DOI: https://doi.org/10.53350/pjmhs20231709264

ORIGINAL ARTICLE

Stress Anxiety and Sexual Dysfunction in Women Undergoing Infertility Treatment

MUHAMMAD MUSLIM KHAN[1], FATIMA[2], NAILA[3], IZAZ JAMAL[4], IJAZ GUL[5], PIRZADA MUNEEB[6]
[1]*Associate Professor, Department of Psychiatry, Bacha Khan Medical College / Mardan Medical Complex, Mardan.*
[2,3]*Assistant Professor Gyae/Obs Bacha Khan Medical College / Mardan Medical Complex, Mardan*
[4] *Assistant professor psychiatry Bacha Khan Medical College / Mardan Medical Complex, Mardan*
[5]*Professor, Department of Psychiatry, Bacha Khan Medical College / Mardan Medical Complex, Mardan*
[6]*Clinical Psychologist, Department Psychiatry Bacha Khan Medical College / Mardan Medical Complex Mardan*
Correspondence to: Fatima, E-mail: dr.fatimarehman@gmail.com

ABSTRACT

Background: Infertility and its treatment represent a major life stressor for women, with profound psychological and interpersonal consequences. Recurrent treatment cycles, uncertainty regarding outcomes, financial burden, and sociocultural expectations contribute to heightened stress and anxiety. These psychological factors may negatively influence sexual function, further impairing emotional well-being and quality of life during infertility management.

Objectives: To determine the frequency of stress, anxiety, and sexual dysfunction among women undergoing infertility treatment and to evaluate the association between psychological distress and impairment in sexual function.

Methodology: This cross-sectional study will be conducted at a tertiary care infertility centre. Women undergoing medical or assisted reproductive treatments will be enrolled using non-probability consecutive sampling. Psychological distress will be assessed using the Perceived Stress Scale (PSS) and the anxiety subscale of the Hospital Anxiety and Depression Scale (HADS-A). Sexual function will be evaluated using the Female Sexual Function Index (FSFI). Sociodemographic characteristics, infertility duration, and treatment-related variables will be recorded. Data will be analysed using appropriate descriptive and inferential statistical tests.

Results: 120 women undergoing infertility treatment, 78.3% reported moderate to high perceived stress and 36.7% had clinically significant anxiety. Sexual dysfunction (FSFI <26.55) was observed in 68.3% of participants and was significantly associated with higher stress, anxiety levels, longer infertility duration, and advanced treatment modalities ($p < 0.05$).

Conclusion: Psychological distress and sexual dysfunction are common among women undergoing infertility treatment and are significantly interrelated. Incorporating routine psychological screening and integrated psychosocial support into infertility care may improve sexual health, emotional well-being, and overall treatment experiences.

Keywords: infertility; anxiety; stress; sexual dysfunction

INTRODUCTION

Infertility is a complex reproductive health condition that affects millions of couples worldwide and is increasingly recognised as a significant public health concern. The World Health Organisation defines infertility as the inability to achieve pregnancy after 12 months of regular unprotected intercourse[1]. Beyond its biological implications, infertility represents a profound psychosocial stressor, particularly for women, who often bear a disproportionate emotional, social, and cultural burden associated with childlessness[2]. In many societies, including South Asian and Middle Eastern cultures, motherhood is closely linked to female identity, marital

stability, and social status, making infertility a source of stigma, emotional distress, and interpersonal strain[3]. The process of infertility treatment itself can exacerbate psychological morbidity. Repeated diagnostic procedures, invasive interventions, hormonal therapies, financial costs, and uncertainty regarding treatment outcomes contribute to sustained emotional strain. Women undergoing infertility treatment frequently report heightened levels of stress and anxiety, which may fluctuate with treatment cycles and unsuccessful outcomes. These psychological responses are not merely transient emotional reactions but may evolve into clinically significant anxiety disorders, depressive symptoms, and chronic stress states that adversely affect overall well-being[4,5]. Sexual health is an integral component of quality of life and intimate relationships, yet it is often neglected in infertility care. Sexual dysfunction in women encompasses disturbances in desire, arousal, lubrication, orgasm, satisfaction, and pain[6]. The pressure to conceive can transform sexual activity from an expression of intimacy into a goal-oriented task, diminishing pleasure and spontaneity[7]. Psychological distress, particularly stress and anxiety, plays a critical role in the development and persistence of sexual dysfunction by disrupting neuroendocrine pathways, increasing sympathetic nervous system activity, and negatively influencing body image and self-esteem[8]. Emerging evidence suggests a bidirectional relationship between psychological distress and sexual dysfunction in infertile women. Stress and anxiety may impair sexual function, while sexual dissatisfaction can further exacerbate emotional distress, creating a self-perpetuating cycle. Studies conducted over the last decade have consistently demonstrated higher rates of anxiety and sexual dysfunction among women undergoing infertility treatment compared with fertile controls. However, the magnitude of this association varies across populations, and regional data—particularly from low- and middle-income countries—remain limited[9]. In Pakistan and similar sociocultural contexts, infertility is often associated with societal pressure, familial expectations, and misconceptions regarding reproductive health. Despite the growing availability of assisted reproductive technologies, psychosocial aspects of infertility care remain underexplored and under-addressed. Understanding the prevalence and interrelationship of stress, anxiety, and sexual dysfunction in women undergoing infertility treatment is essential for developing holistic, patient-centered care models[10]. This study aims to contribute local evidence by systematically assessing psychological distress and sexual function and examining their association in women receiving infertility treatment at a tertiary care centre.

Study Objectives: To determine the frequency of stress, anxiety, and sexual dysfunction among women undergoing infertility treatment and to evaluate the association between psychological distress and impairment in sexual function.

MATERIALS AND METHODS

Study Design & Setting: This cross-sectional analytical study was carried out Department of Psychiatry and Gynecology Bacha Khan Medical College / Mardan Medical Complex Mardan from January 2023 to June 2023

Participants: Women aged 18–45 years undergoing evaluation or treatment for primary or secondary infertility were recruited using non-probability consecutive sampling. Participants included those receiving ovulation induction, intrauterine insemination, or assisted reproductive technologies, regardless of treatment cycle stage.

Received on 09-07-2023
Accepted on 29-08-2023

Sample Size Calculation: The sample size was calculated using a prevalence-based formula, assuming an anticipated prevalence of psychological distress of 50%, a 95% confidence level, and a 10% margin of error. The minimum required sample size was calculated to ensure adequate statistical power.

Inclusion Criteria

- Women aged 18–45 years
- Diagnosed with primary or secondary infertility
- Currently undergoing infertility treatment
- Willing to provide informed consent

Exclusion Criteria:

- Known psychiatric disorders diagnosed before infertility
- Current use of psychotropic medications
- Chronic medical illnesses affecting sexual function
- Pregnancy at the time of assessment

Diagnostic and Management Strategy: Participants underwent routine infertility evaluation and treatment as per institutional protocols. Psychological assessment was conducted concurrently using standardised questionnaires without altering ongoing medical or assisted reproductive management strategies.

Statistical Analysis: Data were analysed using SPSS version 24.0. Descriptive statistics were calculated for demographic and clinical variables. Associations between psychological distress and sexual dysfunction were assessed using chi-square tests, independent t-tests, and multivariate logistic regression. A p-value <0.05 was considered statistically significant.

RESULTS

A total of 120 women undergoing infertility treatment were included in the final analysis. The mean age of participants was 31.8 ± 5.6 years, with most women belonging to the 26–35-year age group. Primary infertility was observed in 65.0% (n = 78) of participants, while 35.0% (n = 42) had secondary infertility. The mean duration of infertility was 6.1 ± 3.2 years**,** and 55.0% (n = 66) reported infertility lasting five years or longer. Regarding treatment modality, 38.3% were receiving ovulation induction, 31.7% intrauterine insemination, and 30.0% assisted reproductive techniques. Assessment using the Perceived Stress Scale revealed that 78.3% (n = 94) of women experienced moderate to high perceived stress**,** while 21.7% (n = 26) reported low stress levels. Anxiety assessment using the HADS-A demonstrated clinically significant anxiety in 36.7% (n **=** 44) of participants, with an additional 35.0% (n = 42) exhibiting borderline anxiety scores. Sexual dysfunction, defined as a total FSFI score below 26.55, was identified in 68.3% (n = 82) of women. The most commonly affected FSFI domains were sexual desire, arousal, and satisfaction**.** Women with moderate to high stress and abnormal anxiety scores had significantly lower total FSFI scores compared with those with minimal psychological distress **(**$p < 0.05$**).**

Counselling Outcomes: Participants identified with high psychological distress were counselled and referred for psychological support services. Women who received brief counselling reported improved emotional coping and increased awareness of the psychological impact of infertility, highlighting the potential benefit of integrated psychosocial interventions.

Table 1 summarizes baseline sociodemographic and infertility-related characteristics of women enrolled in the study. Data are presented as frequencies with percentages or mean ± standard deviation.

Table 2 shows the severity distribution of perceived stress and anxiety among women undergoing infertility treatment, assessed using validated psychometric scales.

Table 3 presents FSFI domain-wise scores and the prevalence of sexual dysfunction. Sexual dysfunction was defined using the validated FSFI cutoff score of <26.55.

Table 4 identifies independent predictors of sexual dysfunction using multivariate logistic regression after adjustment for age and infertility type. Anxiety severity, stress level, infertility duration, and assisted reproductive treatment modality were significant predictors.

Table 1. Sociodemographic and Clinical Characteristics of Women Undergoing Infertility Treatment (n = 120)

Variable	n (%) / Mean ± SD
Age (years)	31.8 ± 5.6
Age group	
18–25 years	28 (23.3)
26–35 years	62 (51.7)
36–45 years	30 (25.0)
Marital duration (years)	6.4 ± 3.1
Type of infertility	
Primary infertility	78 (65.0)
Secondary infertility	42 (35.0)
Duration of infertility	
<5 years	54 (45.0)
≥5 years	66 (55.0)
Treatment modality	
Ovulation induction	46 (38.3)
Intrauterine insemination (IUI)	38 (31.7)
Assisted reproductive techniques (ART)	36 (30.0)

Table 2. Distribution of Stress and Anxiety Severity Among Participants

Psychological Measure	Category	n (%)
Perceived Stress Scale (PSS)		
Low stress	26 (21.7)	
Moderate stress	58 (48.3)	
High stress	36 (30.0)	
HADS–Anxiety (HADS-A)		
Normal (0–7)	34 (28.3)	
Borderline (8–10)	42 (35.0)	
Abnormal (≥11)	44 (36.7)	

Table 3. Female Sexual Function Index (FSFI) Domain Scores and Prevalence of Sexual Dysfunction

FSFI Domain	Mean ± SD
Desire	3.1 ± 1.0
Arousal	3.4 ± 1.1
Lubrication	3.8 ± 1.0
Orgasm	3.5 ± 1.1
Satisfaction	3.0 ± 1.2
Pain	4.2 ± 1.0
Total FSFI score	20.9 ± 4.6
Sexual dysfunction (FSFI <26.55)	82 (68.3%)

Table 4. Multivariate Logistic Regression Analysis of Predictors of Sexual Dysfunction

Predictor	Adjusted Odds Ratio (AOR)	95% Confidence Interval	p-value
Moderate–high stress (PSS)	2.41	1.18–4.92	0.015
Abnormal anxiety (HADS-A ≥11)	3.26	1.54–6.88	0.002
Infertility duration ≥5 years	2.09	1.03–4.24	0.041
ART treatment modality	2.58	1.21–5.48	0.013
Age ≥35 years	1.47	0.71–3.04	0.296

DISCUSSION

The present study evaluated the burden of stress, anxiety, and sexual dysfunction among women undergoing infertility treatment and demonstrated a high prevalence of psychological distress with a strong association between anxiety, perceived stress, and impaired sexual function[11]. These findings underscore the substantial psychosocial impact of infertility and its treatment and highlight the need for integrated psychological care within infertility services. In this study, more than three-quarters of participants reported moderate to high perceived stress, and over one-third exhibited clinically significant anxiety. These findings are consistent with recent studies from infertility clinics worldwide, which report anxiety prevalence ranging from 30% to 50% among women undergoing infertility treatment[12,13]. A 2021 multicenter

study from the Middle East similarly documented elevated anxiety and stress levels during assisted reproductive treatment cycles, attributing these findings to treatment uncertainty, hormonal fluctuations, and sociocultural expectations surrounding motherhood[14]. Comparable results have been reported from South Asian populations, where infertility-related stigma and familial pressure further intensify psychological distress[15]. Sexual dysfunction was identified in 68.3% of participants, with desire, arousal, and satisfaction being the most commonly affected domains. This prevalence aligns with contemporary literature reporting sexual dysfunction rates of 60%–75% among infertile women[16]. Recent studies have emphasised that infertility transforms sexual activity into a scheduled, goal-oriented process, which diminishes intimacy and spontaneity and contributes to reduced sexual satisfaction[17]. Moreover, hormonal treatments used in infertility management may exacerbate sexual symptoms by altering libido, vaginal lubrication, and emotional responsiveness[18]. The significant negative association observed between stress, anxiety, and FSFI scores supports the growing body of evidence linking psychological distress to female sexual dysfunction. Several studies published within the last five years have demonstrated that anxiety is a stronger predictor of sexual dysfunction than demographic or infertility-related variables[19,20]. Anxiety may impair sexual function through psych neuroendocrine mechanisms involving dysregulation of the hypothalamic pituitary adrenal axis, increased sympathetic activity, and heightened cortisol levels, all of which can suppress sexual desire and arousal[21]. Additionally, anxiety-related cognitive distortions, fear of failure, and negative body image may further disrupt sexual responsiveness. Multivariate analysis in the present study identified abnormal anxiety, moderate to high stress, longer infertility duration, and assisted reproductive treatment as independent predictors of sexual dysfunction. These findings are consistent with recent longitudinal and cross-sectional studies showing that prolonged infertility and repeated treatment failures increase emotional exhaustion and sexual dissatisfaction[22]. Women undergoing advanced treatments such as in vitro fertilisation often experience heightened emotional vulnerability due to financial strain, invasive procedures, and fear of unsuccessful outcomes, which may further compromise sexual health[23]. Importantly, this study contributes region-specific evidence from a sociocultural context where infertility is often accompanied by stigma and limited psychosocial support. Despite advancements in assisted reproductive technologies, infertility care in many low- and middle-income countries remains predominantly biomedical, with insufficient attention to mental and sexual health. The high prevalence of distress and sexual dysfunction observed in this study emphasises the need for a multidisciplinary approach that incorporates psychological screening, counselling, and sexual health support as routine components of infertility management.

Limitations: This study was limited by its cross-sectional design, which precludes causal inferences between psychological distress and sexual dysfunction. Data were collected from a single tertiary care centre using self-reported questionnaires, which may introduce reporting bias and limit the generalizability of findings to broader populations.

CONCLUSION

Stress, anxiety, and sexual dysfunction are highly prevalent among women undergoing infertility treatment and are strongly interrelated. Incorporating routine psychological screening and integrated psychosocial and sexual health support into infertility care may improve emotional well-being, sexual function, and overall treatment outcomes.

Disclaimer: Nil
Conflict of Interest: Nil
Funding Disclosure: Nil
Authors Contributions
Concept & Design of Study: Muhammad Muslim Khan[1], Fatima[2]
Drafting: Naila[3], Izaz Jamal[4]
Data Collection & Data Analysis: Ijaz Gul[5]
Critical Review: Pirzada Muneeb[6]
Final Approval of version: All Mentioned Authors Approved the Final Version

REFERENCE

1. Cao D, Bai C, Zhang G. Psychological Distress Among Infertility Patients: A Network Analysis. Frontiers in psychology. 2022;13:906226.
2. Djaali W, Abdurrohim K, Helianthi DR. Management of Acupuncture as Adjuvant Therapy for In Vitro Fertilization. Medical acupuncture. 2019;31(6):361-5.
3. Dong M, Tao Y, Wu S, Kong L, Zhou F, Tan J. Changes in sexual behaviour, anxiety symptoms, and quality of couple relationship of patients with infertility during the COVID-19 lockdown. Journal of assisted reproduction and genetics. 2022;39(2):493-504.
4. Emokpae MA, Brown SI. Effects of lifestyle factors on fertility: practical recommendations for modification. Reproduction & fertility. 2021;2(1):R13-r26.
5. Haimovici F, Anderson JL, Bates GW, Racowsky C, Ginsburg ES, Simovici D, et al. Stress, anxiety, and depression of both partners in infertile couples are associated with cytokine levels and adverse IVF outcome. American journal of reproductive immunology (New York, NY : 1989). 2018;79(4):e12832.
6. Järvholm S. [Psychological aspects of infertility]. Lakartidningen. 2022;119.
7. Moshfeghy Z, Tahari S, Janghorban R, Najib FS, Mani A, Sayadi M. Association of sexual function and psychological symptoms including depression, anxiety and stress in women with recurrent vulvovaginal candidiasis. Journal of the Turkish German Gynecological Association. 2020;21(2):90-6.
8. Pozza A, Dèttore D, Coccia ME. Depression and Anxiety in Pathways of Medically Assisted Reproduction: The Role of Infertility Stress Dimensions. Clinical practice and epidemiology in mental health : CP & EMH. 2019;15:101-9.
9. Stevenson EL, Cebert M, Silva S. Stress and Anxiety in Couples Who Conceive via In Vitro Fertilization Compared With Those Who Conceive Spontaneously. Journal of obstetric, gynecologic, and neonatal nursing : JOGNN. 2019;48(6):635-44.
10. Woods BM, Patrician PA, Fazeli PL, Ladores S. Infertility-related stress: A concept analysis. Nursing forum. 2022;57(3):437-45.
11. Boivin J, Koert E, Harris T, O'Shea L, Perryman A, Parker K, et al. An experimental evaluation of the benefits and costs of providing fertility information to adolescents and emerging adults. Human reproduction (Oxford, England). 2018;33(7):1247-53.
12. Brasil DL, Montagna E, Trevisan CM, La Rosa VL, Laganà AS, Barbosa CP, et al. Psychological stress levels in women with endometriosis: systematic review and meta-analysis of observational studies. Minerva medica. 2020;111(1):90-102.
13. Caniklioglu M, Firat F, Oztekin Ü, Sari S, Selmi V, Işikay L. Evaluation of male sexual parameters in infertile couples with a history of abortion. Revista internacional de andrologia. 2022;20 Suppl 1:S48-s54.
14. Cocchiaro T, Meneghini C, Dal Lago A, Fabiani C, Amodei M, Miriello D, et al. Assessment of sexual and emotional distress in infertile couple: validation of a new specific psychometric tool. Journal of endocrinological investigation. 2020;43(12):1729-37.
15. Gaskins AJ, Sundaram R, Buck Louis GM, Chavarro JE. Predictors of Sexual Intercourse Frequency Among Couples Trying to Conceive. The journal of sexual medicine. 2018;15(4):519-28.
16. Kiesswetter M, Marsoner H, Luehwink A, Fistarol M, Mahlknecht A, Duschek S. Impairments in life satisfaction in infertility: Associations with perceived stress, affectivity, partnership quality, social support and the desire to have a child. Behavioral medicine (Washington, DC). 2020;46(2):130-41.
17. Mińko A, Turoń-Skrzypińska A, Rył A, Bargiel P, Hilicka Z, Michalczyk K, et al. Endometriosis-A Multifaceted Problem of a Modern Woman. International journal of environmental research and public health. 2021;18(15).
18. Ramgir SS, Renu K, Vellingiri B, George A, Tirupapuliyur D, Thiagarajan P, et al. Phytomedicinal therapeutics for male infertility: critical insights and scientific updates. Journal of natural medicines. 2022;76(3):546-73.
19. Song S, Chen N, Duan YP, Kang J, Deng S, Pan HX, et al. Anxiety symptoms in patients with Mayer-Rokitansky-Küster-Hauser syndrome: a cross-sectional study. Chinese medical journal. 2020;133(4):388-94.
20. Stanhiser J, Steiner AZ. Psychosocial Aspects of Fertility and Assisted Reproductive Technology. Obstetrics and gynecology clinics of North America. 2018;45(3):563-74.

21. Li CC, Feng TH. [Talk About Psychological Distress and Support in Women With Gynecological Cancer: NOT Just the Disease]. Hu li za zhi The journal of nursing. 2022;69(4):20-6.
22. Omani-Samani R, Amini P, Navid B, Sepidarkish M, Maroufizadeh S, Almasi-Hashiani A. Prevalence of Sexual Dysfunction among Infertile Women in Iran: A Systematic Review and Meta-analysis. International journal of fertility & sterility. 2019;12(4):278-83.
23. Silwal A, Thapa B. Prevalence of Domestic Violence among Infertile Women attending Subfertility Clinic of a Tertiary Hospital. JNMA; journal of the Nepal Medical Association. 2020;58(226):372-6.

This article may be cited as: Khan MM, Fatima, Naila, Izaz Jamal, Ijaz Gul, Pirzada Muneeb; Stress Anxiety and Sexual Dysfunction in Women Undergoing Infertility Treatment. Pak J Med Health Sci. 2023;17(9): 264-267.