



The Effect of Spiritual Health on Psychological Distress of Infertile Women: The Role of Perceived Social Support as a Mediator

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Abstract

Background: The objective of this study was to evaluate the model of spiritual health in relation to psychological distress among infertile women, with perceived social support as a mediator.

Method: In this study, structural equation modeling (SEM) was employed. The study population included all infertile women in Shiraz from which a sample of 250 individuals was selected using a targeted sampling method. The research data were collected by Spiritual Health questionnaire developed by Iranian Academy of Medical Sciences; Depression, Anxiety, and Stress Scale 21 (DASS-21); and Multidimensional Scale of Perceived Social Support (MSPSS). Data analysis was performed using SPSS and AMOS software.

Results: The results demonstrate that the direct impact of spiritual health on psychological distress and perceived social support was statistically significant. Furthermore, a significant indirect effect of spiritual health on psychological distress was identified through perceived social support.

Conclusion: According to the findings of this study, it may be beneficial to address aspects of spiritual health and social support to alleviate psychological distress among infertile women.

Keywords: Infertility, Perceived social support, Psychological distress, Spiritual health.

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Introduction

Infertility is a prevalent chronic health condition which can persist throughout the reproductive years (1). Around 20% of couples worldwide are affected by infertility issues, with rates in the European Union reaching as high as 25% (2). As a typical characteristic of most chronic health conditions, heightened emotional distress such as anxiety and depression often accompanies infertility diagnoses (3). Infertility, along with its treatment, is one of the top stressors in life (4), and leads to a variety of physical, psychological, and social consequences, which may significantly

affect the patients' quality of life (5, 6). The World Health Organization (WHO) acknowledges that despite the high frequency of infertility, the majority of infertile women remain silent about their experience, which may exacerbate their psychological vulnerability. Infertility may result in emotions of shame, remorse, and poor self-esteem. These negative emotions might manifest as despair, worry, discomfort, and a low quality of life in varying degrees (7, 8). Heightened anxiety and depression symptoms are often comorbid with infertility diagnoses (3, 9). Infertile couples are

subject to greater stress and an increased risk of developing psychological disorders compared with normal, healthy couples. On the other hand, high levels of psychological distress have been indicated to increase infertility (10). A recent study demonstrated a high prevalence of depression among infertile women (9). Although infertility affects both partners as a couple, current studies indicate that it has a more significant impact on females than on males (2). Women in Asian countries, in particular, tend to experience higher stress related to infertility, specifically due to the prevalent social stigma that considers infertility as primarily the women's problem (11).

Women who have infertility-related psychological distress, anxiety, and depression are often reluctant to use psychotropic medications and seek nonpharmacological therapies (12). Despite the increasing body of literature addressing the medical, psychological, social, and cultural ramifications of infertility, the religious and spiritual dimensions of infertility have been largely overlooked. Given that infertility is a complex issue that leads to multiple losses, healthcare professionals must take into account all aspects of comprehensive care when treating women with fertility problems. Comprehensive care encompasses not only the psychological, social, and cultural requirements of individuals, but also their religious and spiritual needs. Therefore, it is essential to understand the role of religion in this particular population. The psychological impact of the infertility experience has been shown to produce distress comparable to that associated with life-threatening illnesses. The negative correlation between religious coping and depression scores has implied the positive role of religious coping in protecting infertile women from depression (13).

Individuals turn to religion to cope with significant health stressors; in fact, religious coping is associated with better physical and psychological health. Social support and stress buffering hypothesis explain how supportive social relationships can be beneficial to individuals in coping with stressful situations, thereby reducing the likelihood of negative outcomes (14). Of 212 studies examining the impact of religious commitment on health improvement, 75% demonstrated a positive effect, 17% demonstrated either a mixed effect or no effect, and 7% indicated a negative effect. Many of these studies indicate that the strength of religious belief can promote healing in some pa-

tients. Religious belief can provide the positive psychological effects associated with social support. It may also improve health habits linked to regular church attendance. Additionally, religious belief can induce changes in the stress system with important stabilizing effects on the nervous system and the hypothalamic-pituitary axis (15). Religious involvement may benefit infertile patients by fostering a sense of community and reducing feelings of social isolation. Conversely, a religious perspective may heighten a woman's sense of social isolation from a religious community that emphasizes childbearing. Infertile couples may experience stigmatization due to religious doctrines positioning parenthood as a core aspect of identity, such as the Old Testament commandment to "be fruitful and multiply". Thus, these religious beliefs may actually exacerbate the negative psychological effects of infertility (16). Therefore, maintaining a high index of suspicion for depressive symptoms and implementing a holistic approach to care are critical for the effective management of women experiencing infertility (9). According to the findings of Dadhwal et al., women with infertility experience depression, anxiety, poor quality of life, and employ maladaptive coping. Supportive relationships with family and partners are chief protective factors (17).

Some studies have identified the psychosocial variables, including resilience, social support, and quality of marital relationships which can alleviate the impact of infertility-related stress on quality of life among infertile women (18-20). Perceived social support has a direct effect on the choice of coping strategies among women diagnosed with infertility (21). Social support is an "available external resource" for individuals in the face of stress (22). Social support fosters a belief in individuals that they are cared for and accepted, while also enhancing their sense of appreciation and value (23); it reduces perceived stress, lessens impact of negative emotions, and improves quality of life among infertile individuals. Recent studies indicate that social support has improved the quality of life (19, 24). According to previous studies, perceived social support reduced the psychological distress of infertile women (14, 25). The purpose of the current study was to investigate how the model of spiritual health affects the psychological distress of infertile women, considering the mediating role of perceived social support.

Methods

Study design and settings: Structural equation modeling was used to test the proposed model. Mediation analyses of the final model were also conducted using the Bootstrap test. This statistical technique treats the data sample as a pseudo-population, enabling the generation of random samples with replacement to determine whether the indirect effect resides within a confidence interval. The analysis was conducted using AMOS software version 18. The implications of the findings in this analysis are shown at a significance level of 0.05. This research was conducted from June to November 2023.

Study population: The study population comprised women of reproductive age (15–49 years) (9) with a diagnosis of infertility. Among them, 250 were aged 20 to 49 years who displayed symptoms of infertility and referred to Hazrate Zainab and Shiraz Ghadir Mother and Child hospitals. Participants were selected using a purposive sampling method and included in the study based on established inclusion and exclusion criteria. Individuals on psychiatric medications were specifically excluded. Additionally, critically ill patients, individuals with a depressive disorder prior to infertility, and those who declined to provide consent for participation were excluded from the study. Among the 250 distributed questionnaires, 239 questionnaires were returned, of which 12 were discarded due to lack of clear answers, and a total of 227 questionnaires were analyzed. The included tools for the study are explained below.

Psychological distress: Psychological distress was measured using the 21-item Depression, Anxiety, and Stress Scale 21 (DASS-21) (26). This scale was selected because of its documented dependability and efficacy. It is particularly beneficial due to its relatively small number of items measuring three psychological dimensions. Using a scale ranging from 0 (did not apply at all) to 3 (very applicable), participants rated the applicability of each item (7 items for each subscale) based on their experience in the preceding week. Example items included "I couldn't seem to experience any positive feeling at all" (depression); "I was aware of dryness of my mouth" (anxiety); and "I found it hard to wind down" (stress). Cronbach's alpha for all three scales indicated good reliability, with coefficients of $\alpha=0.89$ for depression, $\alpha=0.90$ for anxiety, and $\alpha=0.89$ for stress. Higher scores indicated increased levels of depression, anxiety, and

stress. In the present study, the overall score, designated as psychological distress, was also calculated for the scale.

Spiritual health: Spiritual health was assessed using a 48-item questionnaire developed by the Iranian Academy of Medical Sciences, based on the principles of Islam. It consists of two components, cognitive/emotional and behavioral areas, focusing on the relationship with God, the self, and the surrounding environment. The cognitive/emotional components included 28 questions and the behavioral components included 20 questions. The validity of the spiritual health questionnaire was established through content validity, while its reliability was confirmed via Cronbach's alpha, as demonstrated in the studies by Amiri et al. and Ensafdaran et al. (Cronbach's $\alpha=0.81$) (27, 28).

Perceived social support: Multidimensional Scale of Perceived Social Support (MSPSS) was used to measure perceived social support (29). The scale has a total of 12 items with 4 items in each subscale. Each item is rated on a 7-point Likert scale of 1–7, ranging from "very strongly disagree" to "very strongly agree". Higher scores indicate greater support provided by significant others, family, and friends. In the present study, Cronbach's alpha for this scale indicated acceptable reliability, with a value of $\alpha=0.67$.

Informed consent was obtained from all subjects and/or their legal guardian(s). Also, all methods were carried out in accordance with relevant guidelines and regulations. The study was approved by the ethics committee of Shiraz University of Medical Sciences (ethical code: IR. SUMS. REC.1401.355).

Results

The highest frequency of participants in the research was related to the age group of 30 to 39 years with 121 individuals (53%). In contrast, the lowest frequency was in the age group of 40 to 49 years, which included 28 individuals (approximately 12.27%). Also, among the sample members, 43 individuals (19%) had familial and 184 (81%) had non-familial marriages as shown in table 1. The mean, standard deviation, minimum and maximum scores of variables are shown in table 2.

In order to evaluate the proposed model, structural equation modeling (SEM) and maximum likelihood (ML) estimation were used. Figure 1

Table 1. Demographic variables

Demographic variables	Range	Frequency	Percentage
Age (years)	20-29	78	34.36
	30-39	121	53.30
	40-49	28	12.27
Marriage status	Familial	43	19
	Non-familial	184	81

Table 2. Mean and standard deviation of variables scores

Variables	Mean	SD	Minimum	Maximum
Spiritual health	143.361	39.73	63	211
Perceived social support	38.97	10.14	18	65
Psychological distress	37.26	14.72	20	92

shows the proposed research model with standard path coefficients.

Table 4 shows the fit indices of the proposed model. Initial model fitting was conducted using several fit indices, including chi-square ratio to degree of freedom (X^2/df). According to Klein, the chi-square value should normally be less than

Table 4. Fit indices of the proposed model

Indices	df	X^2/df	IFI	TLI	CFI	NFI	GFI	AGFI	RMSEA
Proposed model	4	1.652	0.95	0.874	0.94	0.893	0.988	0.957	0.054

df: degree of freedom, IFI: Incremental Fit Index, TLI: Tucker-Lewis Index, GFI: Goodness of Fit Index, NFI: Normed Fit Index, AGFI: Adjusted Goodness of Fit Index, CFI: Comparative Fit Index, RMSEA: Root Mean Square Error of Approximation

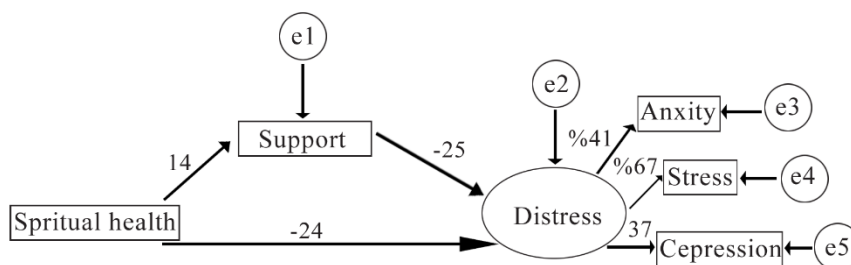


Figure 1. Proposed research model

As shown in table 5, the direct path coefficient from spiritual health to psychological distress ($\beta=0.239$, $p=0.02$) and from perceived social support to psychological distress ($\beta=-0.25$, $p=0.019$) were significant at the 0.05 level, so spiritual health and social support directly and significantly reduce psychological distress. The significance of indirect paths was investigated by bootstrap method, revealing that the indirect path from spiritual health to psychological distress through perceived social support was also significant ($\beta=-0.036$, $p=0.007$). The numbers on the figure are the path coefficients reported in table 5 and their significance was examined. This figure is drawn to show the visual relationship between the variables

Table 3. Correlation coefficients between research variables

Variables	Pearson correlation		
	1	2	3
Spiritual health	-	0.139 *	-0.51 **
Perceived social support	0.139 *	-	-0.46 **
Psychological distress	-0.51 **	-0.46 **	-

* $p<0.05$, ** $p<0.001$

3 (30-32). The goodness of fit index (GFI) is considered acceptable when it exceeds 0.9, with a maximum value of 1. The incremental fit index (IFI) follows the same criteria, where values greater than 0.9 indicate a better fit. The root mean square error of approximation (RMSEA) is interpreted as follows: values greater than 0.1 are indicative of a poor fit, values between 0.08 and 0.1 are borderline, values from 0.05 to 0.08 are acceptable, and values below 0.05 are considered excellent. The normed fit index (NFI) should also exceed 0.9. Tucker-Lewis index (TLI) and adjusted goodness of fit index (AGFI) should similarly be greater than 0.9, with all indices ideally limited to a maximum value of 1. These fit indices demonstrate that the proposed model has a good fit. Table 5 provides the direct and indirect paths and their standard coefficients in the proposed model.

As shown, the direct path coefficient from spiritual health to psychological distress and from

Table 5. Structural model showing direct and indirect effect and their standard coefficients

Path	β	p-value	Upper bounds	Lower bounds
Spiritual health → Psychological distress	-0.239	0.025	-0.46	-0.39
Spiritual health → Perceived social support	0.139	0.035	0.25	0.028
Perceived social support → Psychological distress	-0.255	0.019	-0.09	-0.38
Spiritual health → Perceived social support → Psychological distress	-0.036	0.007	-0.005	-0.078

p<0.05

perceived social support to psychological distress were significant at the 0.05 level. The significance of indirect paths was investigated by bootstrap method, revealing that the indirect path from spiritual health to psychological distress through perceived social support was also significant.

Discussion

This study was conducted to determine the impact of spiritual health and social support on the feelings of distress among infertile women living in Shiraz. The findings indicate that spiritual health positively influences the distress levels of infertile women, both directly and indirectly through perceived social support. In many parts of the world, the social construct of womanhood remains tied to the role of mother and caregiver; having children is an expected and essential phenomenon in a marriage (14). In a society that adheres closely to traditional values, women face significant societal pressure to bear children. The transition to motherhood is not regarded as a private affair but rather a matter of public concern. This is particularly true for young individuals who, following marriage, continue to live with their parents. In these cases, the birth of at least one male offspring is deemed crucial for the continuation of the family name, serving as a yardstick for measuring one's adherence to the principles of filial piety (33). While the societal response to childless women varies from culture to culture, it often carries a negative connotation. Regardless of the underlying reasons, childless women frequently experience pity (34). These situations often bring them emotional pain and increase infertility-related stress and psychological distress (21, 34). One factor that can help infertile women navigate the challenging period of diagnosis and treatment is their faith and spiritual experiences which can provide a sense of safety and support (35, 36).

It was indicated that some individuals turn to religion to cope with significant health stressors when faced with complex life events (35). Religious coping is associated with better physical and psychological health (36). Religious coping is associated with better physical and psychological health (30, 31). Spiritual health serves as the fundamental pillar of human well-being and functions as a driving force that harmonizes the realms of physical, mental, and social dimensions. It is an indispensable element in managing illnesses and ailments (32). Promoting spiritual health may not cure a disease, but it can enhance well-being, prevent certain health problems, and facilitate adaptation to illness or mortality (37).

Spiritual health is linked to psychological and social adjustment, effective coping skills, and resilience to stress and life crises. Additionally, it contributes to improved mental health; therefore, when spiritual health is compromised, individuals may experience feelings of loneliness, depression, and a loss of meaning in life (38). Individuals with greater spiritual health tend to have a better relationship with their surroundings. As a result, they may accept infertility as a form of divine destiny and providence. Since despair is discouraged in Islam, individuals strive to maintain hope in their hearts, which can subsequently reduce their distress.

Infertile Muslim couples with intrinsic religiosity (using Allport's terminology) will consistently seek a positive outcome from their situation. Even if assisted reproductive technologies do not succeed, they will continue to seek alternatives and try to establish a life that aligns with God's guidance as outlined in the Qur'an, Sunnah, and current teachings of religious authorities (39). In line with previous studies (18-21), our findings show that women with high levels of perceived social support tended to experience low psychological distress. The advantageous consequences of ade-

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quate social support in psychiatric disorders have been extensively documented. Social support may alleviate genetic and environmental susceptibilities and grant resistance to stress, potentially due to its impact on the hypothalamic-pituitary-adrenocortical (HPA) axis, the noradrenergic system, and central oxytocin pathways (40). Social support and its interaction with stress have been tightly associated with factors affecting health and well-being. More precisely, social support received from family and friends has proven to positively impact health by moderating the adverse effects of stress. In fact, the more social support individuals receive, the better their overall mental and physical health will be (41, 42). Adequate social support, including helpful information and empathy from partners, family, and friends, along with the presence of others, boosts feelings of inclusion and self-worth in women. It also increases their confidence in expressing their worries and emotions, addressing their difficulties, and actively engaging in the problem solving process. For instance, women facing a diagnosis of infertility often adopt a positive mindset by proactively seeking solutions, obtaining guidance from peers who have experienced similar challenges, and finding purpose in their treatment journey.

The findings regarding the relationship between spirituality and the distress of infertile women are inconsistent; some research has shown that spiritual experiences had a significantly inverse relationship with infertility stress (43, 44-46). Moreover, a weak negative correlation was found between positive religious coping and distress in infertile women living in Turkey. There was no significant correlation between women's negative religious coping and their adjustment to infertility, infertility distress, and satisfaction with life (45). One significant limitation of the investigation is the sample size, as it was challenging to encourage participation among infertile women due to their psychological states. The findings of the present study were limited to infertile women in Shiraz. Therefore, caution should be observed in generalizing the results to other cities.

Conclusion

The findings of the study indicate a positive influence of spiritual health and perceived social support on psychological distress among women experiencing infertility. This highlights the necessity of implementing programs aimed at enhanc-

ing spiritual health and fostering the mental well-being of these women within infertility treatment facilities. Furthermore, equipping families with the skills to obtain adequate support, along with the availability of seasoned psychologists in these centers, represents additional strategies to mitigate stress. Such skills alleviate feelings of helplessness and promote the psychological health of women facing infertility challenges. However, further investigation should be conducted regarding the impact of spiritual health on the distress levels experienced by women who are unable to conceive.

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Conflict of Interest

The authors declare they have no competing interests.

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