Infertility related Stress and Quality of Life among Infertile Women with Polycystic Ovary Syndrome: A cross-sectional study

Dr. Duaa Asim

University of Lahore, Lahore, Pakistan

Dr. Hira Majeed

University of Lahore, Lahore, Pakistan

Corresponding Author: Duaa Asim

Email ID: duaaasim1611@gmail.com

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ABSTRACT

Background: The quality of life (QoL) of infertile women can be significantly affected by the stress that comes with infertility. Combating psychological stress is made easier with resilience as a coping resource. The purpose of this research was to check how infertile women's quality of life is affected by stress connected to infertility and to see if resilience can help to alleviate that stress.

Methods: The subjects of this cross-sectional study were 151 females. Fifty-one infertile women who were seen as outpatients filled out several self-reporting forms, such as the FertiQoL Scale, a questionnaire developed by clinic (For Demographic Data), and a PSS (Perceived Stress Scale). We used basic descriptive statistic for frequency and chi square to look for characteristics that affect reproductive quality of life and to see if resilience mitigated the link between infertility-related stress and fertility quality of life.

Results: Participants Low QoL scores averaged 72.8%. Fertility quality of life was substantially correlated with infertility reasons. Furthermore, resilience was favourably correlated with fertility QoL, whereas stress connected to infertility had a negative effect. The relationship between fertility quality of life and stress caused by infertility is moderate. In particular, low resilience levels differed in the impact of stress associated to infertility on fertility quality of life. The impact of stress connected to infertility on fertility quality of life was mitigated to a greater extent as resilience increased.

Conclusions: In conclusion, our study shows how stress associated to infertility has a major negative effect on the quality of life for women with polycystic ovarian syndrome (PCOS). The results highlight how crucial it is to offer women with PCOS all-encompassing care and interventions that address the psychological as well as the medical components of infertility. Improving coping strategies and general well-being can be achieved by addressing stressors through holistic approaches, support groups, and therapy.

Key Words: Infertility, Quality of life, Infertility-related stress

Introduction:

One of the most prevalent and complicated endocrine conditions, polycystic ovarian syndrome (PCOS), is the primary cause of ovulatory infertility in women of reproductive age. Depending on the diagnostic criteria, PCOS affects 12–21% of women in their reproductive years; however, many instances go undiagnosed (1). Numerous long-term health issues, including a higher likelihood of obesity (2-4). Type 2 diabetes, metabolic limitations, and risk factors for cardiovascular disease (5-7). The Rotterdam criteria are associated with PCOS. It also has reproductive, psychosocial, and cardio-metabolic aspects. Polycystic ovary syndrome, clinical and/or chemical a condition called hyperandrogenism and oligo or anovulation are the 3 Rotterdam criteria that must be met for a PCOS diagnosis on a global scale (8).

Many negative consequences, including infertility, hirsuteness, acne, weight gain, irregular menstruation, and insulin resistance, are common in women with PCOS (9), and these may worsen their already low quality of life (QoL). Concurrently, a woman's quality of life may be negatively impacted by both the infertility itself and the fertility treatment being stressful life events (10). So, it's no surprise that PCOS infertile women tend to have a worse quality of life overall (11). Recent studies have shown that infertile women with polycystic ovary syndrome (PCOS) had a lower specific to a disease quality of life compared to non-infertile women having the same illness. This suggests that infertility-related concerns impact specific to a disease quality of life negatively. Infertile women with polycystic ovary syndrome (PCOS) need further study because no prior research has looked at how infertility-related variables affect disease- specific quality of life. This is because these women lack the ability to properly identify the key factors impacting disease-specific quality of life (12, 13).

Infertility is a common condition among women between the ages of 15 and 49 worldwide. According to earlier research, infertility affects 15.5% of American women of reproductive age, 24% of French women, and 25% of Chinese women. The physical, psychological, and social effects of infertility, such as social isolation, shame, despair, and anxiety, can greatly impact patients' fertility quality of life (QoL). According to recent definitions, infertility is defined as "a disease characterized by the inability to achieve a pregnancy that is clinical after 12 months of uninterrupted, regular sexual activity or due to an impairment of an individual's or partner's capacity to reproduce" (14, 15). The World Health Organization (WHO) states that quality of life (QoL) can be defined as an individual's perception of his or her position in relation to the cultural and value systems of his or her community. Consequently, fertility quality of life encompasses a wide range of an infertility patient's living conditions at that particular time. Quality of life (QoL) was lower for infertile women compared to fertile women throughout infertility, according to multiple research (16, 17). There may be unintended monetary costs to communities and families as a result of infertile women's poor quality of life, which in turn correlates negatively with treatment adherence. If the factors that affect reproductive quality of life can be

identified, then infertile women can benefit from integrated care and personalized treatments that improve fertility quality of life (18, 19).

Depression, anxiety, and a diminished quality of life are some of the negative mental health outcomes associated with polycystic ovary syndrome, according to this and other studies (20, 21). These differences in mental health are present across all PCOS phenotypes and all age groups, including adolescents (22, 23). PCOS can have a devastating effect on women's mental health and overall quality of life in terms of their physical health (21, 24). There is evidence that women with polycystic ovary syndrome are more likely to suffer from depression than the general female population. This conclusion has been validated by other groups (25, 26). In a similar vein, women with PCOS tend to worry more than healthy women. Research has also shown that PCOS women tend to experience elevated levels of anxiety (27, 28) There is a risk that PCOS symptoms and co-morbidities will have a negative impact on mental health. Poor psychological consequences can occur as a result of dealing with the illness itself, infertility concerns, feelings of femininity and sexuality loss, problems with appearance, and low confidence (29, 30).

In recent scientific studies, the effect of stress connected to infertility on fertility and quality of life has become a more significant concern. Social networks, relationships with spouses, and mental and physical illnesses caused by infertility are all considered forms of infertility-related stress. In many societies, particularly in China, stigma and guilt are frequently associated with infertility and childlessness. Consequently, women who are infertile may experience intense feelings of social stress and loneliness. Furthermore, Ganth et al. discovered that the majority of infertile couples were unhappy in their marriages, which may put women at risk for further marital stress (31, 32). We widely acknowledge that receiving an infertility diagnosis and treatment can lead to significant levels of physical and mental stress. Numerous well-researched studies have revealed that infertile women appear to be under a great deal more stress and hardship than men who are infertile. Consequently, a life issue and a major reduction in their quality of life connected to fertility may arise from the tremendous stress that infertile women may experience (33).

Women undergoing infertility therapy experience emotional anguish. Fertility-related quality of life is associated with anxiety and depression, and the stress associated with fertility significantly contributes to emotional distress. When diagnosed with female-factor infertility, many women reported feeling guilty, having personal responsibility, and having a poor opinion of themselve. High levels of fertility-related anxiety were also reported by infertile women with medium or lower socioeconomic status who lived in rural areas. According to the information currently available, infertile women frequently experience depression and anxiety as mental health problems. Infertile women experienced much higher rates of psychological anguish than fertile women did. Women who are infertile also endure sexual dysfunction, which lowers their quality of life (34). In addition to hormonal, reproductive, and metabolic

issues, there has been mounting evidence in recent years linking PCOS to a marked decline in health-related quality of life as well as a decline in mental health (35, 36).

This study attempts to close a significant gap between studies by investigating the quality of life of PCOS affected women in relation to stress associated with infertility. Despite the fact that PCOS and infertility are both common, little is known about the particular stressors that women suffering from PCOS-related infertility have to face and how these affect their quality of life. By bringing attention to this neglected field, the study aims to improve the lives of women who deal with PCOS and infertility.

Materials and Methods:

To collect data from women suffering from polycystic ovary syndrome, we searched for fertility clinics in Lahore, Pakistan. We tried approaching fertility centers that had larger outpatient ratio. Women experiencing infertility were recruited for a voluntary one time/ single assessment at three major fertility clinics in Lahore, Pakistan. In total, 151 women were willing to participate and returned completed questionnaires. Before collecting the data, we clearly defined our inclusion and exclusion criteria. The inclusion criteria included 1) Women eighteen year of age or above (11), 2) Women who were not receiving treatment for psychological disorders(38). 3) Belonged to a heterosexual married or cohabiting couple (38). 4) Women who were willing to voluntarily complete a multi-item questionnaire(11, 38). The exclusion criteria included 1) Women had additional serious illnesses at this stage, such as malignancies and severe cardiac and cerebrovascular problems (11). 2) Women with a history of mental illness (11). 3) Women with cognitive and/or intellectual disabilities(27). 4) The study excluded women who had not been in heterosexual relationships (38). We used the Perceived Stress Scale to assess subjective psychological distress and determine the prevalence of psychological distress on a 5-point Likert scale. The perceived stress scale is considered to be a reliable, valid instrument that can be applied efficiently, especially in research. To measure infertility-related distress and its impact on quality of life, Fertility Quality of Life Questionnaire was used. FertiQoL is the first internationally validated self-report questionnaire that can be considered as a tool to assess the quality of life of an individual with infertility.[1]-3. • FertiQoL, available in many languages, takes approximately 10 to 15 minutes to complete.2,3. Two single items capture an overall evaluation of physical health (“How would you rate your health”) and satisfaction with quality of life (“Are you satisfied with your quality of life”). These two items provide the background health and life satisfaction context for the evaluation of fertility quality of life. The remaining 34 items are structured as a core section related to personal and interpersonal quality of life and an optional section related to treatment quality of life. In core fertiQol, a total of 12 items assesses the impact of fertility problems in the emotional (6 items) and mind-body (6 items) domains. The Emotional subscale assesses the extent to which the individual experiences negative

emotions associated with the experience of fertility problems (e.g., jealousy & resentment, sadness, depression). The Mind-Body subscale assesses to what extent the individual experiences negative physical symptoms (e.g., fatigue, pain) and cognitive or behavioral disruptions (e.g., poor concentration, disrupted daily activities, delayed life plans) as a result of the infertility. A further 12 items assesses the impact of fertility problems in the relational (6 items) and social (6 items) domains. The Relational subscale assesses the extent to which components (e.g., sexuality, communication, commitment) of the marital relationship or partnership have been affected by fertility problems. The Social subscale measures the extent to which social interactions have been affected by fertility problems (e.g., social inclusion, expectations, stigma, support). In treatment FertiQol, ten items assess quality of life during treatment, which includes any medical intervention or consultation, according to treatment environment (6 items) and treatment tolerability (4 items). The Treatment Environment subscale assesses accessibility and quality of treatment and interactions with medial staff. The Treatment Tolerability subscale assesses the experience of mental and physical symptoms and disruption in daily life due to treatment.

Results:

Participant Low QoL scores averaged 72.8%. Fertility quality of life was substantially correlated with infertility reasons. Furthermore, resilience was favorably correlated with fertility QoL, whereas stress connected to infertility had a negative effect. The relationship between fertility quality of life and stress caused by infertility is moderate. In particular, low resilience levels differed in the impact of stress associated to infertility on fertility quality of life. The impact of stress connected to infertility on fertility quality of life was mitigated to a greater extent as resilience increased.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	152.049[a]	4	.000
Likelihood Ratio	74.610	4	.000
Linear-by-Linear Association	27.093	1	.000
N of Valid Cases	151		

Discussion:

Consistent with expectations, our study's participants reported high levels of stress associated with infertility. Nevertheless, in comparison to the other fertility-related stress subscales, their need for parenthood subscale ratings was relatively greater. The results showed that our participants' fertility core quality of life was negatively correlated with stress associated to the need for parenting, suggesting that they were stressed out over not being able to become parents. Our findings showed that there was still a lack of fertility quality of life (QoL) among women who were infertile, even if they had access to modern and inexpensive treatments like IVF-ET. Consistent with other research, we found that financial strain and individual causes of infertility significantly impact fertility quality of life (FertiQoL) scores.

Limitations of the Present Study:

Some limitations must be considered when interpreting this study's findings. First, the cross-sectional study design only allowed for interpretation of associations between the variables and ability to establish causality or observe changes over time was limited. Second, the limited sample size of 151 women and lack of diversity may restrict generalizability. Third, Study may not fully account for psychological factors like depression, anxiety, or personality traits, potentially confounding results. Another limitation was Self-reported questionnaires were used that can introduce biases, affecting data accuracy. Fourth, variations in polycystic ovary syndrome symptom severity, treatments, and other medical conditions among participants could impact findings' consistency and interpretation.

Recommendations:

Given these limitations, future studies applying a longitudinal study design with larger samples whose aim is to monitor long-term changes in stress and quality of life will be helpful. Furthermore, conducting intervention studies to evaluate treatments for reducing stress and improving quality of life in women with polycystic ovary syndrome can be of great support for women suffering from infertility related stress and poor quality of life. A holistic treatment approach, including psychological counseling, stress management, and support groups can be encouraged. The results obtained can be monitored to have a better understanding of which treatment is more effective in reducing stress and improving quality of life in women with polycystic ovary syndrome. Diverse populations can be included in studies to enhance generalizability. Lastly, a combination of qualitative and quantitative methods can be used for deeper insights into the experiences of infertile women with polycystic ovary syndrome.

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Data availability statement:
Due to the nature of the research, the data are not publicly available as it contains information that could compromise the privacy of research participants. However, the data can be provided by the corresponding author, Duaa Asim, upon reasonable request.

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Table 1: Fertility Quality of Life Questionnaire Results

	Frequency	**Percent**
Low QOL	110	72.8%
Moderate QOL	31	20.5%
High QOL	10	6.6%
Total	151	100.0%

Table 2: Perceived Stress Scale Results

PSS		
	Frequency	**Percent**
Low Stress (1-13)	10	6.6%
Moderate Stress (14-26)	61	40.4%
High Perceived Stress (27-40)	80	53.0%
Total	151	100.0%

Table 3: Crosstabulation of Perceived Stress Scale and FertiQol Questionnaire Results:

		QOL			**Total**
		Low QOL	**Moderate QOL**	**High QOL**	
PSS	Low Stress (1-13)	0	0	10	10
	Moderate Stress (14-26)	50	11	0	61
	High Perceived Stress (27-40)	60	20	0	80
Total		110	31	10	151

Figure 1: Fertility Quality of Life Questionnaire Results

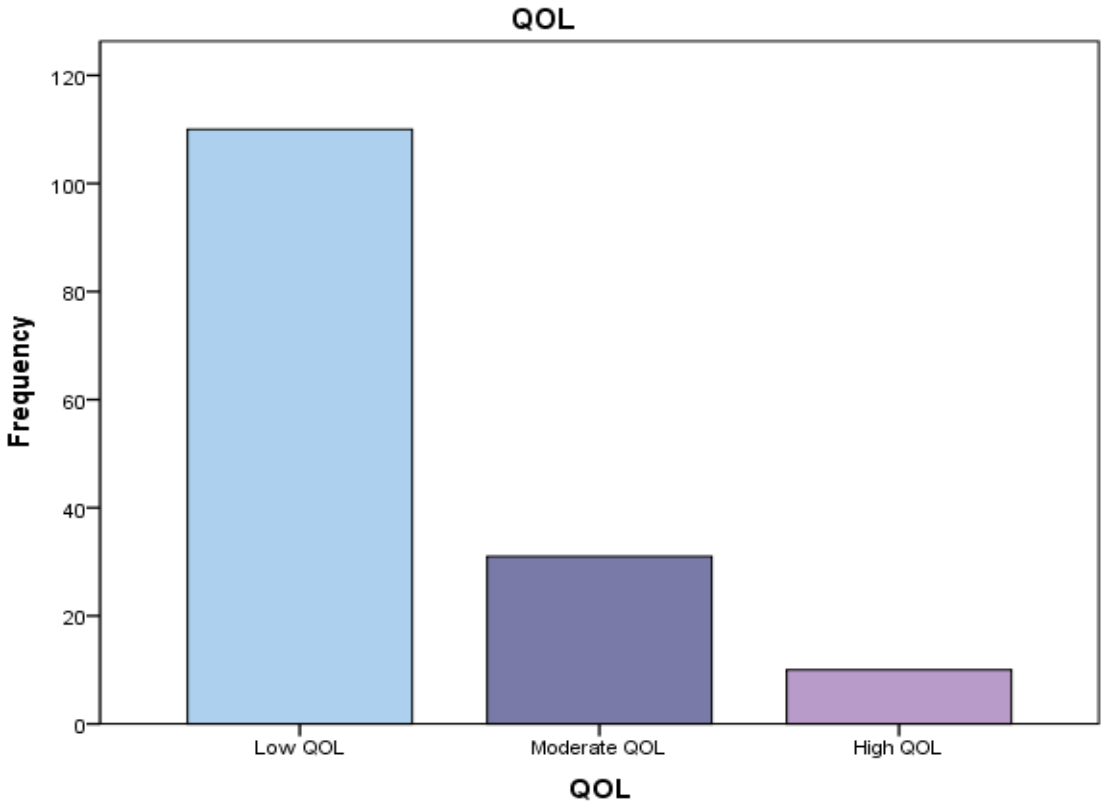

Figure 2: Perceived Stress Scale Results

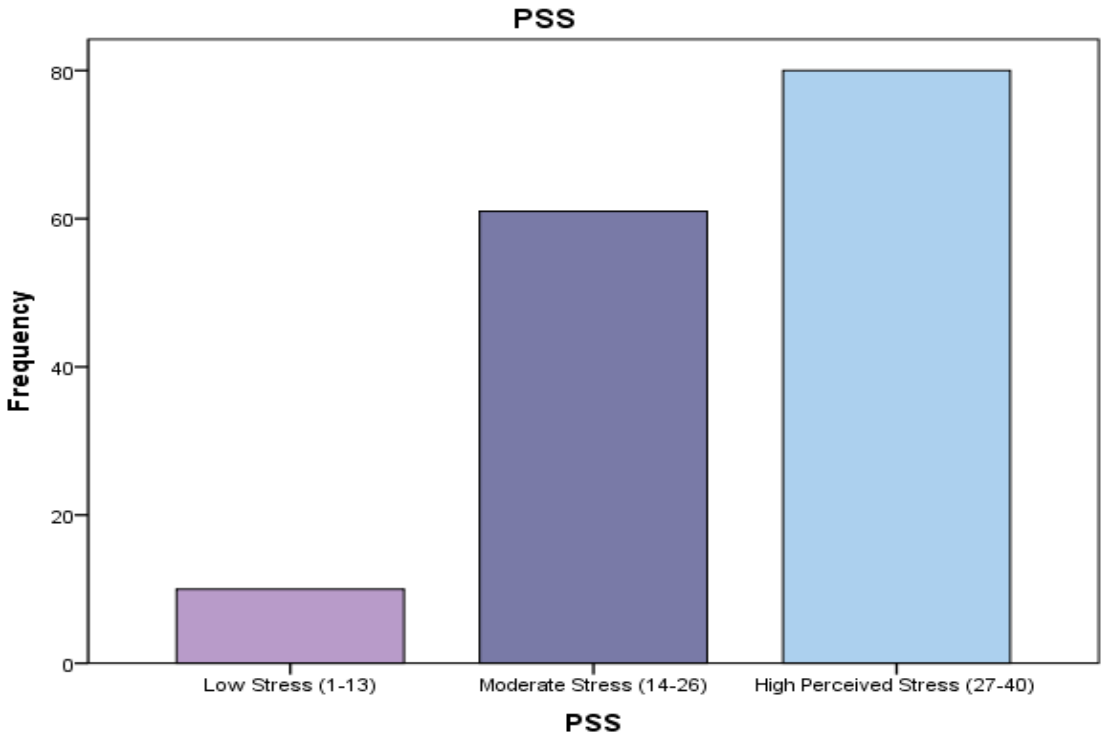
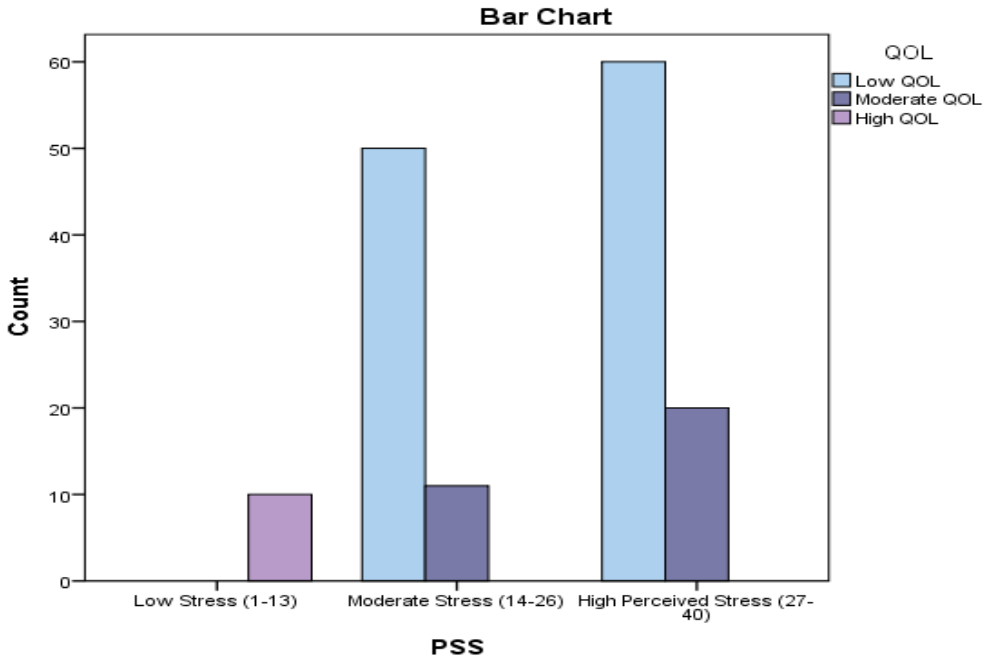
Figure 3: Crosstabulation of Perceived Stress Scale and FertiQol Questionnaire Results: