

ORIGINAL RESEARCH ARTICLE

The Quality of Life and Dyadic Adjustment of Couples Receiving Infertility Treatment

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Abstract

The aim of this study was to determine the factors that affect the dyadic adjustment and quality of life of individuals receiving infertility treatment and to evaluate the effect of dyadic adjustment on their quality of life. This study was conducted as a descriptive and cross-sectional study with 209 males and 213 females. The study data was collected using an introductory information form about socio-demographic characteristics, the Dyadic Adjustment Scale and the FertiQol Scale. The main findings of the study were that gender and marital status influenced dyadic adjustment and quality of life ($p < 0.05$), and that income status affected only dyadic adjustment ($p < 0.05$). There was a statistically significant relationship (37%) between scores for dyadic adjustment and scores for quality of life ($p < 0.001$). It was determined that females in infertility treatment had lower dyadic adjustment and quality of life than men. (*Afr J Reprod Health 2019; 23[1]: 117-127*).

Keywords: Infertility, female and male, dyadic adjustment, quality of life, Turkey

Résumé

Le but de cette étude était de déterminer les facteurs qui affectent l'adaptation dyadique et la qualité de vie des individus qui suivent un traitement pour l'infertilité et d'évaluer l'effet de l'adaptation dyadique sur leur qualité de vie. Cette étude a été menée comme une étude descriptive et transversale avec 209 hommes et 213 femmes. Les données de l'étude ont été recueillies à l'aide d'un formulaire d'introduction sur les caractéristiques sociodémographiques, l'échelle d'adaptation dyadique et l'échelle FertiQol. Les conclusions importantes de l'étude étaient que le sexe et l'état civil influençaient l'adaptation dyadique et la qualité de vie ($p < 0,05$), et que le statut de revenu n'affectait que l'adaptation dyadique ($p < 0,05$). Il y avait un rapport statistiquement significatif (37%) entre les points d'adaptation dyadique et les points de qualité de vie ($p < 0,001$). Il a été déterminé que les femmes sous traitement contre l'infertilité présentaient une adaptation dyadique et une qualité de vie inférieures à celles des hommes. (*Afr J Reprod Health 2019; 23[1]: 117-127*).

Mots-clés: Infertilité, homme et femme, adaptation dyadique, qualité de vie, Turquie

Introduction

Infertility has cultural, religious and class-related dimensions that cause biological, psychological, social, ethical, and economic problems. Infertility is estimated to affect about 50-80 million couples worldwide^{1,2}. According to the data from the World Health Organization (WHO), the worldwide

prevalence of infertility is assumed to be between 10-15% and is known to be increasing³. Turkey is among the countries with a high infertility rate (10-20%) that is gradually increasing. This problem affects not only infertile couples, but also their families and relatives⁴.

Infertility is a life crisis that not only affects the women being treated, but brings

psychological threats to both spouses, emotional stress, suffering due to treatment and an important burden on families⁵. The lack of fertility, which is an important function of adult development, negatively affects social life, psychological well-being, future, self-image, self-esteem, quality of life, marital relations and the sex lives of couples⁶. Studies have shown that infertility has a negative effect on marital relationships and lead to divorce⁷, domestic violence, anxiety and depression⁸. During treatment, quality of life may deteriorate as dyadic adjustment gets worse⁹ since having a child is an important part of life since the existence of mankind and a social role to be fulfilled¹⁰. Having a child is seen as a social and cultural value in many societies¹¹. A married couple cannot fulfill the roles of being a family, breeding and continuing their lineage, if they cannot have a child. The fact that infertile couples cannot perform these roles causes them feelings of failure and inadequacy because they think that they will lose their social status and roles in society¹².

Women are more likely than men to suffer from infertility-related problems such as embarrassment, decreased self-esteem, guilt, anxiety, depression, isolation, reduced quality of life, and problems in their marriage and sexual lives¹³. According to a study by Unal *et al.* carried out in Turkey, as age, duration of marriage and the duration of demand for a child increase, the level of women's exposure to the problems caused by infertility increases¹⁴. It was determined that women who had only completed primary school, who were unemployed, who had no social security and who had lower incomes were more affected by infertility¹⁴. Studies have shown that males experience problems similar to those experienced by females such as anger, low self-esteem, embarrassment, deprivation, failure, guilt, high anxiety, sexual dissatisfaction and isolation. The most destructive effect of infertility for males is to start questioning their virility¹⁵. A study by Peronace¹⁶ of 256 males who received unsuccessful infertility treatment found that the

majority of them experienced mental health deterioration, increased physical stress symptoms, decreased social support and increased social stress levels¹⁶.

The diagnosis and treatment of infertility causes couples intense emotional pressure, stress and panic. Health professionals, who deal with infertile individuals most frequently in this stage, play a key role in reducing stress and are a key source of information for infertile couples¹⁷. A variety of health professionals' interventions are needed for couples with fertility problems to help them in the diagnosis stage and all stages of treatment. Nurses are at the forefront of the healthcare professionals who can help infertile individuals make decisions about treatment. In addition, despite the outcomes of the treatment, nurses and other health professionals have important duties such as getting infertile individuals to focus on their lives' successful aspects and encouraging them to develop and maintain their interpersonal relationships. Health professionals should evaluate the causes of couples' infertility, their stage of life and their emotional status. After this evaluation, health professionals should have the individuals participate in decision-making, treatment and care^{18,19}.

In this study, we aimed to determine the factors that affect the quality of life and dyadic adjustment of couples receiving infertility treatment, and to evaluate the effect of dyadic adjustment on their quality of life.

Methods

Study design and sample

This descriptive and cross-sectional study was conducted between March and June 2016 in the Reproductive Health Center of Eskisehir Osmangazi University's Faculty of Medicine in Eskisehir, Turkey. Eskisehir is a city located in the west of Turkey. The reason for the selection of the

health center is that it is the only and major reproductive health center in the city. The study's universe consisted of all couples who visited its reproductive health center and were diagnosed as infertile. The sample consisted of couples who met the criteria for inclusion (being married, an infertility diagnosis, being literate, and volunteering to participate). The number to be included in the sample was calculated to be 346 persons as a result of the relation between the power analysis and correlation with the power of 80% and type one error of 5%.

This study was intended to involve at least 400 individuals (200 females + 200 males) by exceeding this number, and was completed with a total of 422 participants, 209 males and 213 females.

Data collection and ethics

The study was carried out after receiving the written permission from the reproductive health center and approval from the ethics committee of Eskisehir Osmangazi University (80558721 / G-33 / 11.03.2015).

Data collection tools

The introductory information form was developed by the researcher after a review of the literature. It solicits socio-demographic features with 30 questions, including history of marriage and infertility. The Dyadic Adjustment Scale (DAS) was developed in 1976 by Spanier to assess the quality of relationships as perceived by married and unmarried couples²⁰. The scale's Turkish validity and reliability study was conducted by Fıfılođlu and Demir in 2000²¹. The DAS is composed of 32 items and 4 sub-dimensions. The majority of items use a 6-point format, with options scored from 0 to 5, and ranging from either always agree to always disagree or all the time to never. The total score is the sum of all items,

ranging from 0 to 151. Higher scores reflect a higher perception of the quality of the relationship.

The FertiQoL Scale is the first scale for measuring the quality of life of people experiencing fertility problems with international validity. It was developed by 27 specialists (researchers, psychologists, social workers, consultants, gynecologists, nurses) from 11 countries. The validity and reliability study of the scale was carried out by Boivin *et al.* in 2011²². The scale consists of 34 items in 2 dimensions (core module and treatment module) and 2 general questions that measure physical health and quality of life (A. How do you evaluate your health? B. Are you satisfied with the quality of your life?). Higher scores indicate a higher quality of life. The reliability of the FertiQoL was established based on its Cronbach's alpha coefficient range of 0.72–0.90²².

Data analysis

Statistical analyses were performed using SAS Studio 3.6 (Statistical Analysis Software, SAS Institute Inc., Cary, NC, USA). The comparison of socio-demographic characteristics (gender, age, education, income status, occupation, duration of marriage, marriage style) according to dyadic adjustment and quality of life factor levels was carried out using 2- and 3-way analysis of variance (ANOVA) models. For multiple comparisons, the Sidak multiple comparison test was used. Pearson's correlation analysis was used to determine the relationships between the dyadic adjustment and quality of life scales. The threshold for statistical significance was $p < 0.05$.

Results

The socio-demographic characteristics of participants are shown in Table 1. It was determined that a large majority (72.7%) of participants were under 35 years old, and 42.9%

Table 1: The distribution of socio-demographic characteristics of the participants receiving infertility treatment in Eskisehir, Turkey (n=422)

Characteristic	Female		Male		Total	
	n	%	n	%	n	%
Age						
≤35 years	164	77.0	143	68.4	307	72.7
>35 years	49	23.0	66	31.6	115	27.3
Education						
Primary education	75	35.2	32	15.3	107	25.4
High school	69	32.4	112	53.6	181	42.9
University	69	32.4	65	31.1	134	31.8
Income status						
Low	7	3.3	5	2.4	12	2.8
Middle	121	56.8	137	65.6	258	61.1
High	84	39.4	67	32.1	151	35.8
Very high	1	0.5	-	-	1	0.2
Occupation						
Self-employed	19	8.9	39	18.7	58	13.7
Officer	22	10.3	37	17.7	59	14.0
Worker	46	21.6	120	57.4	166	39.3
Not Working/Housewife	126	59.2	13	6.2	139	32.9
Duration of Marriage						
5 years or less	111	52.1	116	55.5	227	53.8
5 years or more	102	47.9	93	44.5	195	46.2
Type of Marriage						
Arranged/unwillingly	4	1.9	4	1.9	8	1.9
Arranged/willingly	66	31.0	39	18.7	105	24.9
Having known each other	143	67.1	166	79.4	309	73.2
Total	213	100	209	100	422	100

were high school graduates. Of them, 61.1% stated that their income status is moderate, 53.3% have been married for 5 years or less, and 73.2% knew each other before getting married.

The relationship between socio-demographic characteristics, quality of life and dyadic adjustment

There was a significant relationship between dyadic adjustment and the factors of gender, income status and type of marriage (Table 2), but only gender and type of marriage had significant effects on quality of life (Table 3).

There was a statistically significant difference between the dyadic adjustment scores of

the females and males receiving infertility treatment ($p<0.05$). It was determined that the males had higher dyadic adjustment than the females.

There was a statistically significant relationship between the income status of the women and men and their scores for dyadic adjustment ($p<0.05$). The men with low income status were found to have lower dyadic adjustment than both males with middle or higher incomes and women with middle or higher incomes.

A statistically significant correlation was found between type of marriage and scores for dyadic adjustment ($p<0.01$). By type of marriage, the dyadic adjustment of the men unwillingly married in arranged marriages were found to be

Table 2: The Relationship between the Gender, Income Status and Type of Marriage of Females and Males Receiving Infertility Treatment and Dyadic Adjustment in Eskisehir, Turkey ($n=422$)

Variable	n	Mean±SD	F*	P*	Multiple Comparison (P-value**)			
Gender								
Male	209	119.67±12.18	5.90	0.01	-			
Women	213	117.12±14.92						
Income Status								
Lower(1)	12	105.92±21.09	4.70	0.003	1-2 (0.0013) 1-3 (0.0023)			
Medium(2)	258	118.91±13.43						
High(3)	151	118.36±12.96						
Very High(4)	1	136.00±						
Gender*Income Status								
Male-Lower(1)	5	96.60±18.93	5.77	0.003	1-2 (0.001) 1-3 (0.010) 1-5 (0.027) 1-6 (0.009)			
Male-Medium(2)	137	121.17±10.94						
Male-High(3)	67	118.33±12.33						
Female-Lower(4)	7	112.57±21.27						
Female-Mediu (5)	121	116.35±15.44						
Female-High(6)	84	118.38±13.51						
Female-Very Higher(7)	1	136.00±						
Type of Marriage								
Arranged/unwillingly	8	102.37±14.63	5.71	0.003	1-2 (0.002) 1-3 (0.002)			
Arranged/willingly	105	119.12±14.45						
Having known each other	309	118.55±13.16						
Gender* Type of Marriage								
Male - Arranged/unwillingly(1)	4	92.50±13.77				5.71	0.003	1-2 (0.002) 1-3 (0.002)
Male - Arranged/willingly(2)	39	117.59±15.02						
Male- Having known each other(3)	166	120.81±10.55						
Female -Arranged/unwillingly(4)	4	112.25±7.04						
Female - Arranged/willingly(5)	66	120.03±14.15						
Female-Having known each other(6)	143	115.92±15.28						

lower than those of the men who were willingly married in arranged marriages and those who married after meeting their wives on their own. Dyadic adjustment in women who were willingly married in arranged marriages were lower than those of women who married after meeting their husbands on their own. It was also determined that the men who married after meeting their wives on their own had higher dyadic adjustment scores than the women who married after meeting their husbands on their own. A statistically significant correlation was found by gender between the scores of the infertility treatment and the quality of life ($p<0.05$). The males' quality of life was

determined to be higher than that of the females. A statistically significant correlation was found between the marital status of the men and women who received infertility treatment and their quality of life ($p<0.001$). It was determined that the quality of life of men who married unwillingly was lower than that of men who married after meeting their wives on their own. It was determined that the quality of life of the men who married willingly in arranged marriages was higher than that of women in all types of marriages. The quality of life of the men who married after meeting their wives on their own was also higher than that of all the married women, regardless of type of marriage.

Table 3: The Relationship between Gender, Type of Marriage and Quality of Life of infertile couples in Eskisehir, Turkey (n=422)

Variable	n	Mean±SD	F*	P*	Multiple Comparison (P-value**)
Gender	209	102.71±11.78	246.56	<0.001	-
Male	213	79.74±15.94			
Female			6.35	0.001	1-2 (0.009)
Type of Marriage	8	74.87±9.61			1-3 (0.001)
Arranged/unwillingly	105	87.79±15.51			
Arranged/willingly	309	92.66±18.78			
Met			7.14	0.0009	1-3 (0.0009)
Gender* Type of Marriage					2-4 (0.01)
Male-Arranged/unwillingly (1)	4	76.50±12.45			2-5 (<.0001)
Male-Arranged/willingly (2)	39	97.59±13.85			2-6 (<.0001)
Male-Met (3)	166	104.54±10.08			3-4 (0.0001)
Female-Arranged/unwillingly(4)	4	73.25±7.32			3-5 (<.0001)
Female-Arranged/willingly (5)	66	82.00±13.46			3-6 (<.0001)
Female-Met (6)	143	78.87±17.06			

Table 4: The Relationship between Mean Dyadic Adjustment and Quality of Life Scores of infertile couples in Eskisehir, Turkey (n=422)

Scale	Male (n: 209)			Female (n: 213)			Total (n: 422)	
	Mean±SD	r	p	Mean±SD	r	p	r	p
Dyadic Adjustment Scale								
General	119.67±12.18			117.12±14.92				
Quality of Life Scale		0.38	0.0001*		0.41	0.0001*	0.37	0.0001*
General	102.71±11.78			79.74±15.94				

The relationship between mean dyadic adjustment and quality of life scores

Table 4 shows a significant correlation between the mean dyadic adjustment and quality of life point scores (r: 0.37, p<0.001) for infertile couples. This positive association was found to be more significant for females (r: 0.41, p<0.001).

Findings related to the subdimensions of dyadic adjustment and quality of life

Comparing the mean subscale and total dyadic adjustment and quality of life scores by gender found meaningful correlations (p<0.05) in the dimensions of dyadic adjustment, showing love, emotions, mind-body, relational, social, treatment

Table 5: Findings related to the subdimensions of dyadic adaptation and quality of life of infertile couples in Eskisehir, Turkey ($n=422$)

Scale	Male (n:209)	Female (n:213)	Total (n:422)
	Mean±SD	Mean±SD	p
Dyadic Adjustment Scale			
• Dyadic Satisfaction	33.45±2.47	33.65±4.00	0.38
• Couples' commitment	17.94±7.74	17.59±8.60	0.35
• Dyadic compatibility	57.53±7.74	55.61±8.60	0.009
• Do not show love	10.75±1.66	10.26±2.01	0.009
• General	119.67±12.18	117.12±14.92	0.10
FertiQol			
• Emotional	78.53±15.60	62.56±22.05	0.0001
• Mind-body	87.54±15.51	72.57±23.36	0.0001
• Relational	63.18±12.12	44.60±11.01	0.0001
• Social	76.37±12.54	70.13±17.02	0.0001
• Treatment environment	68.44±10.72	37.56±9.70	0.0001
• Treatment tolerance	80.41±18.35	67.43±22.14	0.0001
• General	102.71±11.78	79.74±15.94	0.0001

environment and treatment tolerance. The males' mean scores on the dyadic adjustment index subscale, and the relational and treatment environment subscales of life quality were higher than those of the females (Table 5).

Discussion

Although infertility is not classified as a life-threatening illness, it is a psycho-social and economic crisis that affects individuals, families, and society¹². Couples describe infertility as the most difficult experience in their lives because infertility can affect marital relationships, family ties, sexuality, social and work life, family economics, future, friendships, and quality of life²³.

Of the participants in our study, 72.7% were 35 years of age or younger (Table 1). In the studies of infertility in the literature, including those conducted in the 1990s, men and women under 35 years of age predominate²⁴⁻²⁶. This indicates that the age factor for treatment has not changed much over the last 30 years. Male fertility rates begin to decrease after 40 years of age, those

of females do so after 30 years of age, and that there is an inverse relationship between age and fertility rate⁴. In other words, as age increases, the chances of success fall, along with couples' hopes for positive outcomes from treatment. In our study, the high ratio of participants in this age group may be due to the couples' awareness about fertility rates, the need for treatment at an early age, falling fertility rates and falling couple treatment rates.

Of the participants, 61.1% were found to have moderate income status (Table 1). The findings in the literature are like those of this study^{18,27}. The rate of those who stated that their income level was moderate varies between 25% and 92%^{1,27}. Infertility treatment is a very expensive process because of the drugs used and the operations performed, and income is very important because it can cause economic difficulties for couples¹². Low income status increases the effect of couples' infertility²⁸. Majority of participants (61%) in this study with moderate incomes may be due to treatment in Turkey being expensive, and the reproductive health center being state-supported.

The socio-demographic characteristics of gender, type of marriage and income status were meaningfully related with dyadic adjustment and quality of life. However, age, education, occupational status, marriage duration was not meaningfully related with dyadic adjustment and quality of life in our study.

By gender, the dyadic adjustment and quality of life of males were higher than those of females (Tables 2 and 3). Our study results are like those in the literature: women's marital adjustment is lower than that of men, and women's quality of life is more negatively affected than that of men. Men experience less stress than women, feel more sexual satisfaction and have more self-confidence than females²⁹⁻³¹. Despite the reported differences in the effects of gender on dyadic adjustment and quality of life, Güleç *et al.* and Schmidt *et al.* found no difference by gender in couples' infertility treatment and described positive effects such as increased sharing and rapprochement among couples^{32,33}.

Our findings show that women's dyadic adjustment and quality of life is affected by infertility treatment more negatively than those of men because of the greater psychosocial effects of not being able to fulfill a maternal role, not giving birth and the emotional deprivation of children's support. In some societies, having children is seen as an important factor in earning privilege and respect, and some women experience intense concern about being abandoned by their husbands. For this reason, health professionals should consider the results of infertile women using a multi-faceted approach and recognize that treatment includes understanding the experiences for women.

Our study determined that type of marriage has a significant effect on dyadic adjustment and quality of life (Tables 2 and 3). Bayram found that type of marriage was not affected by dyadic adjustment¹⁹. No studies of the effect of marital adjustment on quality of life have been found by our review of the literature. Our study found that

dyadic adjustment and quality of life were higher for willingly married women than for the other women. In our sample, women's low-income status and educational status affected arranged marriages and marital relationships positively because in infertile couples with lower education levels and incomes, women are more satisfied with their arranged marriages and marital relationships³⁴. Men who met and married women of their own choice were found to have higher levels of dyadic adjustment and quality of life. The men had more education and higher incomes than the women. The freedoms and roles given to men by society may have caused their higher rates of meeting and marrying their wives on their own. Willing marriages of males also affected dyadic adjustment positively.

Our study found that income had a significant effect on dyadic adjustment during infertility treatment, but not on quality of life (Table 2). Şen *et al.* found that dyadic adjustment increases as income increases for both men and women³⁵. Unlike our study, Lau and Hasson *et al.* found that low income had a significant negative effect on quality of life^{36,37}. Our study assessed quality of life and the effects of infertility not only in terms of living standards, but psychologically and physiologically, finding that income alone is not enough to increase the quality of life of infertile couples.

Our study found a statistically significant (37%) relationship between positive mood and dyadic adjustment and quality of life scores (Table 4). In Bayram's study, there was a significant positive correlation between quality of life and some sub-dimensions of dyadic adjustment¹⁹. No other studies of the relationship between dyadic adjustment and quality of life were found.

A study of quality of life in infertile couples found that male patients had better quality of life and significant differences between male and female patients³⁸. The deterioration of marriage compatibility also affects quality of life negatively. It is very important for couples to share

their feelings and concerns with each other during treatment and to support each other in overcoming problems³⁵. Our work's conclusion is that quality of life rises along with dyadic adjustment, and this effect is even stronger for women. In other words, women with increasing dyadic adjustment are more likely to have higher quality of life than men because in infertility treatment, women's bodies are always exposed to complex treatments and interventions. When, despite long and difficult treatment, women cannot fulfill their roles in society, their quality of life and dyadic adjustment are negatively affected.

On all the subscales of dyadic adjustment and quality of life scales except the sexual satisfaction subscale of the dyadic adjustment scale, the mean scores of the males were higher than that of females (Table 5). There were significant differences by gender on both scales' subdimensions, including dyadic adjustment, the relational subdimension and the treatment environment subdimension with treatment quality and treatment accessibility, and males scored higher than females on all of them. The males' lowest score was on the subscales of the quality of life scale was on the relational sub-dimension, and the females obtained their lowest scores on the treatment environment sub-dimension with treatment quality and treatment accessibility (Table 5). Belen's¹ study with women found that the women's lowest sub-dimension score on the life quality scale was in the emotional sub-dimension, and Karabulut's³⁹ study with women found that the women's lowest sub-dimension scores were on the emotional subscale for women with primary infertility and on the environmental subscale for women with secondary infertility^{1,39}. This can cause emotional wear on women during the long and difficult treatment, and long-term communication with physicians and health workers during treatment can cause negative situations in their treatment environment. It is therefore important that women receive professional support and support from their partners during treatment.

A study by Asazawa *et al.* with 502 couples found the lowest mean score on the treatment tolerance sub-dimension evaluating the effects of infertility treatment on daily life, and that scores on the sub-dimensions of the quality of life scale varied by gender⁴⁰.

One important finding of our study was that both males and females obtained their lowest mean scores on the sub-dimension of showing love on the dyadic adjustment scale (Table 5). This result is like those of other studies. Egelioglu-Cetişli *et al.* found that women's lowest scores were on the subdimension of showing love, and Eren-Bodur *et al.* and Güleç *et al.* studies of couples both found the lowest scores in this subdimension^{3,32,41}. If the infertility treatment is long and exhausting, couples experience psychologically adverse effects, couples show less love towards each other, and the time they devote to each other is shortened. Couples should be given support for behaviors and attitudes that include agreeing about loving, loving behaviors and showing affection.

Conclusion

Infertility adversely affects couples' social lives, family, friends and their relations with the environment, emotional status, marital relationships, and sexual lives. In addition, the couple's dyadic adjustment and quality of life are also adversely affected. Women's dyadic adjustment and quality of life were lower than those of men. Gender and marital status both affect dyadic adjustment and quality of life. Income status was also found to affect dyadic adjustment. There was a positive relationship between dyadic adjustment and quality of life. Quality of life increased with increased dyadic adjustment. Therefore, healthcare professionals (physicians, nurses, etc.) should consider the quality of life and dyadic adjustment status of couples (especially women) with infertility during the examination and treatment processes. At the same time, it is thought

that more successful results can be obtained from infertility treatment with better dyadic adjustment and quality of life.

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Competing Interests

The authors declare they have no conflict of interest.

Contribution of Authors

Study design: FZ, EG, EC; data collection and analysis: FZ, EG, EC, and manuscript preparation: FZ, EG.

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