

Original Article**The Level of Anxiety and Depression Among Iranian Infertile Couples Undergoing In Vitro Fertilization or Intra Cytoplasmic Sperm Injection Cycles***M. Yassini MD\*, M A. Khalili PhD\*\*, Z. Hashemian MD\*\*\****ABSTRACT**

**Background:** Approximately 10% of Iranian couples wishing to have a child experience some types of infertility which may impose a considerable psychological burden on them. The main objective of this cross-sectional study was to examine the level of anxiety and depression among infertile couples undergoing IVF or ICSI treatment cycles in Iran.

**Methods:** Fifty infertile couples that who undergoing IVF (n=25) or ICSI (n=25) cycles were considered for this descriptive cross-sectional study. Also, 25 married couples (18-40 years old) with history of fertility served as control subjects. All husbands and wives were examined by means of Beck Depression and Spielberger Anxiety Inventories.

**Results:** Comparing with controls, the highest rates of moderate and severe anxiety, were observed in women undergoing IVF (76% and 12%, respectively;  $P < 0.05$ ). However, the rate of depression among women in IVF group was comparable to women undergoing ICSI. Also, the highest rates of severe depression and anxiety were demonstrated among housewives (23.9% and 11%, respectively). The lowest rates of severe anxiety and depression were observed in husbands participated in either IVF or ICSI cycles. In addition, illiterates, compared with educated couples, undergoing IVF or ICSI program were shown to have the highest rates of both depression and anxiety.

**Conclusion:** The results showed that the levels of anxiety and depression were higher in women, especially housewives, undergoing IVF or ICSI cycles than control subjects. Also, men showed lower rates of anxiety and depression than women undergoing IVF or ICSI. Therefore, this can provide useful information and guidance for health professionals working with infertile patients.

**KeyWords:** anxiety, depression, infertility, IVF, ICSI, Iran

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**W**hen Louis Brown, the world first in vitro fertilization (IVF) baby, was born in 1978, probably only a limited number of people could foresee all the reproductive possibilities that would occur as the result of being able to harvest human oocytes and subsequently fertilize them outside the body. Although assisted reproductive technologies (ART) have indeed come a long way, yet not every infertile couple benefits from these advanced technologies. Therefore, infertility is not solely a medical problem, but it is almost always involved with psychological consequences such as anxiety, depression, emotional strain, and marital complications<sup>1, 2</sup>.

It is important to note that the care of application of effective infertility treatment is an understanding of psychological experiences among couples with involuntary childlessness. Descriptive studies have suggested that infertile couples undergo various forms of psychological distresses, which may render them susceptible to depression and anxiety<sup>2-4</sup>. In general, it is believed that psychological disorders are the by-product probably not the cause, of infertility, which infertiles may experience them during their infertility diagnosis, treatment cycles, and the outcome. In addition, infertile couples with male factor infertility may

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experience a different psychological strain than cases with female cause for infertility. Therefore, it may become necessary to evaluate and compare the psychological status of individuals undergoing ART treatment cycles. IVF is the oldest type of ART program, which is usually performed for patients with female factor infertility; while intracytoplasmic sperm injection (ICSI) is the gold standard technique for treatment of male factor infertility<sup>5, 6</sup>. As a result, different types of psychological strain may be experienced in patients undergoing IVF or ICSI cycles.

Although, extensive research studies have been conducted for the aforementioned subjects from western societies, there are only a limited number of studies published from Muslim societies to evaluate the level of psychological strains of infertile patients<sup>1-5</sup>. In Muslim societies, such as ours, the patients are married, wives are usually much younger (more susceptible to psychological problems), and the in-laws play a major role in both marital status and family settings. Therefore, the main objective of this study was to evaluate the level of anxiety and depression among Iranian infertile couples undergoing IVF or ICSI treatment cycles. In addition, the role of women's occupation in the rates of depression and anxiety was assessed as well.

### Subjects and Methods

A total number of 50 infertile couples who were admitted for IVF (n=25) or ICSI (n=25) cycles at the Research and Clinical Center of infertility in Yazd were considered for this descriptive cross-sectional study. The aforementioned center was established in 1989 as the first Infertility Center in Iran, which has admitted patients from all over the country since then. Both IVF and ICSI procedures have been described previously<sup>6, 7</sup>. Also, 25 married couples, between the ages of 18-40 years old, with history of fertility served as control group. Their age, nationality, educational background, and occupation were matched with infertile group. Only the infertile couples matching the following inclusion criteria par-

ticipated in this study: Iranian, Muslim, aged 18-40 years old, duration of infertility >2 years, with primary infertility, and waiting for treatment cycle of IVF (couples with female factor infertility) or ICSI (couples with male factor infertility). Only the infertiles who were presented for their first ART treatment cycles were considered for this study. Following a brief interview, all subjects guaranteed anonymity during the data collection. The general information such as the age, sex, occupation, and type of treatment was recorded for future analysis.

Depression was measured by means of Beck Depression Inventory that is one of the most widely used instruments for assessing level of depression<sup>8</sup>. This includes 21 items, ranging from low to high (Beck, 1988). The items are graded in a 4-point scale of 0= absent, 1=mild, 2= moderate and 3= severe. The cut-off scores for the severity of depression are: <4, no depression; 4-7, mild; 10-14, moderate and >15, severe. Anxiety was measured by means of Spielberger Anxiety Inventory, which includes 20 items<sup>9</sup>. The 4-point scale items use a score ranging from 0 (absence) to 3 (severe). The cut-off scores for anxiety are as follows: <20, no anxiety; 20-39, mild; 40-59, moderate and >60, severe (Spielberger, 1970). All participants gave informed consent for the interview. It was emphasized that declining to participate in this study would not prejudice their treatment. Statistical package for social sciences (SPSS, version 9.0) was used for data analysis. For statistical analysis, the chi-square and fisher's exact tests were applied. The p value of <0.05 was considered significant.

### Results

The results showed that 56% of the control group had mild anxiety; while the highest level of anxiety was observed in women undergoing IVF cycles. In general, the rate of moderate anxiety was comparable between IVF and ICSI patients (76% versus 68%) which are presented in Table 1. The level of depression in the aforementioned women is also shown in Table 1. The highest rate of severe depression was

demonstrated in women enrolled for ICSI for treatment of their husbands' infertility problems. Also, the highest rate of depression that was noticed in IVF women was of "mild" type. In general, control (fertile) subjects showed the lowest rates of both anxiety and depression. In addition, the prevalence of depression in relation to occupation of the 50 infertile women is demonstrated in Table 2. It is important to note

that the highest level of severe types of anxiety and depression were observed among housewives (11% and 23.9%, respectively). The severe type of depression was observed in men undergoing ICSI for male factor infertility (24%). However, this was reduced in men who were enrolled for IVF (4%). Also, no significant correlation was observed between the rate of depression and different patient groups (Table 3).

**Table 1.** Prevalence of anxiety and depression in control group and women undergoing IVF or ICSI cycles.

patients	ABSENT		MILD		MODERATE		SEVERE	
	A	D	A	D	A	D	A	D
control	0 (0)	7 (28)	14 (56)	15 (60)	10 (40)	2 (8)	1 (4)	1 (4)
IVF	0 (0)	2 (8)	3 (12)	11 (44)	19 (76)	8 (32)	3 (12)	4 (16)
ICSI	0 (0)	2 (4)	6 (24)	10 (40)	17 (68)	6 (24)	2 (8)	7 (28)
<b>Total</b>	0 (0)	11 (14.7)	23 (30.7)	36 (48)	46 (61.3)	16 (21.3)	6 (8)	12 (16)

A = anxiety; D = depression

The value in parentheses is percent (%) of total number in each group

p<0.05: anxiety between control and IVF or ICSI groups

p>0.05: depression between control and treatment groups of IVF and ICSI.

**Table 2.** Prevalence of anxiety and depression in women in relation to their occupation.

occupation	ABSENT		MILD		MODERATE		SEVERE	
	A	D	A	D	A	D	A	D
housewife	0 (0)	2 (4.2)	10 (21.7)	21 (45.6)	31 (67.3)	12 (26)	5 (11)	11 (23.9)
Office work	0 (0)	6 (26)	11 (47.8)	11 (47.7)	12 (52.1)	5 (21.6)	0 (0)	1 (4)
Student	0 (0)	1 (16.6)	3 (50)	3 (49.8)	3 (50)	2 (33.2)	0 (0)	0 (0)
<b>Total</b>	0 (0)	9 (12)	24 (32)	35 (46.7)	46 (61.3)	19 (25.3)	5 (6.7)	12 (16)

A = anxiety; D = depression

The value in parentheses is percent (%) of total number in each group

p<0.05: depression between housewives and other occupations

p<0.05: anxiety between housewives and other occupations

p<0.01: level of severe anxiety between housewives and other occupations

**Table 3.** Prevalence of anxiety and depression in control group and men participating in IVF or ICSI program.

occupation	ABSENT		MILD		MODERATE		SEVERE	
	A	D	A	D	A	D	A	D
control	0 (0)	5 (20)	15 (60)	14 (56)	10 (40)	5 (20)	0 (0)	1 (4)
IVF	0 (0)	5 (20)	9 (36)	9 (36)	14 (56)	5 (20)	2 (8)	6 (24)
ICSI	0 (0)	20 (26.7)	8 (32)	35 (46.7)	15 (60)	12 (16)	2 (8)	8 (10.7)
<b>Total</b>	0 (0)	10 (40)	32 (42.7)	12 (48)	39 (52)	2 (8)	4 (5.3)	1 (4)

A = anxiety; D = depression

The value in parentheses is percent (%) of total number in each group

p>0.05: anxiety between different patient groups

p>0.05: depression between different patient groups

p<0.05: severe depression between control and IVF or ICSI group

The level of educational background had an input on the psychological strains of our patients. Out of 75 subjects enrolled in this study, a total of 15 men and 22 women were illiterate, while, 35 men and 29 women had university educations. In general, illiterates, compared with educated couples, undergoing either IVF or ICSI were shown to have the highest rates of both depression and anxiety. Also, severe depression and severe anxiety were observed in 27% and 22% of illiterate women, respectively. These levels were reduced to 4.5% and 0% in women with university educations, respectively.

### Discussion

Couples, particularly wives, undergoing ART treatment are often anxious and depressed because of their infertility and the uncertainties of the treatment outcomes which may completely influence their marital relationship. Also, some studies have indicated that both anxiety and depression are related to the success of IVF/ ICSI treatment<sup>10, 11</sup>. It is noteworthy to declare that in an IVF setting, a correlation between anxiety and increase in serum prolactin and cortisol concentrations have been reported<sup>12</sup>. Also, depression was found to be associated with an abnormal regulation of LH<sup>13</sup>. In a recent study by Lee and associates (2001), 138 infertile couples with female, male, mixed, or unexplained infertilities were investigated in Taiwan<sup>14</sup>. Their findings showed that wives with a female infertility experienced higher rate of self-esteem distress and guilty feeling than their husbands. However, wives with male or mixed infertility factors, and with unexplained infertility reported to have no differences with their spouses in distress, guilty feeling, or even sexuality behavior. Therefore, the authors suggested that the infertility diagnosis is an important factor in assessing the differences in infertility distress and marital satisfaction between husbands and wives.

Our results are in agreement with the report of Fassino et al (2002) in which both anxiety and depression levels were higher in the two groups of infertile subjects than in controls;

however, it was observed to be lower in men than in women. The different results between men and women seem to support the better coping abilities and lower worry about the infertility and its consequences in men than in women participating in our study. Another reason for higher rate of depression and anxiety in our infertile women may be related to the role of in-laws in Iranian community. In-laws often play an important role in a marriage setting as well as family planning, especially from the husband's side. Therefore, if a wife is responsible for the infertility, she could be extremely apprehensive of the responses from the in-laws in the husband's family. On the other hand, the members of the wife's family rarely make problems for the husband with diagnosed infertility problem, although they usually feel sorry for their daughter's suffering from the infertility and try to give her their full support during the time of crisis.

Demyttenaere (1998) reported that in their study group of 98 infertile women undergoing IVF, 54.1% of the subjects had mild depression, while 19.4% had moderate to severe depression<sup>13</sup>. Our results also showed that the prevalence of moderate and severe type of depression in infertile women was relatively high. This may well influence the outcome of the ART treatment protocol. Domar (1992) also noticed that 36.7% of the women attending the infertility clinic were depressed compared with 18.4% of the control patients when assessed with Beck Depression Inventory<sup>15</sup>. In contrast with the opinion of Fassino et al (2002), an association between higher educational level and lower rate of psychological anxiety and depression was found in our infertile women. This may be related to their knowledge on infertility and being more occupied on regular **daily** basis. Our results also confirmed that housewives were presented with the highest level of depression. This may be related to the free time that they may stay at home and being worried about their possible marital crisis as the outcome of the fertility failure. This is also in agreement with Fida's study who observed the highest level of depression among Kuwait-

tian women who have experienced infertility and are currently under ART treatment protocols 16.

In conclusion, the results of this study demonstrated that the level of anxiety and depression was higher in women, particularly housewives, undergoing IVF or ICSI cycles than control fertile group. This can provide useful information and guidance for health professionals who work with infertile patients.

However, considering the small sample size in this study, future works on the psychological reactions of infertile couples should be replicated by enlarging the sample size and including the other psychological complications such as distress, marital relationship, also coping style among Iranian infertile couples entering an ART program.

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