

A Holistic Approach for Comparing Stress by Gender Difference in Couple Who Received Assisted Reproductive Treatment

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The recognition of the distressing character of infertility diagnosis and treatment has led to the development of many researches in medical psychology and mental health domain. This article aimed to investigate holistic stress from infertility by gender difference. This is a cross-sectional descriptive study on 369 infertile couples (175 male and 194 women) who referred to Yazd infertility center. These participants were selected by purposive sampling method. Data were collected by using demographic characteristics' questionnaire (researcher-made questionnaire), DASS test (depression- anxiety- stress), Courdon stress test(health stress- personality stress and life stress) and perceived stress test (positive and negative perceived stress) . Mean score of depression, anxiety and stress in women was higher than men. Negative perceived stress, personality stress and life stress in women was higher than men, but positive stress conceived and health stress in men was higher than women. The results show that infertility has a significant impact on couples over time. Mental health professionals can educate couples regarding the effectiveness of coping strategies as well as stress management techniques while experiencing the stress of infertility.

Key words: Stress, Infertility, Sex, Depression, Anxiety.

Infertility is a biopsychosocial phenomenon in which mental, physiological, environmental and interpersonal variables interact with each other. Therefore, infertility cannot be solely considered as a physical disorder¹. The World Health Organization (WHO), considers infertility as a global public health issue² inflicting 80-168 million individuals worldwide³.

In an epidemiological study investigating the causes of infertility in patients referred to

Royan institute, 50.5%, 28.6%, and 11.6% of the participants had the male factor infertility, female factor infertility, or both, respectively. Moreover, 9.3% of the infertile participants had infertility with an unknown etiology⁴. In general, most studies have indicated that the female and male factors each have a share of about one third of infertilities; while 20% of the remaining one third has unknown etiology and the rest is related to both couples⁵.

In Iran, the prevalence of lifetime primary infertility was 24.9% during 2004-2005, comprising one fourth of Iranian couples⁶. Since, conception and having children is considered as a personal, social, and cultural value, infertile individuals strive

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to diagnose and treat the cause of their infertility. In the meantime, they experience and bear many mental tensions because of the biopsychosocial burdens of infertility treatment. In fact, infertility is accompanied by increased psychological stresses⁷.

Dealing with infertility immensely affects the lives of men and women and puts them at risk of emotional problems as well as physical, financial, and mental challenges related to assisted reproductive methods. Such challenges pave the way for depression during the late 20s and 30s in many individuals⁸. Johnson and colleagues reported that 50% of women and 15% of men consider infertility as their most stressful life experience⁹. Another study also showed a relationship between anxiety and stress and male and female infertility¹⁰.

Considering the influential cultural, economical and educational differences of infertile men, some studies have shown psychological problems in this group¹¹. Infertile men have less stress and higher mental health compared with infertile women. Studies indicate that disorders such as depression are more prevalent in women¹². Women specifically suffer from mental stresses of infertility and are more anxious and depressed compared to their spouse and have lower self-esteem¹³.

Ignoring the psychological complications of infertile couples leads to a vicious cycle that would in turn reduce the possibility of treatment. Moreover, with respect to the effects of infertility on marital and social relationships, informative and mental support programs in Iran have not been successful. Therefore, understanding the psychological problems of infertile men and women is necessary for devising related psychological interventions.

On the other hand, most studies on stress and psychological reactions of infertile men and women have considered confounding factors such as cause of infertility, duration of infertility, hope to being treated, family configuration, and number of treatment cycles. However, the results of these studies differed based on ethnicity and study conditions. Moreover, these studies were not done in Iran and cannot be generalized to the Iranian population. Therefore, we aimed to compare the psychological stresses of infertile men and women in an Iranian sample.

Patients and Methods

In this cross-sectional study, we assessed the stresses of infertile men and women and their relation to demographic factors in 398 individuals receiving assisted reproductive services in the Infertility Center of Yazd, Iran. The study population consisted of all individuals who referred to this center during 2013. Considering an infertility prevalence of 5-15%, the sample size was calculated to be 400 (200 men and 200 women). The proposal of the study was confirmed by the Ethics Committee of Jahrom University of Medical Sciences. Individuals participated in the study at their own free will and are assured that they could leave the study at any desirable point.

(Here, it is better to mention the exclusion and inclusion criteria of the study completely.)

Data were collected using four questionnaires: a demographic data questionnaire, the depression anxiety stress scale short form (DASS-21) and the perceived stress scale, and the Courdon stress test. The DASS-21 is a 21-item instrument designed to measure the 3 negative affective states of depression, anxiety, and stress. The depression scale evaluates dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest or involvement, anhedonia, and inertia. The anxiety scale measures autonomic arousal, situational anxiety, and subjective experience of anxious affect. The stress scale assessed difficulty relaxing, nervous arousal, and being easily upset or agitated, irritable, or over-reactive and impatient¹⁴. In this research we used the cutoff scores suggested by Lovibond and Lovibond¹⁵⁻¹⁶. The psychometric properties of the DASS have been extensively evaluated, and there is evidence for the convergent and discriminative validity of data obtained with this instrument¹⁷⁻¹⁸.

The Perceived Stress Scale (PSS-14) is a 14-item self-report questionnaire that measures persons' evaluation of the stressfulness situations in the past month of their lives. Respondents report the prevalence of an item within the last month on a 5-point scale, ranging from never to very often. Responses are measured on a five-point scale (0=never, 1=almost never, 2=sometimes, 3=fairly often, 4=very often). Cohen and Williamson (1988) have established its reliability and validity ($r=0.85$) and internal reliability ($r=0.60$)¹⁹.

To evaluate general stress in different situations, the Courdon stress test was used. It is a standardized questionnaire with suitable reliability and validity as shown in previous studies. In repeated use of this questionnaire its validity and reliability were more than 0.7 and 0.8, respectively. It consists of different sections that assess life, personal, health, and organizational stresses. Since, most of the study participants were housewives and we could not evaluate work-related stresses, organizational stresses were omitted from the questionnaire and the three other sections were evaluated. The first section consisted of 23 items that measured stresses related to personality and mental habits such as being unsatisfied with life, worry about the future, feelings of internal anxiety and guilt. The second section consisted of 16 items for measuring the level of stress in personal life (divorce, communicational and family conflicts, financial and occupational worries). The third section measures health-related stress using 17 items²⁰. With respect to scoring, a score of less than 5 for the 23-item personal stresses is normal, but a higher score indicates that the individual's personality is the

source of stress. In the 17-item health-related stress section, a score of less than 20 indicated that the person paid attention to health issues, scores of up to 60 show that health issues have prevented stress management, and scores of higher than 60 show that health issues are the source of stress. In life-related stresses, a score of less than 15 indicate normal stress, 15-40 show lack of satisfaction with life, and over 40 indicate severe stress, depression, and exhaustion.

Data analysis was done using descriptive (mean and standard deviation) and inferential statistics (correlation coefficient) for stress score distributions. Analytical tests were used for assessing mean differences based on demographic variables.

RESULTS

In both groups, most participants were 31-40 years old and the duration of infertility was less than 5 years. Also, mixed factors (male and female) were responsible for infertility in both groups. Most participants in both groups had university degrees (table 1).

Table 1. Frequency (%) of some of the demographic variables in infertile women (Since you have the data of men in the table, you should write infertile women and men in the tile of the table.)

| Variable | Male | Female |
|----------------------|---------------|------------|
| Age | Lower than 20 | 2(1.2%) |
| | 21-30 | 62 (39.5%) |
| | 31-40 | 87(55.4%) |
| | 41-50 | 8(5.1%) |
| | Total | 178(100%) |
| Duration of marriage | Lower than 5 | 112(58.9) |
| | 10-Jun | 51(29.1%) |
| | 15-Nov | 18(10.3%) |
| | More than 16 | 5 (2.6%) |
| | total | 178(100%) |
| Cause of infertility | male causes | 54(28.3%) |
| | Female causes | 40(20.9%) |
| | mixed | 68 (38.9%) |
| | unknown | 26 (14.9%) |
| | total | 178(100%) |
| Education level | Primary | 23(13.5%) |
| | Diploma | 60(36.8%) |
| | Higher | 85(62.2%) |
| | total | 163(100%) |

As shown in table 2 and figures 1-3, except for health-related stresses and positive perception of stress, other types of stress were higher in women.

Table 2. Mean and standard deviations for obtained scores with respect to gender

| Variables | | Sex | Mean | SD | CI |
|---------------------|---------------------|--------|-------|--------|---------------|
| DASS | Stress | Male | 6.28 | 4.10 | (5.65-6.90) |
| | | Female | 8.25 | 207.09 | (7.63-8.93) |
| | Depression | Male | 4.66 | 3.41 | (3.54-4.58) |
| | | Female | 6.62 | 4.85 | (5.92-7.33) |
| | Anxiety | Male | 4.50 | 3.75 | (3.93-5.07) |
| | | Female | 5.83 | 4.31 | (5.20-6.56) |
| Perceived stress | negative conception | Male | 9.78 | 5.04 | (9.78-9.02) |
| | | Female | 11.88 | 5.59 | (11.06-12.69) |
| | Positive conception | Male | 14.93 | 5.03 | (14.17-15.69) |
| | | Female | 13.59 | 4.84 | (12.89-14.30) |
| Courdon stress test | health stress | Male | 1.75 | 0.65 | (1.65-1.85) |
| | | Female | 1.66 | 0.58 | (1.58-1.75) |
| | Personality stress | Male | 0.65 | 0.47 | (0.58-0.73) |
| | | Female | 0.78 | 0.41 | (0.72-0.84) |
| | Life stress | Male | 2.07 | 0.69 | (1.97-2.18) |
| | | Female | 2.13 | 0.72 | (2.02-2.28) |

Table 3. Mean score of variables by gender difference

| Variable | | Male | Female | Total | X ² | P |
|--------------------|-------------------------------------|------------|------------|------------|----------------|-------|
| Life stress | Normal | 35(20.5%) | 40(20.9%) | 75(20.7%) | 1.56 | 0.45 |
| | No satisfaction | 9(52%) | 88(46.1%) | 177(48.9%) | | |
| | Exhaustion | 47(27.5%) | 63(33%) | 110(30.4%) | | |
| | Total | 71(10%) | 191(100%) | 362 (100%) | | |
| Health stress | Attention to health care | 64(37.4%) | 75(39.5%) | 139(38.5%) | 3.22 | 0.19 |
| | Health care no source of stress | 87(50.9%) | 103(54.2%) | 190(52.6%) | | |
| | Health care as a stress source | 20(11.7%) | 12(6.3%) | 32(8.9%) | | |
| | Total | 171(100%) | 190(100%) | 361(100%) | | |
| Personality stress | Personality is not source of stress | 61(35.5%) | 42(22.2%) | 103(28.5%) | 7.74 | 0.004 |
| | Personality is the source of stress | 111(64.5%) | 147(77.8%) | 258(71.5%) | | |
| | Total | 172(100%) | 189(100%) | 361(100%) | | |

Table 4. Mean difference in DASS and perceived stress test by gender difference

| DASS | Variables | Sex | N | Mean Rank | Z | P |
|------------------|---------------------|--------|--------|-----------|------|--------|
| | Stress | Male | 175 | 159.85 | 4.31 | 0.0001 |
| | | Female | 194 | 207.09 | | |
| | | Total | 369 | | | |
| | Depression | Male | 175 | 155.24 | 5.10 | 0.0001 |
| | | Female | 194 | 211.85 | | |
| | Anxiety | Male | 175 | 167.23 | 3.05 | 0.002 |
| Female | | 194 | 201.03 | | | |
| Perceived stress | negative conception | Male | 174 | 161.33 | 3.96 | 0.0001 |
| | | Female | 194 | 205.28 | | |
| | Positive conception | Male | 174 | 201.24 | 2.86 | 0.004 |
| | | Female | 194 | 169.49 | | |

Table 5. Correlation between psychological distress and demographic variables

| | variables | sex | Duration of infertility | Causes of infertility | age | job | Education |
|---------------------|---------------------|-------|-------------------------|-----------------------|-------|-------|-----------|
| DASS | Stress | 0.22* | 0.08 | 0.02 | 0.09 | 0.008 | 0.04 |
| | Depression | 0.28* | 0.04 | 0.02 | 0.13# | 0.04 | 0.07 |
| | Anxiety | 0.17* | 0.11# | 0.01 | 0.13# | 0.02 | 0.05 |
| Perceived stress | Negative conception | 0.21* | 0.02 | 0.06 | 0.09 | 0.02 | 0.007 |
| | Positive conception | 0.12# | 0.08 | 0.06 | 0.06 | 0.02 | 0.07 |
| | Life stress | 0.06 | 0.17* | 0.12# | 0.001 | 0.07 | 0.07 |
| Courdon stress test | Health stress | 0.11# | 0.09 | 0.04 | 0.006 | 0.001 | 0.03 |
| | Personality stress | 0.14* | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 |

*P<0.05

p<0.01

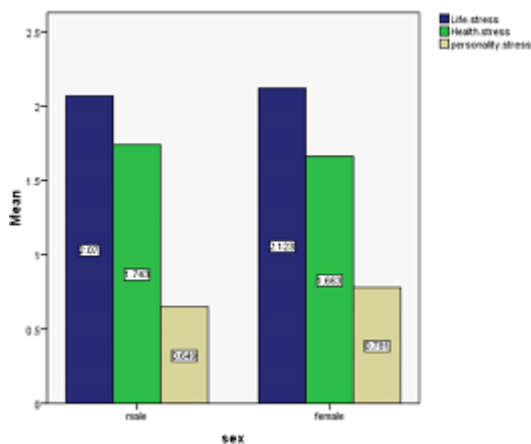


Fig. 1. Mean score of subscale in Lionel Coudron's Questionnaire

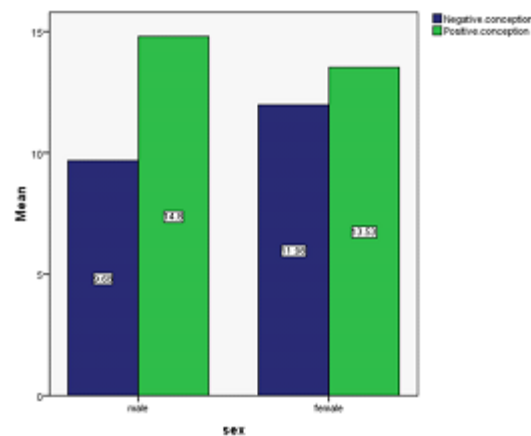


Fig. 2: Mean score of perceived stress test in couples

Table 2 shows that apart from health stresses and positive perceptions of stress other types of stress are higher in women than men.

We found a significant relationship between the subscales of life stresses and personality stresses between the two groups (Table 3).

Moreover, we found a significant relationship between the scores of all subscales of the DASS and perceived stress in both groups (table 4).

A significant relationship was found between sex and different variables in depression-anxiety and stress subscales and consequently positive and negative perceived stress (table 5).

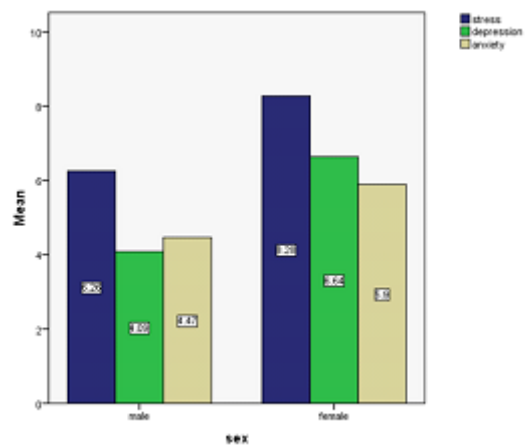


Fig. 3. Mean score of couples in DASS test

DISCUSSION

The present study aimed to compare psychological distresses (depression, stress, anxiety, and perceived stress) and general stresses (health, personal and life stress) between infertile men and women. We found that in three subscales of the DASS (depression, stress, and anxiety) infertile women scored higher than infertile men. Moreover, when comparing general stresses, except for health related stresses, personality and life stresses were higher in women. We found a significant difference between personality stresses between the two sex groups. Other studies also showed that stress, anxiety and depression scores in the DASS were significantly higher in infertile women compared with their spouses^{21, 22}. Studies have indicated that women experience more psychological distresses (anxiety and depression) than men²³⁻²⁷.

Other studies have also confirmed lower mental health states in infertile women and that women experience more psychological frustration with respect to infertility so that mean depression and anxiety scores are higher in women²⁸⁻³¹. The mental responses to infertility also differ between men and women so that women experience more mental distress³²⁻³⁶.

Peterson and colleagues found that infertile women have more stress than infertile men³⁷. On the other hand, Andrews and co-workers found that the negative effects of infertility are considerably higher in women and women experience more mental pressure than their spouses in this regard¹⁸. Wright also reported higher rates of psychological stress in women compared with their spouses³⁸.

In our study, perceived stress was assessed using the PSS-14. We found a significant difference between stress scores between men and women with respect to positive and negative perception ($P < 0.05$). So that, a negative perception of stress was higher in infertile women and a positive perception was higher in men. These results are in line with another related study³⁹. Balk and colleagues also found that fertility rates increase significantly as perceived stress levels decrease⁴⁰.

Jordan and Slade also found that perceived stress which was related to infertility

was significantly more in women compared with men^{41, 42}. Gulec also emphasizes on the different perception of women and men about infertility⁴³.

Other studies show no significant relationship in the type of stress based on the cause of infertility. Inconsistent with our findings, Lykeridou stated that the psychological effects of infertility could be related to the cause of infertility (44). Regardless of the fact that infertility is related to male or female factors, it has more psychological effects on women compared with men. This could be attributed to complex laboratory treatments women should undergo, even if the cause of infertility is male factors^{45, 46}. Ogawa found that the scores of mental disorders were lower in women who were aware of their partner's infertility compared with those who were not⁴⁷. This is while in the present study, the cause of infertility was not related to stress.

Although, infertility affects both men and women, gender differences play a prominent role in the extent to which infertility might affect men and women^{48, 49}. Higher anxiety and depression rates have been observed in infertile women compared with their male counterparts⁵⁰. Other studies have also shown significant gender differences with respect to infertility related stresses⁵¹⁻⁵⁵.

Inconsistently, some studies did not find any gender differences with respect to depression, anxiety, and marital adaptation^{56, 57}. Also, when the cause of infertility is not the male factor, men's anxiety reduces⁵⁶. Because of internal pressures (need to become a mother) and also social pressures of not having a child, mental distresses increase in infertile women. Cultural issues should also be taken into account here. For example, being a mother is an essential part of a women's existence in many cultures⁵⁸. When men are not successful in their familial roles, they try to compensate their infertility by delving into their professional and social responsibilities. Moreover, most experiments and treatments are done on women which in turn increases their stress and decreases their self-esteem⁵⁹. Women feel more responsible with respect to infertility than men. In most societies, regardless of whether female factor is present in infertility or not, are considered responsible for infertility and feel ashamed and guilty. A women's identity develops with the birth of a child because

it is a natural and symbolic process from maturity to womanhood⁶⁰. Therefore, considering the mentioned results, the negative perceived stress in women can be explained.

One of the limitations of this study was the stress-inducing role of the unknown environment and environment related stress. Also, the number of the questionnaires and their correct completion was another shortcoming; although the participants were given enough time to complete the questionnaires. It is suggested that future research focus of family and social support on stresses experienced by infertile men and women. Also, the effect of failed treatment and couples' stress could be studied.

CONCLUSION

Considering the various psychological problems in infertile couples, it is evident that infertility has a significant impact on couples over time. Mental health professionals can educate couples regarding the effectiveness of coping strategies as well as stress management techniques while experiencing the stress of infertility.

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