did not show a statistically significant impact on quality of life ($p > 0.05$). Frequency of infertility in women in public and private hospitals of Rawalakot is 21.25 % in which primary infertility is 18.75% and secondary infertility is 2.50%.

Conclusion: The study highlights that infertility significantly impacts women's physical, mental, and social well-being, with improvements in coping seen in older, educated, and longer-married women. It suggests expanding research and enhancing support systems to improve healthcare for infertile women in under-researched areas like Rawalakot.

Keyword: Infertility, Women, Quality of life, Rawalakot Azad Kashmir

Affectionately Dedicated to

My

Beloved Parents

Mr. & Mrs. Mumtaz Hussain Khan(late)

For their truly selfless and unconditional love

Dearest Husband

Mr. Waseem Azam

For always standing by my side and endlessly supporting me

Beloved Son

Hassan Waseem

Huge blessing in my life

Valued Friends & Colleagues

Who always encourages and uplifts my soul

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For their generous help, invaluable guidance, unceasing encouragement, and support in pursuing my degree

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Chapter I: Introduction

Infertility is a major challenge of life in women, which affects their physical, psychological, Social and environmental wellbeing. Infertility is defined as inability to conceive a clinical Pregnancy after 12 months or more of regular unprotected sexual intercourse (World Health Organization,2020). Infertility can be primary or secondary. Primary infertility is when a pregnancy has never been achieved by a person and secondary infertility is when at least one prior pregnancy has been achieved (WHO). International classification of disease,11thRevision(ICD-11)Geneva: WHO 2018.Infertility is a complex and challenging condition that can affect women in different ways. It is important to seek professional help and support from a doctor, a mental health provider, a counselor, or a support group if you are struggling with infertility.

According to the World Health Organization (WHO), infertility affects about 8-12% of couples globally .In some regions, the prevalence may be higher. For example, in sub-Saharan Africa, the estimated infertility rate is around top of Form 20%. Infertility affects both men and women .Approximately 40-50% of infertility cases are attributed to male factors, 40-50% to female factors, and 10-20% to a combination of both or unknown causes. In Pakistan Infertility rate is 21%, male factors contribute 37% and female factor contribute 51% and both male and female factors in 12% of cases (Pakistan Journal of Public Health, 2023). Infertility can be caused by various factors in both males and females. It's important to note that infertility is a complex issue, often involving a combination of factors. Here are some common causes of infertility In both men and women.

Causes of infertility in female: In women infertility is duo to ovulation disorders, irregular menstrual cycle polycystic ovarian disease, Age factor effects female infertility, fallopian tube disorders, blockage of tubes, endometriosis, Pelvic inflammatory disease, hormonal imbalance, life style factors, smoking, obesity etc.

Causes of infertility in males: Sperm Disorders, varicocele, undescended testis, hormonal Imbalance, ejaculatory disorders, life style factors such as, smoking, excessive alcohol consumption can cause infertility in men.

Quality of life(QOL): is a multidimensional concept that encompasses various aspects of an individual's well-being and overall satisfaction with life. It goes beyond purely economic or health-related indicators and takes into account the subjective experiences and perceptions of individuals. While there isn't a universally agreed-upon definition, quality of life generally includes factors related to physical health, psychological well-being, social relationships, and the environment. The domains of quality of life can be broadly categorized into the following.

Physical Health: This domain includes aspects related to an individual's physical well-being. It involves factors such as general health, vitality, energy levels, and the absence of illness or physical discomfort.

Mental and Emotional well-being. This domain focuses on an individual's psychological health and emotional state. It includes aspects like happiness, life satisfaction, mental health, emotional stability, and the ability to cope with stress.

Social Relationships: The quality of interpersonal relationships and social connections is a crucial domain. It involves the satisfaction with family life, friendships, social support networks ,and community engagement.

Financial well-being: Economic factors contribute to the overall quality of life. This domain includes income, employment, financial security, and access to basic needs and resources.

Environmental factors: The physical and social environment in which an individual lives plays a significant role. This domain considers factors such as the quality of then natural environment, safety, housing and access to recreational opportunity.

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Impact of infertility on women Quality of life: Infertility can have significant emotional ,psychological, and social effects on women. The impact can vary from person to person, and it often involves a complex interplay of physical, emotional, and societal factors. Here are some common effects of infertility on women**.**

Emotional Distress; Women may experience feelings of sadness, grief, frustration, and anxiety, inability to conceive can be emotionally challenging ,and the stress can strain relationships.

Low Self-esteem. Infertility can sometimes lead to a sense of failure and inadequacy. Women may feel a loss of self-esteem as societal expectations and personal aspirations related to motherhood may be unmet.

Depression and Anxiety The prolong struggle with infertility can contribute to the development of depression and anxiety. The constant uncertainty and disappointment associated with fertility treatments can affect mental health.

Strained relationship: Infertility can strain relationships with partners, family, and friends. The pressure and emotional burden may lead to misunderstandings or strained communication. Couples may experience feelings of guilt, blame, or disappointment.

Social Isolation: Women experiencing infertility may feel isolated from their social circles. Attending social events, especially those involving pregnancy or children, can become emotionally challenging, leading some individuals to withdraw from social activities.

Impact on intimacy: The process of fertility treatments can sometimes impact the intimacy between partners. Sexual activity may become associated more with reproduction than with emotional connection, leading to additional stress.

Financial Strain: Fertility treatments can be expensive, and the financial burden can add stress to the situation.

Identity Crisis: Infertility can challenge a woman's sense of identity, particularly if she had envisioned motherhood as an integral part of her life. The discrepancy between expectations and reality can lead to an identity crisis.

Navigating S**ocial Expectations**: Society often places a significant emphasis on motherhood, and women facing infertility may feel pressure to conform to these expectations. This societal pressure can exacerbate feelings of inadequacy.

Coping with uncertainty: Coping with the unknown future and the possibility of not achieving parenthood can be particularly challenging for women experiencing infertility to seek emotional support, either through professional counseling, support groups, or by confiding in loved ones.

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Rationale: There is a lack of local research on the quality of life of infertile women in different settings and contexts in Pakistan, such as the public and private sector hospitals, and the rural and urban areas, there is a need to explore the factors that influence the quality of life of infertile women, such as their demographic, clinical, and psychosocial characteristics, as well as their coping strategies and support systems.

The specific **objectives** of the study are:

- To determine the frequency of infertility among women of reproductive age attending private and public sector hospitals in Rawalakot city of Azad Kashmir.
- To determine the impact of infertility on quality of life among women of reproductive age attending private and public sector hospitals in Rawalakot city of Azad Kashmir.

This study will contribute to the existing literature on infertility and QOL in Pakistan and provide insights for policy makers, health care providers, and social workers to improve the health and well-being of infertile women in the country.

Chapter: II Literature Review

Definition of Infertility: Infertility is a medical condition characterized by the inability to conceive or carry a pregnancy to term after a year of regular, unprotected sexual intercourse. It is important to note that infertility is not solely a female issue; both men and women can contribute to fertility challenges. Infertility can result from various factors affecting their productive system, hormonal balance, or other underlying health conditions.

2.1 Types of Infertility:

(I) Primary Infertility:

This term refers to couples who have never been able to conceive a pregnancy after at least one year of unprotected intercourse.

(ii) Secondary Infertility:

Secondary infertility occurs when a couple, after having conceived and given birth to one or more children, faces difficulty conceiving again. It can be attributed to changes in reproductive health over time.

Male Infertility: Male infertility involves issues related to the male reproductive system, such as low sperm count, poor sperm motility, or abnormal sperm morphology. Factors contributing to male infertility include hormonal imbalances, genetic factors, infections, and lifestyle choices.

Female Infertility: Female infertility is associated with problems in the female reproductive system, including issues with ovulation, blocked fallopian tubes, endometriosis, or hormonal imbalances. Age, underlying health conditions, and lifestyle factors can contribute to female infertility.

Unexplained Infertility: In some cases, despite extensive medical testing, the cause of infertility remains unknown. This is referred to as unexplained infertility, and it can be particularly challenging for couples seeking answers and treatment option.

Lifestyle-Related Infertility: Lifestyle factors such as excessive stress, poor nutrition, smoking, excessive alcohol consumption, and obesity can impact fertility in both men and women. Addressing these factors through lifestyle modifications may improve the chances of conception.

Endocrine Disorders: Hormonal imbalances, such as polycystic ovary syndrome (PCOS) in women or disorders affecting the hypothalamus and pituitary glands in both men and women, can lead to infertility by disrupting normal reproductive processes.

Structural Issues:

Structural abnormalities in the reproductive organs, such as uterine fibroids, polyps, or scarring ,can interfere with conception and successful pregnancy.

Understanding the specific type of infertility is crucial for healthcare professionals to tailor appropriate treatments and interventions to address the underlying causes and help couples achieve their goal of conception. It's also important for individuals and couples facing infertility challenges to seek guidance and support from healthcare providers, as well as mental health professionals, to navigate the emotional aspects of the journey.

2.2 Causes of infertility

Causes of infertility in Female:

Tubal blockage:

Blockage of the fallopian tubes can prevent the egg from meeting the sperm, preventing fertilization. This may result from pelvic inflammatory disease (PID), endometriosis, or previous pelvic surgery.

Uterine Abnormalities:

Structural issues in the uterus, such as fibroids (noncancerous growths) or polyps, can interfere with implantation or disrupt the normal functioning of the uterus.

Endometriosis:

Endometriosis occurs when tissue similar to the lining of the uterus grows outside the uterus. This can lead to scarring, inflammation, and adhesions that may impact fertility.

Polycystic Ovary Syndrome (PCOS):

PCOS is a hormonal disorder that can cause irregular ovulation, an ovulation (lack of ovulation), and other reproductive health issues.

Age-Related Decline:

Female fertility declines with age, particularly after the age of 35, due to a decrease in the quantity and quality of eggs.

Thyroid Disorders:

Disorders of the thyroid, such as hypothyroidism or hyperthyroidism, can disrupt the hormonal balance necessary for fertility.

Hyperprolactinemia:

Elevated levels of the hormone prolactin, often due to a pituitary gland disorder, can interfere with ovulation.

Pelvic Inflammatory Disease: Infections, particularly sexually transmitted infections (STIs), can lead to PID, causing damage to fallopian tubes, excessive alcohol consumption, and intense physical or emotional stress can contribute to infertility in women.

Unexplained Infertility : In some cases, despite thorough testing, the specific cause of infertility remains unknown. Addressing infertility often involves a comprehensive evaluation by a

healthcare professional, including a fertility specialist. Treatment approaches may include lifestyle modifications, medications to stimulate ovulation, surgical interventions to correct structural issues, or assisted reproductive technologies (ART) such as in vitro fertilization (IVF).

Causes of infertility in male:

Sperm Disorders: Abnormalities in sperm count, motility (movement), or morphology (shape) can impact fertility. Low sperm count (oligospermia) and poor sperm motility are common issues.

Varicocele: A varicocele is an enlargement of the veins within the scrotum, which can lead to increased testicular temperature .Infertility in males can result from various factors that affect spermproduction, quality, or delivery.

Genetic Factors: Genetic abnormalities, such as chromosomal disorders or mutations, can affect sperm production or function.

Undescended Testicles (Cryptorchidism): When one or both testicles fail to descend into the scrotum, it can affect sperm development and may increase the risk of testicular cancer.

Hormonal Imbalances: Hormonal disorders, such as hypogonadism, can lead to reduced testosterone levels, affecting Sperm production.

Ejaculation Disorders: Problems with ejaculation, such as retrograde ejaculation (semen flows backward into the bladder or premature ejaculation, can impact fertility.

Infections:

Infections, such as sexually transmitted infections (STIs) or other inflammatory conditions, can affect sperm production and quality.

Testicular Injury or Trauma:

Trauma to the testicles, whether from accidents, surgery, or sports injuries, may result in reduced sperm production.

Obstruction of Reproductive Tract:

Block ages or obstructions in the reproductive tract, preventing the normal flow of sperm, can lead to male infertility. This can be caused by conditions like congenital absence of the vas deferens or scarring due to infections.

Anti-sperm Antibodies:

Some men produce antibodies that attack their own sperm, hindering their ability to fertilize an egg.

Environmental Factors:

Exposure to environmental toxins, pollutants, or certain occupational hazards may negatively impact sperm production and quality.

Chronic Illnesses and Medications:

Certain chronic health conditions, such as diabetes or autoimmune disorders, and medications like chemotherapy or radiation, can affect fertility.

Lifestyle Factors:

Lifestyle choices such as smoking, excessive alcohol consumption, drug use, and obesity can contribute to male infertility.

Age-Related Decline: While not as pronounced as in women, male fertility may decline with age, affecting sperm quality.

2.3 Definition of Quality of Life:

Quality of life (QOL) is a multidimensional and subjective measure that encompasses various aspects of an individual's well-being and satisfaction with life. It goes beyond traditional indicators like income or material wealth and aims to capture the overall experience and fulfillment a person derives from their existence. Quality of life is subjective, as it is influenced by personal values, cultural context, and individual perceptions. Key components contributing to an individual's quality of life include:

Physical Health: The state of one's physical well-being, encompassing aspects such as overall health, fitness, and the absence of chronic illnesses or disabilities.

Mental and Emotional Well-being: This includes mental health, emotional stability, and psychological resilience. Factors such as stress levels, emotional balance, and the ability to cope with challenges contribute to this aspect of quality of life.

Social Relationships: The quality and depth of relationships with family, friends, and the broader community play a crucial role in determining an individual's satisfaction with life.

Financial Well-being: While not the sole determinant, financial stability and access to resources can impact one's quality of life, influencing factors such as housing, education, and the ability to meet basic needs.

Occupational Fulfillment: The extent to which an individual finds meaning, satisfaction, and a sense of accomplishment in their work or chosen occupation contributes to their overall quality of life.

Environmental Factors: The quality of the physical environment in which a person lives, including access to clean air, water, and green spaces, can influence well-being.

Personal and Cultural Fulfillment: Engaging in activities that align with personal interests, values, and cultural or spiritual beliefs contributes to a sense of fulfillment and satisfaction.

Security and Safety: The perception of safety and security, both at the individual and societal levels, is a fundamental aspect of quality of life.

Freedom and Autonomy: The degree of personal freedom and autonomy an individual enjoys, including the ability to make choices and pursue one's goals, contributes to overall life satisfaction.

Quality of life is a dynamic concept that can change over time and is unique to each individual .It is often assessed through self-reported measures and is a valuable consideration in public health, social policy, and healthcare planning to ensure a holistic approach to individual and community well-being

2.4 Impact of infertility on Quality of Life of females:

Infertility can have a significant impact on the quality of life of females, affecting various aspects of their physical, emotional, and social well-being. The extent of the impact may vary among individuals, but common experiences include.

Stress and Anxiety: The emotional toll of infertility often leads to heightened stress and anxiety. The uncertainty of conception, repeated disappointments, and the pressure of fertility treatments can contribute to emotional distress.

Depression: Some women may experience feelings of sadness and depression, particularly if the journey through infertility is prolonged or if there are additional challenges such as failed treatments or pregnancy losses.

Relationship Strain: Infertility can place strain on relationships, as couples navigate the emotional roller coaster of fertility treatments, cope with disappointments, and communicate about their desires and expectations regarding family-building.

Social Isolation: Women facing infertility may feel isolated or misunderstood, as societal expectations and assumptions about motherhood can exacerbate feelings of inadequacy or failure. This sense of isolation can impact their social life and relationships.

Body Image and Self-Esteem:

The inability to conceive may lead to feelings of inadequacy or a sense of failure, impacting self-esteem and body image. Women may experience negative emotions related to perceived societal expectations regarding femininity and motherhood.

Impact on Sexual Intimacy:

Fertility treatments and the pressure to conceive can sometimes affect the spontaneity and intimacy of sexual relationships, potentially causing strain and diminishing the enjoyment of intimacy.

Financial Stress: Fertility treatments can be financially burdensome. The cost of procedures, medications, and multiple attempts at conception may contribute to financial stress, adding another layer of concern for women and couples.

Treatment Side Effects: Fertility treatments may have physical side effects and hormonal fluctuations, contributing to discomfort, mood swings, and other physical challenges that impact a woman's well-being

Career and Personal Goals: The time commitment, emotional state, energy, and potential impact on work productivity may influence a woman's overall life satisfaction.

Coping Strategies and Resilience:

Impact of infertility on women's Quality of Life is highly individual, and support from healthcare provider, mental health professionals and a strong social network can play crucial role in helping individuals navigate the emotional and physical challenges associated with infertility.

Previous studies:

Worldwide, it is estimated that 45 million couples are affected by infertility and 186 million individuals live with infertility (Demographic and Health surveys WHO.2014). The prevalence of infertility in Pakistan is reported to be approximately **22%**. This includes **4%** primary infertility and**18%** secondary infertility (Ahmad et al.,2020). Primary infertility refers to couples who have not become pregnant after at least 1 year having sex without using birth control methods. Secondary infertility refers to couples who have been able to get at least once ,but now are unable. These figures indicate a significant portion of the population experiencing challenges with fertility. In south Asia, there has been an increasing trend in prevalence of primary and secondary infertility. The highest increase has been observed among South Asian Women 40.9% for primary and 60.1% for secondary infertility, for South

Asian men trend of secondary infertility has been increased about 48.4% (Borumandniaet al.,2022). Human beings are instinctively desire to have offspring. Infertility can cause painful emotional experiences throughout the life mainly known as quality-of-life impairment. A study conducted in Iran in 2019 aimed to investigate the impact of infertility on a woman's quality of life. Case control study method is used 180 infertile and 540 fertile women participated in this study. The cases were selected through a combination of multistage stratified and cluster sampling methods.

The data collecting tool used WHOQOL -BREF questionnaire. SPSS software 21 were used for data analyses with a significance level of 0.05. The study conclude that infertility can potentially affect various aspects of women's quality of life such as physical health ($p < 0.001$), mental health ($p < 0.001$), social health ($p < 0.001$) and the total score of quality of life ($p < 0.001$) significantly, infertile woman practice a relatively lower score in QOL sub-scales of mental, physical and environmental health. An infertile woman practices a relatively lower score in QOL sub-scales of mental, physical and environmental health. (Bakhtiyar et al.,2019).

WHO African Region Period infertility prevalence 16.4% (Cl: 10.0, 25.7, n = 6) Region Period Lifetime infertility prevalence 13.1% (CI: 8.6, 19.4, n = 2)WHO Western Pacific Region Period Infertility prevalence 13.0% (CI:7.8,20.8, n=11). Lifetime infertility prevalence 23.2% (CI: 17.4, 30.2, n = 6). No studies were available for the WHO South-East Asia lifetime infertility Prevalence (Infertility Prevalence Estimate,1990-2021).

As many researchers have noted, this variability hinders accurate comparisons across regions, populations, and time (7-13). Unlike other types of conditions, infertility is defined by the absence of an event (i.e., not getting pregnant), usually after a defined period of time. The World Health Organization (WHO) specifies a 12-month duration, defining infertility as "a disease of the male or female reproductive system characterized by the failure to achieve a pregnancy after 12 months or more of regular unprotected sexual intercourse". (WHO, 2014).

Thirty-two studies with low risk of bias involving 124 556 women were included. The findings indicated the overall pooled prevalence to be 46.25% and 51.5% for infertility and primary infertility, respectively. There was a statistical significance between infertility and psychological distress among females, with the OR of 1.63 (95% CI 1.24 to 2.13). A statistical significance was noted between depression and infertility. The study results highlight an essential and increasing mental disorder among females associated with infertility. Worldwide prevalence, risk factors and psychological impact of infertility among women: a systematic review and meta-analysis **(**Hazlina et al.,2022).

Infertility, a complex and multifaceted issue, stands at the intersection of biologically, psychology, and socio-cultural dynamics, exerting a profound influence on the lives of individuals and communities.

A cross-sectional study was conducted in India to assess the prevalence of depression and anxiety in women with infertility, elucidate the psycho-social factors affecting infertile women, identify the commonly employed coping strategies, and evaluate their self-esteem and quality of life. Women with infertility experience depression, anxiety, poor quality of life, and employ maladaptive coping. Supportive relationships with one's family and spouse are chief protective factors.(Vatsla Dadhwalet al. 2021)

A hospital based cross–sectional study was conducted among 340 infertile women attending infertility clinic at Mnaz I Mmoja Hospital, Zanzibar. The factors associated with Quality of Life using FertiQOL tool in infertile women were estimated in a multivariable linear regression model at 95% confidence interval and 5% level of significance. The overall Results quality of life in this population was positively associated with level of education but negatively affected with reason for infertility type of infertility and duration of infertility (Suleiman et al.2023).

A cross-sectional Study Survey was conducted in Sao Paulo Brazil to assess the association between Quality of Life of women and infertility due to endometriosis of different stages.

Convenience sampling was used due to the authors' access to the study population; however, the sample number was calculated to be sufficient for 95% power in both groups. 106 women were included, divided in two endometriosis groups (Grade I/II, 26 women, and Grade II/IV, 74 women Results: Homogeneity was observed between Grade I/II and Grade III/IV staging, with similar mean ages (35.27, ± 3.64 years and 34. The present study pointed out that it is not the stage of endometriosis that interferes in the quality of life of women but rather Quality of life isimpaired due to infertility (Marina et al,.2020).

Every human being has a right to the achieve of the highest standard level of physical and mental health. Individuals and couples have the right to decide the number, spacing and timings of their children. Infertility can nullify the realization of these essential human rights. Addressing infertility is therefore an important part of realizing the right of individuals and couples to found a family (WHO,2020).

This may partly reflect the many different methods used to measure infertility. In addition, there is a lack of sufficient studies from some regions, as well as variation in definitions and in inclusion and exclusion criteria in studies estimating infertility, which all contribute to moderate certainty of pooled estimates. Moving forward, researchers must use more consistent, systematic and comprehensive processes to improve the evidence base relating to infertility prevalence at the global, regional and national levels. Across the individual studies that contributed data to these estimates, reported infertility prevalence varied greatly. This may be due to Research challenges.

The many different methods used to measure infertility. A lack of sufficient studies from different regions .All of which contribute to moderate certainty of pooled estimates. Variation in definitions in inclusion/exclusion criteria in infertility studies Recommendations for future infertility prevalence research. Estimating prevalence of infertility needs a standard set of questions for ascertaining infertility prevalence that could be adopted by Demographic and Health Surveys and other standard population-based surveys.

Questions should be flexible enough to allow for different definitions and approaches in order to facilitate comparison and fertility care services in different regions of the world. Currently, challenges can be observed in relation to the availability, accessibility, and quality of interventions to prevent, diagnose and treat infertility in most countries. It is anticipated that these estimates will improve our understanding of the prevalence and burden of disease related to infertility globally and regionally, and will provide a basis for policy and practice to achieve universal access to fertility care.

2.5 Sustainable Development Goals and Women's Health:

Human health and gender equality are central elements of the Sustainable Development Goals, which call on governments to ensure universal access to sexual and reproductive health and

rights. Fertility care is a core part of sexual and reproductive health, and responding to infertility can mitigate gender inequality.

The drive to achieve the Sustainable Development Goals therefore must encompass actions to respond more effectively to the needs of people with infertility, leaving no one behind. These estimates show high prevalence of infertility globally and regionally, a finding that should be used to support the development of policies and practices that will help individuals and couples achieve their desired family size.

Findings also provide insight into how the estimation of infertility prevalence can be improved in order to obtain more actionable data, including data that allow for more meaningful comparisons across settings and time. Addressing infertility is an important component of sexual and reproductive health and rights (SRHR) but has been neglected in the global SRHR agenda. Infertility has devastating societal and health consequences, including social stigma, economic hardship, and gender-based violence, as well as poor mental health (1, 2).

Addressing infertility is central to achieving Sustainable Development Goal (SDG) 3 – Ensure healthy lives and promote well-being for all at all ages – and SDG 5 – Achieve gender equality and empower all women and girls. Furthermore, every human being has a right to the enjoyment of the highest attainable standard of physical and mental health (3). Individuals and couples have the right to decide the number, timing and spacing of their children (4). Men and women of full age, without any limitation due to race, nationality or religion, have the right to marry and to found a family (5). If infertility is not addressed, it can negate the realization of these essential human rights. Failure to address infertility will hamper global efforts to ensure universal access to sexual and reproductive health and rights. Consequently, urgent efforts are required to improve the prevention, management, and treatment of infertility worldwide (6). Understanding the magnitude of infertility is critical for monitoring, assessing, and improving equitable access to quality fertility care services, as well as addressing risk factors for and consequences of infertility.

The WHO recognizes infertility as a significant public health issue and emphasizes the importance of addressing it comprehensively. Infertility can have profound social, economic and psychological impacts on individuals and couples. Treatment options may include medical interventions, lifestyle changes, and assisted reproductive technologies, such as in vitro fertilization (IVF). For the most current and detailed information on infertility according to the World Health Organization, I recommend checking the latest publications and guidelines directly from the WHO or consulting with healthcare professionals specializing in reproductive health.

2.6 The Millennium Development Goals (MDGs) and Women' well-being:

(MDGs) were a set of eight international development goals established following the Millennium Summit of the United Nations in 2000. These goals aimed to address various global challenges, including poverty, hunger, gender equality, education, and healthcare, with a target to achieve them by 2015. While the MDGs did not explicitly address infertility as a standalone goal, some of the goals indirectly influenced factors related to reproductive health. The successor to the MDGs is the Sustainable Development Goals (SDGs), which include broader and more

comprehensive targets related to health and well-being. Here are ways in which the MDGs and, by extension, the SDGs, may intersect with infertility

Maternal Health (MDG 5): It focused on improving maternal health, aim to reduce maternal mortality and increase access to reproductive healthcare. Efforts to achieve this goal indirectly contribute to addressing infertility, as improved maternal health involves addressing factors that may impact fertility.

Gender Equality (MDG 3) and Women's empowerment (SDG 5): Promoting gender equality and empowering women, as outlined in MDG 3 and SDG 5, includes ensuring access to education, healthcare, and economic opportunities. These factors can have an indirect impact on reproductive health, potentially influencing infertility rate.

Reproductive problems can influence the quality of life of affected women. 2. Prolongation of the time of infertility treatment negatively affects the quality of life of women undergoing therapy. 3. The quality of life of patients treated due to infertility depends on their age, place of residence, and education level. 4. Intellectual work, on permanent basis, without burden of hazardous factors, exerts a favorable effect on the evaluation of the quality of life of women treated due to infertility(Wdowiak et al.,2021).

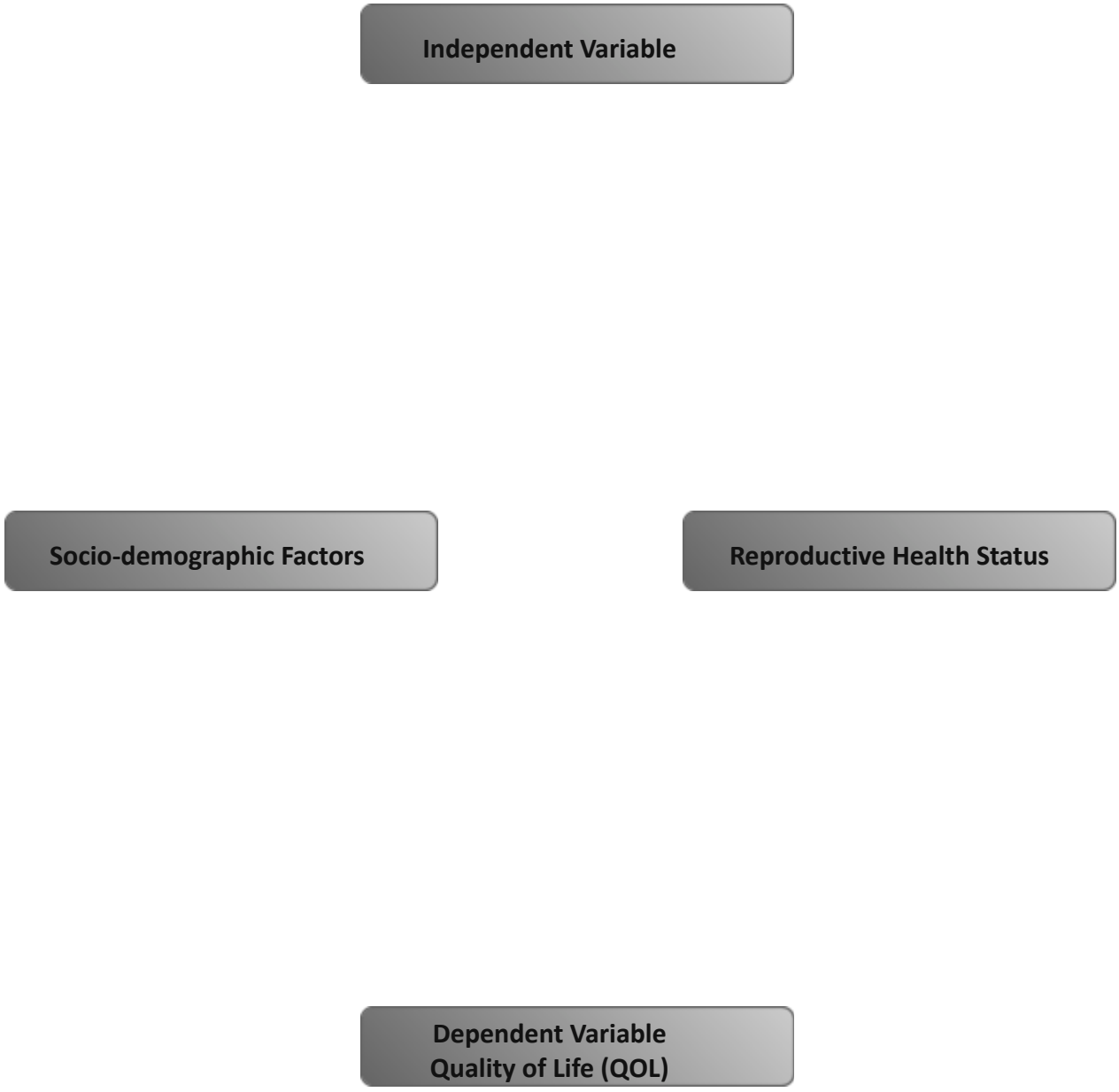
WHO recognizes that the provision of high-quality services for family planning, including fertility care services, is one of the core elements of reproductive health. Recognizing the importance and impact of infertility on people's quality of life and well-being, WHO is committed to addressing infertility and fertility care by:

- Collaborating with partners to conduct global epidemiological and etiological research into infertility
- Engaging and facilitating policy dialogue with countries worldwide to frame infertility within an enabling legal and policy environment.
- Supporting the generation of data on the burden of infertility to inform resource allocation and provision of services.
- Developing guidelines on the prevention, diagnosis and treatment of male and female infertility, as part of the global norms and standards of quality care related to fertility care.
- Continually revising and updating other normative products, including the WHO laboratory manual for the examination and processing of human semen.
- Collaborating with relevant stakeholders including academic centers, ministries of health, other UN organizations, non-state actors (NSAs) and other partners to strengthen political commitment, availability and health system capacity to deliver fertility care globally.
- Providing country-level technical support to member states to develop or strengthen implementation of national fertility policies and services. (WHO Fact Sheet on Infertility,2021) In the scenic landscape of Rawalakot Azad Kashmir, where tradition and

modernity intertwine, the frequency of infertility among females of reproductive age emerges as a crucial yet underexplored aspect of public health. This literature review endeavors to navigate the existing research shedding light on the prevalence of infertility and its intricate relationship with the quality of life in this distinctive cultural context. The reproductive health of women is not merely a medical concern but a deeply ingrained facet of societal norms and individual identity.

- As Rawalakot undergoes transformations in health care and social structures, the experiences of women struggling with infertility seek attention. Understanding the frequency of infertility in this region necessitates a comprehensive exploration of the socio-cultural factors, healthcare landscape, and psychological dimensions that shape the narrative of reproductive challenges.
- Limited empirical evidence and a scarcity of localized studies underscore the urgency of investigating the prevalence of infertility in Rawalakot. Existing research, while offering glimpses into the broader Kashmiri context, leaves a void when it comes to the specific nuances of Rawalakot socio-cultural fabric. This literature review aims to bridge this gap by synthesizing existing knowledge and directing attention toward the unique challenges faced by women navigating infertility in this region.
- Beyond the statistical dimensions, the psychosocial ramifications of infertility on the quality of life remain an understudied domain in Rawalakot. Cultural norms, familial expectations, and individual coping mechanisms intertwine in a complex dance, shaping the lived experiences of women facing reproductive challenges. Unraveling this intricate tapestry requires a nuanced exploration that goes beyond the surface, acknowledging the interplay of tradition and modernity in shaping perceptions and responses to infertility.
- It's important to note that infertility is a common global issue, and both men and women can contribute to fertility problems. Factors such as age, lifestyle, underlying health conditions, and environmental factors can also play a role in infertility.

2.7 Conceptual Framework



Conceptual Framework based on Literature Review

Chapter III:Methodology

3.1 Study design and duration:

A cross sectional study was conducted over a period of sixth months from 15September 2023 to 15 march 2024.

3.2 Sampling technique:

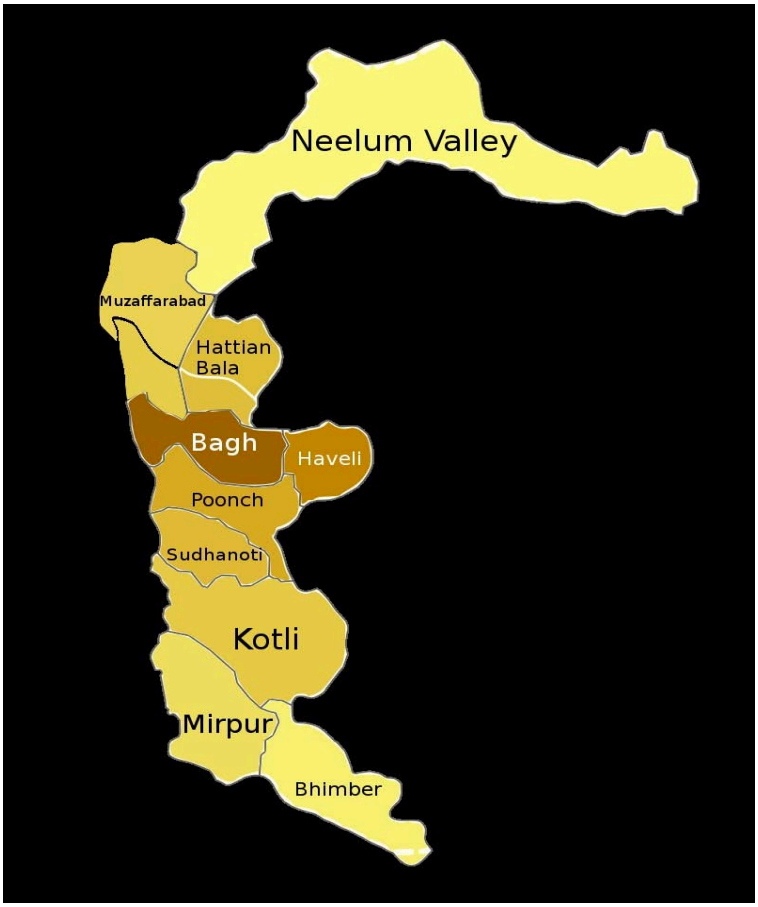
Non probability consecutive sampling.

3.3 Study Area:

Rawalakot Azad Kashmir is located at Latitude 33°51'32.18"N, Longitude 73° 45'34.93"E and an Elevation of 5374 feet. Rawalakot is approximately 76 kilometers from Kahuta and about 120 km from the city of Rawalpindi,Pakistan. It is linked with Rawalpindi and Islamabad via Goyai Nala and Tain roads. Via Kotli Satiyan and Kahuta. It is also linked with Rawalpindi via Sudhnuti. Population of Poonch division is 500571 (2017). Population of

Rawalakot is 56,006(2017) Rawalakot is headquarter of Poonch Division.

MAP OF AZAD KASHMIR



3.4 Study Setting:

Gynecology out Door patient department public sector Hospital Rawalakot (Combined Military Hospital) secondary care center and Private sector Hospital (Ali Imran Hospital, Amna Hospital, united Hospital).

3.5 Inclusion criteria:

Married women age(15-49)years, women with primary and secondary infertility), willing for participation in study.

3.6 Exclusion criteria:

Females having medical disease such as cancers, tuberculosis, hepatitis and psychiatric patients.

3.7 Sample size:

91**%** prevalence was taken from (Bakhtiyar et al,.2019) by using formula:

$$n = z^2(pq)/e^2$$

e is margin of error and Z is z-score of the number of the standard deviation. At margin of error 5%,95% confidence interval and 91% prevalence the sample size was 126 and after summing up 10% possible non response the final sample size was 170.

3.8 Data collection tool:

Data collection tool was an adapted semi-structured questionnaire based on fertility quality of life questionnaire in Pakistani women (**FQOL -PW,** 2016) and (**WHOQOL -BREF** Quality of life brief version) assesses QOL in four domains including physical health, psychological health, social relationship and environmental health. It consists of three sections A B and C.

Section A (Demographic profile)

It consists of 7 questions (Age of respondent, marital status of respondent, duration of marriage of respondent, education of respondent, occupation of respondent, monthly household income of respondent, geographical location of respondent).

Section B (Fertility and reproductive Health)

It consists of 13 questions to assess the reproductive health and fertility status of respondent.(how much time trying to conceive, living with husband or not, ever been pregnant, how much time have been pregnant, pregnancy full term or not, any miscarriage, how many times of miscarriages, any still birth, having any single alive baby, diagnosed with infertility or not, seeking treatment for infertility, husband semen analysis have been done or not, test normal or not, received any counseling and health education or not?)

Section C (Impact of infertility on Quality of Life)

This section consists of four parts and 23 questions based on Likert scale. (Score 1,2,3,4,5 is given against each statement, very dissatisfied, dissatisfied ,neither satisfied nor dissatisfied, satisfied, very satisfied).

Physical Health Domain of WHOQOL -BREF

(Include 7 questions, any pain or discomfort regarding infertility, any weakness or lethargy, able to maintain exercise, satisfaction with daily physical work, infertility treatments effects on body, satisfaction with infertility treatment, satisfaction with sleeping pattern of respondent).

Psychological Health Domain of WHOQOL -BREF

(Include 8 questions, feeling of sadness and depression, thoughts of not meaningful life, feeling of anxiety or despair, any societal pressure regarding infertility, experience of stigma, any feeling of inferiority ,level of satisfaction of learning pattern and memory, lack of concentration on daily work performance of respondents.)

Social Relationship Domain of WHOQOL -BREF

(include 6 questions, level of satisfaction with interaction to family and friends, like to attend social events, satisfaction level of support received from family and friends, effect of infertility on sexual relationship, level of satisfaction of communication with partner, support and information received to respondents by health care professional)

Environmental Health Domain of WHOQOL -BREF

(Include 2 questions, satisfaction with financial resources available for infertility treatment, level of satisfaction of feeling of security and safety in home environment of respondents).

3.9 Reliability and Validity

Reliability was tested by calculating Cronbach alpha by using SPSS, Cronbach alpha was.736 statistical significance was set up to $p<0.05$.

Scale: Socio-Demographic and Quality of life

Reliability Statistics

Cronbach's Alpha	N of Items
.736	43

Pilot study was conducted on 20 patients to validate the Questionnaire followed by commencement of actual study.

3.10 Data Analysis:

Data analysis was done through SPSS. Descriptive analysis for categorical variable was done through frequencies and percentages. Mean and standard deviation and inferential statistics (Kruskal Wallis and Mann Whitney) used for the association between dependent and independent variables.

Rationale for Using These tests:

We used the Kruskal-Wallis and Mann-Whitney tests because they are helpful when our data isn't spread out in a typical bell curve, which is often expected in many statistical tests.

Kruskal-Wallis test:

This is used when we have more than two groups to compare and our data isn't neatly spread (like comparing quality of life across different age groups). It's like the non-fancy version of an ANOVA test that doesn't need data to be perfectly normal.

Mann-Whitney Test:

This test is used when comparing just two groups under similar conditions (e.g. quality of life between people with primary VS secondary infertility). It's a simpler alternative to the t-test when our data doesn't fit the usual even spread.

3.11 Variables:

Independent variables: Socio-demographic factors and reproductive health status

Dependent variables: Impact of infertility on Quality of life of women

Ethical consideration:

Approval for study was taken from Ethical Review Board Al-Shifa School of Public Health and Quaid-i-Azam University Islamabad. Approval for study was also taken from ethical committee of Public and Private Hospital Rawalakot. Informed consent was taken from participants taking part in study. Confidentiality of participants was ensured.

Chapter IV: Results:

In exploring the demographic characteristics of respondents in a study aimed at frequency of infertility and assessing its impact on quality of life. Study shows frequency of infertility in public and private hospitals of Rawalakot Azad Kashmir is 21.25% in which 18.75% is primary infertility and 2.50% is secondary infertility. A variety of demographic factors are considered, including age, marital status, duration of marriage, educational background, occupation, monthly household income, and geographic location. Each factor is detailed in terms of the number of respondents (n) and their corresponding percentages (%).

For the age of respondents, the distribution shows a significant representation in the 30-39 years category with 77 individuals accounting for 45.3% of the total, followed by the 40-49 years group with 51 individuals (30.0%), and the 20-29 years group with 42 individuals (24.7%). Notably, there are no respondents under 20 years, indicating a focus on the adult population in the study.

Marital status data reveal that all respondents are married (n=170, 100%), suggesting the study specifically targets married individuals, with no representation from those who are divorced, widowed, or separated.

The duration of marriage among respondents varies, with the largest group being those married for 5-8 years (n=68, 40.0%), followed by those married for 1-4 years (n=50, 29.4%), 9-12 years (n=36, 21.2%), and 13 years or more (n=16, 9.4%). This distribution offers a broad perspective on the quality of life at different stages of marital life.

Educationally, a significant portion of the respondents have attained a bachelor's degree (n=80, 47.1%), with others holding a master's degree (n=50, 29.4%), intermediate qualifications (n=34, 20.0%), matriculation (n=4, 2.4%), and a small number having completed middle school (n=2, 1.2%). This indicates a relatively high level of education among the participants.

Occupationally, the majority are housewives (n=127, 74.7%), with the remainder being employed full-time (n=26, 15.3%) or part-time (n=17, 10.0%). There are no unemployed or student respondents, nor any classified as 'other.'

In terms of monthly household income, a significant majority prefer not to disclose their income (n=123, 72.4%), with the remaining distribution across income brackets showing the highest number in the 20001-40000 range (n=16, 9.4%), followed by those earning more than 80000 (n=9, 5.3%), 60001-80000 (n=14, 8.2%), and 40001-60000 (n=8, 4.7%). No respondents reported earning less than 20000.

Geographically, the study includes a larger portion of rural residents (n=126, 74.1%) compared to urban dwellers (n=44, 25.9%), providing a contrast in the quality-of-life experiences between these environments. The Summary of demographic characteristics is summarized in table 1.

Table 1. Demographic Characteristics

Demographic Characteristics		F	%
Age of respondents (years)	Under 20	0	0.0%
	20-29	42	24.7%
	30-39	77	45.3%
	40-49	51	30.0%
Marital Status of respondents	Married	170	100.0%
	Divorced	0	0.0%
	Widowed	0	0.0%
	Separated	0	0.0%
Duration of Marriage in years	1-4	50	29.4%
	5-8	68	40.0%
	9-12	36	21.2%
	13 and above	16	9.4%
Education of respondents	No formal education	0	0.0%
	Primary school	0	0.0%
	Middle school	2	1.2%
	Matriculation	4	2.4%
	Intermediate	34	20.0%
	Bachelor	80	47.1%
	Master degree	50	29.4%
Occupation of respondents	Housewife	127	74.7%
	Employed full time	26	15.3%
	Employed part time	17	10.0%
	Unemployed	0	0.0%
	Student	0	0.0%
	Other	0	0.0%
Monthly Household Income of respondents	Less than 20000	0	0.0%
	20001-40000	16	9.4%
	40001-60000	8	4.7%
	60001-80000	14	8.2%
	More than 80000	9	5.3%
	Prefer not to answers	123	72.4%
Geographic Location	Urban	44	25.9%
	Rural	126	74.1%

Figure 1.highlights fertility health status, focusing on aspects such as the duration of attempting conception, cohabitation status with partners, pregnancy history, incidence of miscarriages or stillbirths, infertility diagnoses, and related treatment or counseling.

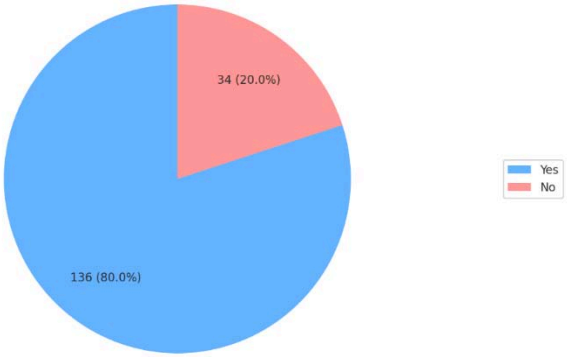
A significant portion of respondents has been trying to conceive for 5-8 years (n=67, 39.4%), followed by those trying for 1-4 years (n=51, 30.0%), 9-12 years (n=36, 21.2%), and over 13 years (n=16, 9.4%). In terms of living arrangements, 80% (n=136) live with their husbands, while 20% (n=34) do not.

Regarding pregnancy history, 11.8% (n=20) of the respondents have been pregnant before, with 88.2% (n=150) never having been pregnant. Among those who have been pregnant, the frequency of pregnancies varies, with 65% (n=13) experiencing pregnancy twice, and 35% (n=7) three times, with no respondents reporting only one or more than three pregnancies.

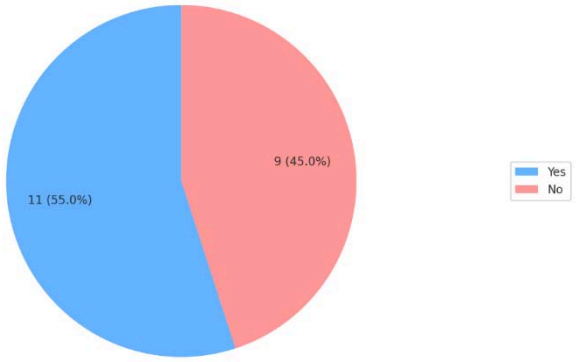
Out of those who have been pregnant, 55% (n=11) had successful deliveries resulting in a live baby, whereas 45% (n=9) did not. The experience of miscarriages or stillbirths was reported by 5.9% (n=10) of the respondents, with none experiencing just one or two incidents. However, 44.4% (n=4) had three miscarriages or stillbirths, and 55.6% (n=5) had four, with none reporting more than four.

Regarding children, 6.5% (n=11) of respondents have a living baby, while 93.5% (n=159) do not. A high number of respondents, 99.4% (n=169), have been diagnosed with infertility, with all respondents (n=170, 100%) seeking treatment for infertility. Additionally, all respondents' husbands (n=170, 100%) have been tested for infertility, with 85.3% (n=145) of those tests returning normal results, and 14.7% (n=25) abnormal. All respondents (n=170, 100%) received health education or counseling regarding infertility.

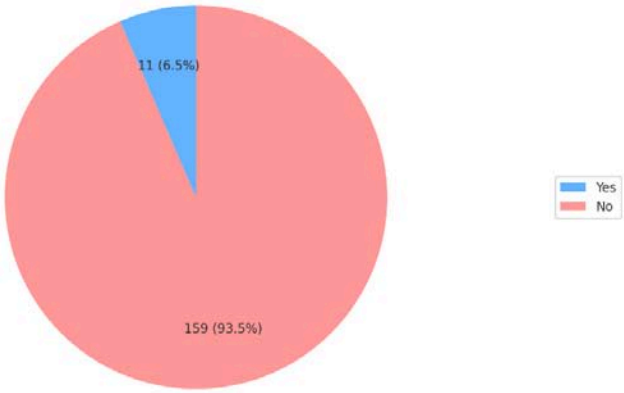
Are you living with your husband?



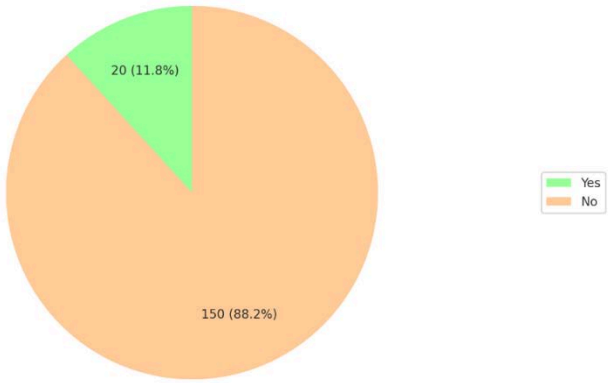
Were these pregnancies successful in terms of delivering a live baby?

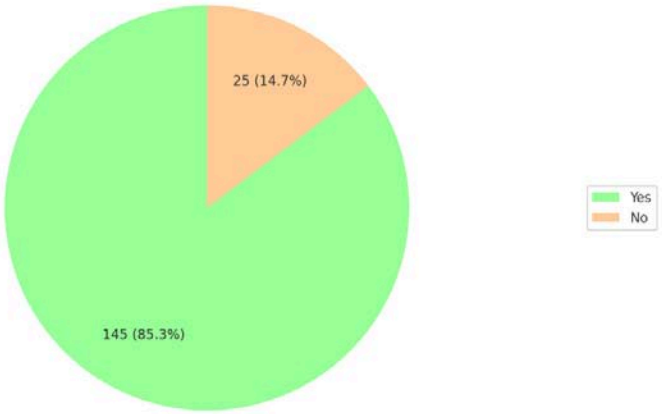


Do you have any single alive baby?

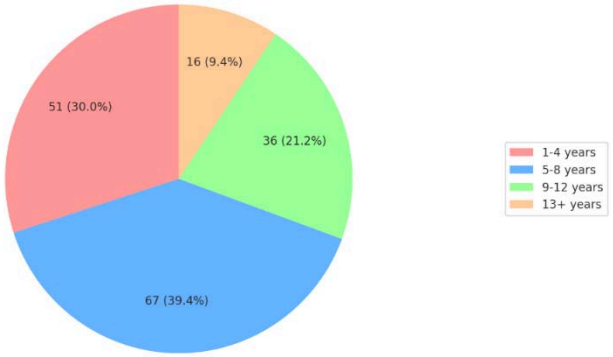


Have you ever been pregnant?

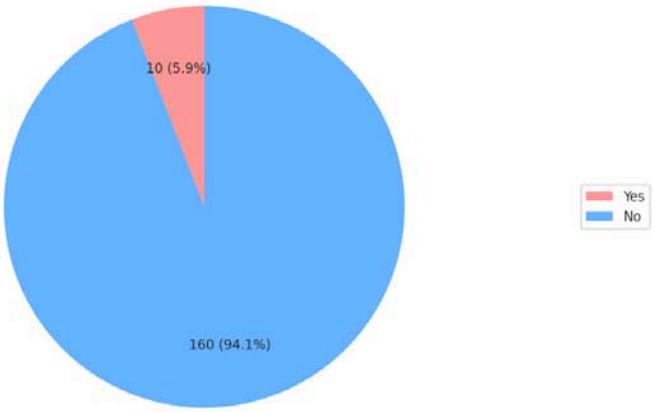




How long have you been trying to conceive?



Have you experienced any miscarriages or stillbirths?



If yes, how many times have you been pregnant?

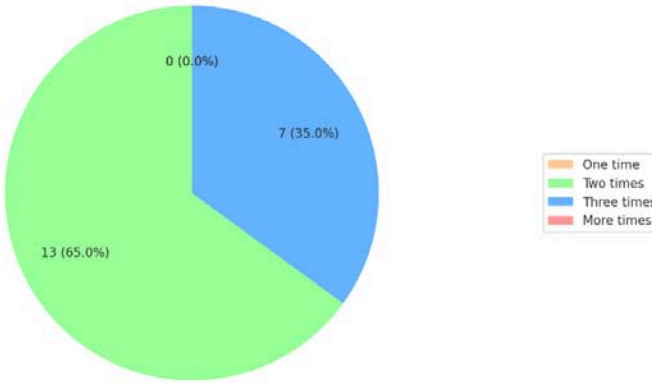


Figure 1. Fertility Health Status of participants (Cont)

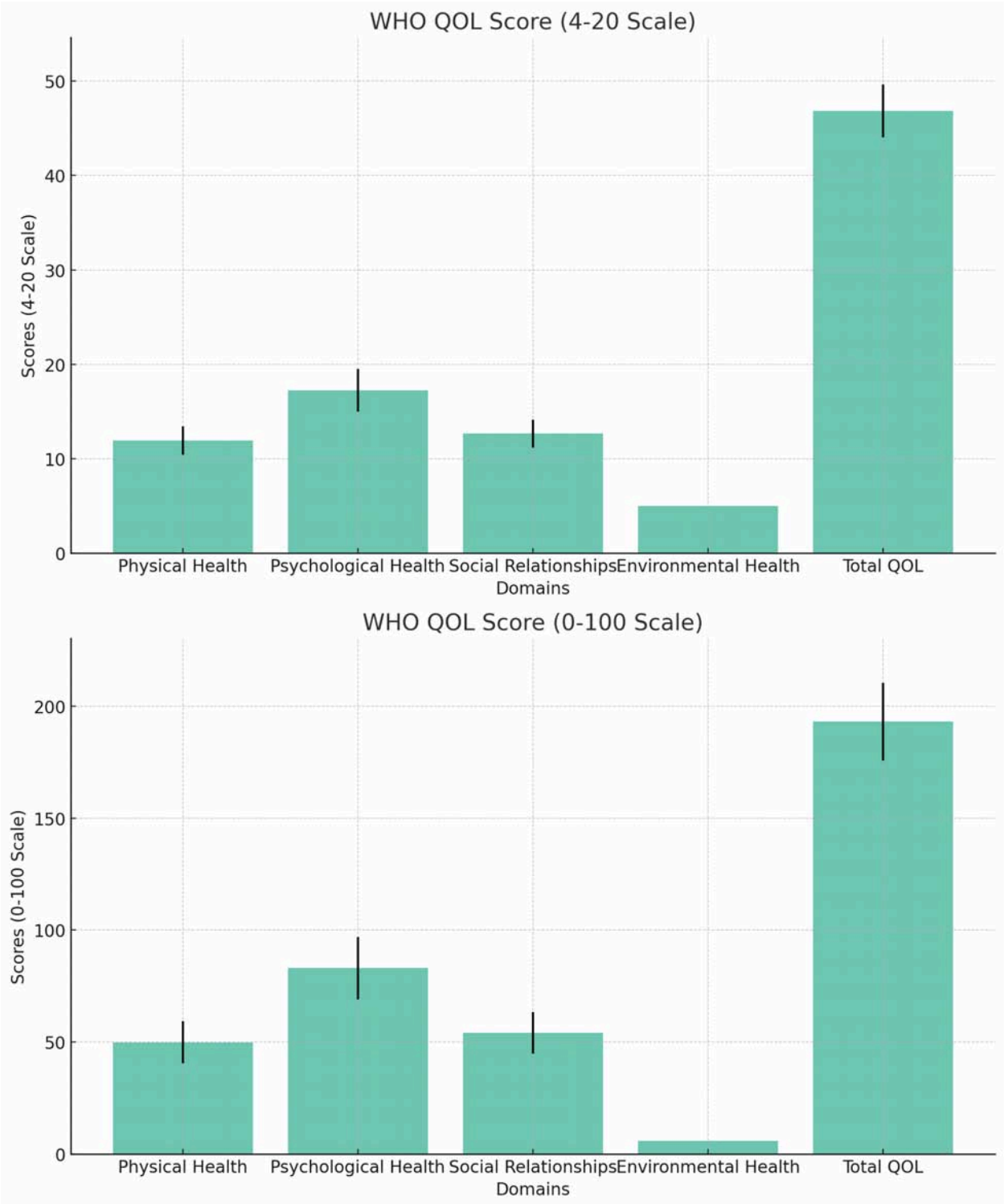


Figure 1. Fertility Health Status of participants

Figure 1.

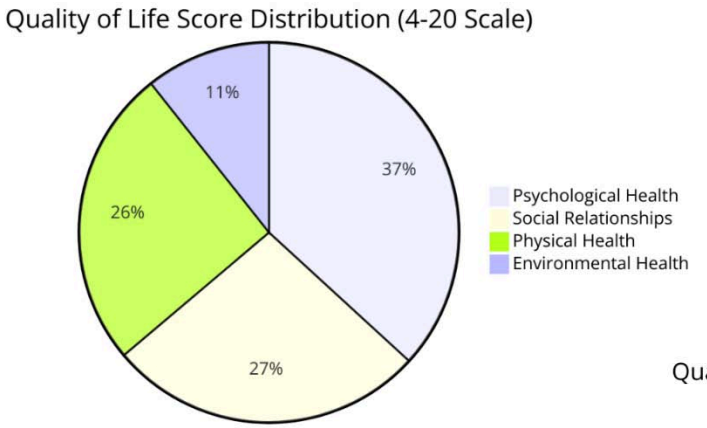
In Table 3, In the 4-20 scoring range, the Physical Health domain shows a mean score of 11.95 with a standard deviation of 1.50. The Psychological Health domain has a higher mean of 17.25, accompanied by a standard deviation of 2.25, indicating a broader range of responses. The Social Relationships domain has a mean of 12.66 with a standard deviation of 1.46, while the Environmental Health Domain has a fixed mean of 5 with no variation (S.D of 0). The Total Score of Quality of Life in this range averages at 46.86 with a standard deviation of 2.79.

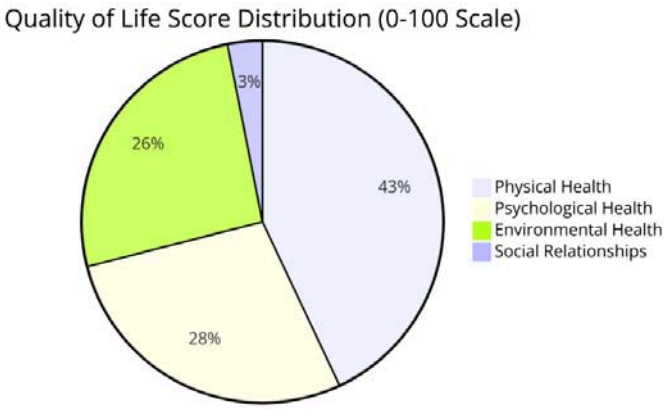
For the broader 0-100 scoring range, the mean scores are notably higher, reflecting the scaled-up nature of this range. The Physical Health domain records a mean of 49.94 and a standard deviation of 9.31. The Psychological Health domain's mean is 83.02 with a standard deviation of 14.03, suggesting a wide variety of psychological states among respondents. The Social Relationships domain has a mean of 54.14 and a standard deviation of 9.22. The Environmental Health Domain remains constant across scoring ranges with a mean of 6 and no variation. The Total Score of Quality of Life for this range is 193.10, with a standard deviation of 17.27, indicating a composite measure of the individual domain scores.

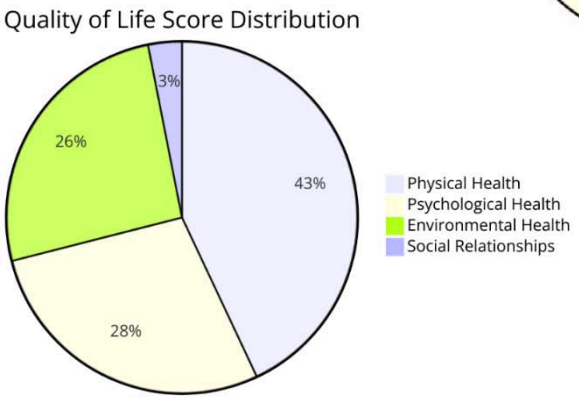
The WHO QOL -BREF and WHO QOL -100 scoring provide insights into respondents' quality of life across four domains. For the Physical Health domain, a moderate score suggests a fair perception of health and ability to perform daily activities, with the 0-100 range indicating a broader assessment, aligning with the WHO QOL -100's comprehensive evaluation. The Psychological Health domain scores higher, especially in the 0-100 range, reflecting positive attitudes towards personal well-being and mental health. The Social Relationships domain, with its scores, underscores the importance of personal connections and social support in the respondents' lives, albeit with room for improvement. The Environmental Health Domain, with a constant mean in both scoring ranges, highlights a consistent perception of safety, resources, and living conditions. The Total Score of Quality of Life, particularly in the 0-100 range, encompasses the cumulative impact of these domains, suggesting a holistic assessment of the respondents' overall quality of life as per WHO QOL standards.

Table 3. Overall Quality of Life

WHO QOL Score	Physical Health domain		Psychological Health domain		Social Relationships domain		Environmental Health Domain		Total Score of Quality of Life	
	Mean	±S. D	Mean	±S. D	Mean	±S. D	Mean	±S. D	Mean	±S. D
4-20	11.95	1.50	17.25	2.25	12.66	1.46	5	0	46.86	2.79
0-100	49.94	9.31	83.02	14.03	54.14	9.22	6	0	193.10	17.27







In the analysis of how different variables influence the Quality of Life (QOL) domains, the study presents intriguing insights across the spectrum of demographic and socio-economic factors. For instance, age plays a pivotal role, with the group aged 20-29 years reporting Physical Health at a mean of 45.9 (SD=7.8), Psychological Health at a mean of 79.8 (SD=10.0), and the Total Score of Quality of Life at a mean of 190.9 (SD=15.4), highlighting a statistically significant impact on QOL domains, particularly in Psychological Health ($p=0.000$). As participants' age increases to the 40-49 years bracket, there's a noticeable improvement in QOL scores—Physical Health reaches a mean of 54.6 (SD=9.7), Psychological Health a mean of 85.6 (SD=18.9), with the Total Score of Quality-of-Life elevating to a mean of 195.7 (SD=21.4), underscoring the significance of age in enhancing QOL, with age group differences being statistically significant ($p<0.05$ across most domains).

Marital status, with the dataset exclusively comprising married individuals, reflects a uniform impact on QOL with Physical Health reported at a mean of 49.9 (SD=9.3) and Psychological Health at a mean of 83.0 (SD=14.0). The lack of variance in marital status within the study limits further statistical analysis in this area.

Duration of marriage reveals distinct variations in QOL impacts. Those married for 1-4 years have Physical Health at a mean of 46.7 (SD=8.5) and Psychological Health at a mean of 78.7 (SD=10.7), with significant differences observed in QOL scores as the duration of marriage extends, particularly noted in those married for 13 years and above, showing Physical Health at a mean of 56.2 (SD=10.1), Psychological Health at a mean of 90.0 (SD=18.6), and these variations are statistically significant ($p=0.00$ for Physical and Psychological Health domains).

Educational attainment significantly correlates with QOL domains, where individuals with Middle School education report a Total Score of Quality of Life at a mean of 206.0 (SD=0.02), whereas those with Matriculation note a lower score, mean=172.5 (SD=27.0). This gradient suggests education's profound impact on QOL, evidenced by significant p-values in Psychological Health ($p=0.002$) and Social Relationships domain ($p=0.008$).

Occupational status further delineates QOL differences, with housewives reporting higher Psychological Health mean=85.3 (SD=12.6) compared to those employed full-time or part-time,

underlining occupation as a significant factor with p-values indicating differences in Psychological Health (p=0.001) and Social Relationships domain (p=0.001).

Income levels introduce another layer of influence, where respondents earning 40001-60000 report a Psychological Health mean of 79.0 (SD=15.3) and a Total Score of Quality of Life mean of 198.6 (SD=9.1), with these scores reflecting meaningful disparities across income brackets, supported by significant p-values in Psychological Health (p=0.002).

Lastly, geographic location, comparing urban and rural dwellers, shows minor variations in QOL scores, without statistically significant differences, suggesting that socio-economic and demographic factors might overshadow the impact of geographic location on QOL.

Table 4. Comparison of Mean between independent variables and quality of Life Domains (0-100)

Variable		Physical Health domain		Psychological Health domain		Social Relationships domain		Environmental Health Domain		Total Score of Quality of Life	
		Mean (± S.D)	*P-Value*	Mean (± S.D)	*P-Value*	Mean (± S.D)	*P-Value*	Mean (± S.D)	*P-Value*	Mean (± S.D)	*P-Value*
Age (years)*	20-29	45.9 ± 7.8	**0.00**	79.8± 10.0	**0.000**	59.1± 5.93	**0.00**	6.0±0.0	1.00	190.9± 15.4	0.13
	30-39	48.9± 8.5		83.4± 11.7		54.5± 7.36		6.0±0.0		192.5± 15.0	
	40-49	54.6± 9.7		85.6± 18.9		49.4± 11.5		6.0±0.0		195.7± 21.4	
Marital Status	Married	49.9± 9.3	-	83.0± 14.0	-	54.1± 9.22	-	6.0±0.0	-	193.1± 17.2	-
Duration of Marriage *	1-4	46.7±8 .5	**0.00**	78.7±10 .7	**0.00**	58.6±6. 7	**0.00**	6.0±0.0	1.00	190.1±1 4.3	0.17
	5-8	48.6±8 .3		83.8±10 .9		54.9±5. 8		6.0±0.0		193.4±1 5.7	
	9-12	54.0±9 .4		84.5±19 .0		51.3±11 .2		6.0±0.0		195.8±2 1.7	
	13 and above	56.2±1 0.1		90.0±18 .6		43.3±12 .4		6.0±0.0		195.5±2 0.8	
Education *											
	Middle school	56.0±0 .0	.053	84.5±4. 9	**0.002**	59.5±4. 9	**.008**	6.0±0.0	1.00	206.0±0. 02	**0.010**
	Matriculation	45.8±1 1.8		70.5±30 .7		50.3±15 .6		6.0±0.0		172.5±2 7.0	

	Intermediate	52.4±9.3		88.1±9.0		51.4±9.0		6.0±0.0		197.9±14.6	
	Bachelor	50.6±9.2		85.0±13.3		53.4±9.2		6.0±0.0		195.0±17.0	
	Master degree	47.3±9.0		77.4±14.6		57.3±8.4		6.0±0.0		187.9±16.8	
Occupation *	Housewife	50.9±9.3	**0.022**	85.3±12.6	**0.001**	52.9±9.2	**0.001**	6.0±0.0	1.00	195.0±16.6	**0.036**
	Full time	49.0±10.3		72.1±18.9		56.3±9.7		6.0±0.0		183.5±21.3	
	Part-time	44.4±5.8		82.8±6.2		60.5±4.1		6.0±0.0		193.6±9.5	
Monthly Income*	20001-40000	45.9±6.8	0.075	83.3±6.9	0.002	57.2±8.7	0.007	6.0±0.0	1.00	192.4±9.6	.091
	40001-60000	55.0±9.9		79.0±15.3		58.6±8.2		6.0±0.0		198.6±9.1	
	60001-80000	49.9±11.3		76.6±11.7		56.2±4.4		6.0±0.0		188.6±18.8	
	More than 80000	44.7±8.2		64.1±24.3		59.2±11.5		6.0±0.0		174.0±25.9	
	Prefer not to answers	50.5±9.2		85.4±12.7		52.8±9.3		6.0±0.0		194.7±16.8	
Location **	Urban	49.1±8.9	0.525	80.9±16.3	0.384	55.1±10.4	0.105	6.0±0.0	1.00	191.0±17.9	0.361
	Rural	50.2±9.5		83.8±13.2		53.8±8.8		6.0±0.0		193.8±17.1	

** Kruskal-Wallis Test*

*** Mann-Whiteny U Test*

The Significance level is 0.05

Chapter V: Discussion:

In discussing the findings of our study, it's essential to highlight the significant impact of demographic and socio-economic factors on the quality of life (QOL) across different domains among married individuals. Our analysis revealed a pivotal role of age in influencing QOL, with the age group of 20-29 years reporting a Physical Health mean score of 45.9 (SD=7.8) and a Psychological Health mean score of 79.8 (SD=10.0), leading to a Total Score of Quality of Life at a mean of 190.9 (SD=15.4). This trend is particularly noteworthy as it highlights a statistically significant impact on QOL domains, especially in Psychological Health ($p=0.000$). As participants age, particularly those within the 40-49 years group, there's a noticeable improvement in QOL scores—Physical Health reaches a mean of 54.6 (SD=9.7), Psychological Health a mean of 85.6 (SD=18.9), with the Total Score of QOL elevating to a mean of 195.7 (SD=21.4). These variations across age groups are statistically significant ($p<0.05$ across most domains), underscoring the significance of age in enhancing the quality of life.

Our analysis indicated a pivotal role of age in influencing QOL, where younger participants (20-29 years) exhibited lower scores in Physical Health (mean=45.9, SD=7.8) and higher in Psychological Health (mean=79.8, SD=10.0), which significantly impacted the Total Score of Quality of Life (mean=190.9, SD=15.4, $p=0.000$). This finding is in concert with other studies conducted in Pakistan, which also found age negatively correlated with total mean scores of Cores FertiQOL suggesting that younger individuals with fertility issues experience a diminished QOL (Abbasi & Kousar, 2016; Hassan et al., 2020; Minthami Sharon et al., 2023). However, our findings diverge slightly in that we observed an improvement in QOL scores as participants aged, particularly in the 40-49 years bracket. This nuanced difference underscores the complex nature of age as a determinant of QOL, potentially influenced by varying socio-cultural contexts and individual life stages.

The statistical significance of socio-economic status and its association with QOL in our study is mirrored in the findings of other studies, where residence, financial difficulties, and male infertility emerged as significant factors affecting the fertility QOL of patients with repeated implantation failure (RIF) (Ni et al., 2021). Similarly, our results highlight the influence of

educational attainment and occupational status on QOL, emphasizing the profound impact of socio-economic factors on individuals' perceived well-being. This correlation is further supported by another study, which indicated that infertility could significantly reduce the QOL in the physical domain of women, emphasizing the intersectionality of socio-demographic factors and health outcomes(Bagheri et al., 2021).

Our findings about the duration of marriage and its impact on QOL align with the narrative that longer durations of infertility correlate with poorer QOL outcomes. This is congruent with past studies observation, which did not find a significant difference in QOL subscales between primary and secondary infertility but noted the duration of infertility as a critical factor in QOL, echoing our observation of the nuanced impact of infertility's duration on the quality of life(Gadiya et al., 2023; Shakya, 2022; Shrestha et al., 2020).

The significant correlations between educational level, occupation, and QOL domains in our study find resonance in previous studies (Bakhtiyar et al., 2019; Hsu et al., 2013). These studies highlighted gender differences in the perception of QOL among infertile couples and underscored the role of socio-economic factors, such as educational level and employment status, in shaping these perceptions. Our research extends these insights by detailing how these socio-economic determinants interact to influence QOL across different age cohorts and marital durations, offering a more granular understanding of their effects.

In the domain of Physical Health, our findings indicate that age plays a crucial role, with an improvement in QOL scores as participants age, particularly notable in the 40-49 years bracket. This observation finds a parallel in one study, which reported that the physical domain of QOL was significantly higher in fertile groups compared to infertile ones, suggesting that fertility status, alongside age, may impact physical health perception(Bagheri et al., 2021).

Psychological Health in our study revealed higher scores with advancing age, emphasizing a possible resilience or adjustment to infertility challenges over time. Results of one study resonate with this, highlighting how infertility affects mental health domains, but also suggesting that coping mechanisms might evolve, influencing QOL positively(Bakhtiyar et al., 2019).

Social Relationships and Environmental Health domains underscored the importance of socio-economic factors and support systems. Our study's findings on the impact of educational attainment and occupational status on QOL align with the study by Bakhtiyar et al, which underscored gender differences and socio-economic status in shaping perceptions of QOL among infertile couples. Moreover, Study by Ni et al, emphasis on the role of financial difficulties, male infertility, and family social support as significant factors influencing fertility QOL echoes our observations on the importance of external support and socio-economic stability.

Methodologically, our study adopted a comprehensive approach to explore the demographic, socio-economic, and fertility-related factors affecting QOL among married individuals, employing a cross-sectional design similar to most of the referenced studies. This approach aligns closely with the methodology employed in a reported study, which also utilized a cross-sectional design to assess the association between socio-demographic determinants and QOL scores among women with infertility y(Minthami Sharon et al., 2023).

Different Studies, while varying in their specific focuses—ranging from the impact of repeated implantation failure on QOL to comparing fertile and infertile couples—share a common methodological grounding with our study in employing quantitative measures to evaluate QOL (Masoumi et al., 2016; Ni et al., 2021). These studies utilize standardized questionnaires, such as the FertiQoL instrument or the WHOQOL -BREF, to quantify aspects of QOL, facilitating direct comparisons of results across different populations and contexts .However, it's crucial to acknowledge the diversity in participant selection and geographical location across these studies, which may influence the generalizability of findings. For instance, study by Shakya, 2022focus on the moderating role of infertility duration on QOL and psychological health underscores the importance of considering temporal aspects in QOL research, an element also considered in our study but perhaps with different emphases.

The methodology and scope of our study, while providing insightful findings into the QOL impacts among individuals facing fertility challenges, entail several limitations that warrant careful consideration. Primarily, the use of a cross-sectional design restricts our ability to infer

causation from the correlations observed between various demographic, socio-economic factors, and QOL outcomes. While such a design is adept at capturing a broad snapshot of experiences and perceptions at a specific point in time, it falls short of elucidating the dynamic nature of how these experiences might evolve or be influenced over time. Consequently,this limitation points to the potential value of longitudinal studies that could offer a deeper understanding of the temporal relationships and causative dynamics affecting QOL in the context of fertility challenges. Additionally, our reliance on self-reported measures, inherent in studies of this nature, introduces the potential for response bias. Participants may, consciously or unconsciously, skew their responses either to reflect socially desirable outcomes or due to mis-recollection thereby impacting the reliability of the data. Such biases necessitate a cautious approach in interpreting the findings, emphasizing the subjective interpretation of QOL and its multifaceted determinants.

Moreover, the geographical and demographic specificity of our participant group in Rawalakot only, while facilitating a focused analysis, may limit the generalizability of our findings to broader, more diverse populations. The cultural, social, and economic contexts, which significantly influence QOLperceptions and experiences, vary widely across different settings. Our study's concentrated focus on married individuals within a certain age range further narrows the spectrum of experiences explored, potentially omitting valuable insights from those outside these categories who are also navigating fertility issues. This demographic limitation underscores the importance of extending future research to more inclusively represent the vast array of individuals affected by fertility challenges, across varied relational statuses, age groups, and cultural backgrounds.

5.1 Conclusion and Way Forward:

The research on infertility and its effect on the quality of life among women has shown important insights. The study found that infertility significantly affects women's lives, including their physical health, mental state, social interactions, and environment. One of the key findings is that older women tend to have a better quality of life, possibly because they've learned to cope with the challenges of infertility over time.

The study also highlights that a woman's education level and job status have a big impact on how they handle infertility. Women with more education tend to have a better quality of life, which suggests that education could help women cope better with the stress of infertility. Additionally, the longer a woman has been married, the better they seem to manage, pointing out the role of a stable support system in dealing with infertility.

Looking ahead, the study suggests several areas for further research. It would be beneficial to conduct long-term studies to see how women's quality of life changes with time as they deal with infertility. Expanding the study to other areas could help understand if women in different parts of Kashmir or other regions face similar challenges. Including men in future studies could also provide a fuller picture of how infertility affects couples, not just women alone.

Research could also look into how effective different support strategies are for women dealing with infertility. This could include things like counseling, support groups, or stress-reduction activities like yoga. Understanding what helps could lead to better support programs for infertile women.

The findings from this study can help inform policies to improve healthcare and support services for women dealing with infertility in less-studied areas like Rawalakot. This is important for ensuring that the available support is appropriate and accessible for all women, which is also a step towards achieving broader health and gender equality goals globally.

5.2: Strengths:

The study addresses a critical issue infertility and its impact on women’s quality of life.Infertility affects not only physical health but also emotional well-being, relationships, and societal roles. Conducting the study in Rawalakot, Azad Kashmir, provides insights specific to this region. Understanding cultural norms, healthcare infrastructure, and social support systems is valuable. This multidimensional approach covers various aspects. Researchers can explore physical, emotional, social, and functional well-being. Focusing on women seeking treatment in private and public hospitals ensures access to a relevant population. Hospital-based studies provide

insights into clinical experiences. Ethical practices, including informed consent and privacy protection, enhance the study's credibility. Findings can inform healthcare policies related to infertility management. Recommendations may lead to improved support services and awareness campaigns. Collaborating with healthcare professionals, psychologists, and sociologists strengthens the study. The study contributes to raising awareness about infertility's impact .It highlights the need for holistic care beyond medical interventions.

5.3 Limitations:

The study's sample size might be limited due to the specific context of Rawalakot, Azad Kashmir. As a result, the findings may not be fully generalizable to other regions or populations. The descriptive cross-sectional design used in the study provides a snapshot of quality of life at a specific point in time. Longitudinal studies would offer more insights into changes over time. The study relies on self-reported data from infertile women. Participants may underreport or over report their quality of life due to social desirability bias or other factors. The study might not capture the experiences of all infertile women, as those who seek treatment at hospitals may differ from those who do not seek medical help. The study does not delve deeply into cultural and societal influences on quality of life. These factors can significantly impact how women perceive and cope with infertility**.** The research focuses solely on women. Including male partners' perspectives could provide a more holistic understanding of the impact of infertility on couples' quality of life. The study is conducted in hospitals, which may not fully represent the experiences of infertile women who do not seek medical care or use alternative treatments. While the study examines psychological effects, it may not fully explore emotional distress, anxiety, and depression related to infertility. The study primarily captures the current state of quality of life. Investigating long-term effects and coping mechanisms would enhance the research.

5.4: Recommendations**:**

Future studies should aim for larger and more diverse samples including women from variousbackgrounds, socioeconomic status and cultural context will improve the generalizability of findings collaborate with multiple hospitals and clinics to access a broader range of participants. An appropriate research design (e.g., cross-sectional, longitudinal) based on objectives should consider using mixed methods to capture both quantitative and qualitative data,

both short term and long-term impact of infertility should be capture. Male partner should be considered as study participants. Health education and psychological support should be improved along with medical treatment for infertility.

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Appendix I (Study Questionnaire and Consent Form)

The Questionnaire designed for research topic ***"FREQUENCY OF INFERTILITYAND ITS IMPACT ON QUALITY OF LIFE AMONG FEMALES OF REPRODUCTIVE AGE IN PUBLIC AND PRIVATE HOSPITALS OF RAWALAKOT AZADKASHMIR*** "purpose of this study is to estimate the frequency of infertility and to assess its impact on quality of life among women of reproductive age in Rawalakot. Your responses will help us to understand the Frequency of infertility in our community. Please answer the following questions voluntarily, honestly and to the best of your knowledge. Your responses will remain highly confidential. Thank you for participating in this survey.

Respondent's ID #_____

Demographic Information:

1. Age: How old are you?
   - Under 20
   - 20-29
   - 30-39
   - 40-49
2. Marital Status:
   - Married
   - Divorced
   - Widowed
   - Separated
3. Duration of Marriage: _____ years
4. Education:
   - No formal education
   - Primary school
   - Middle school
   - Matriculation (10th grade)
   - Intermediate (12th grade)
   - Bachelor's degree
   - Master's degree or higher
5. Occupation:
   - Housewife
   - Employed full-time
   - Employed part-time
   - Unemployed
   - Student
   - Other (please specify): _____
6. Monthly Household Income:
   - Less than 20,000 PKR
   - 20,001 - 40,000 PKR
   - 40,001 - 60,000 PKR

- 60,001 - 80,000 PKR
- More than 80,000 PKR
- Prefer not to answer

7. Geographic Location:
    - Urban
    - Rural

Section 2: Fertility and Reproductive Health

1. How long have you been trying to conceive? _____months/years
2. Are you living with your husband?
    - Yes
    - No
3. Have you ever been pregnant?
    - Yes
    - No

   If yes, how many times have you been pregnant?
    - One time
    - Two times
    - Three times
    - More times
4. Were these pregnancies successful in terms of delivering a live baby?
    - Yes
    - No
5. Have you experienced any miscarriages(abortion) or stillbirths (death of baby at delivery time)?
    - Yes
    - No

   If yes, how many miscarriages or stillbirths have you experienced?
    - One time
    - Two times
    - Three times
    - More times?
6. Have you any single alive baby?
    - Yes
    - No

   7. Have you ever been diagnosed with infertility?
    - Yes
    - No

   8. Have you ever seeked treatment for infertility?
        - Yes
        - No

   9. Have your husband been tested for infertility?
        - Yes
        - No

   10. Was that test normal?
    - Yes

- No

11.Have you ever received health education or counseling regarding infertility?

- Yes
- No

Section: 3

Physical Health domain of the WHOQOL -BREF

1. Do you feel pain or discomfort in any part of body associated to infertility?
    - Not at all
    - A little
    - A Moderate amount
    - Very much
    - An Extreme amount
2. Do you feel any weakness or lethargy in daily life?
    - Not at all
    - A little
    - A moderate amount
    - Very much
    - An extreme amount
3. Are you able to maintain your exercise routines while dealing with infertility?
    - Very poorly
    - Poorly
    - Neither poorly nor well
    - Well
    - Very well
4. How satisfied are you with your overall daily physical work performance with infertility?
    - Very dissatisfied
    - Dissatisfied
    - Neither satisfied nor dissatisfied
    - Satisfied
    - Very satisfied
5. To what extent do you feel that you r infertility treatments or interventions effect your physical health and well-being?
    - Not at all
    - A little
    - A moderate amount
    - Very much
    - An extreme amount
6. How satisfied are you with your medical care and support you receive regarding infertility?
    - Very dissatisfied
    - Dissatisfied
    - Neither satisfied nor dissatisfied
    - Satisfied
    - Very satisfied
    7. How satisfied are you with your sleeping pattern?

- Very dissatisfied
- Dissatisfied
- Neither satisfied nor dissatisfied
- Satisfied
- Very satisfied

Psychological Health domain: WHOQOL -BREF

1. Have you experienced feelings of sadness or depression related to infertility?
    - Not at all
    - A little
    - A moderate amount
    - Very much
    - An extreme amount
2. Do you ever think that your life is not meaningful due to infertility?
    - Not at All
    - A little
    - A moderate amount
    - Very much
    - An extreme amount
3. How often do you have negative feelings such as despair, anxiety, depress mood?
    - Not at all
    - A little
    - A moderate amount
    - Very much
    - An extreme amount
4. Do you feel societal pressures or judgment regarding your infertility?
    - Not at all
    - A little
    - A moderate amount
    - Very much
    - An extreme amount

5. Have you experienced any stigma or isolation due to infertility?
    - Not at All
    - A little
    - A moderate amount
    - Very much
    - An extreme amount

6. Do you think your fertility problems make you inferior to people with children?
    - Not at all
    - A little
    - A moderate amount
    - Very much
    - An extreme amount

7. Are you satisfied with your learning patterns and memory?
    - Very dissatisfied

- Dissatisfied
- Neither satisfied nor dissatisfied
- Satisfied
- Very satisfied

8. To what extent do you feel that you perform your daily work with full concentration?
    - Not at all
    - A little
    - A moderate amount
    - Very much
    - An extreme amount

Social Relationships domain of the WHOQOL -BREF

1. Are you satisfied with your interaction with family and friends considering your experiences with infertility?
    - Very dissatisfied
    - Dissatisfied
    - Neither dissatisfied nor satisfied
    - Satisfied
    - Very satisfied
2. To what extent do you like to attend social events, parties and celebrations?
    - Not at all
    - A little
    - A moderate amount
    - Very much
    - An extreme amount
3. How satisfied are you with the support you receive from friends and family regarding your infertility struggles?
    - Very dissatisfied
    - Dissatisfied
    - Neither dissatisfied nor satisfied
    - Satisfied
    - Very satisfied
4. To what extent do you feel that infertility has affected your sexual relationships and closeness with your partner?
    - Not at all
    - A little
    - A moderate amount
    - Very much
    - An extreme amount
5. How satisfied are you with the communication and understanding between you and your partner regarding infertility?
    - Very dissatisfied
    - Dissatisfied
    - Neither dissatisfied nor satisfied

- Satisfied
- Very satisfied

6. How satisfied are you with the support and information you receive from healthcare professionals regarding your social and emotional well-being?
    - Very dissatisfied
    - Dissatisfied
    - Neither dissatisfied nor satisfied
    - Satisfied
    - Very satisfied

Environmental Health Domain WHOQOL -BREF

1. How satisfied are you with the financial resources available to you to support your infertility treatments or interventions?
    - Very dissatisfied
    - Dissatisfied
    - Neither dissatisfied nor satisfied
    - Satisfied
    - Very satisfied
2. How much satisfaction do you feel safe and secure in your living place (home environment) especially while going through infertility challenges?
    - Very dissatisfied
    - Dissatisfied
    - Neither satisfied nor dissatisfied
    - satisfied
    - very satisfied

THANK YOU FOR YOUR COOPERATION AND PARTICIPATION

Appendix II (IRB Approval Letter)

PAKISTAN INSTITUTE OF OPHTHALMOLOGY
AL-SHIFA SCHOOL OF PUBLIC HEALTH
AL-SHIFA TRUST, RAWALPINDI

TO WHOM IT MAY CONCERN

This is to certify that Naheed Mumtaz D/O Mumtaz Hussain Khan is a student of Master of Science in Public Health (MSPH) final semester at Al-Shifa School of Public Health, PIO, Al-Shifa Trust Rawalpindi. He/she has to conduct a research project as part of curriculum & compulsory requirement for the award of degree by the Quaid-i-Azam University, Islamabad. His/her research topic, which has already been approved by the Institutional Review Board (IRB), is "Frequency of Infertility and its Impact on Quality of Life among Women of Reproductive age in Public and Private Hospitals of Rawalakot Azad Kashmir"

Please provide his/her necessary help and support in completion of the research project. Thank you.

Sincerely,

Dr. Ayesha Babar Kawish
Head
Al-Shifa School of Public Health, PIO
Al-Shifa Trust, Rawalpindi

Recommended.

Dr. Azhar Ali

Associate Professor
Dr. Syed Azhar Ali Kazmi
Head Department of Physiology
& Behavioural Sciences
RMC/CMH Rawalakot

Dr. Syeda Maryam Batool
MBBS, FCPS Community Med.
Poonch Medical College/
SKBZ/CMH Rawalakot

Appendix III (Research Project Timeline)

Research Project	*Project Start Date*	*Project End Date*
Frequency of infertility and its impact on Quality of Life among women of reproductive age in private and public sector hospitals in Rawalakot Azad Kashmir	*September, 2023*	*March, 2024*

Task ID	Task Description	August, 2023	September, 2023	October, 2023	November, 2023	December, 2023	January, 2024	February, 2024	March, 2024	April, 2024
1	Idntification of Research Area									
2	Formulation of Research Questions									
3	Formulate Research Strategy, Research Design and Select Methods									
4	Conduction of Background Reading									
5	Preparation of Proposal									
6	IRB Approval									
7	Literature Review									
8	Data Collection									
9	Data Analysis									
10	First Draft Submission									
11	Final Draft Submission									
12	Dissertation Due									

Appendix IV Budget Form

Budget item	Transport	Stationery and internet	Printing	Publishing
Pilot testing	3000 Rs/-	6000 Rs/-	2000 Rs/-	-
Data collection	10,000 Rs/-	8,000 Rs/-	-	-
Thesis write-up	4000 Rs/-	10,000 Rs/-	9,000 Rs/-	18,000 Rs/-
Total expenditure	17,000 Rs/-	24,000 Rs/-	11,000 Rs/-	18,000 Rs/-
Grand total	70,000 Rs/-			