

## The Effect of Infertility-related Stress on Life Satisfaction and Coping Attitudes in Infertile Women

İnfertil Kadınlarda İnfertilite Kaynaklı Stresin Yaşam Doyumu ve Başa Çıkma Tutumları Üzerine Etkisi

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### ABSTRACT

This study aims to investigate the relationship between infertility-related stress, life satisfaction and coping strategies in infertile women. This cross-sectional, correlational-descriptive study was conducted with infertile women attending an infertility clinic in Istanbul. Data were collected using the Personal Information Form, Fertility Problem Inventory, Satisfaction with Life Scale, and COPE Inventory. The participants exhibited moderate levels of infertility-related stress ( $131.10 \pm 31.49$ ) and slightly above-average life satisfaction ( $24.96 \pm 6.33$ ). It was found that infertile women frequently used emotion-focused coping strategies ( $61.21 \pm 8.83$ ), particularly religious coping. Stress associated with infertility and satisfaction with life levels were significantly different based on marital status, income level, and education level ( $p < 0.05$ ). A negative correlation was found between total infertility-related stress and life satisfaction ( $r = -0.359$ ,  $p < 0.001$ ). A positive correlation was also found between non-functional coping strategies and total infertility-related stress ( $r = 0.229$ ,  $p = 0.001$ ). Regression analysis revealed that infertility-related stress significantly reduced life satisfaction, explaining 10.1% of the variance ( $R^2 = 0.101$ ). Infertility-related stress leads to a decrease in life satisfaction. Women with higher stress levels tend to use non-functional coping strategies more frequently.

**Keywords:** Coping Strategies, Infertility, Infertility-related Stress, Life Satisfaction, Women.

### ÖZ

Bu çalışmanın amacı infertil kadınlarda infertilite kaynaklı stres, yaşam doyumu ve başa çıkma stratejileri arasındaki ilişkiyi araştırmaktır. Kesitsel ve ilişkisel-tanımlayıcı bu çalışma İstanbul'daki bir infertilite polikliniğine başvuran infertil kadınlar ile yürütüldü. Veriler Kişisel Bilgi Formu, Doğurganlık Sorunu Envanteri, Yaşam Doyumu Ölçeği ve COPE Envanteri kullanılarak toplandı. Katılımcılar infertiliteyle ilişkili orta düzeyde strese ( $131,10 \pm 31,49$ ) ve ortalamanın biraz üzerinde yaşam doyumuna ( $24,96 \pm 6,33$ ) sahipti. İnfertil kadınların genellikle duygu odaklı başa çıkma stratejilerini ( $61,21 \pm 8,83$ ), özellikle dini başa çıkma stratejilerini sıklıkla kullandıkları bulundu. İnfertil kadınlarda infertilite kaynaklı stres ve yaşam doyumu düzeylerinin medeni durum, gelir düzeyi ve eğitim düzeyine göre anlamlı olarak farklılık gösterdiği bulundu ( $p < 0,05$ ). Toplam infertilite kaynaklı stres ile toplam yaşam doyumu arasında negatif korelasyon saptandı ( $r = -0,359$ ,  $p < 0,001$ ). İşlevsel olmayan başa çıkma stratejileri ile toplam infertilite kaynaklı stres arasında pozitif korelasyon bulundu ( $r = 0,229$ ,  $p = 0,001$ ). Regresyon analizinde, infertilite kaynaklı stresin yaşam doyumunu anlamlı olarak azalttığı ve varyansın %10,1'inin açıklandığı bulundu ( $R^2 = 0,101$ ). İnfertiliteyle ilişkili stres yaşam doyumunda azalmaya yol açmaktadır. Stres düzeyi yüksek olan infertil kadınlar işlevsel olmayan başa çıkma stratejilerini daha sık kullanmaktadır.

**Anahtar Kelimeler:** Başa Çıkma Stratejileri, İnfertilite, İnfertilite Kaynaklı Stres, Yaşam Doyumu, Kadın

### Önemli Noktalar

- Elevated infertility stress reduces life satisfaction.
- Infertile women frequently adopt religious coping strategies.
- Non-functional coping relates to higher infertility-related stress.

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## INTRODUCTION

The association between women and fertility has been a longstanding aspect of societal expectations due to traditional views on women's roles in reproduction.<sup>1</sup> Despite significant changes in women's status and roles over time, many women today continue to aspire to motherhood.<sup>2,3</sup> However, infertility affects a substantial number of individuals worldwide, posing considerable emotional and social challenges. The failure of a couple to conceive after participating in regular, unprotected sexual activity for a year or longer is known as infertility, but it is not regarded as a life-threatening medical condition.<sup>4</sup> Nonetheless, it is recognized as a life crisis with significant psychosocial repercussions, including stress, anxiety, depression, decreased life satisfaction, low self-esteem, social isolation, stigma, sexual dysfunction, and reduced marital adjustment. Thus, infertility presents significant challenges extending beyond physical health, impacting emotional and social well-being.<sup>5-8</sup>

Stress, characterized by mental tension or worry in response to challenging situations, can significantly impact an individual's health and well-being.<sup>4</sup> Although stress is a common experience, prolonged or unmanageable stress can adversely affect health and fertility.<sup>9</sup> Infertility often exacerbates stress due to unmet reproductive desires and other stressors related to diagnosis, treatment, social pressure, stigma, and economic costs.<sup>10</sup> In many cultures—including Turkish culture—the motherhood role has a central place in a woman's personal and marital identity. These cultural expectations and pressures can further intensify stress for women experiencing infertility.<sup>10,11</sup> Because unfulfilled social and personal expectations can result in a marked decline in quality of life, infertility and the stress that goes along with it can therefore have a big impact on an individual's level of life satisfaction.<sup>7,10</sup>

The degree to which people are satisfied with their general quality of life and sense of fulfillment is reflected in their level of life satisfaction.<sup>12</sup> It is influenced by one's ability to meet needs and desires across various life

domains and can fluctuate based on current life circumstances.<sup>7</sup> Infertility can negatively impact life satisfaction, as the inability to have children may lead individuals to feel incomplete or unsuccessful, thereby diminishing their overall quality of life.<sup>7</sup> Treatment for infertility is a drawn-out procedure that can take years, and on top of the stress that comes with not being able to conceive, couples also have to deal with the treatment itself.<sup>13</sup> Women undergoing infertility treatment frequently face negative emotions and reactions that can adversely affect their life satisfaction.<sup>7,13</sup>

It is imperative to investigate the appropriate management of stress connected to infertility, given its substantial impact on a range of life elements. Coping strategies are essential for managing the negative impacts of stress. Coping mechanisms are essential for reducing the harmful consequences of stress when dealing with the many issues that infertility presents. According to Folkman and Lazarus<sup>14</sup> coping strategies are categorized into two main types: problem-focused coping and emotion-focused coping. Problem-focused coping aims to manage or change the person-environment relationship that causes stress, while emotion-focused coping focuses on regulating emotional responses to stress. Both types involve cognitive and behavioral efforts to control or endure stressors, thus influencing how individuals respond to infertility-related stress.<sup>6,14</sup>

Coping strategies help manage stress, but some individuals may resort to dysfunctional methods. Such strategies can undermine the effectiveness of coping efforts, potentially diminishing individuals' ability to effectively manage stress or rendering them incapable of coping altogether.<sup>6,15</sup> Thus, examining how infertile women employ these strategies can shed light on their effectiveness in alleviating stress and enhancing life satisfaction.

Many studies<sup>16-20</sup> have focused on the psychological and emotional effects of infertility, such as stress, depression, anxiety, and quality of life. However, few studies<sup>7,21</sup>

have explored life satisfaction specifically in infertile women. In particular, research that looks at the connections between infertility-related stress, life satisfaction, and coping strategies together in a comprehensive way is not found in the literature. This shows the need for a wider approach that not only looks at quality of life but also considers overall life satisfaction and the coping strategies used by individuals during the infertility process.

In this context, the current study examines the relationship between infertility-related stress, life satisfaction, and coping strategies, shedding light on how stress affects life satisfaction and how coping strategies shape stress levels. Therefore, the findings of this study are expected to contribute to the development of an innovative perspective for better understanding the psychosocial needs of infertile women and to the development of interventions aimed at improving life satisfaction during the infertility process. Additionally, this study presents significant results for the field of nursing science and practice. Nurses play a crucial role in assessing the stress levels of women going through infertility, promoting effective coping strategies, and supporting their life satisfaction through individualized, holistic

nursing care. It is expected that this study will contribute to the development of evidence-based interventions in nursing care and serve as a foundation for creating culturally sensitive psychosocial support programs for infertile women. In doing so, it seeks to expand theoretical knowledge and highlight the practical applications of person-centered nursing care.

This study aims to investigate the relationship between infertility-related stress, life satisfaction and coping styles in infertile women. The research questions guiding this study are:

- What are the infertility-related stress levels, life satisfaction levels, and coping strategies used by infertile women?
- How do sociodemographic, marital and infertility characteristics affect infertility-related stress levels and life satisfaction among infertile women?
- Is there a relationship between infertility-related stress and life satisfaction of infertile women?
- Is there a relationship between infertility-related stress and coping strategies in infertile women?

## MATERIALS AND METHOD

### Study Design

This study has a cross-sectional, correlational-descriptive design, and the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement<sup>22</sup> was followed in its reporting.

### Study Sample

The G\*Power 3.1 software was used to determine the sample size for the study, based on the results of prior research.<sup>23,24</sup> Using the mean and standard deviation of the total score variable from the Fertility Problem Inventory in female participants, the effect size was calculated as 0.4805, with a minimum sample size of 190 participants required (df=188; t=1.653).

The study was conducted with 202 infertile women selected using a non-probability (convenience) sampling method who met the research criteria.

Inclusion criteria:

- Diagnosed with infertility,
- Seeking infertility treatment,
- Fluent in Turkish.

Exclusion criteria:

- Age under 18 years,
- Chronic illnesses that could affect fertility or stress responses,
- A history of cancer,
- A psychiatric diagnosis,
- Being in the perimenopausal stage,
- Having living children.

## Data Collection

The research data were collected using a Personal Information Form, the Fertility Problem Inventory (FPI), the Satisfaction with Life Scale (SWLS), and the COPE Inventory (COPE) from March to December 2021 in Istanbul at a city hospital's infertility outpatient clinic through a face-to-face interview technique and a survey administered to the participants by the researchers, which lasted approximately 25–30 minutes. During the interviews with the participants, privacy was ensured, and the participants had enough time for the interviews. During the data collection, 12 women who declined to participate or did not match the research requirements were left out of the study during data collection.

## Data Collection Tools

The researchers developed a Personal Information Form using existing literature, which includes twenty-three questions about the sociodemographic characteristics and infertility history of infertile women<sup>6</sup>.

The Fertility Problem Inventory (FPI), developed by Newton et al.<sup>25</sup> to measure stress linked to infertility, and its Turkish version was validated and tested for reliability by Gün.<sup>24</sup> The forty-six items in the inventory are rated on a 6-point Likert scale; higher scores suggest higher levels of stress associated with infertility. The inventory has five subdimensions. The sum of the subdimension scores constitutes the global stress score. In Gün's<sup>24</sup> study with a Turkish sample, the Cronbach's alpha was 0.88, while in the current study, it was 0.85.

The Satisfaction with Life Scale (SWLS), developed by Diener et al.<sup>26</sup>, measures life satisfaction. The 7-point Likert-type SWLS consists of one dimension and five items. Higher scores on this scale indicate greater life satisfaction.<sup>27</sup> The Turkish version was validated by Yetim<sup>27</sup>, showing a Cronbach's alpha of 0.86. In this study, the Cronbach's alpha for the SWLS was 0.79.

The COPE Inventory, developed by Carver et al.<sup>28</sup> on a 4-point Likert scale to evaluate the coping methods used by individuals in

response to stress. The Turkish version's validity and reliability were confirmed by Ağargün et al.<sup>29</sup> The COPE includes fifteen subdimensions, each reflecting different coping strategies. These strategies are categorized into three groups: emotion-focused, problem-focused, and dysfunctional coping.<sup>6</sup> In Ağargün et al.'s<sup>29</sup> study, the Cronbach's alpha was 0.79, while in the present study, it was 0.83.

## Statistical Analysis

The IBM Statistical Package for Social Sciences (SPSS) version 22.0 was used to analyze the data. The reliability of the measurements obtained from the scales was tested with Cronbach's alpha internal consistency coefficients. The study variables were examined to determine whether they followed a normal distribution using the Shapiro–Wilk test, which is recognized for its robustness in assessing normality and is suitable for both small and moderately large samples.<sup>30</sup>

Descriptive statistical methods were used to analyze the participants' characteristics. For analyzing normally distributed data, the Student's t-test was used for two-group comparisons, while One-Way ANOVA was applied for comparisons among more than two groups. For non-normally distributed data, the Mann-Whitney U test was used for two-group comparisons, and the Kruskal-Wallis test was employed for comparisons among multiple groups. Bonferroni post hoc analysis was conducted to identify differences between the groups. The relationships between variables were assessed using Spearman's correlation test and simple regression analysis. Correlation coefficients (r) were interpreted as 0.00-0.25 very weak, 0.26-0.49 weak, 0.50-0.69 medium, 0.70-0.89 high, 0.90-1.00 very high. A p value of less than 0.05 in the test analyses denoted statistical significance.<sup>31</sup>

## Ethical Aspect of Study

All phases of the study adhered to the ethical principles outlined in the World Medical Association's Declaration of Helsinki. Permission to use the data collection



tools was obtained from the respective authors via email.

Ethical approval was granted by the Non-interventional Clinical Research Ethics Committee of a university (Date: 26.11.2020;

Approval number: 151). Institutional permission was obtained from a city hospital (Date: 13.01.2021; Approval number: E-15916306-604.01.02). Furthermore, written, and verbal informed consent was acquired from each participant.

## RESULTS AND DISCUSSION

The average age of the 202 infertile was  $29.00 \pm 4.59$  years. In this study, %65.4 of the participants had high school or higher educational status, 64.4% did not work, and 58.4% had an income equal to their expenses. Regarding the marital and infertility characteristics of the infertile women, the mean duration of marriage was  $4.95 \pm 3.23$  (years), the mean duration of the desire to have children was  $3.65 \pm 2.53$  (years), and the mean duration of infertility was  $2.03 \pm 1.67$  (years). Although 91.1% of the women reported having social support during the infertility process, the person who provided the most social support was the spouse (Table 1).

The mean total FPI score was  $131.10 \pm 31.49$ . According to the FPI's maximum total score, the participants experienced moderate stress linked to infertility. There are various results in the literature regarding the stress levels of infertile women due to infertility. In the studies by Ngai and Loke<sup>18</sup> and Lei et al.<sup>32</sup> the infertility-related stress levels in women were found to be consistent with the results of this study. On the other hand, in the study by Karaca and Ünsal<sup>33</sup>, the mean infertility-related stress score of infertile women was reported to be higher than the results of this study. The moderate stress level in our sample suggests that while the participants experience considerable stress, it is not overwhelmingly high, which may be reflective of both individual coping mechanisms and the support systems available.

The mean total score of SWLS was  $24.96 \pm 6.33$ . This value was above the average score that can be obtained from the scale; therefore, the life satisfaction of infertile women was not low. In line with the findings of this study, Demirel et al.<sup>21</sup> also reported

relatively high levels of life satisfaction among infertile women.

**Table 1. Sociodemographic, Marriage and Infertility Characteristics of Infertile Women (N=202)**

Characteristics	Mean $\pm$ SD	Min-Max.
Age	29.00 $\pm$ 4.59	21-40
Duration of education (years)	10.73 $\pm$ 4.07	0-20
Duration of marriage (years)	4.95 $\pm$ 3.23	1-20
Duration of the desire to have children (years)	3.65 $\pm$ 2.53	1-16
Duration of infertility (years)	2.03 $\pm$ 1.67	1-9
Characteristics	n	%
Place of residence		
City	194	96
Countryside	8	4
Educational status		
Illiterate	7	3.4
Primary education	63	31.2
High school	69	34.2
University or higher education	63	31.2
Working status		
Working	72	35.6
Not working	130	64.4
Income status		
Income is less than expenses	67	33.2
Income equals expenses	118	58.4
Income exceeds expenses	27	8.4
Type of marriage		
Love marriage	154	76.2
Arranged marriage	48	23.8
Family type		
Nuclear family	184	91.1
Extended family	18	8.9
Consanguineous marriage		
Yes	29	14.4
No	173	85.6
Cause of infertility		
Female factor	85	42.1
Male factor	28	13.9
Mixed	12	5.9
Unexplained	77	38.1
Social support during the infertility process		
Had	184	91.1
Had not	18	8.9
Person who provided the most social support*		
Spouse	167	58.4
Family members	94	32.9
Friends or relatives	25	8.7

\*More than one can be selected, Min:minimum, Max:maximum, SD:standard deviation

Furthermore, Jafari et al.<sup>34</sup> found that social support can positively influence life satisfaction in infertile women. These findings suggest that while infertility may negatively impact life satisfaction, various factors, such as the coping strategies employed and the level of social support received, can play a crucial role in enhancing life satisfaction.

The participants' the mean total COPE emotion-focused coping score was 61.21±8.83, problem-focused coping score was 59.11±8.73, and non-functional coping score was 42.28±8.3. Infertile women adopted the most emotion-focused coping methods and used the strategy of "religious coping" the most often adopted (Table 2).

**Table 2. FPI, SWLS and COPE Scores Infertile Women**

	Mean±SD	Min-Max
<b>FPI global stress score</b>	131.10±31.49	59-221
Social concern	20.77±9.95	10-48
Sexual concern	44.96±11.45	21-60
Relationship concern	18.98±8.38	8-36
Need for parenthood	33.39±8.98	13-53
Rejection of childfree lifestyle	12.99±6.07	9-34
<b>SWLS total score</b>	24.96±6.33	5-35
<b>COPE</b>		
<b>Emotion-focused coping</b>	61.21±8.83	26-80
Positive reinterpretation and growth	14.43±2.21	4-16
Religious coping	15.12±2.08	4-16
Humor	8.50±3.89	4-16
Use of emotional social support	12.07±3.31	4-16
Acceptance	11.06±3.69	4-16
<b>Problem-focused coping</b>	59.11±8.73	23-77
Use of instrumental social support	12.07±3.82	4-16
Active coping	13.36±2.66	4-16
Restraint	11.16±2.77	4-16
Suppression of competing activities	10.26±2.84	4-16
Planning	12.24±3.56	4-16
<b>Non-functional coping</b>	42.28±8.31	23-74
Mental disengagement	10.64±2.79	4-16
Focus on and venting of emotions	13.12±3.30	6-16
Denial	7.63±3.80	4-16
Behavioural disengagement	6.53±3.55	4-16
Substance use	4.34±1.48	4-16

FPI: Fertility Problem Inventory, SWLS: Satisfaction with Life Scale, COPE: COPE Inventory, Min:minimum, Max:maximum, SD:standard deviation

Similar to the findings of this study, Kaya and Oskay<sup>6</sup> emphasized that infertile women frequently prefer religious coping strategies. In contrast, Küçük and Koruk's<sup>35</sup> study found that infertile women used problem-focused coping strategies more frequently. In Muslim societies such as Turkey, individuals seek a safe haven when they cannot cope with stress, and they find this safe haven in religion<sup>21</sup>, therefore, similar to the studies in the literature, the frequent use of religious coping attitudes by infertile women in this study is an expected result.

It was observed between the FPI global score and the sociodemographic, marital and infertility characteristics of infertile women ( $p<0.05$ ; Table 3). A significant difference was found between the FPI global stress score and the educational status, income status, duration of marriage, type of marriage, consanguineous marriage status, duration of the desire to have children, having social support during the infertility process and person providing social support ( $p<0.05$ ). It was determined that the infertility-related stress levels were lower in women who had higher educational status, higher income levels, shorter duration of marriage, love marriage, not consanguineous marriage, shorter duration of the desire to have children and social support during the infertility process from their spouses. (Table 3).

In this study, lesser stress related to infertility was linked to greater educational status. The results of this study are similar to the findings of Etman Kaya and Gürkan's study.<sup>36</sup> The significance that women place on not having children and how they respond to infertility may differ depending on their educational backgrounds. Lei et al.<sup>32</sup> has shown that increasing education level can alleviate infertility-related stress. This is likely related to the fact that infertile women can better understand and evaluate the infertility process, access information about the process more easily, and cope better with infertility-related stress with increasing education levels.

Table 3. Comparison of the Characteristics of Infertile Women and FPI and SWLS Scores

	FPI Global Stress		SWLS Total Score	
Characteristics	Mean±SD	Test, p value	Mean±SD	Test, p value
<b>Age</b>				
≤29 years	132.08±32.56	Z=-0.327	24.84±6.34	Z=-0.287
>29 years	129.91±30.26	p=0.744	25.09±6.35	p=0.774
<b>Educational status</b>				
Illiterate <sup>a</sup>	176.86±28.01	X <sup>2</sup> =26.730 <i>p</i> <0.001	26.14±8.57	X <sup>2</sup> =1.486 p=0.686
Primary education <sup>b</sup>	140.86±26.22		24.41±6.27	
High school <sup>c</sup>	122.94±31.06		25.19±6.12	
University or higher education <sup>d</sup>	125.21±30.84		25.13±6.48	
<i>Bonferroni</i>	<i>a</i> > <i>c</i> , <i>a</i> > <i>d</i> , <i>b</i> > <i>c</i> , <i>b</i> > <i>d</i>			
<b>Working status</b>				
Working	131.63±27.44	Z=-0.460	24.01±5.94	Z=-0.744
Not working	130.80±33.62	p=0.646	25.48±6.50	p=0.457
<b>Income status</b>				
Income is less than expenses	142.08±32.48	X <sup>2</sup> =18.447 <i>p</i> <0.001	22.05±6.09	X <sup>2</sup> = 17.454 <i>p</i> <0.001
Income equals expenses	127.90±27.36		25.90±6.13	
Income exceeds expenses	110.00±39.71		29.82±2.89	
<i>Bonferroni</i>	<i>a</i> > <i>b</i> , <i>a</i> > <i>c</i> , <i>b</i> > <i>c</i>		<i>a</i> > <i>b</i> , <i>a</i> > <i>c</i> , <i>b</i> > <i>c</i>	
<b>Duration of marriage</b>				
≤5 years	129.18±30.06	Z=-1.559	25.18±6.17	Z=-0.663
>5 years	135.25±34.24	<i>p</i> =0.045	24.48±6.68	p=0.507
<b>Type of marriage</b>				
Love marriage	126.44±29.61	t=3.900	25.07±6.20	Z= -0.350
Arranged marriage	146.06±32.94	<i>p</i> <0.001	24.60±6.78	p=0.727
<b>Consanguineous marriage</b>				
Yes	148.72±24.17	Z=-3.697	22.48±6.85	Z=-2.135
No	128.15±31.66	<i>p</i> =0.000	25.37±6.16	<i>p</i> =0.033
<b>Duration of the desire to have children</b>				
≤5 years	128.10±31.01	Z=-3.047	25.23±6.11	Z=-1.172
>5 years	145.43±30.22	<i>p</i> =0.002	23.69±7.28	p=0.241
<b>Duration of infertility</b>				
1 year	130.54±32.19	t=-0.281	26.00±5.92	Z=-2.644
>1 years	131.80±30.76	p=0.779	23.65±6.60	<i>p</i> =0.008
<b>Cause of infertility</b>				
Female factor	135.50±33.71	F=1.732 p=0.162	25.15±5.85	X <sup>2</sup> =2.866 p=0.413
Male factor	134.78±23.40		23.21±7.76	
Mixed	119.66±16.29		24.00±5.00	
Unexplained	126.68±32.65		25.53±6.44	
<b>Social support during the infertility process</b>				
Had	129.37±31.58	Z=-2.723	25.02±6.25	Z=-0.573
Had not	148.77±24.93	<i>p</i> =0.006	24.27±7.28	p=0.566
<b>Person who provided the most social support<sup>†</sup></b>				
<b>Spouse</b>				
Yes	127.23±30.33	Z=-3.912	25.10±6.26	Z=-0.771
No	149.57±30.73	<i>p</i> <0.000	24.28±6.67	p=0.441
<b>Family members</b>				
Yes	129.51±30.67	t=-0.670	24.36±6.24	Z=-1.310
No	132.49±32.26	p=0.504	25.48±6.39	p=0.190
<b>Friends or relatives</b>				
Yes	122.28±37.48	Z=-1.639	26.76±5.00	Z=-1.365
No	132.35±30.47	p=0.101	24.70±6.47	p=0.172

FPI: Fertility Problem Inventory, SWLS: Satisfaction with Life Scale, SD: standard deviation, Z: Mann Whitney U Test, X<sup>2</sup>: Kruskal Wallis Test, t: Student's t Test, F: Oneway ANOVA Test, †More than one can be selected, a,b,c,d: Represents the groups when determining the difference between groups

There was a significant difference between the total score of SWLS and income status, consanguineous marriage status, and infertility duration (p<0.05). Women with

higher incomes, no consanguineous marriage, or a shorter infertility duration had lower life satisfaction (Table 3).

Participants' levels of life satisfaction and stress were found to be positively correlated with greater income levels. Consistent with the findings of Yılmaz et al.<sup>37</sup>, infertile women with lower incomes experienced greater negative effects from infertility. In Turkey, the financing of assisted reproductive technique (ART) treatments through social insurance is restricted to a maximum of three attempts. Given the high costs of infertility treatments, this limitation imposes considerable economic burdens and stress on couples.<sup>10</sup> Financial stability may, therefore, act as a buffering factor against the detrimental effects of infertility, allowing individuals to experience less stress due to infertility and to have their life satisfaction affected less negatively by this situation.

Marriage type and consanguinity status emerged as significant factors in this study. Infertile women in love marriages reported lower stress levels compared to those in arranged marriages. This finding aligns with previous research, which indicates that women in arranged marriages experience higher levels of sexual distress.<sup>38</sup> The lack of an emotional bond prior to marriage in arranged marriages may contribute to marital difficulties, leading to greater stress, especially when facing infertility. In contrast, some of the stress brought on by infertility may be reduced in love marriages due to the apparent understanding and support. On the other hand, consanguineous marriages were

linked to higher stress levels and lower life satisfaction. Women in consanguineous marriages may experience heightened anxiety about the possibility of having a child with a disability<sup>39</sup>, which can exacerbate stress and diminish life satisfaction. This concern may persist even if they conceive, potentially leading to ongoing stress and reduced life satisfaction.

In this study, shorter durations of marriage and desire to have children were associated with lower stress and longer duration of infertility was associated with lower life satisfaction. Yılmaz et al.<sup>37</sup> reported that prolonged desire to have children causes stress in infertile women. This can be explained by the fact that infertile women experience stigmatization as the length of time that passes before they are able to conceive, which increases their exposure to inquiries from their social environment and reminders of their infertility. As a result, they tend to become socially isolated, as highlighted in the literature.<sup>6,40</sup>

There were weak significant negative correlations between the FPI global stress score and the total SWLS score ( $r=-0.359$ ,  $p<0.001$ ; Table 4). Life satisfaction declined as the stress associated with infertility rose.

The overall score of COPE non-functional coping and the FPI global stress score showed a weak but significant positive correlation. The non-functional coping score rose in proportion to the stress associated with infertility ( $r=0.229$ ,  $p=0.001$ ; Table 4).

**Table 4. FPI, SWLS and COPE Scores Correlations**

	Total SWLS		COPE					
			Emotion-focused coping		Problem-focused coping		Non-functional coping	
	r	p	r	p	r	p	r	p
<b>FPI global stress score</b>	-0.359	<b>&lt;0.001</b>	0.024	0.734	-0.066	0.348	0.229	<b>0.001</b>
Social concern	-0.365	<b>&lt;0.001</b>	-0.036	0.606	-0.070	0.319	0.099	0.159
Sexual concern	-0.226	<b>0.001</b>	0.132	0.061	0.012	0.863	0.199	<b>0.004</b>
Relationship concern	-0.390	<b>&lt;0.001</b>	0.022	0.756	-0.138	0.050	0.206	<b>0.003</b>
Need for parenthood	-0.059	0.403	-0.077	0.275	-0.043	0.541	0.128	0.069
Rejection of childfree lifestyle	-0.204	<b>0.004</b>	0.029	0.681	0.025	0.726	0.200	<b>0.004</b>

*r: Spearman's rho*



According to the regression analysis, the established model is significant ( $F=22.485$ ;  $p<0.001$ ). The stress associated with infertility has a significant effect on satisfaction with life and it appears that 10.1% of the change in life satisfaction is explained ( $R^2=0.101$ ). A 1-unit increase in infertility-related stress a 0.064-point decrease in satisfaction with life. Increased infertility-related stress significantly reduces life satisfaction. There is no autocorrelation problem in the model ( $DW=1.866$ ; Table 5).

This study found a substantial negative association between life satisfaction and stress due to infertility. This correlation confirms that higher levels of stress are linked to lower levels of life satisfaction, highlighting the negative effects of stress related to infertility on life satisfaction. Regression analyses further supported these findings. Stress related to infertility has been shown to have a major impact on life satisfaction, with a rise in stress levels being associated with a fall in life satisfaction.

The literature emphasizes that life satisfaction is closely related to quality of life.<sup>41</sup> Various studies examining infertility and quality of life have reported a decrease in the quality of life of infertile women.<sup>42,43</sup>

When reviewing the literature, there are very few studies that investigate the stress levels related to infertility and life satisfaction in infertile women. In this study, it is a clear fact that as fertility-related stress increases, life satisfaction decreases. Based on this result, it can be said that infertility is a significant source of stress and an important factor affecting life satisfaction, which includes the satisfaction of life. The results of this study were consistent with the study by Kiesswetter et al.<sup>7</sup> While it is expected that life satisfaction decreases as stress increases, these findings underscore the critical need to address and manage infertility-related stress in clinical settings.

Notably, stress levels were found to be higher in individuals who used non-functional coping strategies, indicating that dysfunctional coping methods are associated with elevated stress. Similarly, in the study by Iordăchescu et al.<sup>44</sup>, stress levels are greater among individuals who use non-functional coping strategies. This emphasizes how critical it is to support psychological support and adaptive coping mechanisms in order to lessen the negative impacts of stress connected to infertility.

**Table 5. Regression Model of the Effect of Infertility-Related Stress on Life Satisfaction**

Dependent variable	Independent variable	Unstandardized Coefficients		Standardized Coefficients		t	p	VIF	Durbin Watson
		B (95% CI)	Standard error	Beta					
SWLS total score	Constant	33.342 (29.758; 36.926)	1.818	-		18.344	0.000	-	1.866
	FPI Global	-0.064	0.013	-0.318		-4.742	<b>0.000*</b>	1.000	
	Stress	(-0.091; -0.037)							

ANOVA test regression ( $F=22.485$ ,  $p=0.000$ ,  $R^2=0.101$ )

FPI: Fertility Problem Inventory, SWLS: Satisfaction with Life Scale, \* $p<0.001$

## CONCLUSION AND RECOMMENDATIONS

The research offers insightful information about the intricate connection between infertile women's coping mechanisms, life satisfaction, and stress associated with infertility. The findings indicate that infertility-related stress leads to a reduction in life satisfaction. Additionally, women with higher stress levels tend to use dysfunctional coping strategies more frequently. This

highlights the critical role of coping strategies in stress management and suggests that adopting functional coping mechanisms can reduce stress and improve life satisfaction in infertile women.

It is imperative that healthcare practitioners include stress management therapies in infertility treatment programs because of the

significant negative effects of stress associated with infertility on life satisfaction. Healthcare professionals, particularly nurses, can assist infertile women manage their stress more successfully and possibly improve their quality of life by encouraging the adoption of adaptive coping strategies including emotion- and problem-focused coping.

The results of this study provide guidance for healthcare professionals, particularly nurses, in better understanding and evaluating the specific stress factors related to infertility, the impact of this stress on life satisfaction, and the coping strategies used by infertile women. In this context, healthcare professionals can update their care plans and interventions accordingly to provide more personalized support. Nurses, by integrating these findings into clinical practice, can assess the stress levels of infertile women, inform them about the emotional and psychological effects of infertility, provide psychological support and counseling to encourage coping with stress, and recommend appropriate coping strategies to support their well-being. Additionally, nurses, in collaboration with multidisciplinary teams, can develop holistic care plans that reduce stress levels and enhance life satisfaction for infertile women.

To strengthen the findings and contribute to the results of this study, it is recommended that future randomized controlled trials be conducted to examine the effects of psychosocial nursing care or psychosocial

support interventions on the well-being, emotional, and mental health of infertile women.

### Limitations of the Study

This study provides insightful information about the relation between infertile women's coping mechanisms, life satisfaction, and stress associated with infertility. The use of established and validated instruments enhances the reliability of the findings. However, the study's single-center design may limit the findings' generalizability, and the cross-sectional design may make it more difficult to demonstrate causality over time. To improve the results' robustness and application, more multicenter studies and longitudinal study are recommended.

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### Conflict of interest

No conflict of interest was declared by the authors.

### Author Contribution

Concept: D.D.Ç., Ü.O., Design: D.D.Ç., Ü.O., Data Collection or Processing: D.D.Ç., Analysis or Interpretation: D.D.Ç., Ü.O., Literature Search: D.D.Ç., Ü.O., Writing: D.D.Ç., Ü.O., Approval of the Final Version to be Published: D.D.Ç., Ü.O.

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