

The level of anxiety and depression in patients admitted to an infertility clinic

Bir infertilite kliniğine başvuran hastalarda anksiyete ve depresyon düzeyleri

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ABSTRACT

Aim: Infertility affects women biologically, psychologically and socially and as a result, it decreases the quality of life. The aim of this study was to investigate the effect of infertility on anxiety and depression in women.

Material and Method: The study was planned as an observational study. Patients who were diagnosed as infertile and were admitted to Medistate Hospital Obstetrics, In Vitro Fertilization outpatient clinic, Adana City Training and Research Hospital, and Obstetrics and Gynecology outpatient clinic between May and November 2019 were included in the study. The inclusion criteria were the patients who had been diagnosed as infertility for at least one year. A questionnaire including 'Beck Anxiety Inventory' and "Beck Depression Inventory" was completed with the face-to-face interview technique by volunteer infertile women who met the inclusion criteria.

Results: The study was completed with 200 volunteer infertile patients. According to the depression score, 60 (30%) of the participants were normal, 84 (42%) had mild, 40 (20%) had moderate and 16 (8%) had severe depression. According to the anxiety score, 72 (36%) of the participants were normal, 78 (39%) had mild, 32 (16%) had moderate and 18 (9%) had severe anxiety.

Conclusion: Increased depression and anxiety scores should be considered in infertile patients. Further studies are needed to indicate which type of psychological treatment is more effective at the individual level.

Keywords: Infertility, depression, anxiety, psychological treatment

ÖZ

Amaç: İnfertilite kadını biyolojik, psikolojik ve sosyal açıdan olumsuz etkileyen ve sonuç olarak yaşam kalitesini düşüren bir durumdur. Bu çalışma ile infertilitenin kadınlarda anksiyete ve depresyon gelişmesi üzerine etkisinin araştırılması amaçlanmıştır.

Gereç ve Yöntem: Çalışma gözlemsel çalışma olarak planlandı. Çalışmaya Özel Medistate Hastanesi Kadın Hastalıkları ve Tüp Bebek Polikliniği'ne ve Adana Şehir Eğitim ve Araştırma Hastanesi Kadın Hastalıkları ve Doğum Polikliniği'ne Mayıs-Kasım 2019 arasında başvuran, infertilite tanısı alan hastalar dahil edildi. Çalışmaya dahil edilme kriterleri en az bir yıldır çocuk sahibi olmak isteyen ve infertilite tanısı almış hastalar olarak belirlendi. Çalışmaya alınma kriterlerine uygun gönüllü infertil kadınlar tarafından yüz yüze görüşme tekniği ile "Beck Anksiyete Ölçeği" ve "Beck Depresyon Envanteri" içeren anket formu dolduruldu.

Bulgular: Çalışma 200 gönüllü infertil hasta ile tamamlandı. Depresyon skorlarına göre 60 (%30) hastanın skoru normal aralıkta, 84 (%42) hastanın hafif, 40 (%20) hastanın orta seviyede ve 16 (%8) hastanın ciddi depresyonu mevcuttu. Anksiyete skorlarına göre 72 (36%) hastanın skoru normal aralıkta, 78 (%39) hastanın hafif, 32 (%16) hastanın orta ve 18 (%9) hastanın şiddetli anksiyetesi mevcuttu.

Sonuç: İnfertil hastalarda artan depresyon ve anksiyete skorlarına dikkat edilmelidir. Bireysel seviyede hangi psikolojik tedavi tipinin daha etkili olduğunu bildiren çalışmalara ihtiyaç duyulmaktadır.

Anahtar Kelimeler: İnfertilite, depresyon, anksiyete, psikoterapi

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INTRODUCTION

Infertility is defined as the absence of pregnancy despite 1 year of unprotected intercourse. The prevalence of infertility was found by about 8.1% in the study done in Turkey (1). The inability to have children adversely affects couples worldwide. Infertility affects women biologically, psychologically and socially and as a result, it decreases the quality of life (2). The studies show that infertile couples experience some psychological disorders such as lack of sexual satisfaction, lack of marital satisfaction, impaired relationships particularly between couples, lack of loss of confidence about sex and sexual intercourse, anger, negative emotional effects, etc. (3-6).

Therefore, it is discussed that infertile couples should be provided with appropriate counseling services by healthcare professionals to keep the biopsychosocial health in the diagnosis and treatment process. Early diagnosis and the evaluation of depression in infertile patients is important both for the success of the treatment and for the health of the patient (7). The aim of this study was to investigate the effect of infertility on anxiety and depression among the infertile women.

MATERIAL AND METHOD

The study was planned as an observational study. Patients who were diagnosed as infertile and were admitted to Medistate Hospital Obstetrics and In Vitro Fertilization (IVF) outpatient clinic and Adana City Training and Research Hospital Obstetrics and Gynecology outpatient clinic between May and November 2019 were included in the study. This study was approved by the university /local human research ethics committee and all procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study was carried out with the permission of Research Ethics Committee of Beykoz University (Permission granted / CAAE number: 2019/30.9, Decision no: 2).

All patients were selected randomly. The inclusion criteria included the patients who had been diagnosed as infertility for at least one year. The exclusion criteria included smoking, thyroid disease, diabetes mellitus, hypertension, and the patients with comorbidities. A questionnaire including 'Beck Anxiety Inventory (BAI)' and "Beck Depression Inventory (BDI)" was completed through face-to-face interview technique by volunteer infertile women who met the inclusion criteria.

Beck Depression Inventory

The BDI scale includes 21 items. The total score ranges from 0 to 63 points. It is used to evaluate the severity of depression in clinical use. 0-10 points indicate no depression, 11-17 points indicate mild depression, 18-29 points indicate moderate depression and 30-63 points indicate severe depression. BDI Turkish validity and reliability study was conducted by Hisli in 1988 with Cronbach Alfa internal consistency values of 0.74 (8).

Beck Anxiety Inventory

The BAI is a clinical scale containing 21 items. It was developed by Beck, Epstein, Brown, and Steer in 1988 to measure anxiety levels (9). The total score ranges from 0 to 63 points. BAI Turkish validity and reliability study was conducted by Ulusoy et al. (10) in 1993 with Cronbach Alfa internal consistency values of 0.81. BAI: 0-7 minimal 8-17 points indicate mild level, 18-24 points indicates a moderate level, and above 25 indicates severe anxiety.

Statistical Analysis

SPSS statistical package program for Windows (Statistical Package for Social Sciences, version 16.0, SPSS Inc. Chicago, Illinois, USA) was used to evaluate the study results. Percent and average calculations in descriptive statistics, chi-square analysis of the relationship between dependent and independent variables, Student t and Mann-Whitney U test, One Way Analysis of Variance (One Way ANOVA), Pearson correlation analysis and multiple regression analysis methods were used. $p < 0.05$ was considered statistically significant.

RESULTS

Four-hundred patients were diagnosed with infertility at the Medistate Hospital Gynecology and IVF outpatient clinic and Adana City Training and Research Hospital Gynecology and Obstetrics outpatient clinic between May and November 2019. 150 patients were excluded due to smoking and 40 patients were excluded due to additional systemic disease. Ten infertile patients did not want to participate in the study. The study was completed with 200 volunteer infertile patients.

Fifty-four (27%) of the participants were 29 years old below, 78 (39%) were between 30 and 35 years and 68 (34%) were 36 years above. According to body mass index, 74 (37%) of the participants were normal, 108 (54%) were overweight and 18 (9%) were obese (**Table 1**). 142 patients (71%) had infertility between 1 and 3 years, 52 patients (26%) had 3-5 years and 6 patients (3%) had infertility for 5 years above (**Table 2**). According to education level, 12 (6%) of the participants had primary, 44 (22%) had secondary, 74 (37%) had high school and 70 (35%) had university degrees.

Table 1. Distribution of age groups and body mass index of patients

Age (year)	Number (n)	Percentage (%)
≤ 29	54	27.0
30-35	78	39.0
≥ 36	68	34.0
BMI		
18.5-24.9	74	37.0
25-29.9	108	54.0
30-39.9	18	9.0

Table 2. Distribution of Infertility Duration of Patients

Duration of Infertility	Number (n)	Percentage (%)
1-3 year	142	71.0
3-5 year	52	26.0
5 years and up	6	3.0

Of the participants, 160 (80%) had positive and 40 (20%) had negative emotions for treatment, 14 (7%) of the participants were positive and 186 (93%) were negative to the idea of adoption.

According to the depression score, 60 (30%) of the participants were normal, 84 (42%) had mild, 40 (20%) had moderate and 16 (8%) had severe depression (Table 3). According to the anxiety score, 72 (36%) of the participants were normal, 78 (39%) had mild, 32 (16%) had moderate and 18 (9%) had severe anxiety (Table 4). A statistically significant relationship was found between the mood and anxiety scores of the patients during the treatment process (p <0.05) (Table 5). There was a statistically significant relationship between depression scores and anxiety scores (p <0.05) (Table 5).

Table 3. Distribution of Beck Depression Inventory of Patients

Depression Score	Number (n)	Percentage (%)
0-10 (normal)	60	30.0
11-17 (mild)	84	42.0
18-29 (moderate)	40	20.0
30-63 (severe)	16	8.0

Table 4. Distribution of Beck Anxiety Inventory of patients

Anxiety Score	Number (n)	Percentage (%)
0-7 (minimal)	72	36.0
8-17 (mild)	78	39.0
18-24 (moderate)	32	16.0
25-63 (severe)	18	9.0

DISCUSSION

In the present study, 200 infertile patients voluntarily participated. Our study shows that 42% of the patients admitted to our clinic due to infertility had mild depression level, 20% had moderate and 8% had severe depression level. Mild anxiety level has been found in 39% of the patients. Sixteen percent had moderate and 9% had severe anxiety. There was also significant relationship between the mood and anxiety scores of the patients during the treatment process and significant relationship was found between depression scores and anxiety scores.

Infertility is found in approximately 10% of the community and most of these patients seek assisted reproductive technology (ART) for pregnancy (11). Pinar et al. (2) reported that the probability of depression and anxiety increased in patients with infertility. Pinar et al. (12) showed the infertile group had symptoms of anxiety and depression and that 35% of the infertile group had

Table 5. The Correlation Variables

Age	Correlation	1.000	-0.009	0.726*	0.137	0.223*	0.117	-0.075	0.080	0.035
	p Value	.	0.931	0.001	0.173	0.026	0.248	0.457	0.430	0.732
BMI	Correlation	-0.009	1.000	0.047	0.270*	0.002	0.157	-0.224*	0.155	0.233*
	p Value	0.931	.	0.645	0.007	0.982	0.119	0.025	0.125	0.020
Marriage Period	Correlation	0.726*	0.047	1.000	0.117	0.131	0.060	-0.152	0.186	0.114
	p Value	0.001	0.645	.	0.245	0.194	0.550	0.132	0.064	0.257
Duration of Infertility	Correlation	0.137	0.270*	0.117	1.000	-0.005	0.054	-0.101	0.036	0.148
	p Value	0.173	0.007	0.245	.	0.964	0.592	0.320	0.719	0.141
Education Status	Correlation	0.223*	0.002	0.131	-0.005	1.000	-0.008	-0.077	-0.134	-0.035
	p Value	0.026	0.982	0.194	0.964	.	0.935	0.444	0.183	0.732
Sense for Treatment	Correlation	0.117	0.157	0.060	0.054	-0.008	1.000	0.039	0.190	0.221*
	p Value	0.248	0.119	0.550	0.592	0.935	.	0.699	0.058	0.027
The idea of Adoption	Correlation	-0.075	-0.224*	-0.152	-0.101	-0.077	0.039	1.000	-0.019	-0.074
	p Value	0.457	0.025	0.132	0.320	0.444	0.699	.	0.852	0.464
Depression Score	Correlation	0.080	0.155	0.186	0.036	-0.134	0.190	-0.019	1.000	0.339*
	p Value	0.430	0.125	0.064	0.719	0.183	0.058	0.852	.	0.001
Anxiety Score	Correlation	0.035	0.233*	0.114	0.148	-0.035	0.221*	-0.074	0.339*	1.000
	p Value	0.732	0.020	0.257	0.141	0.732	0.027	0.464	0.001	.

*p<0.05 statistically significant

no symptoms of depression while 25% had a “mild” level of symptoms, and 40 % showed a “medium” depression level. 62.5% of the infertile women had “mild” anxiety, while 25% had “medium” and 12.5% had “severe” anxiety. There was also positive correlation between anxiety and depression among the infertile women. In the study by Yassa et al. (13), anxiety rate was reported as 57.5 % in infertile patients. In infertile patients, the prevalence of anxiety was reported to be 79% in a study conducted in Pakistan, and 69% in a Spain study (14,15). In our study, the anxiety was found in 64% of the patients (39% had mild, 16% had moderate and 9% had severe anxiety) in accordance with the literature.

In the study by Yassa et al. (13), the rate of depression in patients who underwent ART was reported as 42.5% and 70% in the study conducted in Pakistan (14,15). In our study, the rate of depression in infertile patients was 70%. The different results in these studies may be due to varying degrees of cultural separation and social pressure in different countries.

Since the pregnancy rate in a single ART cycle is approximately 25%, many couples have negative cycles and continue treatment again (16). Psychosocial effects on patients increase as the duration of infertility diagnosis and treatment increases (17). In the current meta-analysis, it was found that depression and anxiety rates increased as a result of ART failure and depression decreased as a result of successful ART (18).

In meta-analyses conducted by Matthiesen et al. (19) (2011) and Purewall et al. (20) (2017), it was reported that high baseline depression and anxiety scores before ART treatment would have negative effects on pregnancy outcomes. Boivin et al. (21) (2011) stated that baseline anxiety and depression scores had no negative effect on ART results. Purewall et al. (22) (2018) reported that changes in anxiety and depression scores in the baseline and treatment process had no effect on ART results. In the current review and meta-analysis, the importance of psychosocial support in couples who have failed ART results was emphasized (23). The ESHRE Infertility Declaration recommended that infertility centers should provide psychosocial and emotional support for patients (24). In a recent randomized controlled trial, brief mindfulness intervention has been reported to reduce depression and improve sleep quality in infertile patients (25).

A study by Karaca et al. (26) showed that global average stress level of the participating women (171.53 ± 33.61) was higher than the standard average stress level (134.4 ± 33.8) indicating that that women under the study had infertility -related stress which is above the average stress level. This is not consistent with our study results.

Benli et al. (27) found no difference between fertile and infertile women in terms of depression and anxiety. Benli also found that the total scores of those who had a negative feeling about the treatment process in infertile women and those who thought it had a negative effect on the life of infertility, the total scores of depression and anxiety, and the total scores of depression among those who did not have support during the treatment process were found to be negatively high ($p < 0,05$) which is consistent with our study that found significant relationship between the mood and anxiety scores of the patients during the treatment process.

Unal et al. (12) found that women were more adversely affected by infertility with increase of their age, duration of desire to have a child and duration of marriage while our study showed that 68% of the infertile women had depression and 64% of the infertile women had anxiety.

Karlıdere et al. (28) found that Turkish women under ICSI or IVF treatment had depressive symptoms without clinical depression, state anxiety within a normal range and high trait anxiety. Outcomes of the infertility treatment could be predicted by the severity of the depressive symptoms and trait anxiety levels among the infertile women while our study showed that 68% of the infertile women had depression (42% with mild depression level, 20% with moderate and 8% with severe depression level) and 64% of the infertile women had anxiety.

Gulseren et al. (29) found that the group of patients who had pregnancy after three months showed significantly decreased levels of anxiety and depression than the group of patients who did not achieve.

This study has some limitations. One of the limitations of the study is that it is not enough to have only depression and anxiety scale to determine the level. Normal healthy people also have depression and anxiety. The important thing is to see whether this is at the level of disorder. This is used in DSM or ICD. The use of DSM and ICD is a significant limitation. One of the other limitations of the study is that the scales have been applied by obstetrician not a psychologist or a psychiatrist.. One of the other limitations is that a healthy control group is absent in our study. However, the number of volunteers included in the study was appropriate for the assessment of depression and anxiety rates.

CONCLUSION

Increased depression and anxiety scores should be considered in infertile patients. In infertility clinics, patients should be evaluated by professionals in terms of their mental health status and appropriate psychological counseling should be provided. Further studies are needed that indicate which type of psychological treatment is more effective at the individual level.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was carried out with the permission of Research Ethics Committee of Beykoz University (Permission granted /CAAE number: 2019/30.9, Decision no: 2).

Informed Consent: Written informed consent was obtained from all participants who participated in this study.

Referee Evaluation Process: Externally peer-reviewed.

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