

Psychological Aspects of Infertility: A Mini Review

Saffa Zaman¹, Raisa A. Aringazina^{2*}, Faiza Arshad³

1. General Medicine Faculty, Sub-Internal Diseases, West Kazakhstan Marat Ospanov Medical University, Aktobe, Kazakhstan

2. Department of Internal Diseases No. 1, West Kazakhstan Marat Ospanov Medical University, Aktobe, Kazakhstan

3. General Medicine Faculty, Sub-Internal Diseases, West Kazakhstan Marat Ospanov Medical University, Aktobe, Kazakhstan

Received: 03/04/2024

Accepted: 30/05/2024

Published: 20/06/2024

Abstract

Infertility is a disorder of the reproductive system accompanied by related problems. People in a couple want to live a normal life and have healthy children. But life presents them with a complicated scenario and many other wrong decisions. Infertility is a serious psychological problem that affects mental health and social relationships. This review examines the psychological effects of infertility with emphasis on their relationship with reproductive outcomes. Existing research emphasizes the role of stress, anxiety, depression, and lifestyle factors in affecting the hormonal and immune systems, thereby affecting fertility. In addition, the emotional effects of assisted reproductive technologies (ART) such as in vitro fertilization (IVF) contribute to the cycle of stress and infertility. The review also emphasizes the need for holistic treatment models that address both the physical and psychological aspects of infertility. Research shows that infertile women demonstrate higher levels of anxiety and depression compared to fertile women and that infertility affects relationships, social dynamics, and quality of life. In this regard, this manuscript brings together interdisciplinary perspectives on how mental health affects reproductive outcomes and vice versa. It advocates a biopsychosocial model that takes into account the physiological, emotional, and cultural aspects of infertility.

Keywords: Psychology, Infertility, Reproductive Health, Stress, Hormonal Dysregulation

Introduction

Infertility is a deeply personal and emotionally charged experience with far-reaching implications. Beyond its physical challenges, infertility profoundly affects individuals' emotional well-being, relationships, and social identities. While medical advancements like assisted reproductive technologies have improved treatment success rates, the psychological burden of infertility persists (1,2).

Mental health plays a critical role in infertility, creating a bidirectional relationship. Psychological stress, anxiety, and depression influence hormonal and immune systems, potentially impairing fertility. Simultaneously, infertility diagnosis and treatment intensify emotional distress. Sharon Covington and Linda Hammer Burns, in *Infertility Counseling: A Comprehensive Handbook for Clinicians* (3), highlight that addressing the psychological needs of infertility patients is vital for improving their quality of life and treatment outcomes.

Cultural expectations also play a crucial role, as societal norms often equate parenthood with success and fulfillment. Marcia Inhorn and Frank van Balen, in *Infertility Around the Globe* (4), explore the cultural pressures and stigmas surrounding childlessness, emphasizing the need for culturally sensitive interventions.

The diagnosis of infertility and subsequent treatment can be a significant source of psychological distress for individuals and couples. Infertility can evoke feelings of grief, loss, shame, and guilt, potentially leading to anxiety,

depression, and relationship difficulties. The pressure and uncertainty surrounding fertility treatments, particularly assisted reproductive technologies like in vitro fertilization (IVF), can further amplify stress and anxiety. Psychological factors, such as stress, depression, and anxiety, can influence reproductive hormones and the immune system, potentially impacting fertility. Chronic stress, for example, can disrupt the hypothalamic-pituitary-gonadal (HPG) axis, which regulates hormone production essential for reproduction (5,6). The psychological burden of infertility extends beyond the individual, impacting relationships and social support systems. Communication difficulties, feelings of isolation, and different coping mechanisms within a couple can strain relationships. Social stigma and cultural expectations regarding parenthood can also contribute to feelings of shame and isolation (7,8).

The objective of the study was to determine and review the psychological aspects of infertility.

Methods and Materials

The article draws upon peer-reviewed journal articles, global health organization reports, and seminal books, including: *A Comprehensive Handbook for Clinicians* by Sharon Covington and Linda Hammer Burns, *Mind/Body Fertility Connection* by James Schwartz, *Infertility Around the Globe* edited by Marcia Inhorn and Frank van Balen, *Conquering Infertility* by Alice Domar.

***Corresponding author:** Raisa A. Aringazina, Department of Internal Diseases No. 1, West Kazakhstan Marat Ospanov Medical University, Aktobe, Kazakhstan, Email:raisa_aringazina@mail.ru

A combination of quantitative studies (e.g., hormonal and inflammatory marker analysis) and qualitative research (e.g., patient narratives) was reviewed. Key psychological and cultural frameworks were integrated to address the multifaceted aspects of infertility (Figure 1).

The study also employs a biopsychosocial approach, drawing insights from diverse disciplines. Psychological

stress, immune dysregulation, and hormonal imbalances are examined in light of contemporary research, including evidence from Domar's *Conquering Infertility*. Methods include reviewing ART outcomes, exploring inflammatory markers like TNF- α and IL-6, and analyzing lifestyle factors such as obesity, and substance use.

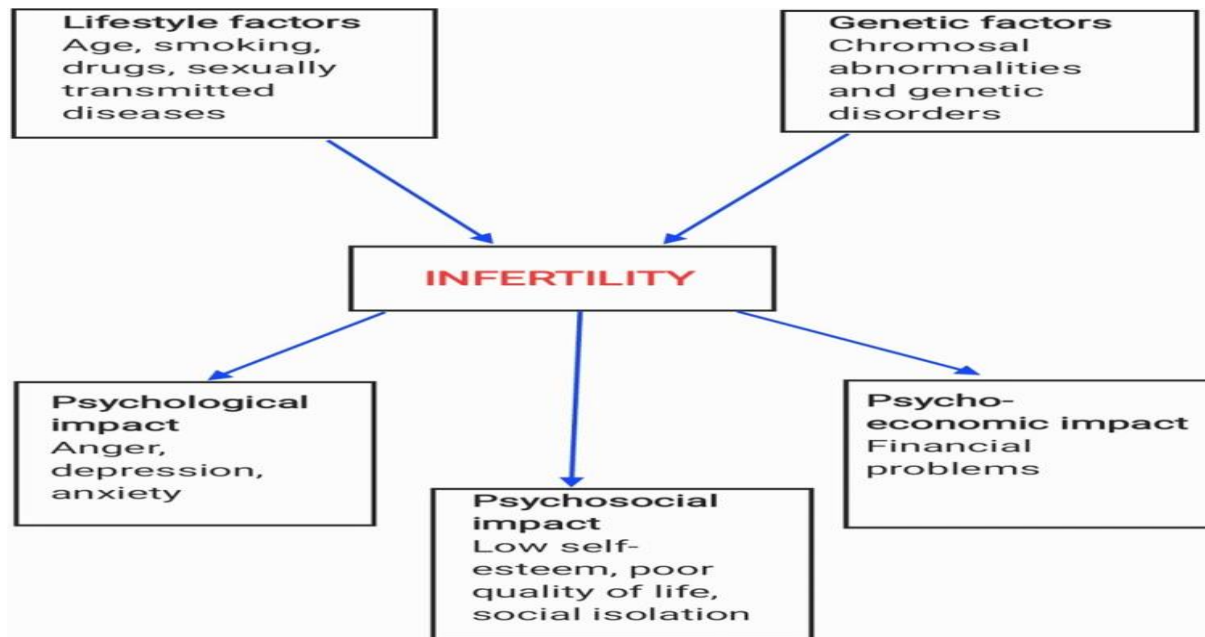


Figure 1. Various ways in which infertility can affect couples. <https://pmc.ncbi.nlm.nih.gov/articles/PMC9661871/figure/FIG1/>

Results

Chronic stress related to infertility activates the hypothalamic-pituitary-adrenal (HPA) axis, leading to elevated cortisol levels that disrupt reproductive hormones. Sharon Covington and Linda Hammer Burns emphasize that stress-induced hormonal dysregulation affects ovulation in women and sperm quality in men, reducing fertility rates. James Schwartz, in *Mind/Body Fertility Connection*, explains that mindfulness and relaxation techniques can lower these markers, improving hormonal balance and reproductive outcome (9, 10).

While ART offers hope, it also induces significant emotional stress. Patients undergoing treatments like IVF often experience anxiety, depression, and feelings of inadequacy due to financial costs, physical strain, and uncertain outcomes. Alice Domar's *Conquering Infertility* advocates for integrating mind-body approaches into ART protocols to mitigate these effects.

Childlessness is often stigmatized, leading to social isolation and strained relationships. Inhorn and van Balen's *Infertility Around the Globe* reveal that cultural norms magnify the emotional burden of infertility, necessitating culturally sensitive counseling and community support systems. The interplay of biological, psychological, and social factors shapes individuals' experiences with infertility. The *Cambridge Handbook of Psychology*,

Health, and Medicine identifies the biopsychosocial model as a vital framework for addressing these interconnected dimensions (11, 12, 13).

The analysis highlights that infertility has profound biopsychosocial impacts, including emotional responses like grief, guilt, and anxiety, alongside societal stigma, cultural pressures, and financial burdens that exacerbate feelings of shame and isolation. The diagnosis and treatment of infertility, particularly ART, impose an emotional toll, described as an "invisible loss" with no formal grieving process, often leaving individuals feeling inadequate. The invasive nature, high costs, and uncertainty of treatments can further strain relationships and mental health. However, psychological counseling and support groups play a crucial role in mitigating these challenges, reducing stress, fostering resilience, and enhancing coping mechanisms, ultimately improving emotional well-being and potentially boosting reproductive outcomes (14).

Discussion

Stress and infertility are intertwined in a vicious cycle. Elevated stress levels impair reproductive hormone regulation, while the emotional toll of infertility amplifies psychological distress. One of the study (15) states that couples that avoid thinking or dealing with the feelings of stress related to infertility and neither discuss nor talk about it are more prone to emotional and social difficulties. On

the other hand the individuals that focus on finding new ways to give life a meaning and set new goals have reduced emotional distress and are also able to understand their partners more easily.

Alice Domar (6) emphasizes the importance of stress management techniques, such as mindfulness-based stress reduction (MBSR) and cognitive-behavioral therapy (CBT), in breaking this cycle. Clinical trials have demonstrated that these interventions improve ART success rates and emotional well-being. Chronic stress and sleep disturbances lead to immune dysregulation, marked by elevated TNF- α and IL-6 levels. James Schwartz (4) advocates for anti-inflammatory diets, regular exercise, and progressive muscle relaxation to mitigate these effects. Inhorn and van Balen (3) emphasize the need for culturally tailored interventions to support infertile individuals and couples. The biopsychosocial model provides a holistic framework for infertility care. Sharon Covington and Linda Hammer Burns (2) highlight the importance of integrating psychological counseling into ART protocols, addressing emotional and relational challenges.

Support groups, mindfulness practices, and education can empower patients, fostering resilience and improving quality of life. Innovative approaches, such as virtual reality-based stress reduction and personalized psychological care plans, are promising avenues for enhancing infertility treatment. Collaborative efforts between healthcare providers, psychologists, and sociologists are essential for creating inclusive, patient-centered care models.

There can be a number of diseases that can impact on male and female fertility but many times the reason cannot be identified and when we are unable to identify the cause

of infertility we often refer to it as idiopathic infertility (16).

EDCs as exogenous chemicals or mixtures that can interfere with any aspect of hormone action. Also acknowledge that environmental exposures, including those to EDCs, can impact reproductive and obstetrical outcomes. This suggests that EDCs could potentially contribute to infertility, which in turn could trigger psychological stress and distress.

Infertility due to obesity can be caused by polycystic ovary syndrome (PCOS) which often involves endocrine disorders such as being overweight and hirsutism. Appropriate exercise for weight loss in individuals with PCOS can relieve stress, maintain endocrine hormone balance, boost self-confidence, and promote ovulation, ultimately increasing the chances of conception.

Relationship between lifestyle and body mass index (BMI) are predictors of successful assisted reproductive technologies (ART). Obesity, as measured by BMI, can be a factor in the success of fertility treatments

Alcohol and Drug Abuse Excessive alcohol consumption may reduce sperm count and interfere with the success of in vitro fertilization (IVF) treatments. Drugs can be directly toxic to gametes (eggs and sperm), leading to reduced numbers and poor quality. Consuming drugs like cannabis or cocaine can lower sperm count in men and may cause fertility problems in women. Substance addiction, including alcohol and drug addiction, has a direct impact on fertility, primarily through the harmful effects of misused substances (Figure.2).

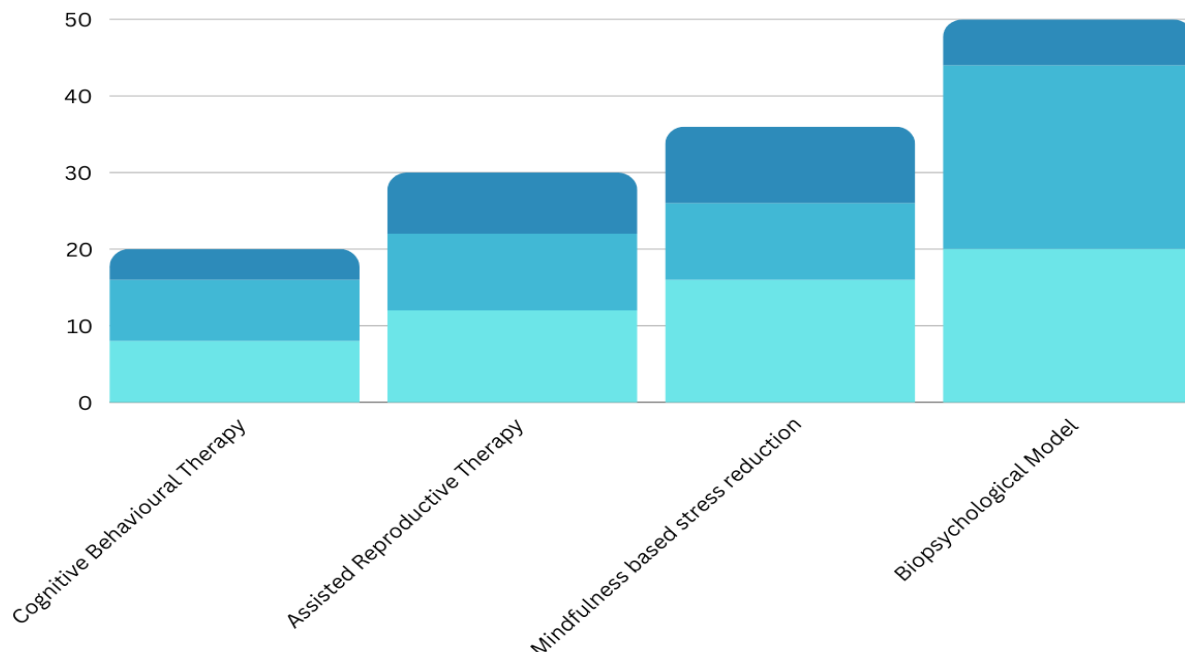


Figure 2. Representation of therapeutic treatment related to infertility

Conclusion

Infertility is a multidimensional condition that profoundly impacts individuals' physical, emotional, and social well-being. The bidirectional relationship between mental health and reproductive outcomes underscores the need for integrated care. By addressing hormonal imbalances, immune dysregulation, and sociocultural factors, healthcare providers can create comprehensive infertility treatment plans. Foundational texts, including *Conquering Infertility* and *Infertility Counseling*, emphasize the importance of psychological interventions in mitigating the emotional burden of infertility. Culturally sensitive and equitable care is crucial in reducing stigma and improving patient outcomes. The integration of psychological support into infertility care, informed by frameworks like the biopsychosocial model, offers a pathway to resilience and healing. As research and technology evolve, collaborative, patient-centered approaches will be a key to address the complex challenges of infertility.

References

1. Rooney K, Domar AD. The relationship between stress and infertility. *Dialogues in Clinical Neuroscience*. 2018;20(1):41-47.
2. Burns LH. Sexual counseling and infertility. *A Comprehensive Handbook for Clinicians*. 2006:212-236.
3. Inhorn MC, van Balen F. *Infertility around the Globe: New Thinking on Childlessness, Gender, and Reproductive Technologies*. Berkeley: University of California Press; 2002. p. 355.
4. Schwartz J. *The Mind-Body Fertility Connection: The True Pathway to Conception*. Bloomington: AuthorHouse; 2008. p. 264.
5. Cheung FM, Halpern DF. *The Cambridge Handbook of the International Psychology of Women*. Cambridge: Cambridge University Press; 2020. p. 578. .
6. Domar AD, Kelly AL. *Conquering Infertility: Dr. Alice Domar's Mind/Body Guide to Enhancing Fertility and Coping with Infertility*. New York: Viking Adult; 2004.
7. Wischmann T. Psychological aspects of infertility. *Medical Genetics*. 2024;36(3):171-177.
8. Pacheco Palha A, Lourenço MF. Psychological and cross-cultural aspects of infertility and human sexuality. *Advances in Psychosomatic Medicine*. 2011; 31:164-183.
9. Szkodziak F, Krzyżanowski J, Szkodziak P. Psychological aspects of infertility: A systematic review. *Journal of International Medical Research*. 2020;48(6):1-11.
10. Fisher JR, Hammarberg K. Psychological and social aspects of infertility in men: An overview of the evidence and implications for psychologically informed clinical care and future research. *Asian Journal of Andrology*. 2012;14(1):121-129.
11. De Berardis D, Mazza M, Marini S, Del Nibletto L, Serroni N, Pino MC, et al. Psychopathology, emotional aspects and psychological counselling in infertility: A review. *Clinica Terapeutica*. 2014;165(3):163-169.
12. Stanhiser J, Steiner AZ. Psychosocial aspects of fertility and assisted reproductive technology. *Obstetrics and Gynecology Clinics of North America*. 2018;45(3):563-574.
13. Johnston WI, Oke K, Speirs A, Clarke GA, McBain J, Bayly C, et al. Patient selection for in vitro fertilization: Physical and psychological aspects. *Annals of the New York Academy of Sciences*. 1985;442:490-503.
14. Thompson B, Illsley R. Sterilization - social and psychological aspects. *IPPF Medical Bulletin*. 1972;6(1):1-3.
15. Bellone M, Cottencin O, Rigot JM, Goudemand M. Etude des troubles psychiatriques et des modalités défensives évaluées par le "Defense Style Questionnaire" (DSQ) dans un échantillon d'hommes stériles consultant en andrologie [Study on psychiatric disorders and defensive processes assessed by the "Defense Style Questionnaire" in a sample of sterile males consulting in andrology]. *L'Encéphale*. 2005;31(4 Pt 1):414-425. French.
16. Burns LH. Psychiatric aspects of infertility and infertility treatments. *Psychiatric Clinics of North America*. 2007;30(4):689-716.