Mental Health and its Personal and Social Predictors in Infertile Women

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ABSTRACT

Introduction: Infertility is considered a traumatic stressor for infertile couples, and it becomes a psychosocial crisis for that person. Considering the importance of fertility and based on the cultural and social aspects of it in Iran, the present study aimed to determine mental health and its individual and social predictors in infertile women referring to the infertility center of Al-Zahra hospital in Tabriz, Iran, during 2012-2013.
Methods: This was a descriptive-correlational study on 345 infertile women referring to Al-Zahra hospital in Tabriz, Iran, via convenient sampling. Data was gathered by the perceived social support questionnaire and mental health questionnaire. To determine the relationship between social support and personal and social characteristics, and mental health, multivariate linear regression was used. Data were analyzed using SPSS software.
Results: The mean (SD) total score of mental health of women was 29.70 (11.50), the score ranged from 0 to 84. The best condition was below the depression scale, and the worst condition was below the social dysfunction scale. Social support from the family was also a predictor of the mental health of infertile women.
Conclusion: The findings of this study showed that infertile women, in terms of mental health and its subscales, have unfavorable conditions. Moreover, social support from the family is an important factor influencing mental health. Therefore, strengthening the social support of the family to improve the mental health of infertile women seems necessary.

Introduction

Pregnancy, childbirth, and having healthy children are the considerations of couples who start their life together, and infertility is an important concern for these groups. This is more evident in underdeveloped or developing countries. Having no children in these communities are personal, social, and family problems, which are associated with many stressors, and cause lack of security and stability in marriage and also a kind of social rejection.[1-5] The World Health Organization (WHO) has announced infertility as a major problem in reproductive health that has physical, psychological, and social dimensions.[6] It has a severe psychological impact on the infertile couple, influences their interpersonal, social, and sexual life, and can lead to mental imbalance of the couple, separation, and divorce.[7] The prevalence of infertility in the world (according to WHO) is about 10-15%, or approximately 5 million people around the world, and there is no significant differences among racial and ethnic groups.[8] There are more than one million infertile couples living in Iran.[9] In a study in 2001 in Tehran on 2190 women aged 25 to 45 years, the prevalence of primary infertility was reported 7.29% and secondary infertility 1.4%.[10]

The infertility phenomenon from the outset is involved with psychological factors.[11] One of the reasons that infertility causes stress on infertile women is the role of being a mother, which in most societies is considered as the most important role of women in adulthood. Most infertility tests and

treatments that are performed on women increase their stress. These factors have caused infertile women to identify themselves as responsible for the infertility.[12]

Disappointment, frustration, fear and anxiety are the most prevalent emotional and psychological problems in infertile couples, make each human being prone to the risk of mental illness, and have a role in developing infertility and its outcomes.[13] Shakeri et al., in their study, reached the conclusion that 44% of infertile women have mental health problems and suffer from anxiety.[14] In another study, the chances of infertile women suffering psychological disorders was 2.5 times more than fertile women and two times higher than infertile men. Prevalence of psychiatric disorder, interpersonal sensitivity, depression, phobic anxiety, paranoid ideation, and psychosis in infertile women was higher than in fertile women.[2,15,16]

Mental health, in terms of the WHO, is "a state of complete physical, psychological, and social wellbeing and not merely the absence of disease", and is associated with promotion of health, prevention of mental disorders, treatment, and rehabilitation of people with mental disorders. It is a state of health in which each person is aware of their potential, can deal with normal life stress, work productively and fruitfully, and help their society.[17] Social support as a protective factor against stress has a significant effect on the health and social functioning of each individual, in a way that the person feels interested by others, being taken care of, has respect and values, and belongs to a network of communication.[18] Over time, stress and feelings of inadequacy increase in infertile women, and this problem depends on the system of social support, especially emotional support from the spouse. It is believed that by elimination of infertility, relationships with others can be improved and the patient can have more control over their life. However, as the sense of control and social acceptance rate is lowered, they will experience more depression and anxiety.[19-21]

In assessing the effects of social support on mental health, both positive and negative aspects are considered.[22] In studies on students of Tehran university, students of Khorramabad university, and the healthcare workers of Bushehr Oil Industry there was a significant relationship between social support and mental health.[23-25] In a study on nurses in intensive care units of the selected hospitals in Urmia, Iran, there was a negative correlation between social support and mental health reported.[26] Despite the high rates of reproduction in Iran and the importance of fertility regarding culture and society, there was no study found within Iran on this matter. In addition, reviewing the existing studies also showed conflicting results regarding the effect of social support on mental health. Therefore, this study was conduct to determine mental health and its individual and social predictors in infertile women. It is hoped that the results of this study can be the basis for future intervention studies aimed at improving the mental health of infertile couples.

Materials and methods

This was a descriptive-correlational study. The participants were 345 infertile women who referred to the Infertility Center of Al-Zahra hospital of Tabriz, Iran, and their infertility was diagnosed according to medical records. During sampling 215 people did not have the inclusion criteria, and the majority of them had non-Iranian nationality, secondary infertility, and were not literate.

The inclusion criteria included: having Iranian nationality, literacy, primary infertility, being treated, infertile for over two years, and being 20 years or older. The exclusion criteria included: previous history of psychiatric disorders, recent bereavement, and recent history of stressful events. The sample size in this study was based on the largest standard deviation of the amplitude of the mental health (3.13) from the study by Khosravi,[27] and the largest standard

deviation of the amplitude of the social support (4.2) from the study by Ghaedi and Yaaghoobi[28] with regard to 0.05 error around the mean, and the test power of 90% was measured to be 344 and 288, respectively. For the present study 345 couples were studied.

Convenient sampling was used. All the participants were informed about the goals and methods of implementation by the researcher and then were evaluated based on the basic data, inclusion, and exclusion criteria. If they were eligible to enter the study and were willing to participate, a written informed consent was obtained from them. Data were collected by the study tools. Infertile women referring to infertility treatment center would receive the questionnaire during the waiting time for the doctor. The questionnaire was completed by each individual. The encryption method without mentioning their name was used for the confidentiality of the information.

The questionnaires used in this study were:

1. Demographic and social characteristics including questions on age, age of marriage, duration of marriage, duration of infertility, duration of infertility treatment, type of treatment carried out, history of the contraceptive methods used, type of contraceptive method used, cause of infertility, education, occupation, and sufficient income for living expenses.

2. Goldberg Health Questionnaire (GHQ = General Health Questionnaire) was used to assess mental health. This questionnaire was designed as forms of 60, 30, 28, and 12 item questions. The research tool used in this study was the 28 item question form, General Health Questionnaire (GHQ-28), which was introduced in 1979 by Goldberg.[29] This test has four sub-scales and each scale has 7 items. These scales that are the foundation of the mental health questionnaire include somatic symptoms, anxiety symptoms, social functioning, and symptoms of depression. The scoring method of this questionnaire was based on a Likert scale ranging between 0-3. With this scoring method the best cutoff

point for each subscale was 5, and 24 for the overall questionnaire, which has a high psychometric index. The subjects who scored over 5 in each subscale and over 24 in the overall questionnaire are considered to be suffering from mental disorder. Test score of the total score was from 0 to 84 and for each subscale it was from 0 to 21. Questions 1-7 were related to physical condition, questions 8-14 to anxiety, questions 15-21 to social dysfunction, and questions 22-28 to depression. The questionnaire's reliability and validity in Iran was reviewed by Noorbala et al., and Besharat. It implies that the questionnaire can be successfully used as a screening tool in epidemiological studies of mental disorders.[30,31]

3. Perceived Social Support Questionnaire (MSPSS = the Multidimensional Scale of Perceived Social Support) was also used. This questionnaire was designed in 1988 by Zimet et al., and consists of 12 items to measure perceived support from the three sources of family, friends, and other important people. The scores of each item, according to the Likert scale, ranged from 1 'completely disagree' to 5 'completely agree'. In total the minimum score of the questionnaire is 12 and maximum score is 60. Higher scores indicate greater perceived social support. Questions 11, 8, 4, and 3 are related to 'family', questions 12, 9, 7, and 6 are related to 'friends', and questions 10, 5, 2, and 1 are related to 'special someone'. In the study by Rostami et al., Cronbach's alpha for the total scale was 0.89, and for the three social support dimensions of family, friends, and other special people it was reported 0.79, 0.89, and 0.88, respectively.[32]

To determine the validity of the questionnaire, face and content validity were used. Moreover, with pre-test and re-test on 20 people, reliability of the two aspects of repeatability (ICC = Intra Class Correlation) and internal consistency (Cronbach's alpha coefficient) was determined. Cronbach's alpha and ICC (95% confidence Interval) for a total score of perceived social support and

mental health were 0.85 (0.53 to 0.90) and 0.78, and 0.86 (0.53 to 0.90) and 0.78, respectively. Cronbach's alpha (0.88-0.69) and ICC (0.94-0.85) for the subscales of the mental health were respectively, and for subscales of perceived social support were 0.88-0.84 and 0.92-0.67, respectively.

For analysis of the data SPSS for Windows (version 13; SPSS Inc., Chicago, IL., USA) was used. To describe the demographic-social characteristics, perceived social support, and mental health descriptive statistics was used consisting of frequency, percentage, and mean and standard deviation. To determine the relationship between mental health and personal-social characteristics and social support, bivariate tests including t-test, Pearson, and one way ANOVA were used. Then, for predicting the effect of independent variables (demographic and social, and perceived social support) on the dependent variable (mental health), variance determining, and for control of confounding variables, those dependent variables with a P-value of less than 0.2 in bivariate tests were entered into the multivariate linear regression model with backward strategy. Before multivariate analysis, regression assumptions including residuals normality, homogeneity of variance of residuals, linear outliers, and dependence of residuals were studied.

Results

The mean (SD) age and age of marriage of women participating in the study were 29.64 (5.98) and 22.59 (5.14), respectively. Median (percentile 25-75) of duration of marriage, duration of infertility, and duration of infertility treatment were 5 (3-8), 4 (2-7), and 2 (2-5) years, respectively. More than half of the treatments performed were using medications (55.4%). Nearly two-thirds (64.1%), and the majority of women (81.2%) did not have a history of intrauterine insemination of semen and in vitro fertilization, respectively. 62% of women did not use contraception in the past. The most

common cause was male infertility (40%). About one-third (35.1%) of women were high school graduates, and the majority (87.2%) were housewives. Nearly half (42%) of the spouses were workers. More than half of women (64.6%) stated that their family income for living expenses was sufficient to some extent.

Mean (SD) total score of the mental health of infertile women was 29.70 (11.50). The highest mean (SD) score of the social dysfunction subscale score was 13.13 (3.52), the physical condition was 6.69 (3.71), and anxiety was 6.29 (4.17), and the lowest score was related to subscale of depression scale 3.58 (4.11). The mean (SD) total score of the perceived social support in infertile women was 42.28 (8.42). The highest mean (SD) score was social support subscale of family which was 15.74 (3.29), and the lowest was the social support subscale of friends 11.85 (3.95). Based on the results of bivariate test, social support from family had a significant positive correlation with mental health and anxiety subscale (r=-0.12) and depression (r=-0.22) (Table 1).

Based on the results of bivariate test, there was no significant relation between personal and social variables, and mental health total score (Tables 2 and 3). However, between social support from family and mental health there was a statistically significant relation (P<0.05). General social support variables and social support from the family (with P<0.2 in the bivariate tests) were entered into the multivariate regression model with backward strategy. General social support variables were removed from the model, and the variable of social support from the family remained in the model and was a predictor of mental health. Regarding the subscales, the cause of infertility variables and education were the predictors of physical condition subscale, education variables and social support from the family were anxiety subscale predictors, occupation and kind of contraceptive method were social dysfunction subscale predictors, and social support from family

Table 1. Mental health status and its subdomains and their relationship with perceived social support from family in infertile women

Variable	Mean (SD)	Relationship with social support from family	
		r	P
Social support from family	15.74 (3.29)	-	-
Mental health	29.70 (11.50)	-0.14	< 0.001
Physical condition	6.69 (3.71)	-0.01	0.85
Anxiety	6.29 (4.17)	-0.12	0.02
Social dysfunction	13.13 (3.52)	-0.06	0.25
Depression	3.58 (4.11)	-0.22	< 0.001

Table 2. Relationship of demographic and social characteristics with total score of mental health in infertile women based on bivariate test

Variable	Mental health	
	r	P
Age	0.01	0.81
Marriage age	0.05	0.33
Duration of marriage	0.00	0.91
Duration of infertility	0.04	0.44
Duration of treatment	-0.00	0.98
Number of IUI	0.06	0.20
Number of IVF	0.05	0.29

IUI: Intrauterine insemination, IVF: In vitro fertilization

was the predictor of depression subscale (-0.14 to -0.87), P < 0.001).

Discussion

Based on the results of this study, the mean (SD) total score of mental health in infertile women was 29.70 (11.50), which indicated poor mental health status in infertile women. The highest score was related to the subscale of social dysfunction, and the lowest score was related to depression subscale. The study by Khosravi on 50 infertile couples, who referred to Imam Khomeini hospital in Tehran, Iran, for their infertility treatment, indicated that women in subscales of physical condition, anxiety, and depression achieved significantly higher scores.[27] In this regard, other studies were conducted that found similar results, for example in the study by Behjati Ardakani et al., the highest score was related to the subscale of social dysfunction and the lowest was related to depression.[16] The findings of the study conducted by Shakeri et al., also showed that the highest

percentage of participants (42%) had social dysfunction, and the lowest percentage (6%) had depression.[14] The results of the present study was similar to the study by Domar et al., that displays the risk of these groups regarding psychological problems.[33] Possible reasons for these findings can be that society pressure and others expectation of women for childbearing is more than men, and is associated with severe negative effects from threats such as remarriage, separation, and divorce.[12,34,35]

In the present study, there was a significant relationship between social support from family and mental health. With increase in the scores of social support, mental health scores declined; this decline reflects improvements in mental health. This finding is in agreement with the results of studies of Peyravi et al., on new incoming students of Tehran University in 2005-2006,[23] Riahi et al., on 400 undergraduate students of Mazandaran Univeristy,[36] and Landman-Peeters et al.[37] One of the most notable results of this study was obtaining higher scores of social support from family compared to support from friends and other people. In addition, the level of perceived social support from family was the strongest predictor of mental health. This finding is in accordance with results of researches in this field, including O'Connor et al.,[5] Riahi et al.,[36] and Bakhshi Pourrodsari et al.[38]

Between social support from family and anxiety and depression there was a statistically significant relationship.

Table 3. Personal and social characteristics' relationship with total score of mental health in infertile women based on t-test and ANOVA

Variable	N (345)	Mean (SD)	Statistical Indicators
Treatment performed			
IUI	68	30.97 (11.54)	F = 0.97
IVF	23	33.34 (12.49)	df = 5
Others	191	28.67 (11.68)	P = 0.43
IUI and IVF	36	30.08 (11.48)	
IUI and others	20	30.65 (8.39)	
IVF and others	7	29.14 (10.04)	
Contraceptive methods			
No methods used	214	29.86 (11.60)	F = 0.65
Pills	56	29.83 (12.15)	df = 4
Injection	4	20.50 (6.19)	P = 0.62
Intrauterine device	9	29.00 (14.42)	
Others	62	29.72 (10.38)	
History of using contraceptive methods			
Yes	131	29.44 (11.37)	t = 0.33
No	214	29.86 (11.60)	P = 0.73
Occupation			
Housewife	301	29.47 (11.22)	t = 0.99
Employed	44	31.31 (13.13)	P = 0.32
Reason for infertility			
Male	138	29.26 (11.89)	F = 1.04
Female	79	28.94 (11.73)	df = 3
Unexplained	75	29.53 (10.15)	P = 0.37
Male and female	53	32.24 (11.90)	
Education			
Primary	67	27.79 (10.84)	F = 0.95
Secondary	51	29.45 (12.48)	df = 4
High school	31	30.25 (11.01)	P = 0.43
Diploma	121	29.61 (11.61)	
University	75	31.52 (11.41)	
Sufficient income for living expenses			
Sufficient	24	28.08 (13.58)	F = 0.30
Somewhat sufficient	223	29.69 (11.15)	df = 2
Not at all sufficient	98	30.14 (11.83)	P = 0.73

IUI: Intrauterine insemination, IVF: In vitro fertilization, Other treatments (medication)

These findings are similar to results from other studies, which suggest that higher levels of social support are associated with lower levels of depression and anxiety.[37,39] Moreover, it is thought that social support acts as a shield against stress and has a moderating role in the incidence or aggravation of depression.[40]

Cause of infertility, education, occupation, type of birth control, and social support from family were predicting variables of mental health subscales in this study. These findings are in line with the results of the study of Xu et al., in China that show that people with lower education levels impacted more by infertility.[41] However, in a study conducted by Upkong and Orji in Nigeria, education and occupation variables were not predictors of psychological outcomes (GHQ-30), anxiety and depression.[42] Possible reasons for these findings can be found in the cultural similarities and differences between the current study and other studies.

In this study, the level of education was a predictor of physical and mental health stress; infertile women with higher education levels had a worse mental health status. This finding is somewhat similar to study of

Noorbala et al., which showed the rate of psychiatric disorders and unstable personality in people with a diploma was higher than other groups.[15] Possible reasons for these findings can be that people with higher education have more knowledge about the process of therapy and its complications. However, the results of the study by Bahrami et al., were not consistent with the present study. It showed that depression in infertile subjects who had higher education was lower.[43] Future research could better reveal this relationship.

In this study, occupation was the predictor of social dysfunction subscale. Employed infertile women had lower mental health. This finding is in agreement with results of other studies that showed the rate of psychiatric disorders to be higher in female employees.[44,45] However, Noorbala et al., report that the rate of psychiatric disorders is higher in housewives than in employed women.[46] Oddens et al., showed in their study that psychiatric symptoms are not associated with age, education, occupation, and marriage duration.[47] In general, in explanation of the results it can be noted that work and family are both close domains and are related to each other. The problems of each of these areas can spread to the other area, and the tensions and problems in each of these areas leads to difficulties in tasks and roles, and causes discomfort and dissatisfaction among couples.[48]

The limitations of the present study were the lack of collaboration, lack of attention to details in completing the questionnaires, and lack of genuine responses by some of the participants. The researcher tried to reduce these limitations by giving the necessary explanations. Moreover, due to the nature of this study, the relationship shown between mental health, and perceived social support and personal and social characteristics is not necessarily indicative of causality relation. It is recommended that in future studies the center clients who gain abnormal scores in GHQ-28 screening test, be evaluated more accurately with specific questionnaires for depression and anxiety such as Spielberger Anxiety Inventory, and Beck Depression Inventory; so that the prevalence of depression and anxiety be evaluated more accurately.

Conclusion

Overall findings indicate that infertile women in all the cases have undesirable conditions in terms of mental health. They receive the most support from their family and this social support is considered as a mental health predictor. This study, by providing evidence of the relationship between mental health status and perceived social support, could be the basis for future intervention research to improve the mental health of infertile couples. It is recommended that psychiatric counseling also be a part of the diagnostic process of infertility treatment.

Acknowledgments

Ethical issues

None to be declared.

Conflict of interest

The authors declare no conflict of interest in this study.

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