



The relationship between infertility stress, coping, and quality of life among women undergoing infertility treatment

İnfertilite tedavisi gören kadınlarda infertilite stresi ve başa çıkma durumlarının yaşam kalitesi ile ilişkisi

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ABSTRACT

Aim: This study aimed to examine the relationships between infertility-related stress, coping strategies, and quality of life among women undergoing infertility treatment.

Methods: This descriptive, cross-sectional study was conducted between April-November 2025 with 200 women attending an infertility outpatient clinic at a city hospital in Central Anatolia, Türkiye. Data were collected using a Personal Information Form, the COMPI Fertility Problem Stress Scales, the COMPI Coping Strategy Scales, and the Fertility Quality of Life Questionnaire (FertiQoL). Data were analyzed using independent samples t-tests, one-way ANOVA, Pearson correlation analysis, and multiple linear regression analysis.

Results: The participants' mean age was 31.6±3.3 years, mean marriage duration 8.3±3.3 years, mean infertility duration 3.8±2.3 years, and mean treatment duration 3.1±1.4 years. FertiQoL core, treatment, and total scores were lower among women who were unemployed, smokers, had spouses with lower educational levels, had infertility attributed to both partners, were undergoing IVF/IUI treatment, had never been pregnant, or had a history of pregnancy after treatment ($p<0.05$). FertiQoL scores were negatively associated with age, marriage duration, spouse's age, infertility duration, treatment duration, and infertility-related marital stress ($p<0.05$). No significant associations were found between coping strategies and quality of life ($p>0.05$). Regression analyses indicated that FertiQoL core ($R^2=0.37$), treatment ($R^2=0.26$), and total scores ($R^2=0.38$) were associated with several sociodemographic and clinical characteristics.

Conclusion: Quality of life among women undergoing infertility treatment may be associated with infertility-related stress and sociodemographic and clinical characteristics. Further research is needed to clarify the role of coping strategies in fertility-related quality of life.

Keywords: coping behavior; female; infertility; quality of life; psychological stress; reproductive techniques

ÖZ

Amaç: Bu çalışma, infertilite tedavisi gören kadınlarda infertiliteye bağlı stres, başa çıkma stratejileri ve yaşam kalitesi arasındaki ilişkileri incelemeyi amaçlamıştır.

Yöntem: Tanımlayıcı, kesitsel bir araştırma olarak yürütülen çalışma, Nisan–Kasım 2025 tarihleri arasında Türkiye'nin İç Anadolu Bölgesi'ndeki bir şehir hastanesinin infertilite polikliniğine başvuran 200 kadın ile gerçekleştirilmiştir. Veriler, Kişisel Bilgi Formu, İnfertilite Stresi Ölçeği, İnfertilite Stresi ile Başa Çıkma Ölçeği ve Doğurganlık Sorunları Yaşayan Kişiler İçin Hayat Kalitesi Ölçeği (FertiQoL) kullanılarak toplanmıştır. Verilerin analizinde bağımsız örneklem t-testi, tek yönlü varyans analizi (ANOVA), Pearson korelasyon analizi ve çoklu doğrusal regresyon analizi kullanılmıştır.

Bulgular: Katılımcıların yaş ortalaması 31.6±3.3 yıl, evlilik süresi 8.3±3.3 yıl, infertilite süresi 3.8±2.3 yıl ve tedavi süresi 3.1±1.4 yıl olarak belirlenmiştir. FertiQoL çekirdek, tedavi ve toplam puanları, çalışmayan, sigara kullanan, eşinin eğitim düzeyi düşük olan, infertilite nedeni her iki eşe bağlı olan, IVF/IUI tedavisi gören, daha önce gebelik yaşamamış veya tedavi sonrası gebelik öyküsü olan kadınlarda daha düşük bulunmuştur ($p<0.05$). FertiQoL puanları ile yaş, evlilik süresi, eşin yaşı, infertilite süresi, tedavi süresi ve infertiliteye bağlı evlilik stresi arasında negatif yönlü ilişkiler gözlenmiştir ($p<0.05$). Baş etme stratejileri ile yaşam kalitesi arasında anlamlı bir ilişki bulunmamıştır ($p>0.05$). Regresyon analizleri, FertiQoL çekirdek ($R^2=0.37$), tedavi ($R^2=0.26$) ve toplam puanların ($R^2=0.38$) bazı sosyodemografik ve klinik özelliklerle birlikte gösterdiğini ortaya koymuştur.

Sonuçlar: İnfertilite tedavisi gören kadınlarda yaşam kalitesi, infertiliteye bağlı stres ile çeşitli sosyodemografik ve klinik özelliklerle ilişkili olabilir. Başa çıkma stratejilerinin fertilitateye ilişkin yaşam kalitesindeki rolünün açıklığa kavuşturulabilmesi için ileri araştırmalara ihtiyaç vardır.

Anahtar kelimeler: başa çıkma yöntemleri; infertilite, kadın; psikolojik stres; üreme teknikleri; yaşam kalitesi

Introduction

Fertility is a fundamental biological concept referring to an individual's reproductive capacity, while female fertility specifically denotes the reproductive potential based on the probability of achieving pregnancy. Infertility is defined as the inability of a couple to conceive despite regular, unprotected sexual intercourse for at least 12 months (Bala et al., 2021). Today, infertility is considered a major public health problem due to its increasing prevalence and its substantial impact on

multiple dimensions of individuals' lives, including physical, psychological, and social well-being. Globally, infertility affects approximately 15% of couples, and female- and male-related factors contribute to infertility at comparable rates (Adebisi et al., 2025). This condition, which closely concerns women of reproductive age, represents a growing health burden at both global and national levels. Global data indicate that the incidence of infertility among women aged 25–44 years ranges from 3.5% to 16.7% in developed countries and from 6.9% to



9.3% in developing countries (Lei et al., 2021). In Türkiye, according to the Turkey Demographic and Health Survey (TDHS), the prevalence of infertility increased from 11.2% in 2013 to 12.0% in 2018 (Hacettepe University Institute of Population Studies, 2019). This upward trend highlights the necessity of addressing infertility not only as an individual health issue but also as a condition with significant societal implications.

The fact that infertility diagnosis and treatment processes are largely carried out through the female body causes women to experience this process more intensely in both physical and psychological terms (Zorlu & Erbaş, 2021). This situation necessitates considering infertility not merely as a biological insufficiency, but as a multidimensional health problem with significant effects on stress levels, emotional burden, and psychological well-being. The international literature reports that infertility is closely associated with depression, anxiety, and increased stress levels (Braverman et al., 2024; Lei et al., 2021). Particularly in societies where the maternal role is socially and culturally attributed to women, infertile women are emphasized to experience higher levels of infertility-related stress compared to infertile men (Lei et al., 2021). Uncertainties during the treatment process, together with repeated and unsuccessful attempts, further exacerbate women's psychological burden by increasing stress levels (Kaniğ & Güngör Satılmış, 2021; Truong et al., 2022). While some studies indicate that infertility-related stress is negatively associated with the success of assisted reproductive technologies (Aimagambetova et al., 2020; Peng et al., 2021), other studies suggest that stress does not directly affect treatment success, but that treatment failure itself increases psychological burden (Bapayeva et al., 2021; Simbar et al., 2025). Nevertheless, there is a general consensus in the literature that women experience greater stress than their partners during the infertility process (Khalesi & Kenarsari, 2024).

The ways in which women cope with stress during the infertility process play a decisive role in psychological adjustment and quality of life. Coping strategies reflect individuals' cognitive, emotional, and behavioral responses to their perceptions of infertility diagnosis, treatment processes, and treatment outcomes (Swift et al., 2021). It has been reported that problem-focused coping strategies, including seeking information, establishing effective communication with healthcare professionals, and actively participating in the treatment process, reduce infertility-related stress and strengthen psychological adjustment (Truong et al., 2022). Among emotion-focused coping strategies, the expression of emotions, seeking social support, and religious/spiritual coping methods are reported to play a protective role in stress management, particularly during infertility treatment periods characterized by a high emotional burden (Oti-Boadi & Asante, 2017). In contrast, maladaptive coping strategies such as denial, withdrawal, and avoidance have been emphasized to be associated with higher levels of infertility-related stress, increased depression and anxiety, and consequently poorer quality of life among women (Kaniğ & Güngör Satılmış, 2021; Zurlo et al., 2020).

Infertility is considered a multifaceted health problem that affects women's quality of life across physical, psychological, social, and relational dimensions (Swift et al., 2021; Truong et al., 2022). Quality of life is a subjective and dynamic concept

that reflects an individual's perception of their health status, psychological well-being, social relationships, and daily functioning (Swift et al., 2021). Among women undergoing infertility treatment, infertility-related stress may increase markedly due to uncertainties during the diagnostic and treatment processes, repeated unsuccessful attempts, and social expectations; this situation may lead to impaired psychological well-being and reduced quality of life (Kaniğ & Güngör Satılmış, 2021; Swift et al., 2021). It has been reported that infertility-related stress negatively affects social relationships, marital adjustment, and psychosocial functioning, resulting in a significant decline in women's quality of life (Kaniğ & Güngör Satılmış, 2021; Lei et al., 2021). In this context, coping styles are considered to play a decisive role in either mitigating or exacerbating the impact of the infertility process on the individual. It is emphasized that quality of life is a modifiable construct and can be improved in line with individuals' stress coping strategies, perceived social support, and the quality of psychosocial care provided by healthcare professionals (Civan & Beydağ, 2023; Dube et al., 2023).

Adopting a holistic perspective in examining the relationship between infertility-related stress, coping strategies, and quality of life among women undergoing infertility treatment is of great importance for the development of both clinical practices and psychosocial care approaches. Identifying women's stress levels and coping patterns may enable the early detection of individuals at risk and facilitate the planning of targeted counseling interventions. The findings obtained in this context are expected to contribute to strengthening psychosocial support services provided by healthcare professionals, developing individualized care approaches, and promoting holistic models of infertility treatment that place quality of life at the center of care. Previous studies conducted in Türkiye have examined infertility-related stress, coping strategies, and quality of life, either separately or in relation to specific psychosocial factors. However, studies simultaneously examining infertility-related stress, coping strategies, and quality of life among women undergoing infertility treatment remain limited (Dag et al., 2015; Dişli Çetinçay & Oskay, 2025). Therefore, this study aims to examine the relationship between infertility-related stress, coping strategies, and quality of life among women undergoing infertility treatment.

Research questions:

H1: Quality of life differs according to the personal characteristics of women undergoing infertility treatment.

H2: Infertility-related stress is significantly associated with quality of life among women undergoing infertility treatment.

H3: Coping strategies related to infertility are significantly associated with quality of life among women undergoing infertility treatment.

H4: Infertility-related stress and coping strategies are associated with fertility-related quality of life among women undergoing infertility treatment.

Methods

Study design

This research was conducted using a cross-sectional design. The reporting of this cross-sectional study was conducted in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines (von Elm et al., 2007).

Study setting

The study was conducted in the infertility outpatient clinic of a city hospital located in the Central Anatolia Region of Türkiye. The institution serves as a regional referral center and provides comprehensive diagnostic and treatment services in the field of infertility. The high number of patients applying to the clinic specifically due to infertility made this hospital an appropriate setting for conducting the study.

Study population and sample

Data were collected between April and November 2025. The study population consisted of women who applied to the infertility outpatient clinic of a city hospital located in the Central Anatolia Region of Türkiye for infertility treatment during this period. Based on hospital records, 1,000 women had applied to the clinic for infertility-related care in the preceding year. The sample size was calculated a priori using the formula for a known population:

$$n = (N \times Z^2 \times p \times q) / [(N - 1) \times d^2 + Z^2 \times p \times q].$$

In the calculation, a margin of error of 5% ($d = 0.05$), a confidence level of 90% ($Z = 1.64$), and maximum variability assumptions of $p = 0.50$ and $q = 0.50$ were used. Considering the cross-sectional and analytical design of the study, the accessible population size, and feasibility considerations, the 90% confidence level was specified a priori for the sample size calculation before participant recruitment. Based on this calculation, the minimum required sample size was determined to be 200 women. During the recruitment period, 245 women were assessed for eligibility. Of these, 20 did not meet the eligibility criteria and 20 declined to participate. A total of 205 women were enrolled in the study; however, five participants were excluded from the analysis due to incomplete data. Consequently, the final analysis was conducted with 200 women.

Inclusion criteria: Women who were aged 18 years or older, married or in a relationship, experiencing primary or secondary infertility, without a diagnosed psychiatric disorder, able to read and understand Turkish effectively, and who agreed to participate in the study were included.

Exclusion criteria: Women who were under 18 years of age, had chronic diseases (such as hypertension, diabetes mellitus, asthma, etc.), or had a diagnosed psychiatric disorder (e.g., depression, schizophrenia) were excluded from the study.

Data collection procedure

Before data collection began, the purpose and methodology of the study were explained in detail to each participating woman. Interviews were conducted in a private room within the hospital, and data were collected in this setting. Data were obtained by the researchers based on participants' self-reports. Participants were informed that the information provided would be used solely for research purposes, that their names would not appear on the questionnaires, and that participation in the study was entirely voluntary. No incentives were provided to participants for their participation. The average time required to complete the questionnaires was approximately 10–15 minutes.

Data collection instruments

Data were collected using a Personal Information Form, the Infertility Stress Scale (The COMPI Fertility Problem Stress Scales), the Infertility Coping Scale (The COMPI Coping Strategy Scales), and the Fertility Quality of Life Questionnaire (FertiQoL).

Personal information form

The Personal Information Form, developed by the researchers based on the relevant literature, consists of 20 items designed to assess participants' characteristics, including age, educational level, perceived income status, smoking and alcohol use, duration of marriage, duration of infertility treatment, and treatment outcomes (Civan & Beydağ, 2023; Kaniğ & Güngör Satılmış, 2021; Zorlu & Erbaş, 2021).

The COMPI Fertility Problem Stress Scales (COMPI-FPSS)

The COMPI Fertility Problem Stress Scales (COMPI-FPSS) was developed to assess stress experienced by infertile couples (Schmidt et al., 2005). The scale consists of 14 items rated on a four-point Likert scale (1 = not at all, 4 = very much) and comprises three subscales: Personal Stress, Marital Stress, and Social Stress. The scale does not yield a total score; instead, each subscale is evaluated separately. The Personal Stress subscale assesses stress related to the individual's personal life, with higher scores indicating higher levels of personal stress. The Marital Stress subscale measures stress associated with marital and couple relationships, where increasing scores reflect greater marital stress. The Social Stress subscale evaluates stress related to social life and social environment, with higher scores indicating increased social stress. Subscale scores are calculated by subtracting the sum of the relevant items from a predetermined constant. The COMPI-FPSS subscale score ranges are 0–20 for personal stress, 0–14 for marital stress, and 0–12 for social stress. The Turkish validity and reliability study of the scale was conducted by Yılmaz and Yeşiltepe Oskay (2016). Cronbach's alpha coefficients were reported as 0.82 for Personal Stress, 0.75 for Marital Stress, and 0.78 for Social Stress (Yılmaz & Yeşiltepe Oskay, 2016). In the present study, Cronbach's alpha internal consistency coefficients were found to be 0.83 for Personal Stress, 0.78 for Marital Stress, and 0.93 for Social Stress.

The COMPI Coping Strategy Scales (COMPI-CSS)

The COMPI Coping Strategy Scales (COMPI-CSS) was developed by Schmidt et al. (2005), and its Turkish adaptation was conducted by Yılmaz and Yeşiltepe Oskay (2016). The COMPI-CSS is a measurement tool applicable to both women and men and consists of 19 items. The scale does not provide a total score; instead, it is evaluated based on its subscale scores. The scale comprises four subscales: active avoidance, active confrontation, passive avoidance, and meaning-based coping. Items are rated using a combination of three-point and four-point Likert-type response formats. The COMPI-CSS subscale score ranges are 4–16 for active-avoidance coping, 7–26 for active-confronting coping, 3–12 for passive-avoidance coping, and 5–20 for meaning-based coping. Subscale scores reflect the extent to which individuals employ specific coping strategies during the infertility process, with higher scores indicating more frequent use of the corresponding coping strategy. The Cronbach's alpha reliability coefficients of the subscales were reported as 0.70, 0.70, 0.61, and 0.69, respectively (Yılmaz & Yeşiltepe Oskay, 2016). In the present study, the Cronbach's alpha internal consistency coefficients for the active avoidance, active confrontation, passive avoidance, and meaning-based coping subscales were found to be 0.87, 0.79, 0.93, and 0.87, respectively.

Fertility Quality of Life Questionnaire (FertiQoL)

The Fertility Quality of Life Questionnaire (FertiQoL) was developed to assess the impact of infertility and infertility

treatment on individuals' quality of life (Boivin et al., 2011). The scale consists of a total of 36 items and evaluates quality of life in a multidimensional manner through three main sections: a 24-item Core module, a 10-item Treatment module, and a 2-item General health and overall life module. The FertiQoL is rated on a five-point Likert scale ranging from 0 to 4. Total scores are transformed to a scale ranging from 0 to 100, with higher scores indicating better quality of life (Çetinbaş et al., 2014). The Turkish validity and reliability study of the FertiQoL was conducted by Çetinbaş et al. (2014), and the Cronbach's alpha coefficients were reported as 0.90 for the FertiQoL Core module, 0.90 for the Treatment module, and 0.76 for the total FertiQoL score. In the present study, the Cronbach's alpha internal consistency coefficients were found to be 0.72 for the FertiQoL Core module, 0.73 for the Treatment module, and 0.78 for the total FertiQoL score.

Statistical analysis

Data obtained from the study were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25.0 software. Normality analyses indicated that the skewness and kurtosis values of all scale scores ranged between -1.50 and +1.50; therefore, parametric statistical tests were applied (Tabachnick and Fidell, 2013). Descriptive statistics were presented using numbers, percentages, means, and standard deviations (SD). Comparisons between participants' personal characteristics and scale scores were conducted using the independent samples *t*-test for two-group comparisons and one-way analysis of variance (ANOVA) for comparisons involving three or more groups. Post hoc comparisons for variables with statistically significant ANOVA results were performed using the Tukey honestly significant difference (HSD) test. Relationships between continuous variables were evaluated using Pearson's product-moment correlation analysis. Predictive relationships between the FertiQoL Core module, FertiQoL Treatment module, and total FertiQoL scores were examined using multiple linear regression analysis (Enter method) by constructing three separate models. Variables that were found to be statistically significant in independent samples *t*-tests and correlation analyses with the total FertiQoL score were included in the regression models. The reliability of the scales was assessed by calculating Cronbach's alpha coefficients. Statistical significance was set at $p < 0.05$.

Ethical considerations

Prior to the initiation of the study, ethical approval was obtained from the Non-Interventional Clinical Research Ethics Committee of Selçuk University Faculty of Health Sciences (Date: 30.10.2024; Approval No: 2024/987). The study was conducted in accordance with the ethical principles of the Declaration of Helsinki (1964) and its subsequent amendments. Participation in the study was based on voluntariness, and data were collected only from women who agreed to take part in the research. Participants were informed that the information provided would be kept confidential, that no identifying information would be used during data collection or publication, and that the data would be used solely for scientific purposes. Written informed consent was obtained from all participants prior to data collection.

Results

The comparison of infertile women's quality of life according to their sociodemographic and obstetric characteristics is

Table 1. Comparison of personal characteristics and quality of life in infertile women

Characteristic	n (%)	FertiQoL Core Module Total Score Mean (SD)	FertiQoL Treatment Module Total Score Mean (SD)	FertiQoL Total Score Mean (SD)
Education level				
Primary ^a	50 (25)	60 (5.1)	18.9 (2.3)	86.1 (5.8)
High school ^b	103 (51.5)	59.7 (4.5)	18.1 (2.2)	85 (5.8)
University/higher ^c	47 (23.5)	59.6 (8.6)	17.2 (1.7)	84.1 (10.4)
F		0.074	9.083	0.996
p		0.928	<0.001^{a>b,c}	0.371
Employment status				
Employed	65 (32.5)	61.6 (6.5)	18.6 (2.2)	87.5 (7.5)
Unemployed	135 (67.5)	58.7 (5.6)	17.7 (2.1)	83.6 (7)
t		3.322	2.854	3.866
p		0.001	0.005	<0.001
Smoking status				
Yes	16 (8)	56.6 (7.2)	16.9 (2.2)	80.6 (9.1)
No	184 (92)	60.2 (5.7)	18.2 (2.1)	85.6 (6.9)
t		-2.571	-2.913	-2.758
p		0.011	0.006	0.009
Spouse's education level				
Primary ^a	28 (14)	59.9 (4.7)	19.1 (1.9)	86.4 (5)
High school ^b	128 (64)	58.7 (5.1)	17.9 (2.4)	83.7 (6.6)
University higher ^c	44 (22)	62.2 (7.9)	17.8 (1.5)	87.4 (9.4)
F		7.369	4.548	5.858
p		0.001^{b>a,c}	0.012^{a>b,c}	0.003^{c,a>b}
Cause of infertility				
Female factor ^a	52 (26)	60 (3.9)	17.9 (1.8)	85.1 (4.8)
Male factor ^b	53 (26.5)	59.1 (4.4)	18.4 (2.4)	84.8 (5.8)
Both ^c	44 (22)	56.1 (6.3)	17.1 (2.4)	80.4 (8.1)
Unknown ^d	51 (25.5)	63.7 (7.2)	18.1(1.7)	85 (7.4)
F		15.957	4.565	15.080
p		<0.001^{d>a,b,c}	0.004^{b>c}	<0.001^{a,b,d>c}
History of IUI and/or IVF treatment				
Yes	57 (28.5)	55.8 (4.9)	17.3 (2.2)	80.4 (6.7)
No	143 (71.5)	61.3 (5.8)	18.3 (2.1)	86.8 (6.9)
t		-7.052	-2.987	-6.265
p		<0.001	0.003	<0.001
Pregnancy after treatment				
Yes	86 (43)	57.7 (6)	17.7 (2.1)	82.5 (7.4)
No	114 (57)	61.2 (5.7)	18.2 (2.2)	86.8 (6.8)
t		-4.388	-1.951	-4.322
p		<0.001	0.052	<0.001
Perceived income status				
More than expenses	47 (23.5)	59.1 (5)	18.6 (2.1)	85 (5.9)
Equal to expenses	125 (62.5)	59.9 (6.6)	17.8 (2.6)	84.9 (8.2)
Less than expenses	28 (14)	60.1 (6)	18 (2.2)	85 (7.4)
F		0.416	1.745	0.080
p		0.660	0.177	0.923
Social security				
Yes	177 (88.5)	59.9 (6.2)	18 (2.1)	85 (7.6)
No	23 (11.5)	58.8 (4.2)	18.7 (2.2)	84.7 (4.7)
t		1.066	-1.470	0.263
p		0.294	0.153	0.794
Coverage of treatment costs				
Self	27 (13.5)	59.1 (4.7)	18.2 (2)	84.6 (5.6)
Insurance	173 (86.5)	59.9 (6.3)	18 (2.2)	85.1 (7.8)
t		-0.821	0.664	-0.396
p		0.415	0.509	0.693
Previous pregnancy				
Yes	114 (57)	60.8 (6.2)	18.5 (2.4)	86.6 (7.4)
No	86 (43)	58.5 (5.7)	17.5 (1.7)	83.1 (7)
t		2.914	3.734	3.660
p		0.004	<0.001	<0.001
Difficulty getting leave from work				
Yes	28 (14)	59.3 (5)	18.5 (2.1)	84.9 (5.8)
No	172 (86)	59.7 (6.3)	17.9 (2.2)	85 (7.7)
t		-0.626	1.558	-0.114
p		0.533	0.124	0.909
Spouse's difficulty getting leave				
Yes	158 (79)	59.6 (6.2)	18 (2.2)	84.9 (7.6)
No	42 (21)	60.2 (5.5)	17.9 (2)	85.3 (6.6)
t		-0.656	0.289	-0.286
p		0.514	0.773	0.776

Data are presented as n (%) or mean (SD). t, independent-samples *t*-test; F, one-way analysis of variance; FertiQoL, Fertility Quality of Life Questionnaire. Tukey's HSD test was used for post hoc comparisons. Superscript letters indicate significant between-group differences. Bold values indicate statistical significance at $p < 0.05$.

presented in Table 1. The mean age of the women participating in the study was 31.6 ± 3.3 years, the mean duration of marriage was 8.3 ± 3.3 years, the mean duration of infertility was 3.8 ± 2.3 years, and the mean duration of infertility treatment was 3.1 ± 1.4 years. Among the participants, 51.5%

were high school graduates, 67.5% were not employed, and none of the participants reported alcohol consumption.

It was determined that the FertiQoL Core Module mean scores were significantly lower among women who were not employed, smoked cigarettes, had spouses with primary school or university-level education, whose infertility was attributed to themselves, their spouses, or both partners, who were undergoing IVF/IUI treatment, who had a history of pregnancy following treatment, and who had never experienced a pregnancy previously ($p < 0.05$).

The FertiQoL Treatment Module mean scores were found to be significantly lower among women with a high school or higher level of education, those who were not employed, smokers, those whose spouses had high school or university-level education, those whose infertility was attributed to both partners, those undergoing IVF/IUI treatment, and those who had never experienced a pregnancy ($p < 0.05$).

Similarly, the FertiQoL total score mean values were significantly lower among women who were not employed, smoked cigarettes, whose spouses had a high school education level, whose infertility was attributed to both partners, who were receiving IVF/IUI treatment, who had experienced a pregnancy following treatment, and who had no prior history of pregnancy ($p < 0.05$).

The mean domain scores of infertile women participating in the study, as measured by the COMPI Fertility Problem Stress Scales, were 12.9 ± 4.4 for the Personal domain, 8.0 ± 3.6 for the Marital domain, and 5.6 ± 3.9 for the Social domain. Regarding coping strategies assessed by the COMPI Coping Strategy Scales, the mean scores were 17.9 ± 4.2 for active confrontation, 11.6 ± 3.1 for active avoidance, 10.0 ± 2.1 for passive avoidance, and 9.2 ± 1.7 for meaning-based coping. In terms of quality of life, the mean scores on the FertiQoL were 59.8 ± 6.0 for the Core module, 18.0 ± 2.1 for the Treatment module, and 85.0 ± 7.4 for the total score.

The relationships between FertiQoL scores and age, duration of marriage, spouse's age, infertility duration, treatment duration, stress domains, and coping strategies are presented in Table 2. The FertiQoL Core Module score was

weakly and negatively correlated with age ($r = -0.190$, $p = 0.005$), duration of marriage ($r = -0.268$, $p < 0.001$), spouse's age ($r = -0.255$, $p < 0.001$), treatment duration ($r = -0.260$, $p < 0.001$), and COMPI-FPSS marital domain stress ($r = -0.133$, $p = 0.049$). A moderate negative correlation was observed between infertility duration and the FertiQoL Core Module score ($r = -0.419$, $p < 0.001$).

The FertiQoL Treatment Module score was weakly and positively correlated with age ($r = 0.174$, $p = 0.010$) and spouse's age ($r = 0.136$, $p = 0.044$). Moderate negative correlations were observed between the FertiQoL Treatment Module score and infertility duration ($r = -0.378$, $p < 0.001$) and treatment duration ($r = -0.331$, $p < 0.001$). The total FertiQoL score was weakly and negatively correlated with duration of marriage ($r = -0.243$, $p < 0.001$) and spouse's age ($r = -0.177$, $p = 0.008$). Moderate negative correlations were observed between the total FertiQoL score and infertility duration ($r = -0.460$, $p < 0.001$) and treatment duration ($r = -0.317$, $p < 0.001$). No statistically significant correlations were found between the COMPI Coping Strategy Scale subdimensions and the FertiQoL Core Module, Treatment Module, or total scores.

Regression analyses examining the factors associated with infertile women's FertiQoL Core Module, Treatment Module, and total scores are presented in Table 3. The regression model for the FertiQoL Core Module was statistically significant ($F = 9.564$, $p < 0.001$) and explained 37.6% of the variance. Employment status, cause of infertility, previous IUI/IVF treatment, spouse's age, and infertility duration were significantly associated with FertiQoL Core Module scores ($p < 0.05$). Similarly, the regression model for the FertiQoL Treatment Module was statistically significant ($F = 6.059$, $p < 0.001$) and explained 26.0% of the variance. In this model, smoking status and cause of infertility were significantly associated with FertiQoL Treatment Module scores ($p < 0.05$).

The regression model for the total FertiQoL score was also statistically significant ($F = 10.743$, $p < 0.001$) and explained 38.4% of the variance. Employment status, cause of infertility,

Table 2. Relationship of FertiQoL scores with age, duration of marriage, spouse's age, infertility duration, treatment duration, personal domain, marital domain, social domain, active avoidance, active confrontation, passive avoidance, and meaningfulness in infertile women

Characteristic	FertiQoL Core Module Total Score		FertiQoL Treatment Module Total Score		FertiQoL Total Score	
	r	p	r	p	r	p
Age	-0.190	0.005	0.174	0.010	-0.110	0.104
Duration of marriage	-0.268	<0.001	-0.055	0.414	-0.243	<0.001
Spouse's age	-0.255	<0.001	0.136	0.044	-0.177	0.008
Infertility duration	-0.419	<0.001	-0.378	<0.001	-0.460	<0.001
Treatment duration	-0.260	<0.001	-0.331	<0.001	-0.317	<0.001
COMPI-FPSS Personal Domain Stress	0.020	0.773	0.048	0.478	0.032	0.633
COMPI-FPSS Marital Domain Stress	-0.133	0.049	-0.063	0.356	-0.127	0.061
COMPI-FPSS Social Domain Stress	-0.019	0.774	0.050	0.457	-0.001	0.986
COMPI-CSS Active-Avoidance Coping	-0.123	0.068	-0.024	0.721	-0.105	0.119
COMPI-CSS Active-Confronting Coping	-0.076	0.264	0.006	0.926	-0.059	0.383
COMPI-CSS Passive-Avoidance Coping	-0.053	0.434	0.003	0.966	-0.043	0.523
COMPI-CSS Meaning-Based Coping	-0.039	0.567	0.016	0.812	-0.028	0.676

r, Pearson's correlation coefficient; COMPI-FPSS, COMPI Fertility Problem Stress Scales; COMPI-CSS, COMPI Coping Strategy Scales; FertiQoL, Fertility Quality of Life Questionnaire. Bold values indicate statistical significance at $p < 0.05$.

Table 3. Multiple linear regression analysis of variables affecting fertiqol scores in infertile women

Model 1: FertiQoL Core Module	B	SE	β	t	p	95% CI	
						Lower	Upper
Constant	70.772	4.596		15.397	<0.001	61.710	79.835
Employment status (Ref: Not working)	-1.567	0.754	-0.125	-2.079	0.039	-3.053	-0.081
Smoking status (Ref: Smoker)	-1.115	1.103	-0.062	-1.011	0.313	-3.288	1.059
Spouse's education level (Ref: Primary/University)	0.927	0.764	0.075	1.214	0.226	-0.579	2.433
Cause of infertility (Ref: Self / Partner / Both)	-3.170	0.875	-0.222	-3.624	<0.001	-4.894	-1.445
Previous IUI/IVF treatment (Ref: Yes)	-3.177	1.048	-0.237	-3.032	0.003	-5.243	-1.111
Post-Treatment pregnancy (Ref: Yes)	-1.266	0.814	0.103	-1.555	0.121	-2.781	0.339
Previous pregnancy (Ref: No)	-1.092	0.765	-0.090	-1.427	0.155	-2.601	0.417
Age	0.675	0.354	0.370	1.905	0.058	-0.023	1.373
Duration of marriage	-0.042	0.171	-0.023	-.243	0.808	-0.379	0.296
Spouse's age	-0.844	0.348	-0.432	-2.427	0.016	-1.529	-1.158
Infertility duration	-0.617	0.280	-0.236	-2.205	0.029	-1.169	-0.065
Treatment duration	0.728	0.419	0.166	1.738	0.084	-0.098	1.554
Marital stress (COMPI-FPSS)	0.079	0.101	0.48	0.788	0.432	-0.119	0.278
R=0.614, R ² =0.376, F=9.564, p<0.001, Durbin-Watson=2.246							
Model 2: FertiQoL Treatment Module	B	SE	β	t	p	95% CI	
						Lower	Upper
Constant	17.030	1.858		9.166	<0.001	13.367	20.693
Education (Ref: Primary)	-0.518	0.431	-0.101	-1.202	0.231	-1.368	0.331
Employment status (Ref: Not working)	-0.474	0.411	-0.075	-1.155	0.249	-1.284	0.335
Smoking Status (Ref: Smoker)	-0.569	0.281	-0.127	-2.024	0.044	-1.123	-0.015
Spouse's education level (Ref: High school / university)	-0.301	0.531	-0.047	-0.563	0.571	-1.347	0.744
Cause of infertility (Ref: Both)	-0.729	0.347	-0.139	-0.325	0.037	-1.413	-0.045
Previous IUI/IVF (Ref: Yes)	-0.165	0.408	-0.035	-0.404	0.686	-0.970	0.640
Previous pregnancy (Ref: No)	-0.330	0.294	-0.076	-1.121	0.263	-0.910	0.250
Age	0.166	0.138	0.256	1.206	0.229	-0.106	0.438
Duration of marriage	-0.036	0.065	-0.056	-0.563	0.574	-0.164	0.091
Spouse's age	-0.44	0.136	-0.063	-0.325	0.746	-0.312	0.224
Infertility duration	-0.138	0.11	-0.149	-1.252	0.212	-0.356	0.079
Treatment duration	-0.179	0.162	-0.114	-1.101	0.272	-0.499	0.141
R=0.510, R ² = 0.260, F=6.059, p<0.001, Durbin-Watson=2.198							
Model 3: FertiQoL Total Score	B	SE	β	t	p	95% CI	
						Lower	Upper
Constant	101.954	5.641		18.072	<0.001	90.832	113.076
Employment status (Ref: Not working)	-2.560	0.909	-0.167	-2.817	0.005	-4.352	-0.769
Smoking status (Ref: Smoker)	-1.618	1.300	-0.074	-1.245	0.215	-4.180	0.945
Spouse's education (Ref: High School)	-1.764	0.897	-0.117	-1.966	0.051	-3.533	0.005
Cause of infertility (Ref: Both)	-4.108	1.080	-0.228	-3.803	<0.001	-6.238	-1.978
Previous IUI/IVF (Ref: Yes)	-2.648	1.274	-0.162	-2.079	0.039	-5.159	-0.137
Post-Treatment pregnancy (Ref: Yes)	-0.818	0.976	-0.055	-0.838	0.403	-2.742	1.106
Previous pregnancy (Ref: No)	-1.843	0.917	-0.125	-2.010	0.046	-3.650	-0.035
Age	0.983	0.428	0.441	2.297	0.023	0.139	1.826
Duration of marriage	-0.078	0.205	-0.035	-0.380	0.704	-0.482	0.326
Spouse's age	-0.236	0.426	-0.518	-2.899	0.004	-2.076	-0.395
Infertility duration	-0.488	0.347	-0.153	-1.405	0.161	-1.172	-0.197
Treatment duration	0.106	0.517	0.020	0.205	0.838	-0.913	1.125
R=0.69, R ² =0.384, F=10.743, p<0.001, Durbin-Watson=2.255							

Multiple linear regression analysis was performed using the Enter method. B, unstandardized regression coefficient; SE, standard error; β , standardized regression coefficient; CI, confidence interval; Ref., reference category. Bold values indicate statistical significance at $p < 0.05$.

previous IUI/IVF treatment, previous pregnancy, age, and spouse's age were significantly associated with the total FertiQoL score ($p < 0.05$). Age was positively associated with the total FertiQoL score ($B = 0.983$, $\beta = 0.441$, $p = 0.023$).

Discussion

This study aimed to examine the relationships among infertility-related stress, coping strategies, and quality of life among women undergoing infertility treatment. The findings suggest that the infertility experience may involve not only medical aspects but also psychological, social, and spiritual dimensions for women. The findings indicate that multiple sociodemographic and clinical characteristics may be associated with quality of life among women undergoing

infertility treatment. In particular, unemployed women, smokers, women whose spouses had a high school education, women whose infertility was attributed to the woman, the partner, or both partners, women undergoing IVF/IUI treatment, and those with no previous pregnancy history had lower FertiQoL Core, Treatment Module, and total scores. Similar findings have been reported in previous studies showing that lower educational and socioeconomic status, infertility cause, smoking, and assisted reproductive treatments may be associated with poorer psychosocial well-being and lower quality of life among infertile women (Dağlar et al., 2024; Jo et al., 2024; Kiani et al., 2022; Song et al., 2021). Together, these findings suggest that infertility the benefit from

approaches that consider psychosocial and lifestyle-related factors in addition to medical treatment.

The total FertiQoL score was weakly and negatively correlated with duration of marriage and spouse's age and moderately and negatively correlated with infertility duration and treatment duration. These findings suggest that longer infertility and treatment durations, as well as longer marital duration and older spouse age, may be associated with poorer fertility-related quality of life among women undergoing infertility treatment. Similar negative correlations with infertility duration and treatment duration were also observed in the FertiQoL Core Module. In addition, infertility duration and treatment duration were negatively correlated with the FertiQoL Treatment Module, indicating that prolonged infertility and treatment may adversely affect treatment-related aspects of quality of life. Previous studies have similarly reported that increasing infertility duration is associated with higher levels of stress and depressive symptoms and lower quality of life (Suleiman et al., 2023; Şahin & Er, 2024). Likewise, prolonged infertility treatment and the accompanying emotional burden have been associated with poorer psychosocial well-being (Aker & Özdemir, 2024).

Multiple regression analyses further demonstrated that unemployment, infertility attributed to both partners, IVF/IUI treatment history, older spouse age, and the absence of a previous pregnancy were associated with lower total FertiQoL scores, whereas older age was positively associated with the total FertiQoL score. These findings suggest that fertility-related quality of life may be influenced not only by infertility-related clinical characteristics but also by individual sociodemographic factors. Consistent with our findings, previous studies have also reported that quality of life among women undergoing infertility treatment may be associated with both socioeconomic and clinical characteristics (Kiani et al., 2022; Kurdi & Ali, 2025). Taken together, these findings support the hypothesis that selected sociodemographic and clinical characteristics may be associated with fertility-related quality of life among women undergoing infertility treatment.

Regarding infertility-related stress, another notable finding of the present study was the weak negative correlation between marital domain stress and the FertiQoL Core Module score. Although this relationship was not observed in the Treatment Module or the total FertiQoL score, it suggests that increased marital stress may be associated with poorer core aspects of fertility-related quality of life, particularly emotional, relational, and social well-being. Similar findings have been reported in previous studies indicating that infertility-related stress within the marital relationship may negatively affect women's psychosocial well-being and quality of life (Civan & Beydağ, 2023; Jing et al., 2022). Therefore, the findings provide partial support for the hypothesis that infertility-related stress is associated with fertility-related quality of life, as the observed relationship was limited to the marital stress domain and the FertiQoL Core Module.

In contrast, no statistically significant relationship was found between coping strategies and quality of life in the present study. Specifically, active avoidance, active confrontation, passive avoidance, and meaning-based coping were not significant independent predictors of the FertiQoL Core, Treatment, or total scores. This finding suggests that coping strategies may not exert a direct and uniform influence on fertility-related quality of life. Previous studies have reported

that the association between coping strategies and quality of life varies according to the type of coping strategy adopted. In particular, avoidant coping strategies have been associated with poorer quality of life, whereas problem-focused coping, positive reappraisal, and seeking social support have been associated with better fertility-related quality of life (Andrei et al., 2021; Swift et al., 2021). The absence of a significant association in the present study may be related to differences in the coping dimensions assessed, participants' sociocultural characteristics, perceived social support, and treatment-related factors. Accordingly, the hypothesis proposing an association between coping strategies and fertility-related quality of life was not supported.

Overall, the findings of this study suggest that fertility-related quality of life among women undergoing infertility treatment may be associated with selected sociodemographic and clinical characteristics. Although a weak association was observed between marital infertility-related stress and the FertiQoL Core Module, no significant relationship was found between coping strategies and quality of life. These findings highlight the importance of adopting holistic and multidisciplinary approaches that address the psychosocial needs of women while also considering relevant sociodemographic and clinical factors during infertility care.

Limitations

This study has several limitations that should be considered when interpreting the findings. First, the cross-sectional design precludes causal inferences regarding the relationships among infertility-related stress, coping strategies, and quality of life. Second, the sample was drawn from a single center and consisted solely of women who applied to an infertility outpatient clinic, which may limit the generalizability of the results to other populations or clinical settings. Additionally, data were collected using self-report instruments, which may be subject to response and recall bias. Despite these limitations, the study has notable strengths. It provides a comprehensive evaluation by simultaneously examining infertility-related stress, coping strategies, and quality of life. The use of valid and reliable measurement tools, an adequate sample size, and multivariate regression analyses allowed for a detailed statistical examination of factors associated with quality of life. Overall, these strengths enhance the robustness of the findings and contribute meaningfully to the understanding of factors influencing quality of life among women undergoing infertility treatment.

Conclusion

The findings of this study suggest that fertility-related quality of life among women undergoing infertility treatment is associated with selected sociodemographic and clinical characteristics. In addition, a weak association was observed between marital infertility-related stress and the FertiQoL Core Module, whereas no significant association was found between coping strategies and quality of life. Multiple regression analyses further showed that unemployment, infertility attributed to both partners, a history of IVF/IUI treatment, older spouse age, and the absence of a previous pregnancy were associated with lower total FertiQoL scores, whereas older age was positively associated with the total FertiQoL score.

In light of these findings, it is essential that infertility care incorporates holistic approaches that address women's psychosocial needs in addition to biomedical interventions.

Integrating psychological counseling, stress management strategies, and quality-of-life-oriented supportive interventions into treatment programs, especially for women with identified risk profiles may contribute to a more comprehensive management of the psychosocial dimensions accompanying infertility treatment.

Ethics Committee Approval

Ethics committee approval was obtained from the Non-Interventional Clinical Research Ethics Committee of Selçuk University Faculty of Health Sciences (Board Decision No:2024/987) on October 30, 2024.

Informed Consent

Written informed consent was obtained from all participants prior to participation.

Peer-Review

Externally peer-reviewed.

Author Contributions

B. Ç. : Design of the Study, Literature Searches and Analyses, Application of Research, Interpretation of Data, First Draft and Revising it Critically for Important Intellectual Content; Approval of the Final Version.

S. Ç. : Design of the Study, Statistical Analyses, Interpretation of Data, First Draft and Revising it Critically for Important Intellectual Content; Approval of the Final Version.

Ü. E. : Design of the Study, First Draft and Revising it Critically for Important Intellectual Content; Approval of the Final Version.

Conflict of Interest

There is no conflict of interest.

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