Original Research Article

Quality of Life among Men and Women Diagnosed with Infertility in Khyber, Pakhtunkhwa

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Abstract

Background: Infertility is a sensitive global issue, characterized by a couple's inability to conceive or maintain a pregnancy. Infertility is classified into two types: primary infertility, where a couple has never achieved pregnancy, and secondary infertility, where a couple cannot conceive or maintain a pregnancy after engaging in unprotected intercourse. *Objective*: This study aimed to evaluate the quality of life among men and women diagnosed with infertility in Khyber Paktunkhwa. *Methodology*: The study used a cross-sectional design and was conducted in outpatient clinics in Khyber Pakhtunkhwa with a sample of infertile individuals (n=377). Quality of life among infertile couples was assessed using the standardized FERTIQOL instrument, with additional variables relevant to the study context. *Results*: The results showed that the average quality of life score for infertile couples was 63.84 out of a possible 120. According to the FERTIQOL assessment, the emotional wellbeing score was low at 14.29, and the mind-body score was also poor at 15.49. The relational score, at 18, was considered average, while the social domain score of 16.05 indicated a poor quality of life. The study also examined associations between quality of life and various sociodemographic factors, including age, gender, education, income, and type of infertility. Although most of these variables were not statistically significant, gender and education were found to be significantly associated with quality of life, with p-values of 0.00 and 0.16, respectively. *Conclusion*: Based on these findings, it can be concluded that infertile couples experience a low quality of life.
Keywords: Infertility, Female, Infertility, Male, Fertility Clinics, Quality of Life.

INTRODUCTION

This section provides background on the quality of life statistics among individuals facing infertility and the societal challenges they encounter. It also includes the study's objective, operational definitions, and the study's significance.

Infertility is a highly sensitive global issue, defined as a couple's inability to conceive or maintain a pregnancy. Infertility is categorized into two types: primary infertility, in which a couple has never conceived, and secondary infertility, where a couple is unable to conceive or sustain a pregnancy despite regular unprotected intercourse (Zegers-Hochschild F *et al.*, 2009). Globally, more than 72 million people experience infertility (Boivin J *et al.*, 2007), with an estimated 10–15% of couples affected worldwide. The infertility rate is particularly high in developing countries, with prevalence reported at 24.5% in Bangladesh (Cousineau

TM & Domar AD, 2007; Nahrin NE *et al.*, 2017).

As a developing country, Pakistan has limited compiled data on infertility, with only a few studies providing statistics. Estimates suggest an infertility prevalence of around 22%, with primary infertility at 3.5% and secondary infertility at 18.4% (Nahrin NE *et al.*, 2017; Ali S *et al.*, 2011). Infertile couples often experience psychological stress (Shaheen R *et al.*, 2010), as children represent a future for parents, a source of pride, and a means of family continuity (Domar AD *et al.*, 2005).

The objective of this study was to assess the quality of life among men and women diagnosed with infertility in Khyber Pakhtunkhwa.

Rational / Significance

Infertility is a sensitive issue worldwide, affecting a significant portion of the population, with

approximately one in four individuals facing this challenge. Pakistan, a developing country with a population of around 22 million, has limited data compiled on infertility. In one study conducted at Baqai Medical Reproductive Health Center, the prevalence of infertility was found to be 21.9%, while another study at Bolan Medical College in Quetta highlighted similar concerns. Given the limited specific data on infertility in Pakistan, there is a pressing need to gather more accurate and comprehensive information.

Currently, there is minimal data on the quality of life for individuals dealing with infertility in Pakistan, with few published statistics addressing this issue. This study aims to fill that gap by contributing new knowledge on the subject. It will help assess the quality of life among men and women with infertility and assist in future healthcare planning and management. The findings of this study are expected to guide nurses and other healthcare professionals in providing standardized care to address the physical and psychological effects of infertility, ultimately helping to improve the quality of life for affected individuals.

LITERATURE REVIEW
Overview
Infertility is a significant issue worldwide that impacts the quality of life for individuals and couples experiencing it. Infertile couples often face a range of physical, social, and psychological challenges, including stress, anxiety, depression, and social isolation. For this review, databases such as PubMed, Google Scholar, BMC Health Services, and Science Hub were used to gather relevant literature. Articles included in the review were published in English, focused on the quality of life for infertile couples, and were no older than 2000. Relevant studies were carefully reviewed, analyzed, and paraphrased for inclusion.

Infertility, defined as a couple's inability to conceive or sustain a pregnancy, is categorized into primary infertility, where a couple has never conceived, and secondary infertility, where conception does not occur after one year of unprotected intercourse (Sami N & Ali TS, 2012). This condition can lead to both physical and psychological challenges, significantly affecting quality of life for both men and women (Audu DT *et al*., 2013). In Pakistani society, where families are typically close-knit, there is an expectation that couples will have children shortly after marriage, as children are seen as a source of pride, security, and family continuity (Sami N & Ali TS, 2012).

In extended family systems, children are often viewed as valuable contributors, and infertility may lead to disappointment when family expectations are unmet (Sami N & Ali TS, 2006). Children bring joy to families and often act as a bond between spouses. However, infertile couples may face harassment, social isolation, and exclusion from social events like weddings and engagements (Cousineau TM & Domar AD, 2007; Nahrin NE *et al*., 2017). Infertility can be a distressing experience, negatively impacting the quality of life of those affected, with millions worldwide facing this challenge. According to the World Health Organization (WHO), infertility has numerous psychological, physical, and social repercussions (Hakim A *et al*., 2001).

A study conducted in Iran between 2009 and 2010 found that infertility led to multiple social and psychological issues, with infertile couples experiencing higher levels of stress and anxiety than others, particularly among women (Baghianimoghadam MH *et al*., 2013). Infertility prevalence varies by country; globally, approximately 80 million couples are infertile, including about two million couples in Iran (Safarinejad MR, 2008). In Pakistan, where education levels are generally low, infertility is often attributed to women, even in cases where men are affected (Mumtaz Z *et al.,* 2013).

Research in Iran also indicated that infertile women experience numerous health issues, including mental and emotional distress. Infertility is not just a health issue in developing countries but also affects quality of life in developed nations like the United States, with the number of affected individuals increasing annually (Hasanpoor-Azghdy SB *et al*., 2014). There are multiple causes of infertility in both sexes; approximately 30% of cases are due to male factors, 30% to female factors, and the remaining 40% involve both. Factors contributing to infertility include anatomical abnormalities, hormonal imbalances, age, metabolic disorders, tubal disease, drug use, genetic issues, antiphospholipid syndrome, infections, and smoking. Infertility impacts mental, physical, and sexual health, affecting self-esteem, emotional stability, and relationship dynamics (Covington SN, 2015).

A study conducted in Iraq from 2001 to 2002 found that 77% of infertility cases were primary, and 22% were secondary, with male infertility accounting for 36% of cases. Among women, ovulatory disorders were the most common cause (41%), followed by tubal issues (5%) (Messinger LB *et al.,* 2015). Quality of life is defined as an individual's perception of their position in life within their cultural context, values, and relational systems. It encompasses health conditions, and emotional symptoms such as depression, anxiety, and stress (American Society for Reproductive Medicine, 2015).

Nurses play a vital role in healthcare by providing comprehensive health services to communities. Their responsibilities include preventive and curative care, with a focus on health assessments, nursing diagnoses, planning, implementation, and outcome evaluation, which are essential components of the nursing profession.

METHODOLOGY

Study Design

This study employed a descriptive cross-sectional design to assess people with infertility in Khyber Pakhtunkhwa, Pakistan. Descriptive studies aim to observe and detail human behaviors, thoughts, speech, and actions. This approach captures information on existing phenomena and provides comprehensive insight into specific issues. Utilizing a quantitative methodology, the researcher collected data systematically and objectively, without influencing the findings (Razzak AH & Wais SA, 2002).

Study Setting

Data were gathered from five infertility clinics across various districts in Khyber Pakhtunkhwa, including Lower Dir, Upper Dir, Malakand, Swat, Mardan, and Peshawar. The questionnaire, translated into Urdu, was completed by participants following informed consent.

Study Participants

The study targeted individuals receiving outpatient infertility services at clinics. Participants were over 18 years old, had a diagnosis of infertility, and had no history of psychological or chronic physical illness.

Sample Size

The sample size was determined using the Raosoft online calculator, with a 5% margin of error and a 95% confidence interval, assuming a 50% response distribution and an estimated population of up to 20,000. The required sample size was 377.

Sampling Technique

A convenience sampling method, non-probabilistic in nature, was used due to the accessibility and willingness of participants attending outpatient infertility services. Since not all infertility cases in Pakistan are registered, the study focused on those who attended the specified clinics.

Inclusion Criteria

Eligible participants included infertile men and women who had been married for at least one year and had not used any contraceptive methods.

Exclusion Criteria

Individuals were excluded from the study if they: 1) opted not to participate, 2) had a history of psychological or chronic physical illness, or 3) were 18 years old or younger.

Data Collection Procedure

The data collection process commenced following approval from the Advanced Study Research Board and the Ethical Review Board of Khyber Medical University (documentation is retained at the Institute of Nursing Sciences). The data collection was completed over two months. Written informed consent was obtained from each selected participant with infertility, with a copy of the consent form kept on file by the principal investigator. The study objectives were clearly explained to participants, and the questionnaire was translated into Urdu to ensure understanding.

Data Collection Tool

The study utilized an adapted Urdu-translated version of the Fertility Quality of Life questionnaire (2008), completed by participants. The questionnaire consisted of two sections: the first included 8 questions on demographic variables, and the second included 24 questions assessing quality of life aspects for individuals with infertility. The quality of life domains covered in the questionnaire were emotional, mind-body connection, relational, and social (Cates W *et al*., 1985).

Data Analysis

Data were analyzed using SPSS version 22. Results were presented through graphs and tables. For categorical variables (e.g., gender), percentages were calculated, while mean and standard deviation were used for continuous variables (e.g., age, duration of infertility). A chi-square test was applied to evaluate the association between socio-demographic variables and quality of life scores. The quality of life score interpretation was based on an instrument scoring scale where a score of 84 or above represented a good quality of life. The four subscales were divided and scored as follows:

- **Emotional:** Poor (6–15), Average (16–20), Good (21 and above)
- **Mind-Body Connection:** Poor (6–15), Average (16–20), Good (21 and above)
- **Relational:** Poor (6–15), Average (16–20), Good (21 and above)
- **Social:** Poor (6–15), Average (16–20), Good (21 and above)

Validity and Reliability of the Questionnaire

The adapted Fertility Quality of Life questionnaire (2008), completed by participants, has a psychometric reliability score ranging from 0.72 to 0.91. For participant convenience, an Urdu translation was used (Resnik DB, 2020).

Ethical Considerations

Ethical approval is a critical component of research studies (Khanum S *et al.,* 2022). This study adhered to all required standards. Data were collected only after receiving approval from Khyber Medical University's Advanced Study Research Board and Ethical Review Board. Consent was also obtained from the selected infertility clinics in Khyber Pakhtunkhwa, with documentation filed at the Institute of Nursing Sciences. Each participant provided written informed consent before participation in the study.

RESULTS

The study findings were presented through charts and tables, divided into two sections: descriptive statistics and inferential statistics. The results indicated that out of 377 participants, 49% were male and 51% were female, highlighting that fertility issues affect both genders almost equally, with minimal difference between them (Table 1).

Table 1: Age of the participant

S/No	Age	Frequency	Percent
1	19-21	7	1.9
2	22-27	77	20.4
3	28-33	91	24.1
4	34-39	77	20.4
5	40-ABOVE	125	33.2
Total		377	100

The table below shows the age distribution, frequency, and percentage of the study population. The participants' minimum age ranged from 19 to 21 years, comprising 1.9% of the sample, while the maximum age was over 40, representing 33.2%. The majority of participants were in the above-40 age group (Figure 1).
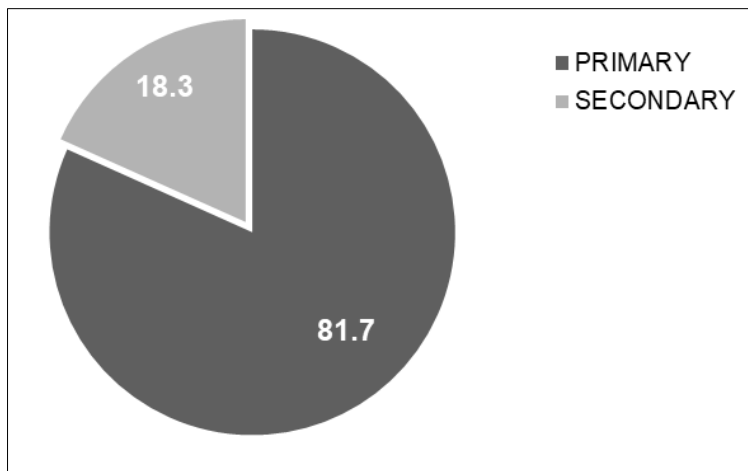
Figure 1: Duration of marriage of the participant, Types of Infertility

The chart below illustrates the duration of infertility among participants, as categorized by the study questionnaire into primary and secondary infertility. The findings revealed that 81.7% of participants experienced primary infertility, while 18.3% were affected by secondary infertility (Figure 2).
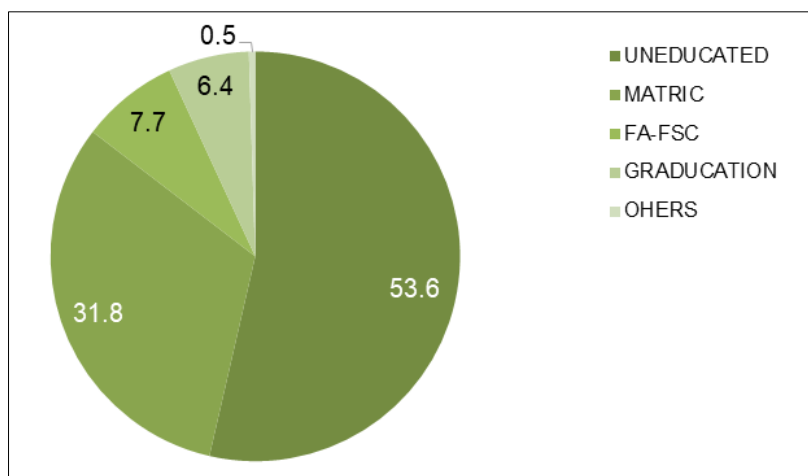
Figure 2: Education of the participant

The chart below depicts the educational levels of study participants. A majority, 53.6%, had no formal education, while 31.8% had completed matriculation, 7.7% had an FA/FSC qualification, 6.4% were graduates, and 0.5% had other types of education (Figure 3).
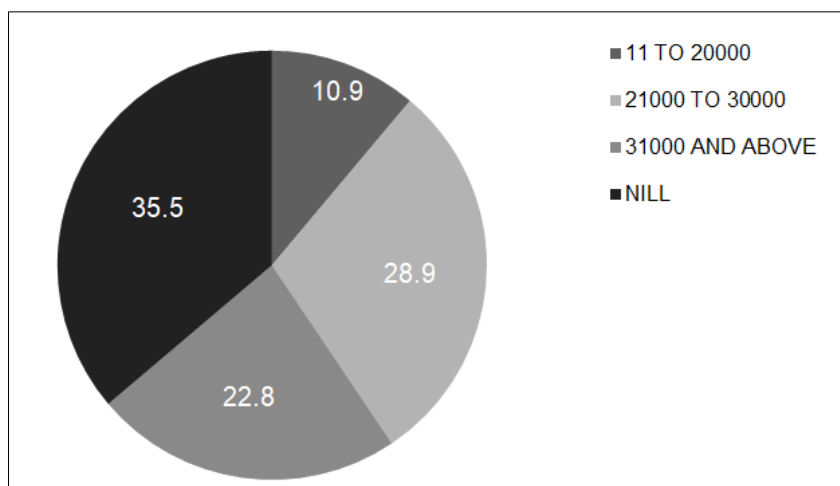
Figure 3: Income of the participant

The chart below presents the income levels of the study participants. Among them, 35.5% reported having no income, 28.9% earned between 21,000 and 30,000 PKR per month, 22.8% had incomes above 31,000 PKR, and 10.9% earned between 11,000 and 20,000 PKR (Figure 4).

Additionally, the following chart illustrates the health status of participants. It shows that 1.1% reported very poor health, 11.7% indicated poor health, 34.7% described their health as neither good nor poor, while 48% rated their health as good. Only 4.5% of participants reported having very good health (Figure 5).
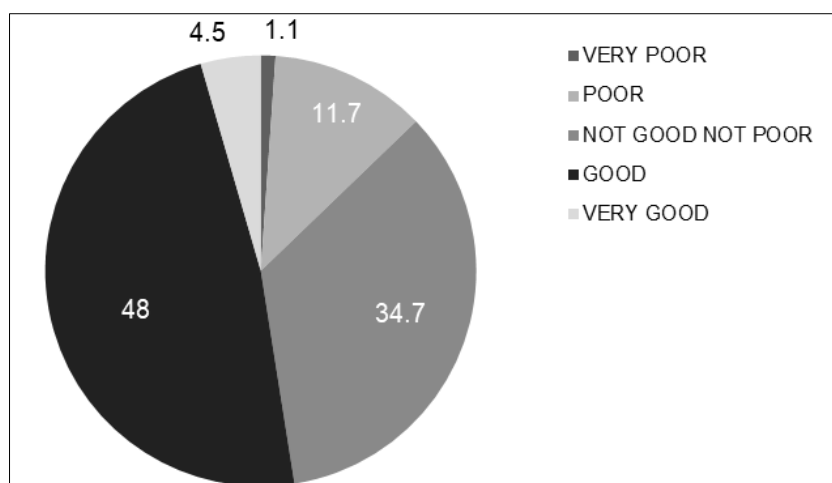
Figure 4: Health of the participant
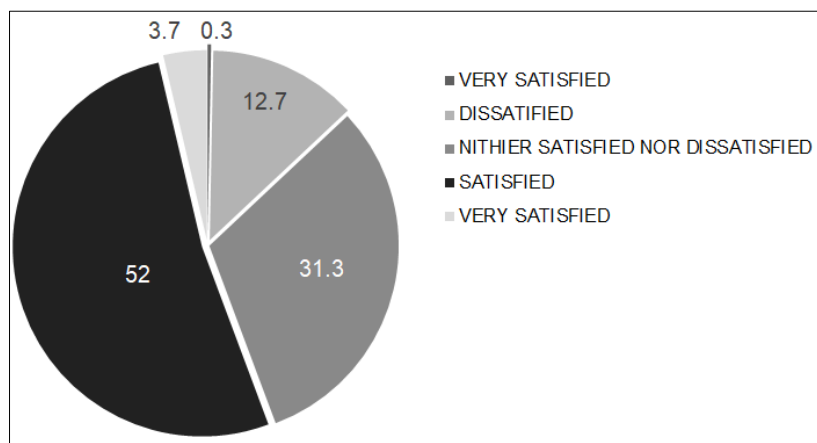
Figure 5: Quality of life

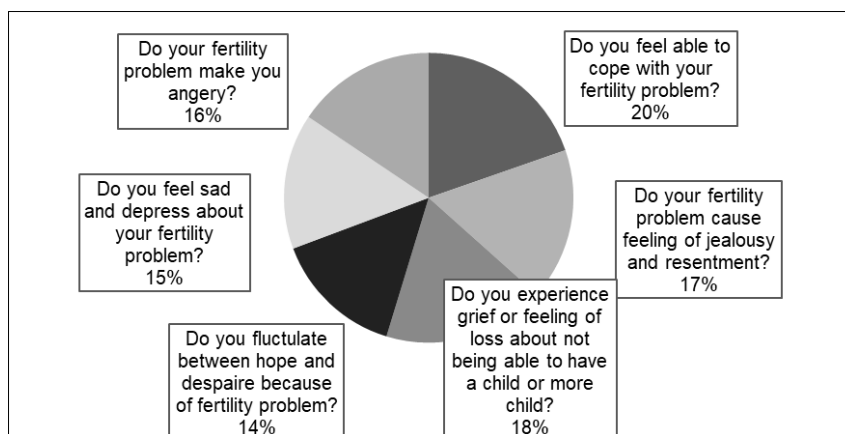The chart below illustrates the quality of life of participants, revealing that 52% were satisfied, 31% were neither satisfied nor dissatisfied, 12.7% were dissatisfied, 0.3% were very satisfied, and 3.7% were very dissatisfied (Table 2).

Table 2: Variables of Emotional Score

Variables	Frequency
Do you feel able to cope with your fertility problem?	1.060
Do your fertility problem cause feeling of jealousy and resentment?	911
Do you experience grief or feeling of loss about not being able to have a child or more child?	977
Do you fluctuate between hope and despair because of fertility problem?	786
Do you feel sad and depress about your fertility problem?	814
Do your fertility problem make you angry?	840
Total emotional score (5.388 / 377= 14.29)	**5.388**

The table below presents the emotional scores of the participants based on the FERTIQOL subscale, where scores of 6 to 15 indicate poor emotional states, 16 to 20 represent average emotional states, and scores above 21 signify good emotional states. The results indicate that the study population predominantly exhibits poor emotional conditions (Figure 6).

Figure 6: Emotional Score

The chart below illustrates the emotional experiences of the participants, indicating that a significant number of infertile individuals encounter emotional difficulties. Additionally, the table presents the mind-body scores of the participants, derived from 8 questions related to this aspect. The total number of responses was 5,843, which, when divided by the 377 participants, resulted in a mind-body score of 15.49. According to the Fertility Quality of Life assessment, this reflects a poor state of mind-body connection (Figure 7).
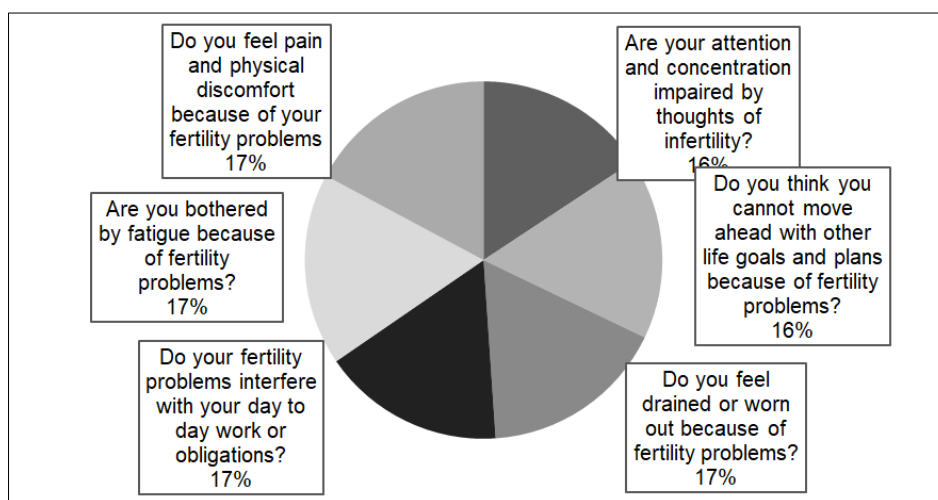
Figure 7: Mind Body

The chart below depicts the mind-body experiences and challenges faced by infertile couples, indicating that most infertile individuals encounter issues related to their mind-body connection. The subsequent table presents the relational status of the study population, with a score of 18 representing the average relational state among participants (Figure 8).
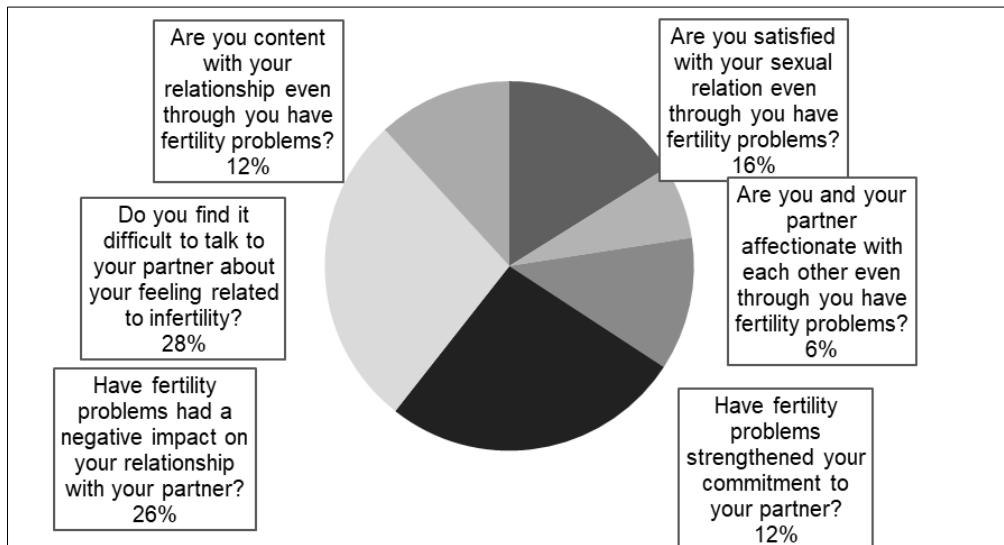
Figure 8: Relational Score

The chart below illustrates the relational scores of infertile couples. A significant number of individuals experience relational issues, which negatively impact their quality of life (Table 3).

Table 3: Variables of Social Score

Variables	Frequency
Are you satisfied with the support you receive from friends with regard to your fertility problem?	1.239
Are you satisfied with the support you receive from friends with regard to your fertility problem?	1.585
Are you satisfied with the support you receive from friends with regard to your fertility problem?	926
Are you satisfied with the support you receive from friends with regard to your fertility problem?	693
Are you satisfied with the support you receive from friends with regard to your fertility problem?	819
Are you satisfied with the support you receive from friends with regard to your fertility problem?	791
Total Social Score (6.53 / 377= 16.05)	**6.053**

The chart below displays the social scores of the study population, indicating that many infertile couples experience social pressure, particularly in the form of social isolation (Table 4).

Table 4: Quality of Life Score

Quality of Life	%
Emotional Score	14.29
Mind-Body Score	15.49
Relational Score	18.00
Social Score	16.05
Total Score	**63.84**

The table below presents the total calculated scores for emotional, mind-body, relational, and social aspects (Table 5).

Table 5: Association of various factors with quality of life

Variables	Chi square χ2	p- value
Age	377.629	.000
Gender	12.256	.016
education	244.946	.060
profession	144.839	.783
Income	212.750	.473

The table below illustrates the social status of the study population, with the scores indicating a poor condition among the participants (Figure 9).
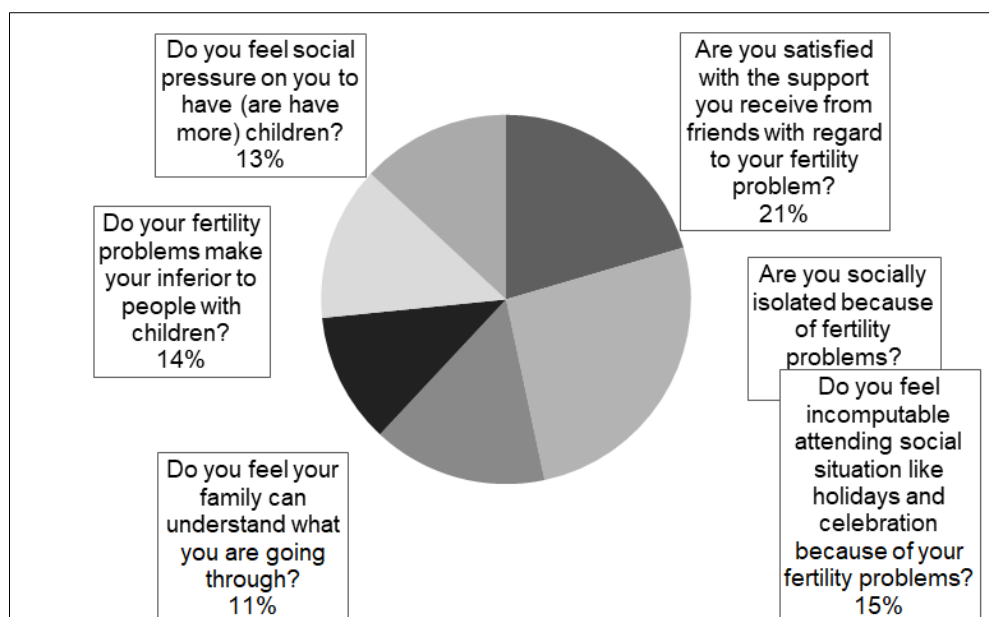
Figure 9: Social Score

The table below displays the results of the chi-square test applied to the socio-demographic variables in relation to quality of life. It was observed that while associations existed between quality of life and various socio-demographic factors such as income, education, profession, and type of infertility, these associations were not statistically significant. However, significant associations were found between gender and age with quality of life, with p-values of 0.016 and 0.000, respectively.

DISCUSSION

Infertility refers to a couple's inability to conceive or maintain a pregnancy, and individuals experiencing infertility face various physical and psychological challenges that affect their quality of life. For this study, the researcher utilized the standard FERTIQOL domain for data collection. The data were entered into SPSS-22, and results were obtained, which were then compared with existing literature.

The results included demographic variables such as age, gender, educational qualifications, types of infertility, profession, and income of the infertile couples (Figures 1 and 6), indicating parallel issues related to infertility. A study by Ali *et al.,* at Bolan Medical College found that 45% of infertile individuals were male and 55% were female (Nahrin NE *et al.,* 2017).

Additionally, the findings revealed that 21.6% of participants experienced primary infertility while 4.8% faced secondary infertility. These results were compared to previous studies, which indicated that 10-15% of couples worldwide suffer from infertility, with rates in developing countries ranging from 5 to 30%

(Aarts JW *et al.,* 2011). In a 2009 study conducted in Bangladesh, Gul *et al*., reported that 73% of cases were primary infertility, while 27% were secondary (Donarelli Z *et al.,* 2016).

Another study by Ali *et al.,* in 2011 in Lahore indicated that 4% had primary infertility and 18% had secondary infertility (Gul S *et al.,* 2019). Research from 2009 highlighted that infertile women experienced a greater degree of emotional disturbance (Naz B & Batool SS, 2017). A case study by Nohram *et al*., pointed out that couples dealing with infertility encounter significant psychological issues, further impacting their physical and mental health (Naz B & Batool SS, 2017).

According to Dieimeelaince *et al*., socio-demographic factors such as education and income significantly affect the quality of life of infertile individuals. Furthermore, emotional aspects and relationships among infertile couples are also influenced (Afrashteh MY & Mirkuhi MG, 2020). Infertility particularly impacts couples' mental health, especially among women, and also affects various aspects of their lives, including physical, emotional, spiritual, and financial well-being (Tao P *et al.,* 2012).

A study by Bushra Naz and Sayada Shahida Batool in Lahore reported that many infertile men and women face social issues and experience isolation from their communities due to negative perceptions associated with childlessness. Additionally, within the Pakistani context, where joint family systems are prevalent, women often face verbal harassment (Hakim A *et al*., 2001).

In our study, the chi-square test applied to analyze the relationship between age and quality of life among infertile individuals yielded a p-value of 0.00. This finding aligns with research by Muhammad Hussain *et al*. in Iran in 2013, which also employed a chi-square test to assess the relationship between age and health, resulting in a significant p-value of 0.002 (Naz B & Batool SS, 2017; Ezzell W, 2016).

Existing literature indicates that low-income populations tend to have a lower quality of life and lower quality of life scores (Royani Z *et al.,* 2019). Our study population primarily consisted of individuals from rural areas, who exhibited lower quality of life.

Nurses play a crucial role in the healthcare system, providing services across various contexts, including hospitals, communities, and home-based care. It is essential for nurses to have a comprehensive understanding of infertility and its impact on quality of life. They offer care based on the nursing process, which includes five key components: assessment, nursing diagnosis, planning, intervention, and outcome evaluation. This study will serve as a valuable resource for nurses in this field.

CONCLUSIONS
The present study conducted in infertility clinics across Khyber-Pakhtunkhwa concluded that both male and female individuals dealing with infertility experience various physical and psychological challenges, leading to a diminished quality of life. The average quality of life score for couples was 63.84 out of a possible 120, as measured by the FERTIQOL tool. Additionally, the findings indicated a poor emotional state, with a score of 14.29, and a mind-body score of 15.49, both reflecting suboptimal conditions. The relational score was recorded at 18, indicating an average relational status, while the social score was 16.05, signifying a poor state of life.

The researcher identified associations between infertility and various socio-demographic factors, including age, gender, education, income, and types of infertility. Notably, gender and education showed significant associations with the quality of life related to infertility, with p-values of 0.00 and 0.16, respectively. Other variables were found to have associations as well, but these were not statistically significant.

Recommendations
The findings from this study highlight the necessity for public policies targeting infertility within the framework of social and health initiatives. Infertility can significantly impact the quality of life for both men and women, rendering this demographic susceptible to a range of issues. Nurses, alongside other healthcare professionals, can offer valuable technical and scientific support to address infertility and the associated stigmas. Moreover, these professionals can collaborate with community leaders to enhance the quality of life, helping prevent health complications arising from infertility.

Implications for Nursing Practice
Nurses need to understand the quality of life experienced by infertile couples. To facilitate this understanding, they should conduct research that, in partnership with other professionals, establishes guidelines and protocols for managing this issue socially and providing healthcare within family settings. Research conducted by nurses also aids in humanizing nursing care and contributes to the prevention of health issues among men and women coping with infertility and its treatments.

Implications for Health Profession Education
The study underscores the significance of education regarding infertility and its impact on the quality of life for both men and women. Training health professionals on this subject is essential for preventing related issues, particularly those concerning mental health. Professionals must possess the knowledge to deliver care that encompasses both physical and psychological health management.

Strengths of the Study
This study represents a pioneering effort in Khyber Pakhtunkhwa to evaluate the quality of life among infertile couples. It was conducted across various infertility clinics, reflecting a wide geographic area in Khyber Pakhtunkhwa, Pakistan. A substantial sample size was obtained using validated tools, which helped minimize bias in both the questionnaire and data collection process.

Limitations of the Study
The study was constrained by its use of a single methodological approach (quantitative and descriptive) to assess the quality of life among infertile couples.

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