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ORIGINAL RESEARCH

Predicting health-related quality of life in women with infertility based on alexithymia, sexual satisfaction due to the mediating role of perceived infertility stigma

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Abstract

The present study predicts health-related quality of life in women with infertility based on alexithymia, sexual satisfaction with respect to the mediating role of perceived infertility stigma. The method of this research was descriptive (non-experimental) and the research design was a correlation of structural equations. The statistical population of the present study was infertile women in Tehran in 1399. The sample size was 250 and according to the formula for determining the sample size (1992). The research instruments included standard questionnaires such as Weber (1992), Bagby, Parker & Tyler (1994), Larson (1988) and Perceived Stigma of Infertility (2014). Data analysis was performed using SmartPLS software. The results showed that perceived stigma of infertility had a mediating role in the relationship between mood variables and sexual satisfaction with health-related quality of life in women with infertility.

Keywords: Health-related quality of life, Women with infertility, Mood dysfunction, Sexual satisfaction, Perceived infertility stigma

Introduction

Infertility is one of the individual and social problems that can expose sufferers to various psychological and social pressures. Infertility is a process that affects the body, occupation, personality and mentality and has adverse effects on a person's emotions, including self-esteem. In our society, infertility is a stigma and paying attention to the fact that the infertile person cannot follow the reproductive process naturally and like other normal people, increases its importance and turns infertility into a psychosocial problem. Today, new ways of assisting fertility and the possibility of having children are offered to individuals, but infertility is still not accepted among many Iranian families, and not all infertile couples use these technologies due to cultural and religious factors influencing their treatment decisions (Karimitft et al., 2017).

Numerous studies have shown the negative impact of infertility on the quality of life of infertile women (Monga et al., 2004; Fekkes et al., 2003). Quality of life is a broad concept that encompasses all aspects of life, including health, and includes various physical, physiological, social, physical and spiritual dimensions (Firoozhajian and Dehghan, 2015). Quality of life is a very complex and much broader instrument of mental health that includes a variety of areas including health status, ability to perform activities of daily living, role position, work and opportunities to pursue leisure interests, social functioning in friendships, relationships with others, access to resources, Health care includes living standards and general health (Fayer and Machin, 2009).

Mood swing is a multifaceted instrument consisting of: 1) difficulty in recognizing emotions and distinguishing between emotions and bodily stimuli related to emotional arousal, 2) difficulty in describing emotions, 3) limited visualization power determined by fantasies, 4) objective cognitive style or extrinsic and objective thinking (Tyler and Bagby, 2000, quoting Fekri et al., 2015). Lack of emotional capacity that leads to failure to recognize, describe and identify emotions and to express them, these people have difficulty in self-regulation, recognition, detection, processing of emotions. They also have problems distinguishing inner feelings from their bodily feelings (Fink et al., 2010). Given the issues raised, it is necessary to pay attention to the sexual issues of infertile women and their sexual experiences and satisfaction with the sexual relationship they experience. Sexual satisfaction is one of the individual and interpersonal needs that is defined as the evaluation of the pleasure of sexual behavior (Flynn et al., 2016). Optimal sexual relations provide satisfaction for both parties and play a very important role in the relationship between couples and family strength (Ismailvand and Hassanvand, 2015).

Also, sexual satisfaction is not just physical pleasure but also includes sexual activity satisfaction and emotional satisfaction (Chan et al., 2015). Sexual satisfaction and desires are the innermost feelings and deepest desires of human beings in giving meaning to a relationship. Sexual behaviors are done to attract the attention and satisfaction of the sexual partner, to have sex, to show emotions and intercourse (Giblin, 2014).

Another influential component in the quality of life of these women is perceived stigma of infertility, stigma is an important structure in the field of mental health and is one of the most important consequences of infertility disorder (Donkor and Sandall, 2007). Unwanted infertility leads to stigma in many cultures and exposes women to serious social and emotional consequences (Fido and Zahid, 2004). Studies have shown that 69.19% of infertile women feel stigmatized and 53.08% of infertile women also experience stigma (Li, Yan, Zhu and Lei, 2010).

Stigma is a completely negative psychological attitude with a combination of negative consequences of depression and anxiety (Davis et al., 2010), low self-esteem and self-efficacy (Remnick, 2000) as well as anxiety related to infertility, low social support and low social status (Slade et al., 2007).

So far, several studies have been conducted on the prevalence of infertility in Iran, which have reported relatively different results. According to these studies, the infertility rate in Iran in the last decade has been estimated from 9% to 49%. Part of the difference in prevalence estimates is due to the different definitions of infertility. It also seems that the lack of documented data in some studies, insufficient sample size and lack of infertility registration

standards have led to different estimates. However, in Iran, the prevalence of primary infertility based on the results of the health and disease study in 2001 was 2.5%, in 2005 was 24.9% and in 2010 was 26.1% (Hosseini et al., 2012).

According to what was mentioned above, just as infertility is affected by physiological factors and is in the realm of medical sciences, it also has psycho-social aspects and is also in the realm of behavioral and social sciences. Studies show that psychological factors can play a role in infertility, which can have psychological consequences. From the beginning, the phenomenon of infertility is involved with psychological factors. This phenomenon is considered as a stressful, exciting and frustrating event for infertile couples (especially women). The inability of a person to perform the process of reproduction and having children normally is one of the bitter and painful experiences of life that the psychological and social context and conditions can increase its importance and turn it into a psychological and social crisis for the person (Safdari and et al., 2016).

Given the above, this study addresses the question of whether health-related quality of life in women with infertility based on alexithymia, sexual satisfaction is predicted according to the mediating role of perceived stigma of infertility?

Eisanejad Jahromi and Dasht-e Bozorgi (2018) in their research showed that there was a significant difference between experimental and control groups in marital intimacy and sexual satisfaction. In other words, behavioral activation therapy significantly increased marital intimacy and sexual satisfaction of women during premenopause. Gharibzadeh et al. (2018) in their research showed that there is a direct and significant relationship between safe attachment style and feeling of cohesion and a negative and significant relationship between insecure attachment style and feeling of cohesion, between attachment styles and mood grief. Psychological cohesion was not a significant mediator between the relationship between delinquent styles and alexithymia. Mehrabi et al. (2014) in their research showed that there is a direct relationship between quality of life and the existential dimension of spiritual health, religious dimension and spiritual health as a whole. Considering that infertility is a multifaceted problem and causes many harms to women and affects their quality of life, and due to the relationship between spiritual health and quality of life in this group, it is possible to improve spiritual health and improve their quality of life. Kissoter et al. (2019) in their study showed that the level of marital satisfaction in infertile couples is significantly lower. Psychological factors such as increased stress related to infertility treatment, emotional disorders, participation problems, lack of social support or social isolation have played a role. Psychological interventions aimed at controlling stress, strengthening participation and improving social programs can help reduce the burden of infertility and improve marital satisfaction of affected couples. Argin et al. (2018) in their study showed that out of 598 partners of infertile couples who participated in this study, 58% of them are 177 couples. Their infertility in 98.3% and the duration of marriage and infertility were 9.81 58 5.58 and 9.76 5 5.5 years, respectively. Perceptions of social exclusion were present in 38% of infertile couples, which was more significant in female partners. 15% of infertile couples felt isolated in society and lost value in society. Sixty percent of infertile couples thought they would achieve a significant place in society after the baby was born. In 13% of infertile couples, infertility was accepted as a reason for divorce ($p < 0.001$). Most of the people in question, regardless of gender, lost this infertile man and woman who have lost their sexual appeal.

Materials and Methods

The method of this research was descriptive (non-experimental) and the research design was a correlation of structural equations. The statistical population of the present study was infertile women in Tehran in 2020. For the sample size, 250 patients were performed based on the formula for determining the sample size (1992) (50 + k 8). To enter as a research sample, criteria have been considered which are: 1- Minimum education of literacy, 2- Having at least 1 and at most 25 years of experience living with a spouse, 3- Primary infertility, 4- No disease diagnosed with psychiatry or a history of severe neurological

disease such as psychosis recognized by a physician and being Iranian.

The data collection tools in this study are standard questionnaires of quality of life related to Weber (1992), Bagby, Parker and Tyler (1994), mood satisfaction Larson (1988) and perceived stigma of infertility Fu (2014). Which are briefly introduced in the following:

The health quality of life questionnaire was developed by Weber (1992). This test is designed to evaluate health policies and in general to assess the state of health in terms of physical and mental condition.

It has 36 questions and consists of 8 subscales and each subscale consists of 2 to 10 items. The eight subscales of this questionnaire are: physical function, role disorder due to physical health, role disorder due to emotional health, energy / fatigue, emotional well-being, social function, pain and general health. Also, by merging the subscales, two general subscales with the names of physical health and mental health are obtained. Likert scoring is 5 degrees (completely true to completely false). A lower score indicates a lower quality of life and vice versa.

The mood dysfunction questionnaire was developed by Bagby, Parker, and Tyler (1994) to assess a person's ability to express emotions. It is a 20-item test and includes three subscales: difficulty in identifying emotions, difficulty in describing emotions, and objective thinking. The scoring of the questionnaire is based on a 5-point Likert scale, which is measured and evaluated from completely opposite to completely agreeable. Riefef, OoSterveld, Terwoget (2006) reported internal consistency of 0.72 and Cronbach's total alpha coefficient of 0.76. In Besharat and Ganji (2012), Cronbach's alpha coefficients were calculated for total emotional malaise of 85% and three subscales of difficulty in identifying emotions 82%, difficulty in describing emotions 75% and for objective thinking 72%, which is a sign of good internal consistency of the scale.

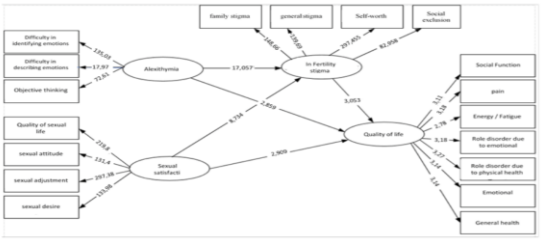
Perceived infertility stigma questionnaire: Developed by Fu (2014) and includes 27 items in 4 areas: self-worth (7 items), social exclusion (5 items), general stigma (9 items) and family stigma (6 items). Is classified. The scoring of the questionnaire is a 5-point Likert scale. Fu et al. (2015) The range of correlations of each item and factor from 0.60 to 0.87, and the range of total internal correlations of factors from 0.56 to 0.67, the range of total scale correlations with factors from 0.78 to 0.91 they reported. In Rajabi et al. (2017), Cronbach's alpha coefficients were reported to be 0.95. Sexual satisfaction questionnaire: The sexual satisfaction questionnaire was designed by Larson (1988). This questionnaire has 25 questions and 4 components of sexual desire, sexual attitude, sexual quality of life and sexual adjustment, and based on the Likert scale, it measures sexual satisfaction with questions such as (I feel that my wife enjoys sex). In the research of Nomejko and Doleniska-Zygmunt (2014), the reliability of this test was reported to be 73%. In the study of Shams (2001), the validity and reliability of this test were reported to be 0.9 and 0.86, respectively. In another study, the reliability of this questionnaire was reported to be 0.93 for a fertile group and 0.89 for an infertile group using Cronbach's alpha coefficient (Bahrami et al., 2016).

The validity and reliability of the questionnaires were obtained according to their standard. However, you will be asked about the validity of 15 experts in this field who confirmed the accuracy and validity of the questionnaires. To evaluate the reliability of the questionnaires, Cronbach's alpha coefficient was used, which is equal to: 0.903, 0.884 and 0.964 for the variables of quality of life related to health, alexithymia, perceived stigma, infertility. Statistical analysis in this study, descriptive analysis and inferential analysis were used and SPSS and LISREL software were used to analyze the data.

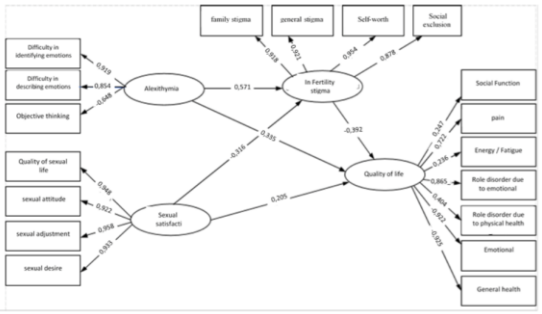
Results

The final model of SmartPLS software that shows the relationships between research variables is as follows:

Figure (1) The final structural model of the research in the standard estimation mode as well as the significance level of the relationships between the variables are as follows:



Also, the level of significance of the relationships between the variables is as follows: Figure (2) the final structural model of research in a significant way.



Mood swings have a significant effect on health-related quality of life mediated by perceived infertility stigma.

To calculate the indirect effect of alexithymia on health-related quality of life mediated by perceived infertility stigma. The path coefficient for the relationship between mood variability and perceived infertility stigma is 0.571 (standard error rate based on software outputs = 0.0353) and for the relationship between the two variables of perceived infertility stigma on health-related quality of life equal to 0.392 (standard error rate based on software output = 0.1283) was calculated. Therefore, as calculated below, the indirect effect of mood swings on health-related quality of life through perceived stigma of infertility is 0.0436.

$$B_{indirect} = a \times b \rightarrow 0.571 * 0.392 = 0.2238$$

According to the obtained results, the significance of the indirect effect has been investigated. Given that the t-value value is outside the range of 96 1.96, it can be said that the indirect effect of mood apnea on health-related quality of life Infertility is significant through perceived stigma and this hypothesis is confirmed. In other words, mood distress can improve health-related quality of life by increasing perceived infertility stigma. It is worth noting that the direct effect of alexithymia on health-related quality of life has been confirmed, it can be said that the variable role of perceived stigma infertility is partial mediation in the sense that mood dysfunction is both direct and indirect (from perceived stigma infertility) affects health-related quality of life.

$$t - value = \frac{0.571 * 0.392}{\sqrt{0.571^2 * 0.0335^2 + 0.392^2 * 0.1283^2}} \rightarrow t - value = 4.16$$

• Sexual satisfaction has a significant effect on health-related quality of life mediated by perceived stigma infertility.

To calculate the indirect effect of sexual satisfaction on health-related quality of life mediated by perceived stigma of infertility, as shown in Figure 4-8, the path coefficient for the relationship between the two variables of sexual satisfaction and perceived stigma of infertility is 0.316 (Standard error rate based on software outputs = 0.0362) and for the relationship between the two variables of perceived infertility stigma on quality of life related to health equal to 0.392 (standard error rate based on software output = 0.1283) Was calculated. Therefore, as calculated below, the indirect effect of sexual satisfaction on health-related quality of life through perceived stigma of infertility is 0.087.

$$B_{indirect} = a \times b \rightarrow 0.316 * 0.392 = 0.1239$$

Now, according to the obtained results, the significance of the indirect effect has been investigated. Given that the t-value outside the range is 96 1.96, it can be said that the indirect effect of sexual satisfaction on quality of life related to health. Infertility is significant through perceived stigma, and this hypothesis is confirmed. In other words, sexual satisfaction can increase health-related quality of life by increasing perceived infertility stigma. It is worth noting that, given the confirmed direct effect of sexual satisfaction on health-related quality of life, it can be said that the role of the perceived stigma of infertility is partial mediation in the sense that sexual satisfaction is both direct and indirect (from Perceived stigma of infertility affects health-related quality of life.

$$t - value = \frac{0.316 * 0.392}{\sqrt{0.316^2 * 0.0362^2 + 0.392^2 * 0.1283^2}} \rightarrow t - value = 2.402$$

✓ Fit the research model

To test the measurement model in this study, Cronbach's alpha and composite reliability were used to evaluate the reliability of the measurement model and convergent validity test and divergent validity were used to evaluate the validity test of the measurement model. The results are as follows:

Table (2) Final model fit indicators

Variable	Cronbach's alpha	variable Composite reliability (Delvin-Goldstein P)	Convergent validity	Variable status
Perceived stigma infertility	938 .0	956 .0	843 .0	acceptable
Sexual satisfaction	956 .0	968 .0	884 .0	acceptable
Mood Disorder	623 .0	557 .0	66 .0	acceptable
Health-related quality of life	714 .0	615 .0	478 .0	acceptable

Considering that the value of R2 in the variables of perceived stigma of infertility (0.663) and quality of life related to health (0.713) is almost moderate; therefore, it can be said that the structural fit of the model by R2 is moderate. All the fitting indicators used show that this model has a good fit. Therefore, we conclude that the research model has a high ability to measure the main research variables. Due to the standard nature of the model, the research findings are reliable.

GOF criterion: This criterion is related to the general part of structural equation models. This means that by this criterion, the researcher can control the fit of the general part after examining the fit of the measurement part and the structural part of the general research model. Values of 0.01, 0.25 and 0.35 indicate weak, medium and strong overall fit, respectively. The GOF value in the present research model is as follows:

$$GOF = \sqrt{\overline{communality} \times \overline{R^2}}$$

674 .0

Given that the value of GOF is equal to 0.674; therefore, it can be said that the overall fit level of the model is excellent and acceptable.

Discussion

The aim of this study was to evaluate and predict health-related quality of life in women with infertility based on alexithymia and sexual satisfaction with respect to the mediating role of perceived infertility stigma. The results of the study showed that the perceived stigma variable of infertility has a mediating role in relation to both alexithymia and sexual satisfaction with health-related quality of life in women with infertility.

Stigma is an attitude or thought that a person feels ashamed of having a particular characteristic or behavioral problem that is not approved by society or morality. Stigma is a complex social process of labelling, change, devaluation, and discrimination that is associated with cognitive, emotional, and behavioral elements. When a person accepts and applies these negative ideas and attitudes in society; The patient is said to have internal stigma, the consequences of which are more severe and include feelings of shame, self-blame, and low self-efficacy. According to the results, it can be said that the indirect effect of mood distress on health-related quality of life through perceived stigma of infertility is significant and this hypothesis is confirmed. In other words, mood distress can improve health-related quality of life by increasing perceived stigma of infertility. . Explaining the findings of this study, it can be said that the variable role of perceived stigma of infertility is partial mediation in the sense that mood dysfunction both directly and indirectly (through perceived stigma of infertility) affects quality of life related to health.

As the results showed, health-related quality of life is positively associated with difficulty in describing emotions, difficulty in recognizing emotions, level-oriented thinking, and overall score of alexithymia. Moral dysphoria includes inability to cognitively process emotional information and regulate emotions. This structure is composed of difficult components in identifying emotions, difficulty in describing emotions and external intellectual orientation. In fact, emotion expression, which is opposed to emotion suppression, plays an important role in adaptive human function and

has positive consequences for health and quality of life. Infertile women are involved.

According to the results, one of the influential components in the quality of life of these women is the perceived stigma of infertility. Stigma is an important construct in the field of mental health and is one of the most important consequences of infertility disorder (Duncor, Sandal, 2007). Unwanted infertility leads to stigma in many cultures and exposes women to serious social and emotional consequences (Fido and Zahid, 2004). Studies have shown that 69.19% of infertile women feel stigmatized and 53.08% of infertile women also experience stigma (Lee et al., 2010).

Explaining the results of this hypothesis, it can be stated that whatever infertile women try to suppress their emotion, in fact, they increase their physiological reactivity and experience negative emotion, and instead reduce the experience of positive emotion. Suppression of emotion can also have serious consequences for feelings of unreality, and people who try to suppress unwanted thoughts experience a reflection of these thoughts to a greater extent than if these unwanted thoughts were expressed. In contrast, expressing emotion with its emotional discharge function causes emotions to be properly expressed and prevented from being expressed as a social stigma against infertility, so the lower the rate of mood distress in infertile women, the less The quality of health-related life will be higher in them, and in the meantime, the perceived stigma of infertility will directly and indirectly affect this relationship.

According to the results, it can be said that the indirect effect of sexual satisfaction on health-related quality of life through perceived stigma of infertility is significant and this hypothesis is confirmed. In other words, sexual satisfaction by increasing perceived stigma of infertility can improve health-related quality of life. . Considering the confirmation of the direct effect of sexual satisfaction on health-related quality of life, it can be said that the changing role of perceived stigma of infertility is partial mediation in the sense that sexual satisfaction is both direct and indirect (through perceived infertility stigma). Affects health-related quality of life.

Because infertility causes many problems in mental health, public welfare and marital relationships, it affects the quality of life. The reaction of others to infertile people is influenced by their beliefs about infertility and also by the stigma that is inflicted on infertile people. Understanding the conditions of the social label puts a lot of stress on the people who experience it. Stigma refers to the mistreatment and discrimination against a person for having a trait or behavior that is insignificant. A person who experiences a state of stigma, because of the presence of one or more unpleasant traits, usually feels that he is different from those around him and because of this difference, he distances himself from the society around him. There are a variety of reasons that infertile people feel less stigma and social status, which is the most common reaction of depression, so it affects the quality of life related to the health of infertile women.

On the other hand, in situations of infertility and the feeling of stigma that creates a stressful situation for the person, the person is constantly involved with the subject of stress (i.e. infertility) and it is not possible to avoid this situation; As a result, couples' relationships, including their sexual satisfaction, are affected. Couples' satisfaction with sexual relations and the ability to enjoy and enjoy each other is called sexual satisfaction. Sexual satisfaction is one of the most important factors in marital satisfaction and those who have more sexual satisfaction report significantly better quality of life than those who do not have sexual satisfaction (Pakgoohar, 2008). Anxiety, loss of self-confidence, and shame and depression from infertility impair the sexual function of infertile people. Diagnosis, evaluation and treatment of infertility also interfere with their sexual satisfaction (Micklins, 2003). Deer et al. (2004) reported that lack of sexual pleasure, feeling pressured in planning for sexual intercourse, and lack of sexual self-esteem in infertile women have the greatest effect on their sexual satisfaction. Also, because they have reported that they only think about having children during sex, the constant worry about having another failure increases their stress (Appleton, 2002). From what has been said, it can be said that sexual satisfaction due to the stigma of infertility predicts a health-related quality of life in infertile women. Results of the studies of Ramek et al. (2019),

Kavousian et al. (2015), Mehrabi et al. (2014), Ferreira et al. (2015), Hassanin et al. (2010), Monga et al. (2004), Fax et al. (2003), Martinez et al. (2002), Stotland (2002), Bowin et al. (2001), were consistent with the results of the present study. Finally, according to the findings, the following suggestions are presented:

1. According to the results of the study and the significant relationship between quality of life and mood misery and spiritual health, considering programs and approaches to promote spiritual health by relying on the concepts and meaning and purpose of these people in order to promote happiness and well-being. Life is offered.
2. It is suggested that other factors affecting the quality of life of infertile people such as marital satisfaction and dysfunctional cognitions be examined.
3. It is also recommended that studies based on educational interventions (such as effective coping training, couple relationship training, sex education) be conducted to improve the mental health of infertile women.
4. Interventions related to teaching coping strategies and seeking social support and reducing sensitivity to social labels by correcting thoughts, in order to better adapt to infertility problems seems necessary.
5. It is also recommended that psychologists in medical centers hold the relevant training classes. Psychologists are also required to be active in gynecology and infertility hospitals to solve cognitive, marital and adjustment problems of infertile couples, and family counselling.

Conflict of interest

Authors declare no conflict of interest.

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