Dusunen Adam The Journal of Psychiatry and Neurological Sciences 2015;28:328-336
DOI: 10.5350/DAJPN2015280404

Research / Araştırma

Relation of Anxiety and Depressive Symptoms with Perceived Social Support According to Gender within Infertile Couples

Secil Aldemir[1], Ayla Eser[2], Nilgun Ozturk Turhan[3], Ercan Dalbudak[4], Merve Topcu[5]

[1]Assist. Prof. Dr., [4]Assoc. Prof. Dr., [5]Psychologist, Turgut Ozal University, Faculty of Medicine, Department of Psychiatry, Ankara - Turkey
[2]Assist. Prof. Dr., Turgut Ozal University, Faculty of Medicine, Department of Obstetrics and Gynecology, Ankara - Turkey
[3]Prof. Dr., Mugla Sitki Kocman University, Faculty of Medicine, Department of Obstetrics and Gynecology, Mugla - Turkey

ABSTRACT

Relation of anxiety and depressive symptoms with perceived social support according to gender within infertile couples

Objective: Evaluation of infertile couples' emotional symptoms and perceived social supports according to gender differences.

Method: Hospital Anxiety and Depression Scale (HADS) and Multidimensional Scale of Perceived Social Support (MSPSS) were administered to 66 primarily infertile couples that did not have psychiatric Axis-I disorders according to DSM-IV.

Results: According to the scale's average points, the samples' depressive symptom levels did not indicate clinical depression; rather, anxiety levels were in normal ranges. Comparing participants' anxiety according to gender, female participants were more anxious than male participants. Couples reported less anxiety and depression as long as they perceived higher social support. It was found that the combined infertility group, in which both women and men have problems to conceive, had more perceived social support from significant other and friends than in the female-originated infertility group. Also, results revealed that the male-originated infertility group reported more perceived social support from significant other compared to the female-originated infertility group.

Conclusion: Social support and emotional stress of females in infertile couples are more than males', and perceived sufficient social support decreases couples' emotional symptoms.

Keywords: Anxiety, depression, infertility, social support

ÖZET

İnfertil çiftlerde cinsiyete göre algılanan sosyal destekle anksiyete ve depresif belirtilerin ilişkisi

Amaç: İnfertil çiftlerin emosyonel semptom ve algıladıkları sosyal desteklerin cinsiyet farkına göre değerlendirilmesi amaçlandı.

Yöntem: DSM-IV'e göre psikiyatrik birinci eksen bozukluğu olmayan ve birincil infertil 66 çifte Hastane Anksiyete ve Depresyon Ölçeği (HAD) ile Çok Boyutlu Algılanan Sosyal Destek Ölçeği (ÇBASDÖ) uygulandı.

Bulgular: Ölçeklerin puan ortalamalarına göre örneklemin depresif semptom şiddeti klinik depresyona işaret etmeyecek düzeyde, kaygıları normal sınırlarda saptandı. Katılımcılar cinsiyete göre karşılaştırıldığında anksiyete bakımından kadın katılımcıların, erkeklere göre daha kaygılı oldukları gözlemlendi. Çiftlerin algıladığı sosyal destek arttıkça anksiyete ve depresif belirtilerin azaldığı gözlemlendi. Algılanan sosyal destek bakımından ise her iki cinsiyetten kaynaklanan infertilite grubunun özel destek, arkadaş desteği ve toplam sosyal destek puanlarının kadından kaynaklanan infertilite grubundan daha yüksek olduğu belirlendi. Erkekten kaynaklanan infertilite grubunun algıladığı özel desteğin ise kadın kaynaklı infertilite grubundan daha fazla olduğu saptandı.

Sonuç: İnfertil çiftlerde erkeklerin kadınlara göre sosyal desteğinin, kadınların ise emosyonel zorlanmasının daha fazla olduğu, bunun yanında çiftlerin algıladığı yeterli sosyal desteğin emosyonel semptomları azalttığı anlaşıldı.

Anahtar kelimeler: Anksiyete, depresyon, infertilite, sosyal destek

Address reprint requests to / Yazışma adresi:
Assist. Prof. Dr. Secil Aldemir,
Turgut Ozal University, Faculty of Medicine,
Department of Psychiatry, Emek,
Ankara, Turkey

Phone / Telefon: +90-312-203-5555/5734

Fax / Faks: +90-312-203-5028

E-mail address / Elektronik posta adresi:
drsecilozen@gmail.com

Date of receipt / Geliş tarihi:
January 15, 2015 / 15 Ocak 2015

Date of acceptance / Kabul tarihi:
April 5, 2015 / 5 Nisan 2015

INTRODUCTION

Infertility is described as not being able to conceive a pregnancy despite having unprotected sexual intercourse for at least a year. Infertility is considered a stressor that can bring about a life crisis due to its creating a situation with uncertain results (1). Persons might perceive infertility as a loss of control over their own lives. Fertility is seen as an important condition for individuation (2). It is commonly known that in many cultures, childless females are ostracized, stigmatized and exposed to discrimination (3). In some cultures, being a mother is the only way for improving a woman's status in her society and family (2). In many societies, infertility is not only a health problem; it is also seen as a deficiency. This turns infertility into a life crisis that is hard to share with others, bringing together psychiatric and social problems (4,5). The partners' reactions to infertility may change according to the gender of the partner causing infertility (6,7). Both infertility itself and examination and therapeutic approaches made to support reproductivity challenge individuals' and couples' coping skills and social support resources and consume their physical and emotional energy (8). Infertility also causes sexual dysfunction, depression, anxiety, and disruption in relationships (9). Infertility affects individuals negatively in many ways. This situation may produce different psychological repercussions on people (10).

In the literature, there is a debate suggesting a bidirectional relationship between infertility and psychiatric disorders. That is, infertility might be both cause and result of psychiatric disorders (6) and emotional problems like depressive and anxiety symptoms (6,11). Opponents claim that the emotional situation does not have any effect on pregnancy (12). Proponents, on the other hand, show that high anxiety levels and depressive symptoms in the beginning of the treatment can decrease the chance of women to get pregnant (13).

There are several studies that reveal psychiatric diseases to have high prevalence in women receiving treatment for infertility. Depression and anxiety are the most common disorders among these (14). There are studies showing that both infertility and its treatment can cause these diseases (15). The rate of mild depression in females in infertility treatment varies from 12.0% to 54.0%. Anxiety disorder has been found at a rate between 12.0-23.0% in these studies (16). In another study, 40.2% of people that have infertility treatment suffer from psychiatric diseases. Anxiety disorder reaches the highest rate among these with 23.2%. Major depression follows with 17.0% and dysthymia with 9.8% (14).

Studies show that psychological issues encountered in infertility decrease the success chance of the treatment and lead to interruption of treatment (17,18). This observation emphasizes the importance of providing psychological consultation to infertile people (19).

It has been claimed that infertile couples seek social support from their families and friends, not reaching out for professional help, and the social support that they look for might have a protective effect on the stressor (20). It has been stated that as an adverse effect, perceived social support can increase anxiety and depressive symptoms in infertility (21) or it can decrease emotional stress (22).

Some studies in Turkey (13,23,24) have investigated the emotional side of infertility, anxiety and depression levels of infertile women compared with healthy females, but men were not included in any of these studies except one (25). In another study, differences between emotional symptoms of infertile couples that are informed about the practices made before infertility treatment and those that are not informed have been evaluated (26).

Purpose of this study is identifying emotional problems caused by infertility in infertile couples that apply for infertility treatment and including the ones that need psychiatric treatment into an appropriate program. In this perspective, anxiety and depressive symptom levels and social support levels of infertile couples during treatment have been researched.

METHOD

Specific inclusion/exclusion principles have been used for researching differences in social support levels and emotional stress according to gender that might occur due to infertility. Sixty six couples composed of

nulligravida females and males that did not have a biological child applying to Turgut Ozal Medical Center Reproductive Health Center consecutively in order to have a child with the help of assisted reproductive techniques have been enrolled in the study, including those that were candidates for interventional treatment like in-vitro fertilisation (IVF) or intracytoplasmic sperm injection (ICSI), not having any other health problem except infertility, and who had not been diagnosed with Axis-I disorder and/or did not have a treatment history according to their history and their mental state examination.

The infertility group consisted of primary infertile couples that had not been able to conceive a child for at least one year who applied to Turgut Ozal Medical Center Reproductive Health Center for having a child with the help of assisted reproductive techniques. Following their application to the Reproductive Health Center, couples were taken into the study in the evaluation phase. The study was approved by the Turgut Ozal University ethics committee.

After providing the patients with information and receiving their consent, couples that accepted to participate in the study were evaluated according to their current or previous psychiatric Axis-I diagnoses by a psychiatrist using SCID-I, an instrument developed by First et al. (27) according to DSM-IV standards and translated and validated by Corapcioglu et al. (28).

The sample consisting of 66 couples has been divided into 4 groups according to the following criteria: a) Combined infertility group (CI): 4 couples where both female and male have problems to conceive, b) Female-originated infertility group (FOI): 15 couples with healthy male members but infertile female members, c) Male-originated infertility group (MOI): 37 couples with healthy female members but infertile male members, d) Unexplained Infertility group (UI): 20 couples where no problem potentially causing infertility could be identified either in the male or in the female partner.

As data collection form and assessment instruments, Hospital Anxiety and Depression Scale (HADS) and Multidimensional Scale of Perceived Social Support (MSPSS) were administered to women and men simultaneously in separate sessions to receive sociodemographic information before starting treatment procedures.

Measures

To measure social support and emotional condition, MSPSS and HADS scales were used, which are based on self-report.

HADS was applied for evaluating anxiety and depressive symptoms, considered as the emotional stress produced by infertility in infertile couples.

The study was started with 140 persons (70 couples); 8 persons' evaluation forms were excluded, having been filled in incompletely.

A statistical analysis was carried on based upon the infertility group consisting of 132 persons (66 couples: 66 women, 66 men).

Hospital Anxiety and Depression Scale (HADS): HADS is a self-assessment scale developed for identifying anxiety and depression risks, measuring their level and level change in people that have a physical disease, applied in primary health care services (29). It was translated to Turkish and validity and reliability studies have been made (30). Its subscales are Anxiety (HAD-A) and depression (HAD-D). It includes 14 questions in total, 7 of which (odd numbers) measure anxiety and the other 7 (even numbers) depression, using four-point Likert-type measurements. At the end of the study made in Turkey, the cutoff score for anxiety subscale was established as 10/11 and the cutoff score for depression 7/8. Patients with higher scores than these are evaluated as risk group. While the minimum score for both subscales is 0, the highest score is 21. HADS is chosen because it does not include any questions about physical symptoms.

Multidimensional Scale of Perceived Social Support (MSPSS): The original form of this scale was developed by Zimet et al. (31) and its translation, reliability and validity studies were made by Eker et al. (32).

Sufficiency of perceived social support received from three different sources is evaluated subjectively by the Multidimensional Scale of Perceived Social Support (MSPSS).

The scale with 12 items includes three different types of support, namely, family (3,4,8,11), friends (6,7,9,12), and significant other (1,2,5,10). The total score of the scale is the sum of the subscale scores. Scores of subscales of the 7-point Likert-type scale vary between 4 and 28 and the total score of the scale ranges between 12 and 84. If the resulting score is high, it shows high level of perceived social support.

In the factor analysis made for structure validity of the scale, 3 factors have been identified: Cronbach's Alfa factors are found to be 0.89 for the total scale, 0.85 for family support, 0.88 for friends' support and 0.92 for support from significant other, which is considerably high.

Statistical Analysis

For all analyses, SPSS (Statistical Package for Social Sciences) Version 16.0 was used. Frequency analysis to examine the characteristics of the participants was run. Student's t tests and logistic regression analysis were carried out across genders as well. However, the four groups of couples were not normally distributed (Table 1). Spearman rho correlation coefficients were used for variables across non-normally distributed groups. Also Mann-Whitney U and Kruskal-Wallis tests were run for group comparisons. Bonferroni correction procedure was considered as well.

RESULTS

Participants' mean age and duration the couples' marriage were 30.56±5.14 and 77.61±52.59 months, respectively. Across groups, participants' educational and socio-economic status information are summarized in Table 1.

Anxiety and depressive symptoms and social support perceptions of couples was measured. In the correlation analysis, depression, anxiety and perceived social support variables were found to be correlated with each other ($p<0.01$). It was found that as social support scores increased, anxiety and depressive symptoms decreased (Table 2). Average scores and standard deviation values of participants according to the scales are summarized in Table 3. In addition, t test results revealed that group averages of anxiety were significantly different across genders ($t[130]=3.271$, $p=0.001$): Females reported more anxiety (M=5.88)

Table 1: Distribution of infertile couples' sociodemographic information

	Group 1 (CI) (n=8)		Group 2 (FOI) (n=30)		Group 3 (MOI) (n=74)		Group 4 (UI) (n=20)		Total (n=132)	
	n	%	n	%	n	%	n	%	n	%
Education level										
Uneducated	-	-	-	-	1	0.8	-		1	0.8
Primary School	3	2.3	6	4.5	13	9.8	2	1.5	24	18.2
High School	1	0.8	7	5.3	25	18.9	2	1.5	35	26.5
College	4	3.0	17	12.9	35	26.5	16	12.1	72	54.5
Socioeconomic Status										
Low	2	1.5	10	7.6	24	18.2	-	-	36	27.3
Middle	4	3.0	12	9.1	34	25.8	10	7.6	60	45.5
High	2	1.5	8	6.1	16	12.1	10	7.6	36	27.3

CI: Combined infertility, FOI: Female-originated infertility, MOI: Male-originated infertility, UI: Unexplained Infertility

Table 2: Spearman rho correlation coefficients of couples' depression, anxiety and perceived social support scores

	Support from significant other	Family's Support	Friend's Support	Total Support
Depression	-0.35*	-0.33*	-0.27*	-0.34*
Anxiety	-0.25*	-0.32*	-0.30*	-0.34*

*p<0.01

than males (M=4.26). According to logistic regression analysis, age (B=0.17, SE=0.05, CI=1.08-1.31, p<0.001) and anxiety (B=-0.22, SE=0.08, CI=0.63-0.94, p<0.01) predict differences between genders.

Participants were compared according to their groups as well. Kruskall-Wallis analysis results revealed that groups were significantly different from one another in terms of anxiety symptoms, support from significant other, and total support scores (Table 4). Individual two-group comparisons via Mann-Whitney U test were also conducted across four groups with a Bonferroni correction. Adjusted p value was 0.008 for six comparisons across four groups. It was found that Group 3 (MOI) did not significantly differ from Group 1 (CI) and Group 4 (UI) (p>0.05). When Group 1 (CI) was compared to Group 2 (FOI), groups were statistically different from each other in terms of anxiety, support from significant other, friend and total perceived social support (p=0.006). It was found that Group 2 (FOI) reported significantly more anxiety (M=21.98) than Group 1 (CI) (M=10.19). Correspondingly, Group 1 (CI) perceived significantly more support from significant other (M=30.69) and friends (M=29.88) and total social support (M=32.31) than Group 2 (FOI) (M=16.52; 16.73; 16.08), respectively. Additionally, Group 1 (CI) was also significantly different from Group 4 (UI) in terms of anxiety (p=0.005). Group 4 (UI) (M=17.18) reported significantly more anxiety than Group 1 (CI) (M=7.81). Lastly, when Group 2 (FOI) was significantly different from Group 3 (MOI) (p<0.001). Group 3 (MOI) (M=58.9) perceived significantly more support from significant other than Group 2 (FOI) (M=36.62).

Table 3: Individual and couples' averages and standard deviation values obtained from depression, anxiety and perceived social support scales

	$\bar{x}$	SD
Couples (n=132)		
Depression	3.72	2.16
Anxiety	5.01	2.06
Support from significant other	25.48	3.54
Family's Support	24.14	5.15
Friend's Support	21.54	4.80
Total Support	71.12	9.12
Male (n=66)		
Depression	3.56	2.75
Anxiety	4.26	2.89
Support from significant other	25.55	3.89
Family's Support	23.67	5.79
Friend's Support	21.00	6.07
Total Support	70.38	11.71
Female (n=66)		
Depression	3.88	2.59
Anxiety	5.88	2.80
Support from significant other	25.56	3.66
Family's Support	24.62	5.61
Friend's Support	21.95	6.01
Total Support	71.91	12.17

Tablo 4: Results of Kruskal-Wallis analysis and average scores due to four groups

	$\bar{x}$	χ^2	df	p
Anxiety		9. 39	3	0.025
Group 1 (CI)	2.50			
Group 2 (FOI)	5.67			
Group 3 (MOI)	4.82			
Group 4 (UI)	6.10			
Support from significant other		17.00	3	<0.001
Group 1 (CI)	27.75			
Group 2 (FOI)	23.90			
Group 3 (MOI)	26.15			
Group 4 (UI)	24.95			
Total Support		10.56	3	<0.001
Group 1 (CI)	80.63			
Group 2 (FOI)	65.67			
Group 3 (MOI)	72.77			
Group 4 (UI)	69.55			

CI: Combined infertility, FOI: Female-originated infertility, MOI: Male-originated infertility, UI: Unexplained Infertility

DISCUSSION

Infertility is a condition that has cultural and generic aspects bringing together medical, psychiatric, psychological, and social problems. Infertility causes symptoms like shock, repudiation, sadness, depression, anxiety, sexual dysfunction, and somatization (6,7).

There are several studies that research relations between infertility and psychological symptoms. Most of these studies show that there is a significant relation between infertility and psychological symptoms. It has been found that the biggest psychological difficulty for infertile patients is anxiety, and for those whose treatment failed, depression is the biggest psychological problem (14).

According to the result of logistic regression analysis, age and anxiety predict the difference between genders.

Whether infertility is caused by the male or the female partner, anxiety levels in women, being in the primary focus of the treatment, may be higher. The study reveals that the female partners in 66 infertile couples that had no Axis-I psychiatric diagnosis had higher anxiety symptom scores than the men. Similarly, Guz et al. (23) previously found that females with infertility reported more anxiety and low self-esteem when they perceived low social support from their husband and family. However, apart from previous findings in the literature (1,33,34) no significant difference was found between genders in terms of depression. There are also significant differences between reactions to infertility shown by males and females. While men act as if they have fewer problems with this situation, females talk more about their issues (35). Also, independently of who is the reason for the infertility, females take more responsibility and feel more guilty (36). In general, infertility is accepted as incompetence by couples in Turkey, as there is social pressure upon married couples to have children. In particular, women are expected to be fertile. Otherwise, infertility in women may result in divorce in some regions of Turkey (37). In the present study, anxiety symptoms were higher among females than males. This may be a consequence of the view that infertility is a responsibility of the woman, and of social pressure directed at women. Perceived responsibility and pressure frequently may lead women into anxiety. Although the severity of depressive symptoms was similar between genders, a significant difference in anxiety scores was considered to confirm one of the study's assumptions: that females with infertility experience more affective discomfort than their husbands.

Participants were compared according to their groups as well. When the CI group was compared to the FOI group, they were statistically different in terms of anxiety, support from significant other, friends, and total perceived social support. However, there was no significant difference in terms of depressive symptoms across groups. Depressive symptom levels of infertile couples from previous studies matched our findings and were identified as normal levels (26) or higher than our findings (38). On the other hand, it was found that the FOI group reported significantly more anxiety than the CI group. Additionally, the CI group was also significantly different from the IU group in terms of anxiety. The IU group reported significantly more anxiety than the combined infertility group. In the literature, there were findings reporting either that couples with infertility have higher anxiety scores (1,34) or that couples with infertility have anxiety scores in the normal range (26,39). The social role rooted in maternity may cause women to perceive infertility as a threat; which in turn may cause them more anxiety (21,23). As women manifest negative affective reactions, men may cope with the social role by denial or ignorance (40). Therefore, in the FOI group, anxiety is more explicit than in the MOI group. The words "woman" and "mother" are commonly used interchangeably in Turkey. Not having a child is socially perceived as a loss of social status. Infertility is seen as not being able to be a good wife, resulting in a lack of attractiveness or loss of femininity or masculinity. While infertile couples are plagued by feelings of incompetence and guilt, they also bear social pressure rooted in invasive questions about when they will have a baby and so forth. Women feel the burden of infertility the most. Especially in the

countryside, they may be alienated. In some cases, in order to preserve their marriage, women have to tolerate that their husband visits another fertile female (Kuma in Turkish) in order to father children (41). There are some possible reasons that may lead to more anxiety symptoms in the FOI group. That is, females may perceive a greater burden of social pressure due to deviation from the social norms and stigmata, perceived responsibility, feelings of guilt, shame, incompetence and worthlessness than males with infertility.

It has been said that social support may decrease emotional stress of infertility (42). As stated in studies made about the psychological effects of infertility, feeling anxiety, anger, guilt, inadequacy etc. becomes easier for persons that do not have particular support factors and cannot deal with infertility and the problems coming up together with it (24). According to some studies, not having the spouse's and family's support causes a deterioration in the mental health of women (25,43). Due to gender roles, in case of stressful events, while women can seek help and support explicitly, males are expected to solve their problems themselves and demand less support (44).

As the perceived social support of couples increases, anxiety and depressive symptoms are found to decrease. In sum, it can be say that psychological distress related to infertility is mostly due to external factors rooted in the society rather than internal stressors. Different findings about this subject have been reported in previous studies. It has been stated that before applying for the help of an expert, infertile couples look for their families' and friends' support, and as social support can decrease infertile couples' emotional stress (22), on the other hand it can also increase emotional stress (21,45). In the current study, in contrast to previous findings in the literature, there was no significant difference in terms of perceived social support between genders, which may be resulting from sample size. Current findings were not consistent with Soaris's previous results claiming that females perceive support more from their family than males and at a similar level from friends (44). Although there are findings suggesting that women in couples with infertility have more perceived social support (33), by contrast, some research revealed that males have more perceived social support as well (1,46). Although perceived social support by gender is contested in the literature, what counts is that individuals cope better with infertility and its responsibility when they perceive social support to be sufficient for themselves (47). In a study made by Erdem et al., it was observed that as the women's perceived social support decreases, their mean scores of depression increase (48). In another study by Guz et al. (23), anxiety and low self-respect have been found in infertile women that received negative reactions from their spouses and families. Whether infertility is caused by the woman or not, due to being in the primary focus of the treatment, women's anxiety levels can be higher. Correspondingly, the CI group perceived significantly more support from significant other and friends and total social support than in FOI group. It was found that FOI couples reported significantly more anxiety than the CI group. The MOI group perceived significantly more support from significant other than in FOI group. Females in the infertility group may be reluctant to share affective difficulties. That may increase their emotional burden, sense of responsibility and social pressure more than in males; in turn leading to a limitation of the perceived social support. It has been suggested that limited perceived social support for females may be related to higher anxiety.

Sharing feelings and concerns provides huge assistance in dealing with problems in infertile couples. It enables growing awareness that infertility is not only women's or men's indivual problem; it is the couple's joint issue. The findings acquired in this study show that women's anxiety level is higher than men's, but men are also affected by this process. It is important to examine facts from a biopsychosocial perspective and to support seeking psychiatric help. As a result, professional support must be given to both members of a couple.

REFERENCES

1. Newton CR, Sherrard W, Glavac I. The Fertility Problem Inventory: measuring perceived infertility-related stress. Fertil Steril 1999; 72:54-62. **[CrossRef]**

2. Domar AD, Seibel MM. Emotional aspects of infertility. In Seibel MM (editor). Infertility: A Comprehensive Text. Stamford: Appleton & Lange, 1997, 29-44.

3. Cui W. Mother or nothing: the agony of infertility. Bull World Health Organ 2010; 88:881-882. **[CrossRef]**

4. Kilic M, Apay-Ejder S, Kizilkaya-Beji N. Infertility and culture. Journal of Florence Nightingale School of Nursing 2011; 19:109-115.

5. Smith JF, Walsh TJ, Shindal AW, Turek PJ, Wing H, Pasch L, Katz PP; Infertility Outcomes Program Project Group. Sexual, marital and social impact of a man's perceived infertility diagnosis. J Sex Med 2009; 6:2505-2515. **[CrossRef]**

6. Greil AL. Infertility and psychological distress: a critical review of the literature. Soc Sci Med 1997; 45:1679-1704. **[CrossRef]**

7. Mahlstedt PP. The psychological component of infertility. Fertil Steril 1985; 43:335-346.

8. Boivin J, Appleton TC, Baetens P, Baron J, Bitzer J, Corrigan E, Daniels KR, Darwish J, Guerra-Diaz D, Hammar M, McWhinnie A, Strauss B, Thorn P, Wischmann T, Kentenich H; European Society of Human Reproduction and Embryology. Guidelines for counselling in infertility: outline version. Hum Reprod 2001; 16:1301-1304. **[CrossRef]**

9. Ramezanzadeh F, Aghssa MM, Jafarabadi M, Zayeri F. Alterations of sexual desire and satisfaction in male partners of infertile couples. Fertil Steril 2006; 85:139-143. **[CrossRef]**

10. Shahid S. Depression in infertile couples. J Coll Physicians Surg Pak 2009; 19:395-396.

11. Saleh RA, Ranga GM, Raina R, Nelson DR, Agarwal A. Sexual dysfunction in men undergoing infertility evaluation: a cohort observational study. Fertil Steril 2003; 79:909-912. **[CrossRef]**

12. Anderheim L, Holter H, Bergh C, Möller A. Does psychological stress affect the outcome of in vitro fertilization? Hum Reprod 2005; 20:2969-2975. **[CrossRef]**

13. Gulseren L, Cetinay P, Tokatlioglu B, Sarikaya OO, Gulseren S, Kurt S. Depression and anxiety levels in infertile Turkish women. J Reprod Med 2006; 51:421-426.

14. Chen TH, Chang SP, Tsai CF, Juang KD. Prevalence of depressive and anxiety disorders in an assisted reproductive technique clinic. Hum Reprod 2004; 19:2313-2318. **[CrossRef]**

15. Lewis AM, Liu D, Stuart SP, Ryan G. Less depressed or less forthcoming? Self-report of depression symptoms in women preparing for in vitro fertilization. Arch Women's Ment Health 2013; 16:87-92. **[CrossRef]**

16. Newton CR, Hearn MT, Yuzpe AA. Psychological assessment and follow-up after in vitro fertilization: assessing the impact of failure. Fertil Steril 1990; 54:879-886.

17. Klonoff-Cohen H, Chu E, Natarajan L, Sieber W. A prospective study of stress among women undergoing in vitro fertilization or gamete intrafallopian transfer. Fertil Steril 2001; 76:675-687. **[CrossRef]**

18. Klonoff-Cohen H, Natarajan L. The concerns during assisted reproductive technologies (CART) scale and pregnancy outcomes. Fertil Steril 2004; 81:982-988. **[CrossRef]**

19. Boivin J. A review of psychosocial interventions in infertility. Soc Sci Med 2003; 57:2325-2341. **[CrossRef]**

20. Helgeson VS. Social support and quality of life. Qual Life Res 2003; 12(Suppl.1):S25-S31. **[CrossRef]**

21. Mindes EJ, Ingram KM, Kliewer W, James CA. Longitudinal analyses of the relationship between unsupportive social interactions and psychological adjustment among women with fertility problems. Soc Sci Med 2003; 56:2165-2180. **[CrossRef]**

22. Boivin J, Scanlan LC, Walker SM. Why are infertile patients not using psychosocial counselling? Hum Reprod 1999; 14:1384-1391. **[CrossRef]**

23. Guz H, Ozkan A, Sarisoy G, Yanik F, Yanik A. Psychiatric symptoms in Turkish infertile women. J Psychosom Obstet Gynaecol 2003; 24:267-271. **[CrossRef]**

24. Ozkan M, Baysal B. Emotional distress of infertile women in Turkey. Clin Exp Obstet Gynecol 2006; 33:44-46.

25. Karlidere T, Bozkurt A, Yetkin S, Doruk A, Sutcigil LK. Ozmenler KN, Ozsahin A. Is there gender difference in infertile couples with no axis one psychiatric disorder in context of emotional symptoms, social support and sexual function? Turkish Journal of Psychiatry 2007; 18:311-322. (Turkish)

26. Terzioglu F. Investigation into effectiveness of counseling on assisted reproductive techniques in Turkey. J Psychosom Obstet Gynaecol 2001; 22:133-141. **[CrossRef]**

27. First MB, Spitzer RL, Gibbon M, Willams JBW. Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) Clinical Version. Washington DC, American Psychiatry Press, 1997.

28. Corapcioglu A, Aydemir O, Yildiz M, Danaci A. Study for the adaptation and validity of a structured clinical interview for axis-I disorders. Journal of Drug and Therapy 1999; 12:33-36. (Turkish)

29. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. Acta Psychiatr Scand 1983; 67:361-370. **[CrossRef]**

30. Aydemir O. Validity and reliability of Turkish version of Hospital Anxiety and Depression Scale. Turk Psikiyatri Derg 1997; 8:280-287. (Turkish)

31. Zimet GD, Dahlem NW, Zimet SG, Farley GK. The Multidimensional Scale of Perceived Social Support. Journal of Personality Assessment 1988; 52:30-41. **[CrossRef]**

32. Eker D, Arkar H, Yaldiz H. Factorial Structure, Validity, and Reliability of Revised Form of the Multidimensional Scale of Perceived Social Support. Turk Psikiyatri Derg 2001; 12:17-25. (Turkish)

33. Collins A, Freeman EW, Boxer AS, Tureck R. Perceptions of infertility and treatment stress in females as compared with males entering in vitro fertilization treatment. Fertil Steril 1992; 57:350-356.

34. Slade P, Emery J, Lieberman BA. A prospective, longitudinal study of emotions and relationships in in- vitro fertilization treatment. Hum Reprod 1997; 12:183-190. **[CrossRef]**

35. Sirin A. Test-tube baby procedure and approach to couples benefiting from it. 1st edition, Ege University Press, Izmir 2001. (Turkish)

36. Oskay UY, Beji NK. Role of the infertility nurse as advisor and defender of patient rights. Beji NK (editor). Infertility problem, assisted reproduction techniques, and nursing approach. Florence Nightingale Hospital School of Nursing Press. Emek Print Shop, Istanbul 2001, 93-102. (Turkish)

37. Ozcelik B, Karamustafalioglu O, Ozcelik A. The psychological and psychiatric aspects of infertility. Anatolian Journal of Psychiatry 2007; 8:140-148. (Turkish)

38. Fassino S, Piero A, Boggio S, Piccioni V, Garzaro L. Anxiety, depression and anger suppression in infertile couples: a controlled study. Hum Reprod 2002; 17:2986-2994. **[CrossRef]**

39. Emery M, Beran MD, Darwiche J, Oppizzi L, Joris V, Capel R, Guex P, Germond M. Results from a prospective, randomized, controlled study evaluating the acceptability and effects of routine pre-IVF counselling. Hum Reprod 2003; 18:2647-2653. **[CrossRef]**

40. Wright J, Duchesne C, Sabourin S, Bissonnette F, Benoit J, Girard Y. Psychosocial distress and infertility: men and women respond differently. Fertil Steril 1991; 55:100-108.

41. Kavlak O. Isolation level of infertile women and assessment of affecting factors. Master's Dissertation. Ege University Institute of Health Sciences, Izmir, 1999. (Turkish)

42. Boivin J, Schmidt L. Infertility-related stress in men and women predicts treatment outcome 1 year later. Fertil and Steril 2005; 83:1745-1752. **[CrossRef]**

43. Peddie VL, van Teijlingen E, Bhattacharya S. A qualitative study of women's decision-making at the end of IVF treatment. Hum Reprod 2005; 20:1944-1951. **[CrossRef]**

44. Sorias O. Assessment of social support II: structural characteristics of the social network and perceived support in a sample selected from the population. Seminar Psychology 1989; 7:27-40. (Turkish)

45. Wilson JF, Kopitzke EJ. Stress and infertility. Curr Womens Health Rep 2002; 2:194-199.

46. Anderson KM, Sharpe M, Rattray A, Irvine DS. Distress and concerns in couples referred to a specialist infertility clinic. J Psychosom Res 2003; 54:353-355. **[CrossRef]**

47. Abbey A, Halman LJ, Andrews FM. Psychosocial, treatment, and demographic predictors of the stress associated with infertility. Fertil Steril 1992; 57:122-128. **[CrossRef]**

48. Erdem K, Ejder Apay S. A Sectional Study: The relationship between perceived social support and depression in Turkish infertile women. Int J Fertil Steril 2014; 8:303-314.