

# Research Paper:

## Coping Strategies and Perceived Stress in Infertile Couples



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**Citation:** Keshavarz, F., et al., 2018. Coping Strategies and Perceived Stress in Infertile Couples. *Journal of Client-Centered Nursing Care*, 4(2), pp. 80-87. <https://doi.org/10.32598/10.32598/jccnc.4.2.80>

**doi:** <https://doi.org/10.32598/10.32598/jccnc.4.2.80>



**Funding:** See Page 86

### Article info:

**Received:** 02 Jan 2018

**Accepted:** 05 Apr 2018

**Published:** 01 May 2018

### Keywords:

Infertility, Infertile couples, Perceived stress, Coping mechanisms

## ABSTRACT

**Background:** Infertility can lead to major bio-psychological disorders. Coping strategies help individuals adapt to unpredictable conditions in a systematic way. The present study aimed to determine the perceived stress of couples undergoing treatment for infertility, as well as their coping strategies and correlation between the studied variables and gender.

**Methods:** This was a cross-sectional study conducted on 140 infertile couples undergoing infertility treatment at the Infertility Center of Yazd, Yazd City, Iran. The relevant data were collected by Perceived Stress Scale and Billings and Moos's Coping Responses Inventory. Then, the obtained data were analyzed by descriptive statistics (relative frequency percentage, mean and standard deviation), Pearson correlation coefficient and regression analysis in SPSS.

**Results:** The obtained results suggest that the mean score of perceived stress is higher in women. Moreover, women more frequently use problem-focused mechanisms, while men more frequently use emotion-focused mechanisms. In both men and women, a positive significant relationship exist between positive perceived stress and coping mechanisms; the former predicted the latter. While, the mean scores for avoidant and behavioral coping mechanisms were higher in men, the mean scores for cognitive coping mechanisms were higher in women ( $P < 0.05$ ). However, women achieved higher scores for both problem-focused and emotion-focused strategies.

**Conclusion:** there is a significant and positive correlation between perceived stress and coping mechanisms in both sexes. In addition, stress predicts the kind of coping strategies in these people. On the whole, psychiatric approach and counseling may enhance the mental health of infertile couples and increase the chance of success in this costly treatment.

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## Highlights

- The perceived stress scores are higher in women than in men.
- Women use the problem-focused mechanisms, while men use emotion-focused mechanisms.
- There is a positive significant relationship between positive perceived stress and coping mechanisms in both men and women.
- Useful coping strategies are playing key role in mental health of infertile couples

## Plain Language Summary

Infertility is a stressful incident that can threaten the stability of the marriage, family and the society. Some researchers believe that psychological elements such as coping strategies to face the problems and perceived stress are very important in dealing with infertility. Our present study try to explain how coping strategies and stress can impact couples who are under treatment of infertility. Based on the results, perceived stress was higher in women. Moreover, women used problem-focused mechanisms more frequently, while men used emotion-focused mechanisms more. In both men and women, there was a positive significant relationship between positive perceived stress and coping mechanisms. In dealing with stress using the proper coping strategies like problem-focused are more useful than emotional-focused ones. For learning better coping strategies, couples needs the individual and group counseling and psychotherapy sessions along with the medical infertility treatment programs.

### 1. Background

**I**nfertility is a stressful incident that can threaten the stability of individuals, marriages, families and societies of all cultures worldwide (Covington & Burns 2006). Infertility can lead to major bio-psychological disorders (Drosdzol & Skrzypulec 2009). Overall, 25% to 60% of infertile couples suffer from psychological problems. Having unfulfilled their desire to have a baby, the couple is now faced with a two-dimensional problem: they are psychologically inclined to have a baby, but they are physically unable to achieve that aim, either of them imposes considerable stress on the couple (Van Den Broeck et al. 2010).

Studies demonstrated that both men and women experience infertility-related stress and anxiety. Infertility is a source of chronic stress and can cause various psychological problems in couples. Domar et al. believed that, in terms of the potential to cause a wide variety of psychological problems, infertility should be considered as serious as other major physical health problems such as cancer, coronary diseases, etc. (Domar, Zuttermeister & Friedman 1993). Stress is a term variously used in medicine and biology. Sometimes, it is defined as an event or situation with harmful effects on an organism, and

sometimes it refers to the psychological tension caused by an event or situation (Vaccaro 2002).

In recent years, extensive research has been conducted on the sources of stress and strategies to cope with it. Effective coping strategies can significantly reduce stress in individuals (Foruzandeh & Delaram 2003). Coping strategies are constant attempts by an individual to adapt to an unpredictable situation. Effective coping strategies can regulate emotions and reduce stress (Zupiria Gorostidi et al. 2007). Such strategies not only decrease the negative effects of stress, but also enable individuals to manage external and internal stressors. On the other hand, ineffective coping strategies can aggravate the negative consequences of stress.

Effective coping is an important source of well-being and psychological adaptation in stressful situations like infertility and affects individuals' physical and mental health (Dyrbye et al. 2005). Coping responses are conscious efforts made to control or reduce stress or learn to endure threat. Lazarus defines coping as a response to psychological stressors like infertility. Such response is an individual attempt toward overcoming harmful, threatening or challenging conditions. Coping mechanisms or coping strategies are direct and active inclinations or desires toward eliminating stressful situations (Lazarus 1997; Domar et al. 1992).

Domar et al. (1992) studied 52 infertile women, through a psychiatric approach in a 10-week treatment program consisting of relaxation response training and stress management techniques. The subjects' stress scores decreased significantly, and 16 (32%) of them became pregnant after receiving the intervention. The above-mentioned study lacked a control group. In addition, the infertile subjects pursued their own infertility treatment plans during the course of the study. Therefore, it is not possible to certainly claim that the intervention played a significant role in the subjects' pregnancy and that stress was the cause of their infertility. However, their obtained results highlight the importance of studying the theory of stress.

Stoleru et al. (1993) suggested that the relationship between stress and infertility might be more obvious in men than women. Morse et al. suggested a male and female interaction styles model for the relationship between stress and infertility. Cheng et al. investigated stress and the quality of life in women who underwent infertility treatment. Their results indicate that low levels of stress positively impact the quality of life among infertile persons. However, they reported relatively high levels of parenthood stress. Moreover, parenthood stress was a significant predictor of the quality of life. In addition, Xiaoli et al. indicated a particular stress related to infertility treatment in women.

Infertility can lead to considerable stress in infertile couples. Thus, coping strategies can significantly increase the quality of life among infertile couples. In contrast, failure to use coping strategies can result in bio-psychological disorders in infertile couples and even adversely affect their physiological functions (Matsubayashi et al. 2004). Psychotherapy interventions could also reduce the psychological issues in infertile couples (Wischmann 2008; Mosalanejad & Kooalee 2013; Mosalanejad, Kooalee & Jamali 2012).

Studies have addressed the bio-psychological consequences of infertility; however, few research are on the effects of applying coping mechanisms by infertile couples undergoing infertility treatments. Such interventions are costly and becoming increasingly popular in many countries like Iran. Most studies are focused on the coping mechanisms in couples who use conventional treatments. However, it is significantly important to address the needs of couples who rely on infertility treatments after realizing that conventional treatments fail to help them. In addition, they are faced with a crisis. Investigating coping strategies in infertile couples can improve infertility treatment plans and may increase their success

rates. It could also improve the psychological health of these families, too.

The present study aimed to determine the coping strategies and perceived stress in infertile couples undergoing infertility treatments. We also explored the relationship between the studied variables in infertile men and women. This study also addressed the predictive strength of perceived stress caused by infertility, as a possible predictive factor.

## 2. Materials and Methods

### Type of the study

This was a descriptive and cross-sectional study.

### Population, sample size, and sampling method

The study population consisted of infertile men and women undergoing treatment at the Infertility Center of Yazd, Yazd City, Iran. Based on the results of similar studies and statistical analysis, sample size was calculated as 70 subjects in each group. The participants were selected by convenience sampling method. The study questionnaires were distributed to all infertile individuals who visited the Infertility Center of Yazd and agreed to participate in the study. Throughout the study, the researchers observed ethical considerations and informed the subjects about their right to withdraw from the study, as desired, and that their information would remain confidential. The study participants were matched by sex and educational level.

### Data collection tools

The data collection tools were as follows:

#### Perceived Stress Scale

Perceived Stress Scale was developed by Cohen et al. (1983) (Mimura & Griffiths 2004). This scale has 14 items scored based on a 5-point Likert-type scale (0: never, 1: almost never, 2: sometimes, 3: often, 4: very often). It measures the 2 subscales of a negative perception of stress (7 items) and a positive perception of stress (7 items). The internal consistency coefficients of the scale, measured by Cronbach's alpha, ranged between 0.84 and 0.86 for 2 groups of students and a group of smokers who were on a smoking cessation program (Mimura & Griffiths 2004). The reliability of the Persian version of the scale has been calculated as 0.81 (Mimura & Griffiths 2004).

### Coping Responses Inventory (CRI)

Developed by Billings and Moos, this scale consists of 19 items and measures three coping strategies: cognitive (6 items), avoidant (7 items), and behavioral (6 items). The scale also measures the two functions of emotion-based and problem-based coping (Moos 1997). Barahani and Mousavi (1971) modified the original questionnaire and based the scoring on a 4-point Likert-type scale (0 to 3) and reported an internal consistency of 0.41 to 0.66 for it. Pourshahbaz (1993) measured the reliability of the Inventory using the split-half method and Spearman-Brown correction formula and found its reliability coefficient as 0.78.

### Data collection and data analysis

The researchers used the Perceived Stress Scale and CRI to collect data. Subsequently, the collected data were analyzed using descriptive statistics (relative frequency, percentage, mean and standard deviation), and inferential statistics (Pearson correlation coefficient and regression analysis) in SPSS.

### 3. Results

The obtained results indicated that 36% (54 individuals) of the subjects were infertile for 1 to 5 years, 28% of whom were married for 5-8 years. In 37.3% of the cases, the cause of infertility was unknown, 32% were caused by male infertility, and the rest were caused by female infertility. In total, 52.3% of the subjects aged between 25 and 31 and 48.7% had received higher education. The level of perceived stress was higher in women (Table 1). Moreover, problem-focused mechanisms were more frequently used by women, while emotion-focused mechanisms were more frequently used by men.

There was a significant positive correlation between positive perceived stress and coping mechanisms in both male and female groups ( $P < 0.05$ ) (Table 2). The regression analysis suggested that, with regard to predicting the effects of stress on coping strategies, stress predicts the adoption of coping strategies in 11% of infertile women and 6% of infertile men (Table 3).

Based on Table 4, the mean score of negative stress perception is higher in females. The positive stress perception and the total stress level are higher in males. How-

**Table 1.** The mean scores of stress and coping mechanisms among the male and female subjects

Variables		Female			Male		
		Mean $\pm$ SD	Min	Max	Mean $\pm$ SD	Min	Max
Perceived stress		28.28 $\pm$ 6.17	9	44	26.48 $\pm$ 6.31	11	43
Coping mechanism	Problem-focused	22.27 $\pm$ 4.81	10	32	20.99 $\pm$ 5.29	10	33
	Emotion-focused	11.09 $\pm$ 3.33	5	19	12.47 $\pm$ 3.97	4	24
Total coping mechanism		33.36 $\pm$ 6.39	15	46	33.45 $\pm$ 7.09	18	54

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**Table 2.** Correlation between the research variables in the infertile male and female groups

Gender	Stress	Negative Perceived Stress	Positive Perceived Stress	Coping Strategies
Female	Negative perceived (stress)	1	-0.11	0.20
	Positive perceived stress	-0.11	1	0.30
	Coping strategies	0.20	0.306*	1
Male	Negative perceived (stress)	1	0.07	0.097
	Positive perceived stress	0.007	1	0.30*
	Coping strategies	0.97	0.30	1

\*  $P < 0.05$

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**Table 3.** Regression analysis for coping strategies by gender

Gender	Dependent Variable	R	R <sup>2</sup>	B	Sig.
Female	Stress	0.34	0.11	17.61	0.0001
Male	Stress	0.20	0.06	18.74	0.0001

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**Table 4.** Mean score differences of perceived stress by gender

Stress	Group	No.	Mean $\pm$ SD	t	P
Negative perceived stress	Women	77	20.55 $\pm$ 6.58	1.58	0.98
	Men	63	20.53 $\pm$ 5.64		
Positive perceived stress	Women	77	19.35 $\pm$ 5.56	1.04	0.97
	Men	63	19.38 $\pm$ 4.88		
Total stress	Women	77	61.23 $\pm$ 4.39	2.59	0.85
	Men	63	61.65 $\pm$ 11.75		

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ever, there is no significant differences between the mean scores of the subjects by gender. According to Table 5, avoidant and behavioral coping mechanisms are more frequently used by men, while cognitive coping mechanisms are more frequently used by women. The scores for both problem-focused and emotion-focused strategies are higher but not statistically significant in women.

#### 4. Discussion

The present study aimed to examine coping strategies and perceived stress in infertile couples. Our results revealed that the level of perceived stress was higher in women, compared to men. Moreover, problem-focused mechanisms were more frequently used by women, while, emotion-focused mechanisms were more frequently used by men. Consistent with our findings, another

**Table 5.** The mean score differences of coping strategies by gender

Variables	Group	No.	Mean $\pm$ SD	t	P
Coping mechanism	Avoidant	Women	7.72 $\pm$ 5.14	0.25	0.33
		Men	8.55 $\pm$ 4.20		
	Behavioral	Women	7.74 $\pm$ 4.10	2.24	0.89
		Men	7.84 $\pm$ 4.99		
	Cognitive	Women	6.16 $\pm$ 4.34	4.47	0.08
		Men	4.95 $\pm$ 3.70		
Coping strategies	Problem-focused strategies	Women	12.46 $\pm$ 6.93	0.41	0.34
		Men	11.33 $\pm$ 7.19		
	Emotion-focused strategies	Women	12.28 $\pm$ 6.43	0.47	0.34
		Men	11.28 $\pm$ 7.15		

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study reported that perceived stress scores are significantly higher in infertile women than men (Newton, Sherrard & Glavac 1999). Similarly, Jordan and Slade concluded that women are influenced by infertility-related perceived stress to a significantly greater extent than men (Jordan & Reven-son 1999; Slade et al. 2007).

The mean score of negative stress perception was higher in females. The mean score of positive stress perception was higher in males. The total stress level was higher in males. However, there was not a significant difference between the mean scores of subjects by gender. These results were in line with another research. Ghavi and Mosalanejad studied psychological distress in infertile couples. They concluded that there was a statistically significant difference in negative and positive stress perception scores between men and women. Negative stress perception is higher in infertile women, and positive stress perception is higher in infertile men. Similarly, many other studies reported significant differences between men and women in terms of infertility-related stress scores (Wischmann et al. 2009; Peterson et al. 2009; Schimdt et al. 2005a; Galhardo et al. 2011).

In the present study, stress was found to predict coping mechanisms in both men and women. Many studies addressed the relationship between stress and coping mechanisms in infertile individuals and have reported that a higher level of infertility-related stress leads to increased odds of using coping strategies. Such chances are significantly higher in infertile women, because infertile men experience less distress compared to infertile women. However, this matter may be related to cultural and contextual differences. It can be concluded that the more frequent use of coping mechanisms by infertile women is an attempt to reduce or manage stress (Schimdt et al. 2005b; Galhardo et al. 2011).

Hashim, Soliman and Mansour (2012) concluded that both infertile men and women often use a combination of coping strategies; however, stress level is significantly lower in men who tend to use avoidant coping mechanisms. In the present study, the mean scores for avoidant and behavioral coping mechanisms were higher in men, while the mean scores for cognitive coping mechanisms were higher in women. However, the mean scores of women for both problem-focused and emotion-focused strategies were higher. The above-mentioned findings are not statistically significant. Thus, all explanations are based on mean scores in the 2 groups. Other studies demonstrated that the majority of infertile women use avoidant coping mechanisms and, in contrast to the results of the present study, emotion-focused strategies

are more frequent among women (Peterson et al. 2006; Peterson et al. 2008).

One possible explanation for women's tendency to use cognitive coping mechanisms and men's tendency to use avoidant mechanisms in the present study is the great importance of fertility in Iran; infertility, on the other hand, is viewed as a disgrace and individuals try to avoid it (Schimdt et al. 2005b; Nagy & Nagy 2016). The results of some studies indicate that infertile men are more optimistic about the outcome of infertility treatment and use problem-focused strategies more frequently than women (Kraaji et al. 2010).

Some other studies reported that women who use problem-focused strategies experience less infertility-related stress than others (Lykeridou et al. 2011). The results of another study revealed no significant differences between infertile men and women in their tendency to use problem-focused or emotion-focused coping strategies. However, infertile women generally use emotion-focused coping strategies more frequently than infertile men (Martins et al. 2011).

A limitation to the present investigation was sole reliance on questionnaires for data collection. In addition, some study participants refused to complete the interviews. Considering the results and limitations of the study and in the view of personal, social and cultural significances of infertility, its increasing prevalence and the impact of psychological factors on infertility, like stress (Karaca & Unsal 2015), studying the psychological aspects of infertility is essential. Over time, the cognitive, mental and physical aspects of infertility-related disorders can aggravate and lead to further chronic disorders. Moreover, the conventional medical procedures, and psychological support can improve the mental health of infertile patients and reduce their psychological problems.

High levels of perceived stress in infertile couples affect their coping strategies. The results of this study could be beneficial to health policymakers, in order to identify the problems of infertile patients and develop more effective psychological strategies to increase the success rates of infertility treatments.

## Ethical Considerations

### Compliance with ethical guidelines

The ethical code of the present research is IR.JUMS.REC.1394.058.

## Funding

Jahrom University of Medical Sciences has financially supported the present paper.

## Authors contributions

The authors contribution is as follows: Conceptualization: Fariba Keshvarz and Lielli Mosalanejad; Methodology: Fatemeh Gavi and Saeed Abdolahifard; Investigation: All authors; Writing original draft: Fariba Keshvarz and Lielli Mosalanejad; Writing, review, and editing: Anahita khodabakhshi-Koolae; Funding acquisition: Saeed Abdolahifard; Resources: All authors; and Supervision: All authors.

## Conflict of interest

The authors declare no conflict of interest.

## Acknowledgements

The researchers would like to thank the staff and managers of Dr. Roostami's Specialist Infertility Clinic in Shiraz, especially Dr. Roostami, and Dr. Athar Rasekh Jahromi, the Chair of Women's Faculty of Hakim Salman Jahromi Research Center at Jahrom University of Medical Sciences for their sincere cooperation. We also appreciate the collaboration of the patients who participated in the study.

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