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Relationship between fertility characteristics with spiritual intelligence and resilience in infertile couples

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Abstract:

BACKGROUND: Infertility and the use of assisted reproductive therapies affect infertile couples quality of life. Infertile couples face many physical, psychological, and financial challenges due to having a higher level of spiritual intelligence and resilience will help the infertile couple to adapt to infertility conditions and achieve their therapeutic goals. This study was aimed to determine the relationship between fertility characteristics and spiritual intelligence and resilience in infertile couples.

MATERIALS AND METHODS: This was a cross-sectional study that was conducted in 2020 on 162 infertile couples referring to infertility centers in Isfahan who met the inclusion criteria. Samples were selected by convenience sampling method. Information was gathered using a questionnaire consists of three parts: demographic and fertility characteristics, spiritual intelligence, and resilience. Data were analyzed using descriptive and inferential statistical methods (*t*-test, Pearson's correlation coefficient, and Chi-square). $P < 0.05$ was considered statistically significant.

RESULTS: Pearson's correlation coefficient showed that there was no significant relationship between resilience score and spiritual intelligence score with age, duration of marriage, and duration of treatment ($P > 0.05$). There was no significant relationship between resilience score and spiritual intelligence score and its dimensions with the level of education and economic status of the family ($P > 0.05$).

CONCLUSIONS: There was no significant relationship between demographic and fertility factors with spiritual intelligence and resilience.

Keywords:

Infertility, Iran, resilience, spiritual

Introduction

Global infertility prevalence rate is estimated at approximately 48.5 million couples.^[1] The prevalence of infertility among Iranian couples is estimated at 15%.^[2] Infertility has a profound effect on the lives of men and women and can leave people with many emotional and psychological problems. Doubt and frustration which come with infertility can badly affect the foundation of a couple's relationship. The physical, psychological,

and financial challenges involved in assisted reproductive techniques also affect them so that fertility problems in the late second and third decades of life put many people on a downward spiral leading to depression.^[3]

The results of various studies show that despite the dramatic advances, assisted reproductive technology in the twentieth century has acted as a double-edged sword, which causes psychological, social, moral, financial, and legal concerns.^[4]

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Infertile couples also experience consequences such as difficult self-control, reduced self-esteem, feelings of failure, helplessness, and hopelessness due to following the treatment process.^[5] There is a significant difference between the experience of infertility in developing and developed countries. Infertility in developing countries means a person's body and their identity has not completed and have directive consequence on the social and psychological situation. Fertility is so central to women's power. While in developed societies, having no children is voluntarily and is viewed as a more valuable and legitimate option for the growth and development of women.^[3,6]

Infertility and its treatment process is a source of psychological suffering for infertile women that has devastating effects on the psychological well-being of infertile couples and couples. In most cases, however, infertility is seen as a medical problem and its psychological-emotional and sociocultural aspects are still neglected. However, infertility is more common, especially among the lower socioeconomic classes who are unable to afford psychological counseling cost^[7] and sociocultural determinants play an important role in creating the psychological consequences of infertility.

Infertility is an issue that will affect not only the individual life of an infertile couple but also a nation.^[8] Increasing spiritual intelligence and resilience is a strategy that will improve the quality of life of infertile couples. Studies have shown that spirituality allows people to find a single meaning and concept in life and to experience a force superior to their own. Spiritual health can have a positive effect on mental and physical health. The World Health Organization (WHO) has recognized "spirituality" as a principle for promoting human health.^[9] In the approach of the WHO, in addition to using the pain relief process, using palliative care in treatment and the emotional and spiritual needs of the patient are essential.^[10]

Another factor that helps you get through difficult circumstances and protect you from pathological disorders and life difficulties is resilience.^[11] Resilience is one's ability to maintain bio-psychological balance in adverse conditions.^[12] Infertile couples have lower levels of general health and more anxiety than other couples; also, they experience lower levels of life satisfaction and psychological well-being, adaptation, marital satisfaction, and stress.^[13] Higher level of spiritual intelligence and resilience will help the infertile couple to adapt to existing conditions and advance therapeutic goals and plays a moderating factor between infertility stress and quality of life.^[14]

Furthermore, the result of a study showed that couples' emotional attitudes and dealing with infertility such as using resilience can affect treatment outcomes,^[15] and it is

necessary to take measures to consciously form the type of attitude towards childbearing. It is also necessary to pay attention to the fact that in many societies, infertility is considered as a social stigma for couples, which will lead to an increase in unhealthy actions in infertile couples.^[16] Therefore, it is necessary for service providers to pay attention to the needs of infertile couples and identify strategies to increase resilience and spiritual intelligence in them. This will prevent unhealthy health behaviors in these couple.^[17]

Since health is a dynamic process to achieve higher levels of health in each of the four dimensions of human existence, it is necessary to address all dimensions of human existence, especially in the field of infertility services. Therefore, attention and focus are needed to identify the factors affecting the increase of spiritual intelligence and resilience in infertile couples as one of the vulnerable groups in society. Studies in different societies have yielded conflicting results regarding individual and fertility differences including age, level of education, employment status, duration of infertility, cause of infertility, and duration and type of treatment in infertile couples with quality of life and level of spiritual intelligence and resilience.^[18,19] For example, a study showed that as age and duration of marriage increase, not only does the satisfaction and compatibility of the couple not increase, but also is disrupted. However, another study showed prolongation of marriage has led to more maturity and resilience in couples.^[20] Furthermore, the results of a study in Iran showed that the unknown cause of infertility had increased stress and decreased resilience.^[18] While a study in Taiwan showed that infertile couples with unknown causes of infertility had better resilience. However, the level of resilience and satisfaction of the couple in infertility with male causes was lower.^[21] As a result, considering the positive effects of spiritual intelligence on positive adaptation and growth in difficult situations, this study was aimed to determine the relationship between fertility characteristics and spiritual intelligence and resilience in infertile couples in Isfahan in 2020.

Materials and Methods

Study design and setting

This is a descriptive cross-sectional and correlational study that was conducted in 2020 on infertile couples in Isfahan.

Study participants and sampling

The sample size was 162 couples, which was estimated using the formula: ($P = 0.12$, $q = 0.88$, $z = 1.96$, $d = 0.05$). Primary infertility and completion of informed consent were the inclusion criteria. Samples were selected by convenience sampling method from infertile couples

referring to Fertility and Infertility Centers in Moshtagh and Shahid Beheshti Hospital in Isfahan who met the inclusion criteria.

Data collection tool and technique

Information was collected using a questionnaire that includes of three parts: first was demographic and fertility characteristics (couples' ages, level of education of them, cause of infertility, type of treatment, marriage duration, residence status, income level), second part was about spiritual intelligence, and final part was about resilience that were collected through self-reporting. The King Spiritual Intelligence Scale Report Inventory (SISRI) was used to collect data.

This questionnaire measures spiritual intelligence using 24 items with 5-point Likert scale ranges from 0 to 4 and its scores vary between 0 and 96. The questionnaire has four subscales of critical existential thinking (CET), personal meaning production (PMP), transcendental awareness (TA), and conscious state expansion (CSE). In Iran, Raghibi obtained the Cronbach's alpha coefficient of this questionnaire 0.89 and its validity was 0.67 coefficient through retest.^[22] In the study of Khodabakhshi Koolaee *et al.*, Cronbach's α was 0.91 for the total scale, 0.75 for CET, 0.79 for, PMP, 0.66 for TA, and 0.80 for CSE.^[23] Furthermore, in the study of Rahmanian *et al.*, its reliability was calculated 0.903 with Cronbach's alpha method.^[24]

The level of resilience to infertility stress was determined using the Connor-Davidson Resilience Scale (CD-RISC). This scale measures the resilience structure and contains 25 items rated on a five-point Likert scale. Based on this scale, a score of 1 was given for "Not true at all" and a score of 5 for "Always true." The scoring range is between 25 and 125. Mohammadi translated it and obtained reliability of 0.89 using Cronbach's alpha internal consistency method and its validity was 0.87 by factor analysis method.^[25]

Data analysis was performed using descriptive statistical methods (mean, standard deviation [SD], and frequency distribution tables) and inferential statistical methods (*t*-test, Pearson's correlation coefficient, and Chi-square) using SPSS 22 software. (IBM Inc., USA) $P < 0.05$ was considered statistically significant.

Ethical consideration

All participants in the study completed and signed an informed consent form. Everyone was assured that their information was kept confidential by the researcher.

This research has been approved in Isfahan University of Medical Sciences and with the code of ethics IR.MUI.RESEARCH.REC.1397.486 Confirmed.

Results

The results showed that the mean of age of women and men participating in this study were 32.01 ± 5.86 years and 36.30 ± 5.82 years, respectively. In addition, minimum and maximum ages in men and women were (19–51) and (23–60), respectively. The mean and SD of marriage duration and duration of infertility treatment among infertile couples were 8.48 ± 5.49 (minimum 1 and maximum 27 years) years and 50.72 ± 5.41 (minimum 1 and maximum 216 months) months, respectively.

Among couples, 6.8% (11 individuals) were women with elementary education, 45.1% (73 individuals) had high school and diploma and 48.1% (78 individuals) had a university degree. Moreover, among men, 9.3% (15 individuals) had elementary education, 53% (86 individuals) had high school and diploma, and 37.7% (61 individuals) had a university degree.

Among the study subjects, 93 people (57.4%) had their own houses, 64 people (39.5%) had rented houses, and 5 people (3.1%) had government-leased houses. In terms of economic status, 8% of couples had very low financial status, 30.3% had relatively low, 39.5% had average, 19.1% had relatively well, and 3.1% had very good financial status.

The frequency distribution of infertility cause, type of treatment, and type of treatment center are shown in Table 1.

Pearson's correlation coefficient showed that there was no significant relationship between resilience score and

Table 1: Frequency distribution of infertility cause, type of treatment and treatment center for infertile couples in Isfahan in 2020

Variable	n (%)
Cause of infertility	
Woman	45 (27.8)
Man	31 (19.1)
Both	32 (16.8)
Unknown	54 (33.3)
Type of treatment	
Medicine	30 (18.5)
IUI	34 (21)
IVF	63 (38.9)
ICSI	9 (5.6)
Donated embryos	2 (1.2)
Surgery	4 (12.3)
None	20 (58.6)
Type of infertility treatment center	
Governmental	95 (41.4)
Private	67

IUI=Intrauterine insemination, ICSI=Intracytoplasmic sperm injection, IVF=*In vitro* fertilization

spiritual intelligence and its dimensions with age of wife and her spouse, duration of marriage, and duration of treatment ($P > 0.05$). The details are described in Table 2.

The results also showed that there was no significant relationship between resilience score and total spiritual intelligence score and its dimensions with the level of education of wife and husband and family economic status ($P > 0.05$) [Table 3]. Moreover, independent *t*-test showed that the mean score of resilience and the total score of spiritual intelligence and its dimensions did not differ significantly among couples living in their own houses and rented houses ($P > 0.05$). Independent *t*-test showed that there was no significant difference between the mean score of resilience and the total score of spiritual intelligence and its dimensions among couples treated in governmental and private centers ($P > 0.05$).

One-way ANOVA showed that the mean score of resilience and the total score of spiritual intelligence and its dimensions were not significantly different among couples with different causes of infertility ($P > 0.05$) [Table 4].

Discussion

The results of the present study showed that the mean duration of infertility in these couples was about 8 years and the mean duration of treatment for infertility was 4 years. Studies have shown that the duration of infertility is a factor that can affect the psychological health of a couple. Therefore, as the infertility duration prolongs, especially after the 3rd year, the amount of

stress and psychological problems in couples, especially among women, increases significantly. However, paradoxically, it has been observed that after the 6th year of being infertile, as the resilience and the level of spiritual intelligence in couples increases, there was a significant decrease in anxiety and depressive symptoms due to increased adaptation.^[20] Therefore, the period of 3–6 years is the worst time in terms of psychological burden and its related problems for infertile couples which will get worse as the time prolongs and the use of invasive treatment methods.^[18] Therefore, in our study, in which average infertility duration was 8 years, the significant difference between the duration of infertility and the level of spiritual intelligence and resilience can be explained. Therefore, it seems that dealing with infertility problems largely depends on personality characteristics and people with higher spiritual intelligence and resilience are more successful in coping with infertility.^[26]

In the present study, about 30% of the causes of infertility were women, 20% were men, about 17% were related to both sexes, and 33% were unknown, while the results of other studies showed 40% of the causes of infertility were related to the women, 40% men and about 15% unknown causes.^[15] In the study of Samadaee-Gelehkolaee *et al.*, the unknown cause of infertility seems to be one of the factors that increase stress levels and decrease resilience. However, in that study, like ours, there was no relationship between the level of resilience and the type of cause of infertility.^[18] However, the results of Hajela *et al.*'s study in Taiwan on infertile couples showed that if the cause of infertility was men/women or both,

Table 2: The relationship between resilience score and spiritual intelligence with age, duration of marriage and duration of treatment in infertile couples in Isfahan in 2020

Variable	Age of women		Age of men		Duration of marriage		Duration of treatment	
	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>
Dimensions of spiritual intelligence								
Total score	0.013	0.87	-0.123	0.11	-0.016	0.84	-0.04	0.62
Critical existential thinking	0.008	0.92	-0.072	0.36	-0.101	0.20	-0.071	0.37
Personal meaning production	-0.026	0.74	-0.095	0.23	-0.018	0.82	-0.084	0.29
Transcendental awareness	-0.121	0.12	-0.133	0.09	-0.040	0.62	-0.092	0.24
Conscious state expansion	0.034	0.67	-0.1430	0.10	-0.049	0.53	-0.084	0.29
Resilience score	0.034	0.67	-0.25	0.75	0.001	0.99	-0.115	0.14

Table 3: The relationship between resilience score and spiritual intelligence score and its dimensions with the level of education and economic status of infertile couples in Isfahan in 2020

Dimensions of spiritual intelligence	Education of women		Spouse education		Economic status	
	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>
Total score	0.042	0.60	0.010	0.90	0.038	0.63
Critical existential thinking	0.045	0.57	0.058	0.47	0.028	0.73
Personal meaning production	-0.056	0.48	0.076	0.34	0.029	0.72
Transcendental awareness	-0.061	0.44	-0.103	0.19	0.102	0.20
Conscious state expansion	0.003	0.97	-0.024	0.76	0.046	0.56
Resilience score	0.097	0.22	0.087	0.27	-0.011	0.89

Table 4: Mean score of resilience and total score of spiritual intelligence and its dimensions by cause of infertility in infertile couples in Isfahan in 2020

Variable	Cause of infertility	Mean±SD				One-way ANOVA	
		Men	Women	Both	Unknown	F	P
Spiritual intelligence score	Total score	54.05±12.79	53.21±10.56	51.72±13.83	53.99±11.77	0.28	0.84
	Critical existential thinking	17.34±4.41	15.22±4.20	15.15±4.49	16.34±4.5	2.13	0.10
	Personal meaning production	12.16±3.34	12.73±2.54	11.50±4.11	11.66±3.80	0.97	0.41
	Transcendental awareness	15.07±3.75	15.51±4.09	15.49±4.16	15.98±3.42	0.47	0.70
	Conscious state expansion	9.49±3.63	9.74±3.34	9.58±3.45	10.02±2.91	0.24	0.87
Resilience score		87.71±15.51	89.69±19.13	86.58±13.28	84.72±15.59	0.79	0.50

SD=Standard deviation

women showed less life satisfaction and resilience, but if the cause of infertility was unknown, there was no difference between the two sexes in terms of resilience. In some other studies, it has been reported that in male-caused infertility, couples express less satisfaction, and resilience.^[21]

Identifying the factors affecting spiritual intelligence and resilience can help to identify solutions to control the problems of infertile couples. In a review study, it was mentioned that the factors affecting the satisfaction and well-being of infertile couples are strongly influenced by the culture of that society.^[18] Therefore, although studies have shown the role of demographic factors such as age, gender, duration of marriage, duration of infertility, and cause of infertility as factors affecting spiritual intelligence and resilience, in our study, there was no significant relationship between these demographic and fertility factors with spiritual intelligence and resilience and this could be attributed to the culture of Iranian society. This contradiction can be seen in other studies as well. For example, a study showed that as age and duration of marriage increase, not only does the satisfaction and compatibility of the couple not increase, but also is disrupted. However, in another study it was stated that prolongation of marriage (in this study more than 9 years) has led to more maturity and resilience in couples.^[20] The results of a study by Faria *et al.* indicated that infertile couple with a higher education reduces resilience in couples.^[19] Although in our study about half of women and 40% of men had an academic education, there was no relationship between education level and resilience.

The results of our study showed that there was no significant relationship between education level and economic status and type of residence of infertile couples with their level of spiritual intelligence and resilience. In contrast with the results of the present study, Tabong and Adongo argue that the negative social consequences of infertility are probably not the result of a particular culture, but it is related to the very low social and economic status of women in many developing countries, where many have considered fertility as a

primary function of being a woman.^[16] In addition, in our study, there was no relationship between housing status and economic status of the couple with resilience and spiritual intelligence; however, studies have shown that couples who are better off financially and have better housing will have a higher level of resilience and adaptation.^[18,20]

The results of our study showed that there is no relationship between fertility characteristics such as the cause of infertility, duration of infertility, duration of treatment, and the use of various treatment methods with spiritual intelligence and resilience. However, a study whose results are not consistent with ours demonstrated that the psychological problems of infertile couples are affected by factors such as gender, cause and duration of infertility, the use of treatment methods, and culture.^[27] The results of a study by Moura-Ramos *et al.* also showed that the level of resilience decreases as duration of infertility and duration of infertility treatment prolongs.^[28] According to studies, one of the factors affecting the psychological problems of infertile people is the use of infertility treatment methods.^[29]

Sometimes, these side effects become so severe that they are unable to continue the treatment, so that the results of a systematic review study from eight countries showed that one of the most common reasons and predictors of discontinuation in fertility treatment is psychological burden.^[30] With regard to comparison of emotional state in infertile and control population, findings have shown conflicting findings; however, most studies have shown that couples who have undergone IVF treatment experience worse emotional states.^[31] These feelings are so great that in a study on women who had IVF, they stated that discontinuing treatment, even if they were not pregnant, would result in a reduction in their depression and treatment anxiety.^[30] Studies have indicated that spiritual intelligence and resilience can be used to control psychological symptoms among infertile couples. The results of a study showed that long-term therapeutic measures for infertility and recurrent IVF failures are among the factors that reduce the couple's resilience and, conversely, increase the level of psychological distress

and anxiety.^[15,32] Although in our study there was no relationship between the type of infertility treatment methods with spiritual intelligence and resilience, various studies have confirmed that as the number of therapeutic measures and failures increases, the rate of resilience decreases. This decrease in resilience and increase in stress levels in couples can make only half of infertile couples use fertility methods and technology.^[33]

Limitation and recommendation

We encountered limitations and difficulties in conducting the study, such as the couple's unwillingness to cooperate for fear of disclosing their information. The researcher, by assuring the couple about the confidentiality of their information and by fully explaining the objectives of the study, explained that by participating in this study, they can take a small step towards solving the problems of infertile couples.

We suggest that other research be conducted in the form of intervention studies and the effect of couples' education on their resilience be measure.

Conclusions

Although there was no significant relationship between demographic and fertility factors with spiritual intelligence and resilience in our study, it is recommended that future studies examine other personality, cultural, and social dimensions to identify the effective factors Resilient people can think creatively and flexibly about problem solving also they get help from other people if they need it and help others in times of crisis.^[34]

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Conflicts of interest

There are no conflicts of interest.

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