Determination Infertility-Related Stress Among Women Attending an Infertility Center: A Cross-Sectional Study

Lina Sheehan Rasein[1*], Salma K Jihad[2], Bushra AL Rubayae[3]

[1] *Department of Maternal and Neonate Nursing, Ministry of Health, Baghdad Health Directorate, Baghdad, Iraq*

[2] *Department of Community Nursing, College of Nursing, University of Babylon, Babylon, Iraq*

[3] *Department of Obstetrics and Gynecology, College of Medicine, University of Babylon, Babylon, Iraq*

Received: 03 Jan. 2025; Accepted: 21 May 2025

Abstract- Infertility is a difficult experience that can greatly impact a woman's mental, emotional, and thus, physical wellbeing. The study aimed to assess the infertility-related stress among women attending an infertility center and the associated socio-demographic characteristics. A cross-sectional descriptive study was conducted at Kamal Al-Samarrai Hospital for Fertility and Infertility in Baghdad from November 2023 to November 2024 to investigate infertility-related stress among 385 women diagnosed with infertility. Data were collected through interviews using the modified infertility-related stress questionnaire, and validity and reliability were established through expert ratings and a pilot study. Statistical analysis was performed using IBM SPSS 20.0, employing techniques such as Pearson correlation, Regression, and Kruskal-Wallis assessments. The results indicate that the majority (97.1%) reported moderate infertility-related stress, with an average stress rating of 92.96. An inverse relationship was observed between age and infertility-related stress, indicating that stress tends to decrease with age (r= -0.151, *P*=0.003). Additionally, a statistical analysis showed that infertility-related stress levels differed significantly based on education level (*P*=0.010) and monthly income (*P*=0.016). The study found mild stress among women with infertility, especially younger, less educated, and lower-income women. The study recommends less expensive counseling, advanced fertility resources, and public awareness to reduce stigma and help affected women improve their health.

Acta Med Iran 2025;63(May-June):159-164.
https://doi.org/10.18502/acta.v63i3.19715

Keywords: Infertility; Infertility-related stress; Reproductive health; Psychological adjustment

Introduction

Infertility is a major global health problem affecting millions of couples worldwide, with significant mental, social, and emotional impacts, particularly on women (1). Infertility is defined as the inability to achieve pregnancy after at least twelve months of unprotected sex, and often leads to high levels of stress and distress among affected individuals (2). For women, societal and family pressures to conceive can exacerbate feelings of inadequacy, stress, and depression, contributing to infertility-related stress that can impact their overall health (3,4).

Various studies have identified infertility as a multifaceted stressor with psychological, financial, and social dimensions, highlighting the importance of addressing mental health as part of infertility treatment and assistance (5,6). Previous research has consistently found that women undergoing infertility treatment are more likely to experience mental health challenges due to the lengthy and often invasive treatment strategies (7). Repeated cycles of desire and sadness contribute to increased feelings of stress, which can be more pronounced among women with restricted social orientation or who face cultural stigma around childlessness (8).

Studies have shown that these stressors can have a cyclical effect, potentially reducing the effectiveness of infertility treatments (9,10). Psychological distress,

Corresponding Author: L. Sheehan Rasein
Department of Maternal and Neonate Nursing, Ministry of Health, Baghdad Health Directorate, Baghdad, Iraq
Tel: +96407707018579, E-mail address: Linashehan777@gmail.com

especially in women, is strongly associated with infertility treatment outcomes, suggesting the need for interventions that address not only physical fitness but also emotional resilience (11). Infertility-related stress among women is not only a mental burden but also has social implications, as cultural expectations often place women at the center of responsibility for pregnancy and childbearing (12). Many women experience societal pressure to fulfill their expected roles as mothers, and failure to do so can lead to feelings of social isolation, low self-esteem, and marital stress (13). Studies conducted in different cultural contexts suggest that the level of infertility-related stress varies based on cultural norms, religious beliefs, and support network structures, suggesting that knowledge of these variables is vital to providing comprehensive care for women attending infertility clinics (14).

This study aims to examine infertility-related stress among women attending an infertility center through a cross-sectional approach, contributing to a broader knowledge of the mental and social impact of infertility. By focusing on women's views within the practice context, this research seeks to inform the development of tailored interventions that can help relieve stress, promote emotional health, and improve the quality of life for women undergoing infertility treatment.

Materials and Methods

Research design and period

A cross-sectional descriptive study was conducted from November 12, 2023, to November 12, 2024, at Kamal Al-Samarrai Fertility and Infertility Hospital in Baghdad, Iraq, to study infertility-related stress among infertile women. The health facility, which serves women from all Iraqi governorates, provided comprehensive fertility services, and interviews were conducted at the consultation health center.

Study sample

This study used a non-probability purposive sample of 385 women diagnosed with infertility, registered at Kamal Al-Samarrai Fertility and Infertility Hospital in Baghdad. Inclusion criteria defined girls aged 18 years or older, diagnosed with infertility for at least six months if 35 years or older, or for twelve months if 18 years of age, according to WHO guidelines. The pattern size was calculated using a cross-sectional study formula, based on a 95% confidence interval, an estimated 0.23 percentile of final scores, and a precision of 0.05, resulting in an expected requirement of 272 participants; 385 were recruited to account for potential non-response (15).

Study tools

The study tools employed in these studies consisted of two numerical scales, which the researcher modified to align with the study's objectives. The infertility-related stress Scale (16). The tools were modified to suit the unique context of the study, with permission from the original authors for their usefulness.

Validity and reliability

The validity of the questionnaire was linked through face and content validity methods, where 18 experts reviewed the tool to ensure readability, relevance, and appropriateness in measuring the principles of interest. Reliability was assessed through a pilot study involving 39 women, which confirmed the stability of the tool's responses and its internal consistency. The questionnaire demonstrated a Cronbach's alpha of 0.81, indicating a high level of reliability for measuring these constructs.

Data collection

The data series spanned from July 1 to October 1, 2024, and was collected through interviews using a questionnaire. The investigator conducted each interview after obtaining reliable consent from the clinic and assent from the individuals. Each interview lasted approximately 20 to 25 minutes.

Statistical methods

The IBM SPSS 20.0 software package was used for statistical analysis. Numbers and percentages were used to rank the variables, while mean and standard deviation were used to statistically characterize the continuous variables. The Kolmogorov-Smirnov (K-S) test was used to evaluate normality. Additionally, associations and predictions between the study's variables were examined using Pearson's correlation coefficient and Simple Linear Regression tests to test the relationship in quantitative variables. Kruskal-Wallis test to investigate differences in qualitative variables. A significance threshold of 0.05 was applied to the statistical interpretations used.

Results

The demographic profile of women with infertility in this study shows that most were aged 20-29 (56.9%) with an average age of 28.59±6.465 years. A large portion (34.5%) had primary school education, and the majority (89.4%) were housewives. Half of the participants (50.4%) lived in urban areas, and 70.1% were from

extended families, compared to 29.9% from nuclear families (Table 1).

Findings indicate that the majority of 97.1% of the participants reported moderate levels of infertility-related stress, with an average total stress score of 92.96±6.136 (Table 2).

Table (3) findings indicate there was a statistically significant correlation (inverse) between women's age and their infertility-related stress (r=-0.151; *P*=0.003).

Findings indicate that every increase in age by (96.989) corresponds to a decrease in the infertility-related stress by (0.1428) (Figure 1).

The Kruskal-Wallis analysis in Table 4demonstrates statistical significant differences in the infertility-related stress among women with infertility between groups of education level (*P*=0.010), and monthly income (*P*=0.016).

Table 1. Socio-Demographic Characteristics

SDVs	Classification	Freq.	%
Age/ years	>20	17	4.4
	20-29	219	56.9
	30-39	125	32.5
	≥40	24	6.2
	M ± Std. Deviation	28.59±6.465	
Education level	Unable to read and write	31	8.1
	Read and Write	28	7.3
	Primary school graduate	133	34.5
	Intermediate school graduate	87	22.6
	Secondary school graduate	31	8.1
	Institution graduate and above	75	19.5
Occupation	Governmental employee	25	6.5
	Non-governmental employee	15	3.9
	Housewife	344	89.4
	Unemployment	1	.3
Monthly income	Sufficient	38	9.9
	Sufficient to some extent	207	53.8
	Insufficient	140	36.4
Residents	Urban	194	50.4
	Suburban	144	37.4
	Rural	47	12.2
Family type	Nuclear	115	29.9
	Extended	270	70.1

Freq. Frequency; %= Percentage

Table 2. Overall Evaluation of Infertility-Related Stress

Variable	M±SD	Score	No.	%
Infertility-related Stress	92.96±6.136	Low (45-75)	3	.8
		Moderate (75.1-105)	374	97.1
		High (105.1-135)	8	2.1

M: Mean for total score, SD: SD = Standard Deviation for total score

Table 3. Relationship between Infertility-related Stress among Infertile Women and their Age

Age and Infertility-related Stress	**Pearson Correlation**	**-.151-****
	Sig. (2-tailed)	.003

*Correlation is significant at the 0.05 level (2-tailed)

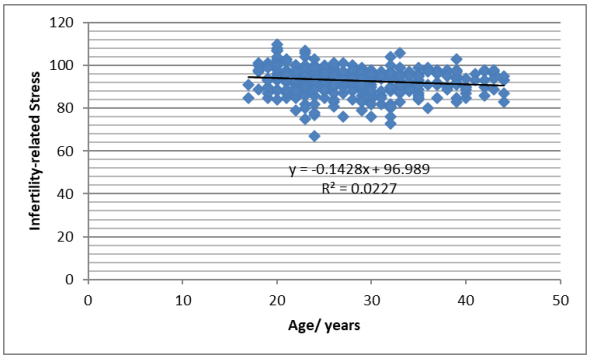

Figure 1. Relationship between stress level among infertile women with regard to age

Table 4. Statistical Differences in Infertility-related Stress between Groups of Study Factors

Factors	Ranks			bχ2	Sig.
	Classifications	N	Mean Rank		
Education level	Unable to read and write	31	228.97	15.076	.010
	Read and Write	28	242.64		
	Primary school graduate	133	192.53		
	Intermediate school graduate	87	195.48		
	Secondary school graduate	31	182.87		
	Institution graduate and above	75	161.75		
Occupation	Governmental employee	25	178.24	3.989	.263
	Non-governmental employee	15	142.43		
	Housewife	344	196.39		
	Unemployed	1	154.50		
Monthly income	Sufficient	38	157.58	8.282	.016
	Sufficient to some extent	207	187.07		
	Insufficient	140	211.38		
Residents	Urban	194	190.89	.511	.775
	Suburban	144	192.35		
	Rural	47	203.70		
Family type	Nuclear	115	183.13	1.293	.253
	Extended	270	197.20		

b= Kruskal Wallis Test; N= number; sig.= significant level at 0.05.

Discussion

The results show that a wide range of members (97.1%) experienced mild levels of infertility-related stress, as perceived by a mean stress rating of 92.96±6.136. This high prevalence of moderate stress is consistent with current literature suggesting that infertility is often a significant source of psychological distress for individuals and couples. Infertility, which involves a long period of failed attempts to conceive, can lead to complex emotional responses, often rooted in feelings of frustration, stress, and self-blame (17). This stress is exacerbated by societal expectations and pressures, particularly in cultures where childbearing is closely linked to personal identity and social roles (14). The findings here confirm that infertility-related stress is a common experience for many people facing these difficult situations, and this high prevalence of moderate stress suggests that even when some people can develop coping mechanisms, the overall impact on mental health remains significant. Numerous studies confirm these findings, highlighting that individuals experiencing infertility often report high levels of stress. For example, research has shown that infertility-related stress is common among individuals and often manifests as anxiety, depression, and decreased quality of life (18). Furthermore, women undergoing fertility treatments have been found to report mild to high levels of psychological distress, which may be related to the stress of medical tactics, financial burden, and uncertainty surrounding treatment outcomes (19). Similarly, infertility-related stress has been observed to lead to social withdrawal and strain in marital relationships, particularly when societal stigma or perceived pressure to conceive is present (20).

The results in Table 3 highlight an inverse relationship between age and infertility-related stress among women experiencing infertility, as evidenced by a statistically significant correlation (r=-0.151, *P*=0.003). This suggests that as women age, levels of infertility-related stress tend to decrease. The significance of this relationship suggests a sample where older women may experience lower infertility-related stress, likely reflecting evolving attitudes, coping mechanisms, or changes in lifestyle expectations. Furthermore, the relationship shows that for each age increment using approximately 96,989 devices, there is a corresponding decrease in infertility-related stress of 0.1428, as shown in Figure 1. This inverse association is consistent with previous research suggesting that younger women often experience infertility-related stress better due to loss of reproductive time and societal expectations (21,22). Younger women may also experience greater stress due to social, familial, and personal expectations of conceiving within a positive time frame. In comparison, older women may also have developed more adaptive coping mechanisms over the years or adjusted their lifestyle priorities, which may reduce infertility-related stress (23). Additionally, these findings are supported by studies suggesting that age may be associated with varying levels of stress in other fitness-related contexts, with individuals often gaining greater resilience as they age (24).

Results from the Kruskal-Wallis analysis in Table 4 reveal significant statistical differences in levels of infertility-related stress among infertile women,

particularly when stratified by education level (P=0.010) and monthly income (P=0.016). These effects suggest that educational attainment and financial status are influential factors in psychological reports of infertility. Women with different educational backgrounds and income levels may perceive and manage infertility-related stress differently, likely due to different sources, coping mechanisms, and levels of access to supportive environments associated with these social determinants. Previous studies reinforce the important role of training in shaping individuals' stress responses in infertility contexts. Women with better education have been shown to have greater awareness and access to coping resources, which may mitigate stress levels (25). Higher education may be associated with greater expertise in fertility issues and access to reliable facts, which may reduce infertility-related stress (26). Conversely, lower levels of education were associated with higher levels of perceived infertility stress, likely due to reduced access to resources that facilitate emotional support and coping techniques (27).

Likewise, income level is another important factor influencing infertility-related stress. Women with lower income levels were observed to report higher infertility-related distress, possibly due to restricted access to infertility treatments, counseling, and other supportive resources, which are often expensive (20). In comparison, women with higher income levels may have greater opportunities to pursue medical treatments, attend counseling, or participate in support organizations, which can alleviate some of the psychological stress associated with infertility (28). Low-income women may also have additional stress due to the economic burden of infertility treatments, which can be financially expensive without adequate economic resources (29). The statistically significant differences found in infertility-related stress across education and income categories are consistent with previous literature, highlighting the critical role of socioeconomic factors in moderating stress stories among infertile women.

This study has several drawbacks. First, the use of a non-probability sampling method may limit the generalizability of the findings to all infertile women, as individuals were selected from a single clinic. In addition, self-reported records of stress levels may also introduce reporting biases, as members may under- or overreport their stress due to personal or cultural factors. The cross-sectional design also limits the ability to infer causality between infertility and stress. Finally, differences in socioeconomic factors, such as education and income, may have influenced members' stress levels, potentially confounding the results.

The study suggests that infertility-related stress is common among women experiencing infertility, with women reporting moderate levels of stress. This stress increases with age, education, and income, with young girls, people with low education, and low-income groups experiencing higher stress. Healthcare companies should prioritize psychological support for people experiencing infertility, especially for younger, lower-income, and less educated women. Integrating low-cost counselling and support services, improving access to fertility resources, and raising public awareness to reduce social stigma may help alleviate infertility-related stress and improve the quality of life for those affected.

Acknowledgements

The authors thank all Women who participated in the study and Kamal Al-Samurai Hospital for Fertility and Infertility in Baghdad for their help in collecting the data in this study.

References

1. Hazlina NH, Norhayati MN, Bahari IS, Arif NA. Worldwide prevalence, risk factors and psychological impact of infertility among women: a systematic review and meta-analysis. BMJ Open 2022;12:e057132.
2. Woods BM, Patrician PA, Fazeli PL, Ladores S. Infertility-related stress: A concept analysis. Nurs Forum 2022;57:437-45.
3. Idugboe MI, Umeh NJ, Adewara OR, Jarjusey S, Okobi OE, Adetifa O. The Psychological Impact of Infertility on Couples: Exploring the Role of Support Systems and Coping Mechanisms. Int J Res Rep Gynaecol 2024;7:88-98.
4. Radhi MM, Al-Eqabi QA, Hindi NK. Rehabilitation problems of people with motor disabilities at Babylon center for rehabilitation of the disabled. Med J Babylon 2023;20:838-43.
5. Assaysh-Öberg S, Borneskog C, Ternström E. Women's experience of infertility & treatment–A silent grief and failed care and support. Sex Reprod Healthc 2023;37:100879.
6. Yurci A. The impact of psychological factors on in vitro fertilization (IVF) outcomes: a comprehensive review. J Compr Surg 2024;2:35-8.
7. Galst JP. The elusive connection between stress and infertility: A research review with clinical implications. J Psychother Integration 2018;28:1.
8. Sambasivam I, Jennifer HG. Understanding the experiences of helplessness, fatigue and coping strategies

among women seeking treatment for infertility–A qualitative study. J Educ Health Promot 2023:12:309.
9. Szkodziak F, Krzyżanowski J, Szkodziak P. Psychological aspects of infertility. A systematic review. J Int Med Res 2020;48:300060520932403.
10. Bala R, Singh V, Rajender S, Singh K. Environment, lifestyle, and female infertility. Reprod Sci 2021;28:617-38.
11. Vioreanu AM. The psychological impact of infertility. Directions for the development of interventions. Mental Health: Glob Chall 2021;4:22-37.
12. Ali B, Touseef M, Niaz U, Sarwar S, Iqbal S, Idrees M, et al. Silent Suffering: A Qualitative Study On The Impact Of Infertility On The Social And Psychological Health Of Women In District Faisalabad, Pakistan, And Its Socio-Cultural Factors. J Positive Sch Psychol 2023;7:330-49.
13. Collins ME. The impact of infertility on daily occupations and roles. J Reprod Infertil 2019;20:24.
14. Gameiro S, El Refaie E, de Guevara BB, Payson A. Women from diverse minority ethnic or religious backgrounds desire more infertility education and more culturally and personally sensitive fertility care. Hum Reprod 2019;34:1735-45.
15. Charan J, Biswas T. How to calculate sample size for different study designs in medical research? Indian J Psychol Med 2013;35:121-6.
16. Newton CR, Sherrard W, Glavac I. The Fertility Problem Inventory: measuring perceived infertility-related stress. Fertil Steril 1999;72:54-62.
17. Iordăchescu DA, Paica CI, Boca AE, Gică C, Panaitescu AM, Peltecu G, Veduță A, Gică N. Anxiety, difficulties, and coping of infertile women. Healthcare (Basel) 2021;9:466.
18. Palomba S, Daolio J, Romeo S, Battaglia FA, Marci R, La Sala GB. Lifestyle and fertility: the influence of stress and quality of life on female fertility. Reprod Biol Endocrinol 2018;16:113.
19. Ikemoto Y, Kuroda K, Endo M, Tanaka A, Sugiyama R, Nakagawa K, et al. Analysis of severe psychological stressors in women during fertility treatment: Japan-Female Employment and Mental health in Assisted reproductive technology (J-FEMA) study. Arch Gynecol Obstet 2021;304:253-61.
20. Swift AD. Relationships Between Infertility-related Stress, Hair Cortisol, Coping, and Quality of Life in US Women Undergoing Infertility Treatments. J Obstet Gynecol Neonatal Nurs 2021;50:275-88.
21. Renzi A, Di Trani M, Solano L, Minutolo E, Tambelli R. Alexithymia, infertility-related stress and quality of life in women undergoing an Assisted Reproductive Treatment. Stress Health 2020;36:654-62.
22. Roozitalab S, Rahimzadeh M, Mirmajidi SR, Ataee M, Saeieh SE. The relationship between infertility, stress, and quality of life with posttraumatic stress disorder in infertile women. J Reprod Infertil 2021;22:282-8.
23. Malih Radhi M, Juma Elywy G, Abbas Khyoosh Al-Eqabi Q. Burdens Among Wives of Disabled People in the Light of Some Social Variables. Iranian Rehabil J 2023;21:473-84.
24. Elywy GJ, Radhi MM, AlEqabi QA. Relationship between social support and self-hardiness among breast cancer women in Nasiriyah, Iraq. J Pakistan Med Assoc 2023;73:S9-14.
25. Li Y, Zhang X, Shi M, Guo S, Wang L. Resilience acts as a moderator in the relationship between infertility-related stress and fertility quality of life among women with infertility: a cross-sectional study. Health Qual Life Outcomes 2019;17:1-9.
26. Brochu F, Robins S, Miner SA, Grunberg PH, Chan P, Lo K, et al. Searching the internet for infertility information: a survey of patient needs and preferences. J Med Internet Res 2019;21:e15132.
27. Zurlo MC, Cattaneo Della Volta MF, Vallone F. Predictors of quality of life and psychological health in infertile couples: the moderating role of duration of infertility. Qual Life Res 2018;27:945-54.
28. Yasir AA, Qassim WJ, Radhi MM. Assessment the feeling of psychological loneliness among wives of martyrs in the light of some social variables in Babylon Governorate/Iraq. J Pharm Sci Res 2018;10:40-4.
29. Umoh NR. Socioeconomic Status and Women's Mental Health and Wellbeing in Male-Factor Infertility Marital Circumstances: A Scoping Review. medRxiv 2022.