



Perceived Stress of Infertile Couples (Male, Female) and the Factors Affecting It

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background and Objectives: In addition to physical and mental problems caused by perception of being impotent, social reactions in the society, and the economic and emotional burden of medical costs, infertility causes emotions such as fear, depression, guilty conscience, denial and uncertainty about the future.

Methods: This cross-sectional study was conducted on 560 infertile couples referring to the Kurdistan Infertility Diagnosis and Therapeutic Center in 1397. Data were collected using a demographic checklist, Newton's Perceived Stress Questionnaire, and a Multidimensional Perceived Social Support Scale.

Results: The results showed that gender variables, infertility factor and social support had a significant impact on perceived stress in infertile couples ($P < 0.05$). Additionally, if other variables persist, as social support increases, the perceived stress decreases in the infertile couples. For the infertility cause variable, the stress levels of those who were the infertile spouse were high and the

stress of the group whose wife was the infertile spouse was low, and those who were still not certain about the cause of infertility had a lower level of stress.

Conclusion: According to the results of this study, the perceived stress level in infertile men is more than infertile women and the perceived stress level of respondents who were infertile themselves was more than other factors.

Keywords: Perceived stress; infertility; gender; medical center; Kurdistan Infertility Diagnosis and Therapeutic Center.

1. INTRODUCTION

Fertility and childbearing are considered as major family functions in many societies. In contrast, there is infertility as a problem alongside its adverse social effects on infertile couples, households and even the community [1]. Infertility refers to the absence of pregnancy after one year in the absence of the use of any contraceptive methods, as it is expected that 90% of couples will be pregnant within 12 months of unprotected intercourse [2]. In primary fertility, one has never been pregnant before, though in secondary fertility, there has been a minimum of one previous pregnancy [3]. Several biological factors cause infertility including ovarian dysfunction (21-32%), tuberculosis disorders (26- 14%), endometriosis (4-6%), male factors (19-7%), male and female combinations (34.4%), and unjustified infertility causes (30%). Nowadays, the diagnosis of fertility disorders is increasing, due to the delayed childbearing [4]. According to the World Health Organization, in 2015, out of every four couples, there is an infertile couple in developing countries [5]. The prevalence of infertility is 9% in the United States, 8.5% Canada, 10-15% in the Middle East, and 21.6% in Iran [6]. Infertility is one of the major sources of stress which can cause anxiety and psychological damage in people [7] and produces emotions such as fear, depression, guilty conscience, denial and uncertainty about the future [8]. Apart from the physical problems they face [9], infertile couples are also facing a lot of psychological stress because of the impotence, the social responses of society to this issue and the economic and emotional burden of health care costs [10]. They may experience many other problems, such as declining maternal and marital bonds, feeling of aimless marriage and life, feelings of guilt, denial, and disturbed self-esteem [11]. However, in most cases, infertility is seen as a medical problem, but the examination of its various mental, emotional and social dimensions suggests that infertility as well as its treatment process, cause mental suffering and a stressful crisis in a lifetime that not only

creates serious psychological problems for couples, but also leads to mental imbalances, interruptions of relationships and even divorce among couples which ultimately poses a social concern [4]. One of the psychological problems reported in infertile people is the stress caused by infertility or decreased fertility [12]. Stress refers to the process of individual response to a disorder that is the result of an external factor causing discomfort, which ultimately reflects the individual's perception of the event about the ability to cope with the stressor [13]. Stress is the challenge of experiencing individual abilities with an event or situation in which it is positioned, and the difference between the needs of a position and the individual's ability to adapt to his or her abilities [14]. A moderate level of stress is recognized as desirable for the desired function of an individual, but leads to mental disorders, digestion, heart disease, allergies and depression if the level of stress goes beyond or continues for a while [15,16]. Infertility stress can be due to concerns caused by social problems, sexual problems, communication problems, and considering childbearing an accountable part of life [14]. Stress and infertility have a causal relationship in which they exacerbate one another. In this process, each infertile couple suffers from increased stress and a more severe problem, considering that they are infertile and deserve to be blamed. Increasing stress by secreting a large amount of prolactin leads to ovulation impairment and even the end of the menstrual cycle and reduces the chance of fertility [17]. Studies have emphasized that women are more stressed than men and experience more family and social problems [18,19]. But infertile men are also affected by many psychological problems due to reduced self-esteem, inability to perform social duties, and a sense of responsibility for ignoring their spouse's having a child [20] and have more functional and communication stress in marital relationships and lower quality of sexual and personal relationships than fertile men [21,22]. Results of other studies contradictorily demonstrate the higher level of stress in infertile

women than infertile men [23], the lack of association between infertility and stress [24], or less stress in infertile couples than fertile couples [25].

Considering the above problems caused by infertility, this study was conducted to investigate the perceived stress of infertile couples referred to the Kurdistan Infertility Diagnosis and Therapeutic Center in 2018.

2. METHODS

Study design and sample: This cross-sectional study was conducted in 2018. The statistical population consisted of all infertile couples referring to the Kurdistan Infertility Diagnosis and Therapeutic Center. The sample of this study included 560 couples who were selected purpose-based.

Ethical considerations: All participants were informed completed the consent form. This study was approved at the Ethics Committee of Kurdistan University of Medical Sciences (IR.MUK.REC.1397.12).

Inclusion criteria: Included the willingness to participate in the study and the minimum ability to read and write in couples, having had at least one attempt for pregnancy after infertility diagnosis, age range of 20-45 years in couples, passing at least one year since the recognition of infertility in couples, the absence of any type of physical illness or previous known psychological problem according to the patient, having had no child adoption, and being of Iranian nationality.

Exclusion criteria: Included use of antidepressants, tranquilizers, psychotropic drugs and narcotics, presence of children from previous marriages, occurrence of any unpleasant events in the person's life in the last 6 months and the lack of cooperation of one of the couples to participate in the study.

Information gathering tools: Included a checklist and two questionnaires. The first part included questions about the personal profile and medical records of infertility. Demographic information of the questionnaire included: (age, age of marriage, duration of marriage, frequency of marriage, place of residence, male education, female education, male and female employment status, and male and female income status). Medical records of infertility included: (the duration of infertility, the cause of infertility, the

measures taken to treat infertility and the number of attempts to become pregnant). The second part consisted of a questionnaire on Perceived Stress Questionnaire Newton Infertility, which was created in 1999 by Newton et al at London Health Sciences Center. The questionnaire consisted of five subcategories of social, sexual, communication, rejection of life without childbearing and the need for parents, and in the 6-point Likert scale (strongly disagree, disagree, slightly disagree, slightly agree, agree, and totally agree). This spectrum was scored as follows; totally disagree (1 point), disagree (2 points), slightly disagree (3 points), slightly agree (4 points), agree (5 points), and strongly agree (6points). In this scale, high scores meant high perceived stress and low scores, meant low perceived stress. The reliability of this questionnaire was determined by Newton's Cronbach's alpha method, which was 0.93 [26] in Iran, In the study of Valiani and Abedian in 2014, the reliability of this questionnaire was 0.92 [27]. The third part included a multi-dimensional scale of perceived social support, whose responses were in the 6-point Likert scale (strongly disagree, disagree, neutral, agree, and strongly agree) which were scored 1-5. Higher scores highlighted stronger social support. The reliability of this questionnaire was studied by Jokar et al. using Cronbach's alpha (0.83%).

In order to conduct the study, the eligible individuals were firstly selected from the records of the Infertility Center's Archive Unit and then, through phoning, the research objectives were explained to them, and they were asked to participate in the study if they wished to. All those who were willing to participate in the study coordinated the time of visiting the Infertility Clinic and received written consent. The questionnaires were then given to them.

Statistical analysis: Data analysis was performed using t-test. In order to identify the factors affecting perceived stress in infertile couples, one-variable linear regression analysis was performed and variables with a significant level of $\alpha = 0.2$ were analyzed by multivariate linear regression in SPSS-20 software. Values less than 0.05 were considered as significant.

3. RESULTS

The findings of the study showed that most of the participants (43.5%) were in the age group of 31-35 years old, had high school education (46.5%), insufficient income (51.1%), insurance coverage

(76.6%), and had no history of infertility in first grade relatives (78%) (Table 1). The average duration of infertility was 5.5 ± 1.5 years, and the average social support score for infertile people was 31.77 ± 9.154 (Table 2). The results of single-variable linear regression analysis showed that gender, insurance coverage status, marriage age, infertility status in close relatives, infertility factor, and IUI record variables had a significant

effect on perceived stress in infertile couples (P-value = 0.2) (Tables 1 and 2).

The results of multiple linear regression model showed that gender variables, infertility and social support factors had a significant statistical effect on perceived stress in infertile couples (P <0.05). The value of β for gender variable was 4.13. (Table 3).

Table 1. Determination of effective factors on perceived stress in infertile couples using a single-variable linear regression model

Variable		Number (%)	β	95% CI	P value
Gender	Male	560(50%)	Reference	-	-
	Female	560(50%)	8.04	3.15 – 12.92	0.001
Age (Years)	25-30	211(18.8%)	Reference	-	-
	31-35	487(43.5%)	-2.11	-8.89 – 4.66	0.540
	36-40	362(32.3%)	-4.27	-11.39 – 2.85	0.239
	41-45	60(5.4%)	-6.87	- 18.90 – 2.15	0.262
Education	Elementary school	43(3.8%)	Reference	-	-
	Middle school	341(30.4%)	-0.08	- 13.84 – 13.23	0.991
	High school	521(46.5%)	2.64	-10.40 – 15.70	0.691
	University degree	215(19.2%)	2.57	-11.16 – 16.30	0.713
Male occupation	Laborer	50(4.5%)	Reference	-	-
	Employee	135(12.1%)	2.22	- 11.61 – 16.06	0.752
	Self-employed	375(33.5%)	5.17	- 7.41 – 17.75	0.420
Female occupation	Housewife	485(43.2%)	Reference	-	-
	Teleworker	23(2.1%)	2.58	- 14.57 – 19.73	0.768
	Working outside home	52(4.6%)	-2.67	-14.40 – 9.05	0.754
Monthly income	Enough	512(45.7%)	Reference	-	-
	Not enough	572(31.1%)	0.74	-4.25 – 5.74	0.770
	More than enough	36(3.6%)	-3.66	- 17.84 – 10.51	0.612
Insurance status	Insured	262(23.4%)	Reference	-	-
	Not insured	865(76.6%)	-3.32	-9.12 – 2.47	0.261
Infertility history in relatives	Yes	266(22%)	Reference	-	0.031
	No	874(78%)	6.51	0.59 – 12.43	
Infertility cause	Me	238(42.5%)	Reference	-	-
	My spouse	94(16.8%)	-52.33	-57.82 - -46.85	0.001
	Both of us	26(4.6%)	-7.05	-17.59 – 3.49	0.190
	Unknown	202(36.1%)	-12.20	-17.43 - -6.96	0.001
IUI history	Yes	380(33.9%)	Reference	-	0.024
	No	740(6.1%)	5.97	0.80 – 11.15	
IVF history	Yes	322(28.8%)	Reference	-	0.409
	No	798(71.2%)	2.28	-3.14 – 7.70	
Surgical treatment history	Yes	168(15%)	Reference	-	-
	NO	952(85%)	- 1.58	-8.46 – 5.29	0.651

Table 2. Factors affecting perceived stress in infertile couples using single-modal linear regression model

Variable	Average (SD)	β	95% CI	P value
Infertility duration (Years)	5.5±1.59	-0.75	-2.28 – 0. 78	0.340
Social support	31.77±9.154	-3.60	-3.77 - -3.44	0.001

Table 3. Effective factors on perceived stress in infertile couples using multiple linear regression model

Variable		β	95% CI	P value
Gender	Male	Reference	-	
	Female	-4.13	-7.44 – -0.82	0.014
Infertility cause	Me	Reference	-	-
	My spouse	-18.87	-23.40 – -14.34	<0.001
	Both of us	-0.24	-7.59 – 7.11	0.950
	Unknown	-5.64	-9.43 – -1.86	0.004
Social support		-3.22	-3.40 – -3.04	<0.001

4. DISCUSSION

The results of this study showed that the gender variable has a significant statistical effect on perceived stress in infertile couples ($P < 0.05$) and there is a significant difference between the two groups (infertile men and women) in terms of "perceived stress". The value of β for the gender variable was 13.4 which means that, if other variables persist, perceived stress in infertile women is on average 4.13 times less than that of infertile men, and overall, the perceived stress level of men is more than that of women. The result of the study by Mason et al. showed that in societies where the authority and power of men are affected by their birth abilities, infertile men are feared and stressed to conceal their defects in public places. Therefore, in such areas, the stress associated with male infertility has been reported more often than women [28]. The results of the study by Jalal Abbasi et al., conducted in five different regions of north and east of Tehran, reveals that in areas where economic indicators are less developed and infertility costs are borne solely by men, the stress of men was higher than that of women. It also reported, given that men tend to be more secretive about their treatment process, this interviewing procedure and distribution of the questionnaire led to increased stress in them than infertile women who are more likely to openly communicate their concerns [1]. Contrary to the current study results, works of research mostly express the fact that the perceived stress level of infertile women is more than that of infertile men [29-30]. Studies that have so far been performed on psychosocial –sociological aspects of infertility have rather focused on women [20], and emphasized that women have a higher level of stress than men because they are experiencing more family and social problems [21]. In infertility process, infertility is primarily seen as a feminine defect. Even in cases where the cause of infertility returns to male factors, the process of convincing the husband and relatives

that the infertility returns to the husband, in order to accept the problem and to act for treatment, leads to an increase in stress in women [31]. Inhorn et al. in their study found that infertile women have been repeatedly bullied, harassed by their spouses or relatives, and even in some cases, their husband has the right to leave them and start a new life, which is why infertile women's stress is more than men [32-33]. The results of the study by Khosravi et al. showed that social and occupational roles for infertile men offer the potential to compensate for the inability to play a role of parenthood, while playing maternal role is the most important source of satisfying women and the lack of an alternative role for it, increases the stress rate of infertile women compared to men [34].

The results of the current study showed that there is a difference between perceived stress level of infertile couples in terms of "causes of infertility" and the perceived stress levels of respondents who were the cause of infertility, more likely than other factors. The perceived stress level of couples who have not yet been identified as the cause of infertility, or respondents who have been infertile due to their spouse's problems was less. A spouse who considers themselves infertile, are blamed and expect to be blamed on the part of their spouse and relatives, particularly relatives of the spouse. This situation increases the feeling of shame and sin, identity and sexual problems, feeling tired and helpless, all of which, in turn, affects the satisfaction of infertile couple life [35]. The result of the study by Mohammadi et al. showed that if the infertility is a result of women's factors, men face less emotional crises. Meanwhile, in cases of male infertility, the response is similar to that of women [36].

Social support is a potential of existing capacities in society that acts as a catalyst in stressed crises. When a person encounters a crisis, their exposure to the problem is directly related on

reaction of the close people to that person. In such a situation, the support or lack of support from surrounding people affects the individual's responsiveness [37-38]. The results of this study showed that there is a direct and significant relationship between the stress of infertile couples and social support. The value of β for the social support variable was 2.22, which means that if other variables persist, the perceived stress in the adolescent couples decreases by 3.22 unit. The results of the study by Bhakhtar et al. stated that there is a direct relationship between lack of social support and increased stress in infertile couples [39]. The results of the study by Karimi et al. showed that in societies where regardless of the factors of infertility, women are considered to be infertile, because of the inadequacy of effective social support, they will increasingly suffer mental and psychological damage [40].

5. CONCLUSION

This study showed that the perceived stress level in infertile men is more than infertile women and there is a direct and significant relationship between the perceived stress of infertile couples regarding the causes of infertility, and social support, as the perceived stress level of respondents who were infertile themselves was more than other factors. Therefore, according to the results of the current and previous studies on infertility and its related mental problems, and social immaturity of families and relatives, we can establish psychology clinics in infertility therapeutic centers and more prominent involvement of psychologists along with the medical team, hold workshops, give psychological therapeutic services in infertility centers in the form of couple therapy and group therapy to combat the stress in infertile women and men, because infertile couples, apart from the required medical care, mental support to reduce their stress.

CONSENT AND ETHICAL APPROVAL

All participants were informed completed the consent form. This study was approved at the Ethics Committee of Kurdistan University of Medical Sciences (IR.MUK.REC.1397.12).

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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