2021; 24(3): 338-348
DOI: 10.17049/ataunihem.919064

RESEARCH/ARAŞTIRMA

DETERMINATION OF THE RELATIONSHIP BETWEEN SEXUAL DISTRESS AND SEXUAL LIFE QUALITY IN INFERTILE WOMEN[1]

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Alınış Tarihi/Received	Kabul Tarihi/Accepted	Yayın Tarihi/Published
18.04.2021	08.09.2021	25.09.2021

Bu makaleye atıfta bulunmak için/To cite this article:
Turan Y, Sis Celik A. Determination of the relationship between sexual distress and sexual life quality in infertile women. Journal of Anatolia Nursing and Health Sciences, 2021; 24(3): 338-348. DOI: 10.17049/ataunihem.919064

ABSTRACT

Aim: *The aim of this study is to evaluate the sexual distress, quality of sexual life and the relationship between them in infertile women.*

Method: *This cross-sectional study was conducted at the infertility polyclinic of a university hospital located in an eastern city of Turkey between June 2016 and January 2018. The study sample included 198 infertile female patients who consented for participation in the study, fulfilled the inclusion criteria, and visited the polyclinic between 30th June and 30th September 2016. The Questionnaire, Female Sexual Distress Scale, and Sexual Quality of Life Scale-Female were used to collect the data.*

Results: *The mean score on the Sexual Distress Scale was 10.37±9.01 and mean score on the Sexual Quality of Life–Female Scale was 71.79±19.46. In women without sexual distress, the mean score on the Sexual Quality of Life– Female Scale was 86.70±8.06, whereas for women with sexual distress, the mean score on the Sexual Quality of Life– Female Scale was 58.32±16.73. The difference between the groups was found to be statistically significant (p<0.05). In addition, a significantly strong negative correlation was found between the mean scores on the Sexual Distress Scale and Sexual Quality of Life – Female Scales (r:-0.827, p<0.001).*

Conclusion: *Although about half of the infertile women were under sexual distress, their sexual distress levels were low, and their sexual quality of life was relatively high. Women under sexual distress were found to have low sexual quality of life. As the level of sexual distress increased, the sexual quality of life decreased significantly.*

Keywords*: Infertility, sexual distress, sexual issues, sexual quality of life, nursing*

ÖZ

İnfertil Kadınlarda Cinsel Distres ve Cinsel Yaşam Kalitesi Arasındaki İlişkinin Belirlenmesi

Amaç: *Bu çalışmanın amacı infertil kadınların cinsel sıkıntılarını, cinsel yaşam kalitesini ve aralarındaki ilişkiyi değerlendirmektir.*

Yöntem: *Bu kesitsel çalışma, Türkiye'nin doğusunda bulunan bir üniversite hastanesinin infertilite polikliniğinde Haziran 2016-Ocak 2018 tarihleri arasında yapılmıştır. Araştırmanın örneklemini, çalışmaya katılmayı kabul eden, dahil edilme kriterlerini karşılayan ve ilgili polikliniğe 30 Haziran- 30 Eylül 2016 tarihleri arasında başvuran 198 infertil kadın oluşturmaktadır. Verilerin toplanmasında Anket Formu, Kadın Cinsel Distres Ölçeği ve Cinsel Yaşam Kalitesi Ölçeği-Kadın kullanılmıştır.*

Bulgular: *Kadınların, Cinsel Distres Ölçeği toplam puan ortalamasının 10.37±9.01 olduğu ve Cinsel Yaşam Kalitesi-Kadın Ölçeği toplam puan ortalamasının 71.79±19.46 olduğu belirlenmiştir. Cinsel distres yaşamayan kadınlarda Cinsel Yaşam Kalitesi- Kadın Ölçeğinin toplam puan ortalamasının 86.70±8.06 olduğu, cinsel distres yaşayanlarda ise Cinsel Yaşam Kalitesi- Kadın Ölçeğinin toplam puan ortalamasının 58.32±16.73 olduğu saptanmış ve gruplar arasındaki farkın istatistiksel olarak anlamlı olduğu bulunmuştur (p <0.05). Ayrıca Cinsel Distres Ölçeği toplam puan ortalaması ile Cinsel Yaşam Kalitesi- Kadın Ölçeği toplam puan ortalaması arasında negatif yönde anlamlı güçlü bir ilişki olduğu bulunmuştur (r:-0.827, p <0.001).*

Sonuç: *İnfertil kadınların yaklaşık yarısı cinsel distres yaşamasına rağmen cinsel distres düzeylerinin düşük ve cinsel yaşam kalitelerinin iyi düzeyde olduğu saptanmıştır. Cinsel distres yaşayan kadınların cinsel yaşam kalitelerinin düşük olduğu ve cinsel distres düzeyi arttıkça cinsel yaşam kalitelerinin de anlamlı derecede azaldığı belirlenmiştir.*

Anahtar Kelimeler: *İnfertilite, cinsel distres, cinsel sorunlar, cinsel yaşam kalitesi, hemşirelik*

[1] This research was prepared from a master thesis which was accepted by Atatürk University Health Sciences Institute in 2018. Abstract of this manuscript was presented as an oral presentation at 1st International and 2nd National Women's Health Nursing Congress on May 2018, İstanbul/TURKEY

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INTRODUCTION

The World Health Organization (WHO) estimates that there are 60-80 million infertile couples in the world. Additionally, the prevalence of infertility varies from country to country and region to region; infertility is reported in approximately 8-10% of the couples in developed countries and 15-20% of the couples in developing countries (1, 2).

As per global fertility research figures, the lowest number of women in the age group of 40-45 years who did not have a child was reported in South Korea (1.3%), Jordan (2.2%), and Syria (2.9%) (1). The prevalence of infertility in Turkey was about 10–15%, and at present, it has increased to 30% (3-5). The inability to bear a child has adverse effects on marital relationships, social life, emotional state, future plans, self-esteem, and women's body image (6). The diagnosis, treatment process, and treatment outcomes for infertility lead to anxiety, fear and relationship issues among couples as well as reduced self-esteem, lack of sexual satisfaction, loss of confidence with respect to sexual intercourse, decrease in libido, anger, and adverse emotional effects (7-9).

The stress experienced within the diagnosis-treatment period of infertility leads to deterioration in marital relationships, decrease in sexual intercourse frequency, and the perception of sexual "incompetence" (10). Couples are continuously obliged to follow the ovulation time and menstrual cycle during the treatment for infertility, so they are required to engage in sexual intercourse only with the aim of "reproduction" and avoid sexual intercourse at the times when the probability of impregnation is low; as a result, the act of sexual intercourse at these times holds no meaning for the couples, especially for the women (11).

Since infertility adversely affects marital relationships for these reasons, sexual dysfunction and reduced sexual satisfaction are the usual consequences. WHO defines sexual dysfunction as the inability to have sexual intercourse for various reasons (loss and deficiency of sexual desire, lack of sexual drive and sexual pleasure, failure of genital response, orgasm dysfunction, etc.) although the individual desires to have sexual intercourse (12). Sexual dysfunction in women has biological, psychological, and sociological dimensions (13). Particularly, the obligation to have sexual intercourse at the times when the probability of impregnation is high in the cycle leads to the act of sexual intercourse being perceived as an ordinary task and not as part of the private life of the couple. The individual may feel incompetent as s(he) is infertile and the pleasure derived from sexual intercourse may decrease and s(he) may experience sexual dissatisfaction. In the face of these perceptions, marital relationships may be affected adversely. In addition, the couples feel as if they are under observation and experience pressure in their sexual life. Sexual dysfunction arises in the women with a decrease in sexual drive or loss of desire, decrease in sexual excitability and non-realisation of excitement, difficulty in reaching orgasm, and failure to reach orgasm (14). Sexual activity is one of the daily life activities of individuals, and it has a significant place among items that constitute the quality of life of an individual (15). High-quality sexual life is defined as follows: "not having a disease and disorders affecting the reproduction and sexual functions, not having fear, shame, guilt, and false beliefs adversely repressing the sexual reactions and adversely affecting the human relationships, reproduction in conformity with the social and personal ethics, ability to control the sexual behaviours and being satisfied from this" (8,9).

Sexuality is one of the significant but neglected requirements of individuals within the frame of integrated approach. The nurses have educational and consulting roles in addition to their responsibilities such as giving comprehensive care, information, and aid for solving problems related to sexuality. It is thought that sexual training and consultancy may help individuals obtain exact information on sexual issues; experience their sexuality without being under the influence of sexual myths and social, cultural, and religious pressures; and use interventions to deal with their sexual problems (16).

The aim of nurses is to maintain the sexual health of individuals, encourage them to express their sexual/reproduction health issues, determine the causes and characteristics of their sexual health problems, design interventions to address their problems, and improve the patients' quality of sexual life (17). In light of this point of view, this study was conducted to determine whether the women diagnosed with in fertility and in the process of treatment were experiencing sexual distress or not, to determine the effect of sexual distress on the sexual quality of life, and to identify the factors causing sexual distress.

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DOI: 10.17049/ataunihem.919064

Research Questions

In this study, answers were sought to the following questions;

- What is the rate of experiencing sexual distress in infertile women?
- What are the sexual life quality levels of infertile women?
- Is there a relationship between the sexual distress levels of infertile women and their sexual life quality?
- What are the factors affecting the sexual distress levels of infertile women and their quality of sexual life?

MATERIALS AND METHODS

Study Design: This cross-sectional study was conducted at the infertility polyclinic of a university hospital located in an eastern city of Turkey between June 2016 and January 2018.

Setting and samples: The study involved female patients who visited the clinic for infertility treatments. The study sample included 198 infertile female patients who consented for participation in the study, fulfilled the inclusion criteria, and visited the polyclinic between 30th June and 30th September 2016. The women were selected by the non-probability convenience sampling method.

The exact number of infertile women who visited the relevant department for in-vitro fertilisation treatment in a year was not known. Therefore, the formula for sample size calculation used when the number of persons in a population is indefinite was used to determine the number of persons to be included in the study and based on this formula, at least 196 women needed to be included in the sample so that the research could represent the population.

The inclusion criteria were as follows:

- At least primary school graduate
- Have an infertility diagnosis and be receiving treatment
- No history of psychiatric illness
- No serious life-threatening illness and not been treated previously for this reason

Data Collection: The Questionnaire, Female Sexual Distress Scale, and Sexual Quality of Life Scale-Female were used to collect the data. Data collection tools were applied by the researcher using face-to-face interview technique with women who applied to the relevant center. In order to enable women to answer questions comfortably, each woman was interviewed alone in a separate room in the relevant center. The application of the questionnaire and scales took an average of 10-15 minutes for each woman.

Questionnaire: This questionnaire prepared by the researchers contained 18 questions to determine the socio-demographic and infertility attributes of women.

Female Sexual Distress Scale (FFSDS-R=FSDS-R): The female sexual distress scale (FSDS) was developed by DeRogatis et al., in 2002 (43). It was revised by DeRogatis et al., in 2008 (44) and transformed into FFSDS-R with the addition of the 13th article. The validity and reliability of the Turkish version was evaluated by Aydın et al., in 2015 (6). The FSDS-R consists of 13 articles evaluating the various aspects of sexual distress in women. The scale is a 5-point Likert-type scale and it is scored between 0 and 4 points (always=4, frequently=3, sometimes=2, rarely=1, never=0). A minimum of 0 point and maximum of 52 points can be obtained with the scale. The cut-off score of the scale was 11.5. A score of 11.5 points and above indicates sexual distress or sexual dysfunction. The Cronbach alpha of the original version of FSDS-R is 0.93. The Cronbach alpha of the Turkish version is 0.98. In this study, the Cronbach alpha of the scale was 0.90.

Sexual Quality of Life Scale – Female (SQOL-F): The SQOL-F was developed by Symonds et al., in 2005 (45). The validity and reliability of the Turkish version was evaluated by Tuğut and Gölbaşı in 2010 (46). The scale consists of 18 articles and the articles numbered 1, 5, 9, 13, and 18 are reverse worded. The scale is a 6-point Likert-type scale and it is scored between 1 and 6 points (1= strongly agree, 2 = considerably agree, 3 = somewhat agree, 4 = somewhat disagree, 5 = considerably disagree, 6 = strongly disagree). A minimum of 18 points and maximum of 108 points can be obtained from the scale. Receiving a high score on the scale indicates high sexual quality of life. The Cronbach alpha of scale is 0.83. In this study, the Cronbach alpha of scale was determined as 0.78.

Evaluation of Data: The data obtained from the research were evaluated using SPSS 18.0 package program. For evaluating the data, the percentage distributions, average, one-way ANOVA, independent sample t-test, Mann–Whitney *U* test, Kruskal Wallis test, Pearson correlation analysis and Bonferroni correction were used.

Ethical Principles of Research: Ethical committee approval (approval number: 2016/05/1) was obtained with Atatürk University Faculty of Health Sciences Ethics committee and

written authorisation was received from the research institution to carry out the research. The aim of the research was explained to the women who participated in the study and their verbal consent was obtained.

RESULTS AND DISCUSSION

In all, 64.1% of the women were in the age group of 25–34 years and 60.6% of were primary school graduates. Further, the husbands of 65.2% of the women were in the age group of 25–34 years and the husbands of 37.4% were primary school graduates. The family income of 49% of the women was in the range of 1001-2000 ₺ and 69.2% had a nuclear family, 54.5% of them had arranged marriages, and 43.9% of the women had been married for 1-4 years (Table 3).

The infertility type of 53% of the women was secondary infertility, the number of pregnancies of 44.4% ranged from 1 to 3, and 14.1% of them had living children. The infertility period of 69.2% of women varied between 1 and 4 years and the cause of infertility for 49% was female infertility (Table 3).

The highest and lowest scores obtained from SQOL-F and FSDS-R and the point averages for women are given in Table 1.Thetotal SQOL-F point average of women was 71.79±19.46 and total point average of SDSR was 10.37±9.01 (Table 1).

Table 1. The Highest and Lowest Scores That Can Be Obtained on the SQOL-F and FSDS-R Scales and the Score Averages of the Women

Scales	Highest and lowest scores that can be obtained from the scales	Highest and lowest scores obtained from the scales	Score averages obtained from the scales X±SS
SQOL-F	108-18	97-27	71.79±19.46
FSDS-R	52-0	34-0	10.37±9.01

FSDS-R= Female Sexual Distress Scale , SQOL-F= Sexual Quality of Life Scale – Female

The distribution of women based on FSDS-R point range is given in Table 2. Accordingly, it was determined that the FSDS-R point average of 52.5% of women was 11.5 and above (Table 2). The FSDS-R cut-off score was 11.5 and when the scores which can be obtained from the scale (0–52) were taken into consideration, it was found that the sexual distress of women included in the research was low but the sexual distress scale point average of more than half the women was above the cut-off score; in other words, more than half the women experienced sexual distress. Like the study findings, a different scale devoted to the determination of sexual dysfunctions (cut-off point 11) was used in the study that Algül and Aksu conducted with infertile women and it was found that a clear majority of infertile women had sexual dysfunction (18). In the studies conducted using different scales, it was found that the sexual dysfunction point averages of infertile women were higher than the point averages of fertile women (19-21). However, Alihocagil Emeç et al. compared the sexual dysfunction between fertile and infertile women and found sexual dysfunction in both groups, but there was no statistically difference between them (22). During the process of infertility treatment, the sexual life of a couple is managed by healthcare professionals. In such cases, sexual intercourse is scheduled only for the purpose of impregnation, with specific positions; this can make the couple feel as if they are having sexual intercourse under observation and the pressure may lead to problems in their sexual life, feelings of incompetency, loss of pleasure and interest in sexual intercourse, conscious avoidance of sex, and failure to reach climax during sexual intercourse (7-10,14). The infertile women included in the study were experiencing sexual distress as they had the aforementioned problems during the treatment.

Based on the point averages of the women included in the study, as obtained from the sexual quality of life scale, it can be said that the sexual quality of life of the women was high. Some problems experienced during the process of infertility treatment may affect the sexual quality of life adversely. However, in the literature, there was a significant correlation between factors such as being young, short period of being married and infertility, secondary infertility, and high sexual quality of life. In the studies conducted to determine the infertility exposure levels of infertile women, it was reported that the individuals who were old and whose marriage and infertility periods were long, were less affected by their infertility (23-25). In this study, most of the women were not highly affected by the infertility period psychologically and they did not have

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DOI: 10.17049/ataunihem.919064

many problems in their marital relationship since they were young and had secondary infertility. The majority had short periods of marriage and infertility. Hence, their sexual quality of life was high.

It was found that the ages of the women and their husbands affected the sexual distress and sexual quality of life of women ($p<0.05$, Table 3). It was found that the sexual distress level of women and their husbands who were in the age group of 35 years and above were higher than that of women in other age groups while their sexual quality of life was low. In many studies, it was reported that advancing age led to increased incidence of sexual distress and affected the sexual quality of life adversely (26-29). Age is one of the main factors affecting fertility (3). The advancing age of a woman and her husband reduces the hopes of having a child in an infertile couple. It can be said that it leads to sexual distress by affecting the sexual lives of women and decreases the sexual life quality since the couples are adversely affected psychologically and sex is transformed into an activity carried out only for having a child.

Table 2. The Distribution of Women Based on FSDS-R Point Ranges (N=198)

FSDS-R Point Ranges	n	%
11.5 and below (Not Experienced Sexual Distress)	94	47.5
11.5 and above (Experienced Sexual Distress)	104	52.5

FSDS-R= Female Sexual Distress Scale

It was found that the educational levels of women and their husbands affected their sexual distress and sexual quality of life ($p<0.05$, Table 3). In this research, the sexual distress level of women who were primary school graduates was higher than that of women another education groups, while their sexual quality of life was lower. In some studies, it was reported that the education level poses a risk for sexual distress as low educational level increases sexual distress (14,21,26,27,29,30). Kırço Çoban and Dinç and Güleç et al. found that the educational level did not affect the status of sexual dysfunction significantly but that the sexual dysfunction decreased as the educational level increased (19,31). Therefore, the awareness of women and their husbands about the challenges involved in the diagnosis-treatment process for infertility and increased perception with high educational level scan help prevent sexual distress; the strength to cope with the sexual problems can be increased by ensuring a positive approach to sex.

The employment status of women and occupations of their husbands affected the sexual distress and sexual quality of life ($p<0.05$, Table 3). It was founded that the sexual distress level of women who left the study for treatment and whose husbands were working was high and their sexual life quality was low. Other studies reported that sexual dysfunction was more frequently observed in non-employed women than in employed women (21,27,30,32). However, in their study involving Egyptian women, Elnashar et al. reported that the loss of employment did not affect sexual life adversely (33).

The monthly income level of families of infertile women was found to affect the sexual distress and sexual quality of life of the women ($p<0.05$, Table 3). It was found that women whose family income levels were high had high sexual distress levels and their sexual quality of life was low. Some studies reported that a decrease in the income level leads to sexual dysfunction (14,26-28,32). However, Elnashar et al. reported that the income level does not adversely affect sexual life (33). Perhaps, individuals whose income levels are high can better provide the finance for the diagnosis-treatment of infertility, and their marital relationship and sex life are not affected by economic problems.

The family type was found to affect the sexual distress and sexual quality of life of the women ($p<0.05$, Table 3).The sexual distress level of women living in extended families was and while their sexual quality of life was low. Similarly, Yaralı and Hacıalioğlu found that the sexual quality of life of women living in extended families was low (27). During the period of infertility treatment, there were some changes in their sexual life, such as having sexual intercourse at specific times so the women were not able to shape their sexual life as they wished owing to the infertility treatment process since they live in extended families, so their sexual life was affected adversely, and their sexual life quality decreased.

It was found that the place of residence affected the sexual distress and sexual quality of life of the women ($p<0.05$, Table 3); the sexual distress of women living in the village was high while their sexual quality of life was low. The infertile women who were living in traditional societies especially in the countryside in Turkey were continuously subject to pressure by their family elders and social circle for not having a child and they were excluded from the society

since they were not able fulfil their roles as expected by the society and they may even be obliged to tolerate the fact that their husband marry another woman (co-wife) to have a child (28,34,35). In most cases, this pushes them to unhappiness, regardless of how strong the love is between the couples, and creates familial conflict, adversely affecting the marriage and leads to casting a chill over the relationship and leading to sexual problems (36,37). Moreover, the women living in the cities may have easy access to resources and training-consultancy services concerning infertility, and this may positively affect their sex lives by affecting their attitudes and behaviours.

Table 3. Comparison of SQOL-F and FSDS-R Average Score based on Socio-Demographic Characteristics of Women

Socio-Demographic Characteristics	n	%	FSDS-R X±SS	Test and P Value	SQOL-F X±SS	Test and P Value
Age						
15–24	36	18.1	10.63±9.33	F=3.418	73.79±17.79	F=4.020
25–34	127	64.1	9.71±8.84	**P=0.035**	73.52±18.78	**P=0.019****
35 and older	35	17.8	14.17±8.77		63.46±21.76	
Age of husband						
15–24	7	3.5	10.42±12.63	KW=7.142	73.01±15.25	KW=17.054
25–34	129	65.2	9.15±8.77	**P=0.028**	75.73±18.43	**P=0.000***
35 and older	62	31.3	12.91±8.97		63.45±19.60	
Educational background						
Primary school	120	60.6	13.08±8.98	F=20.463	65.23±19.97	F=25.928
Secondary school	36	18.2	9.08±7.42	**P=0.000**	75.70±15.55	**P=0.000***
University	42	21.2	3.76±6.42		87.19±8.61	
Educational background of husband						
Literate	11	5.6	13.00±8.63		64.84±19.95	
Primary school	74	37.4	14.09±8.83	KW=32.446	61.59±19.90	KW=48.937
Secondary school	57	28.8	10.36±8.19	**P=0.000**	73.78±16.86	**P=0.000***
University	56	28.2	4.96±7.46		84.62±1217	
Employment status						
Unemployed	148	74.7	11.43±8.75	KW=16.349	74.27±12.13	KW=19.950
Employed	37	18.7	5.16±8.55	**P=0.000**	82.10±19.52	**P=0.000***
Out of work for treatment	13	6.6	13.15±8.38		69.00±19.16	
Occupation of husband						
Civil servant	50	25.3	3.94±6.51	F=20.600	84.62±12.89	F=19.339
Worker	43	21.7	13.11±9.43	**P=0.000**	62.73±21.12	**P=0.000***
Self-employment	105	53.0	12.32±8.43		69.39±18.44	
Family income						
1000 ₺ and less	32	16.2	13.28±9.53		65.17±17.99	
1001-2000 ₺	97	49.0	12.47±8.17	F=13.384	67.96±18.96	F=12.103
2001-3000 ₺	31	15.6	9.80±9.27	**P=0.000**	71.82±20.88	**P=0.000***
3001 ₺ and more	38	19.2	3.05±6.27		87.13±11.89	
Family structure						
Nuclear family	137	69.2	9.49±8.81	t=-2.046	73.99±18.65	t=2.329
Extended family	61	30.8	12.36±9.21	**P=0.043**	66.84±20.48	**P=0.022****
Residential area						
Village	43	21.7	13.16±8.05	F=4.860	65.81±19.93	F=5.584
Borough	43	21.7	11.97±9.67	**P=0.009**	67.54±20.49	**P=0.004****
City	112	56.6	8.69±8.79		75.72±18.07	
Type of marriage						
Arranged marriage	108	54.5	14.06±8.65	t= 7.144	63.79±20.15	t= -7.334
Love marriage	90	45.5	5.98±7.31	**P=0.000**	81.39±13.40	**P=0.000***
Marriage period						
1–4 years	87	43.9	6.72±8.56	F=14.546	80.44±16.94	F=19.315
5–9 years	73	36.9	13.08±8.47	**P=0.000**	66.86±18.27	**P=0.000***
10 years and above	38	19.2	13.55±8.12		61.46±19.14	

F= One way ANOVA, KW=Kruskal wallis test, *t*=Independent sample t-test , *p<0.001, **p<0.05

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DOI: 10.17049/ataunihem.919064

The type of marriage affected the sexual distress and sexual quality of life of the women (p<0.05, Table 3). It was found that the sexual distress level of women who had an arranged marriage (marrying up with someone suggested by a friend or relative) was high and their sexual quality of life was low. Tashbulatova found that most infertile women had an arranged marriage and they were the ones who experienced increased sexual dysfunction (14). In the study conducted by Yaralı and Hacıalioğlu, the incidence of sexual distress was low in the women who had a love marriage while the point average of sexual quality of life was higher in women who had an arranged marriage than in those who had a love marriage (27). However, the study of Güleç et al. that there was no correlation between arranged marriage and sexual dysfunction (31). The couples who had an arranged marriage would not have had any emotional ties before marriage, so they may have had more problems in their marriages and they may have increased recrimination tendencies when planning a baby. When they receive the infertility diagnosis and come across a life crisis such as infertility without knowing each other sufficiently, they may face marital discord. These kinds of adverse situations affect the sexual intercourse between couples and leads to a decrease in their sexual quality of life.

Table 4. Comparison of SQOL-F and FSDS-R Average Score based on Characteristics Related to Infertility of Women

Characteristics Related to Infertility	n	%	FSDS-R X±SS	Test and P Value	SQOL-F X±SS	Test and P Value
Infertility type						
Primary infertility	93	47.0	12.75±8.78	t=-4.091	66.81±20.55	t=4.018
Secondary infertility	105	53.0	7.69±8.55	**P=0.000**	74.41±16.53	**P=0.000***
Number of pregnancy						
No	93	47.0	12.81±9.12	KW=16.558	65.88±16.76	KW=14.125
1–3	88	44.4	12.41±6.95	**P=0.000**	66.99±21.29	**P=0.001****
4 and above	17	8.6	7.69±8.55		77.41±16.53	
Live child						
No	170	85.9	10.75±9.17	U=2317.000	68.25±22.35	U=2169.500
Yes	28	14.1	10.31±9.01	P=0.819	72.37±18.95	P=0.453
Infertility period						
1–4 years	137	69.2	8.78±9.27	KW=13.420	75.75±19.74	KW=26.803
5–9 years	48	24.2	13.70±7.33	**P=0.001**	64.65±14.30	**P=0.000***
10 years and above	13	6.6	14.84±7.28		56.41±19.04	
Cause of infertility						
From women	97	49.0	11.94±8.98		71.48±15.94	
From their husbands	21	10.6	12.42±9.07	KW=10.372	68.23±19.88	KW=9.817
From both men and women	8	4.0	9.25±7.83	**P=0.016**	77.50±19.28	**P=0.020****
Uncertain	72	36.4	7.79±8.69		76.04±19.21	
Status of receiving previously infertility treatment						
Yes	172	86.9	10.52±8.87	U=1990.500	71.02±19.91	U=1930.000
No	26	13.1	9.38±10.01	P=0.359	76.92±15.57	P=0.955
Status of getting pregnancy following the previous infertility treatment (n=172)						
No	111	64.5	13.60±8.68	t= 3.464	63.13±20.72	t=4.018
Yes	61	35.5	8.83±8.55	**P=0.001**	75.35±18.12	**P=0.000***
Pregnancy outcome after treatment (n=61)						
Miscarriage	50	82.0	13.84±8.51	U=260.000	62.46±20.37	U=250.000
Healthy child	11	18.0	12.54±9.74	P=0.777	66.16±23.06	P=0.639

t=Independent t-test, KW=Kruskal wallis test, U=Mann-whitney U test, *p<0.001, **p<0.05

It was found that the period of marriage affected the sexual distress and sexual quality of life (p<0.05, Table 3) of the women. The sexual distress level of women who had a marriage period of 10 years and above was higher while their sexual quality of life was low. Yaralı and Hacıalioğlu found that the incidence of sexual distress was higher in the women whose marriage

periods were 10 years and above and their sexual quality of life was low (27). In their study, Güleç et al. reported that the quality of sexual intercourse deteriorated as the period of marriage increased (31). However, it was reported in the study of Tashbulatova et al. that the marriage period had no significant effect on sexual distress. When infertility affects the marital relationship, sexual dysfunctions and dissatisfaction generally come to the fore (21). In one research study, it was found that the intercourse frequency decreased in infertile couples and this decrease became prominent as the infertility period increased (31). Therefore, the infertility period also extends indirectly with the period of marriage and the increase in sexual problems may lead to a decrease in the sexual quality of life.

It was found that the type of infertility women and number of pregnancies affected the sexual distress and sexual quality of life ($p<0.05$, Table 4). The sexual distress level of women with primary infertility who had not been pregnant previously was high and their sexual quality of life was low. Having been pregnant previously made coping with the diagnosis-treatment period of infertility easier for the women with secondary infertility and the infertility did not affect their marital relationship to a large extent, but not being pregnant previously stresses the women with primary infertility and leads to sexual distress by adversely affecting the marital relationship and sexual intercourse.

The infertility period of women affected the sexual distress and sexual quality of life ($p<0.05$, Table 4) and the sexual distress level of women whose infertility period was 10 years and above was high and their sexual quality of life was low. Similarly, Iris et al. found that there was a decrease in the sexual dysfunction point averages as the infertility period and period of marriage increased (38). However, Kırço Çoban and Dinç and Tokmak and Çınar did not find a significant correlation between the infertility period and sexual dysfunction in their study (19,39). It can be said that the women are continuously exposed to treatment procedures as the infertility period increases and if the treatment does not yield any results, this leads to the development of incompetency and despair in the women, reduction in the hope of becoming pregnant, increased stress experienced by the couples, deterioration of marital relationship, and sexual problems and reduction in sexual quality of life.

It was found that the cause of infertility affected the sexual distress and sexual quality of life ($p<0.05$, Table 4) and the sexual distress level of women whose husbands were infertile was high while their sexual quality of life was low. It was reported that in the men-oriented infertility cases, feeling of failure, sexual dysfunction, and loss of power developed in the men and this adversely affected their sexual functions (39). In some studies, the incidence of depression was higher in the men who were treated for infertility than in fertile men (i.e. the men whose wives were infertile) (40,41). The continuous anxiety experienced by infertile men stimulates the inhibitor nerves and may lead to partial or full erectile dysfunction by preventing the relaxation of smooth muscles in the penis (38). Men having this kind of sexual dysfunction experience sexual problems and this deteriorates the sexual quality of life of the couple.

The conception status of women after previous infertility treatment affected the sexual dysfunction and sexual quality of life ($p<0.05$, Table 4); the sexual distress level of women who did not conceive at the end of previous treatment was high and their sexual quality of life was low. The depression scores of women who had unsuccessful treatment history were found to increase in the study by Islimye Taşkın et al. and the depression scores of women who were receiving treatment for the first time were low (25). Failing to get pregnant despite being subjected to the treatment procedures led to a decrease in the hopes of conception, mental problems, deterioration of marital relationship, and sexual problems in the women.

Table 5. Comparison of SQOL-F Average Score based on FSDS-R Point Ranges of Women

FSDS-R Point Ranges	SQOL-F X±SS	Test and P Value
11.5 and below (Not Experienced Sexual Distress)	86.70±8.06	t=15.424 **P=0.000***
11.5 and above (Experienced Sexual Distress)	58.32±16.73	

t=independent sample t-test, *p<0.001

The point average of sexual quality of life of women whose FSDS-R point average was below 11.5, meaning who did not experience sexual distress, was 86.70±8.06 while the point average of sexual quality of life of women whose FSDS-R point average was above 11.5, meaning who experienced sexual distress, was 58.32±16.73; the difference between the point

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DOI: 10.17049/ataunihem.919064

averages was statistically significant ($p<0.05$) (Table 5).

There was a statistically significant and negative correlation between the point average of FSDS-Rand the point average of SQOL-F ($r=-.827$, $p<0.001$) (Table 6).

Table 6. Relationship between FSDS-R and SQOL-F Score Average

SCALES		Sexual Quality of Life Scale – Female
Female Sexual Distress Scale	r	-.827
	p	0.000*

r=Pearson correlation, *p<0.001

Based on the cut-off score of sexual distress scale (11.5), it was determined that the sexual quality of life of women who did not experience sexual distress (<11.5) was higher than the sexual quality of life for women who experienced sexual distress (>11.5); moreover, the sexual quality of life of women decreased as their sexual distress levels increased. The diagnosis-treatment process of infertility is not only emotionally distracting but also sexually disruptive for the couples. Within the treatment process, the sexual act may transform into an action carried out only for the purpose of having a baby, especially since sexual intercourse is scheduled at specific times and therefore can be viewed as a task. The infertile individual may feel sexually incompetent and the pleasure felt from the intercourse may be lost. The tests carried out during the diagnosis period of infertility may adversely affect the sexual drive. Couples are asked questions about their sexual performances such as their knowledge on coition techniques, sexual desire and responses, disorders during coition, sex and reproduction when their anamneses are taken. These kinds of questions may be considered nettlesome by the couples. In some cases, the questions focusing on sexual incompetency, scheduled sexual intercourse, intercourse for the purpose of impregnation, and specific positions may lead to sexual failure such as reduced frequency of sexual intercourse, conscious avoidance of sexual intercourse, failure to reach climax during intercourse, or sexual behaviour changes. The couples may feel that they are engaging in sexual intercourse under observation and pressure (36,42). Since the sex lives of couples are adversely affected because of these kinds of problems, they may experience sexual distress and a decrease in the sexual life quality.

CONCLUSION AND RECOMMENDATIONS

Results of this study show that the infertile women that participated in this study experienced sexual distress, but their sexual quality of life was high. The sexual quality of life of women experiencing sexual distress was low and as the sexual distress levels of women increased, their sexual quality of life decreased, some socio-demographic and other attributes of women and their husbands with respect to infertility affected the sexual distress and sexual quality of life.

In light of the research results, the following suggestions can be considered:

- ✓ Nurses should be made aware of the sexual problems experienced by infertile women and the nursing interventions devoted to these problems with in-service training programmes so that these problems can be addressed.
- ✓ Infertile women should be evaluated not only for gynaecological problems but also for problems in their sexual life.
- ✓ Infertile women should be followed closely for sexual dysfunction.
- ✓ The number of clinics that infertile women have access to and where the training-consultancy service is continuously given with respect to sexual life should be increased and the consultancy services should be given by experts and experienced nurses should play their role in these clinics.

Conflict of Interest: The authors declare no conflicts of interest.

Author Contributions: YT; Contributing to the emergence and maintenance of the study, Data collection or processing of the collected data for analysis, Data analysis or interpretation of the analysis, Review of the literature, Writing and editing, ASÇ; Having an idea in the emergence and continuation of the work, Plan, design or pattern, Revision, inspection, review, Interpretation of the analysis, Checking and reviewing

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