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The Mediating Role of Sexual Satisfaction in the Relationships of Body Mass Index and Spiritual Well-being with Quality of Married Life in Women with Breast Cancer

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ABSTRACT

Background: Breast cancer affects several aspects of a woman's life. It can adversely affect a woman's sexual function as well as her relationship with her spouse, which in turn can reduce the quality of her married life. The present study aimed to investigate the mediating role of sexual satisfaction in the relationships of body mass index (BMI) and spiritual well-being with the quality of married life in women with breast cancer.

Methods: This descriptive-correlational study used convenience sampling to enroll all 250 married women with breast cancer visiting specialized clinics in Tehran in 2022. The research instruments included the Revised Dyadic Adjustment Scale (RDAS), the Spiritual Well-Being Scale (SWBS), the Body Mass Index (BMI), and the Index of Sexual Satisfaction. The proposed model was evaluated using structural equation modeling (SEM).

Results: The direct paths from all variables (except for spiritual well-being) to quality of married life were significant ($P < 0.001$). In addition, sexual satisfaction was found to mediate the relationships between BMI and spiritual well-being with the quality of married life in the participants ($P < 0.01$).

Conclusion: The proposed model fitted the data well; therefore, the results may be used to help improve the quality of married life in women with breast cancer.

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INTRODUCTION

Despite the remarkable advances in medical science, cancer is still one of the most important diseases of the 21st century.¹ Breast cancer is the most common cancer in women and the second leading cause of death among them.² It accounts for 25% of all cancer cases in the female population and 24.60% of all cancer cases in Iran.³ Although there is no identifiable risk factor in 70% of women suffering from breast cancer, age and family history are the main risk factors for this disease. The risk is much higher in women who have a history of ovarian or

colon cancer.⁴ Breast cancer affects several aspects of a woman's life. For example, it can adversely affect a woman's sexual function as well as her relationship with her spouse, which in turn can reduce the quality of her married life.^{5,6}

Family provides individuals with the opportunity to satisfy their physical, intellectual, and emotional needs. In addition, people need to understand their biological, psychological, and emotional needs and learn techniques to satisfy those needs. Satisfaction with married life means satisfaction with family, which in turn implies satisfaction with life as a whole. High life satisfaction can facilitate material and spiritual development and social excellence.⁷ Therefore, evaluating the quality of married life of women with breast cancer is of great importance. Marital relationships are among the strong human

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relationships, the quality of which can greatly influence the lives of couples, children, other family members, and society.^{8,9} Factors such as mutual affection, caring, acceptance, and understanding, and satisfaction of each other's needs predict the quality of married life.¹⁰

Obesity is a medical condition that results from excessive accumulation of adipose tissue in the body and can reduce health indicators such as average life expectancy and quality of life.¹¹ Body mass index (BMI) is the most common method for diagnosing obesity. It is calculated by dividing a person's weight (kg) by the square of his/her height (m). People with BMI > 30 is considered obese.¹² The influence of obesity on sexuality is a multifaceted phenomenon that includes biological, social, and psychological factors. Obesity may lead to sexual dysfunction through three mechanisms including insulin resistance and related hormonal changes, dyslipidemia and related medications, and obesity-related psychological problems.¹³ Several researchers have confirmed the relationship between BMI and quality of married life.¹⁴⁻¹⁶ Mosallanezhad *et al.*¹⁷ reported that body weight can influence sexual performance and behavior and the quality of married life.

Spiritual well-being is another factor that seems to affect the quality of married life in breast cancer patients.¹⁸ There is considerable evidence showing that religious and spiritual beliefs fulfill many basic human needs and fill their moral and emotional gaps.¹⁹ Spiritual well-being consists of two components of religious well-being and existential well-being. Religious well-being refers to the relationship of a person with a superior power (God).^{20,21} On the other hand, existential well-being is a psychosocial element expressing a person's feeling of who they are, what they do and why, and to where they belong. Both religious and existential well-being involve transcendence and movement beyond oneself. Spirituality is an innate human need and, according to some experts, it is a prerequisite for cognitive, moral, and emotional development that stimulates continuous effort of human beings to find answers to life's essential questions. Spirituality can influence interpersonal relationships, especially those between married couples. Religious beliefs can effectively improve an individual's overall well-being, especially spiritual well-being, through increasing their inner peace, faith, optimism, self-confidence, and endeavor.²² Several scholars have confirmed the relationship between spiritual well-being and quality of married life.^{23,24}

According to previous studies, both BMI and spiritual well-being directly affect the quality of married life.²⁵ In this regard, we can point to the

mediating role of sexual satisfaction. Sexual satisfaction is the degree to which a person is satisfied with their sexual relations and their ability to provide mutual pleasure.²⁶ Unsatisfactory sexual relations jeopardize the strength of marital relationships.²⁷ Sexual pleasure is one of the most important pleasures that people enjoy throughout their lifetime. This pleasure helps couples endure the hardships of life and deal with their interpersonal problems. Sexual satisfaction deeply affects the quality of life of all people. Medical conditions and illnesses such as cancer reduce couples' sex life because gaining sexual satisfaction is quite difficult for people with refractory diseases.²⁸ Many researchers have confirmed the relationship between sexual satisfaction and the quality of married life.²⁹⁻³²

Cancer-related psychological tensions generally reduce the quality of married life in cancer patients. On the other hand, delays in cancer diagnosis and treatment can prolong the hospitalization time, disrupt medical trainings, and minimize a patient's chances of survival. Depressive symptoms and concerns of cancer patients are often the result of loss of a limb, declined limb function, dependence on others, and failure to fulfill their role in society or family.³³ These issues can prepare the ground for emotional divorce and different relationship problems. To the best of the authors' knowledge, this is the first study that investigates the mediating role of sexual satisfaction in the relationships of BMI and spiritual well-being with quality of married life in women with breast cancer. Therefore, based on the issues outlined above, the main objective of the current study was to investigate the relationship between BMI and spiritual well-being with the quality of married life in women with breast cancer through the mediating role of sexual satisfaction. The conceptual model of the research is presented in Figure 1.

METHODS

This correlational study used structural equation modeling (SEM) to analyze the data. The statistical population consisted of all married women with breast cancer visiting specialized clinics in Tehran in 2022. The sample size was determined based on the number of research variables and the statistical model used.³⁴ In path analysis, the number of parameters is calculated based on the number of direct paths, exogenous variables, and error variances. According to Kline's³⁴ recommendation, researchers should enroll at least 10 participants per estimated parameter. It should be noted that enrolling about 25 participants per parameter would increase the adequacy of the data for testing the model.



Figure 1. The conceptual model of the research

Accordingly, after obtaining permission from authorities at specialized clinics in Tehran, 267 eligible women who were willing to participate in the study were selected using convenience sampling. In the next step, the researchers provided the participants with the necessary questionnaires, and 250 women who completed these questionnaires were selected as the final sample.

Data collection tools

Revised Dyadic Adjustment Scale (RDAS)

This 14-item scale was developed by Busby *et al.*³⁵ to measure levels of marital agreement, satisfaction, and cohesion. The items of this questionnaire are scored on a six-point Likert scale. Maroufizadeh *et al.*³⁶ reported a Cronbach's alpha of 0.85 for the scale.

Spiritual Well-Being Scale (SWBS)

SWBS was designed by Paloutzian and Ellison in 1982. This 20-item scale has two subscales including religious well-being (connection with a superior power) and existential well-being (a psychosocial element that expresses a person's feeling of who they are, what they do and why, and to where they belong). The items are scored on a six-point Likert scale from "completely agree" (score 6) to "completely disagree" (score 1). The sum of scores given to the subscales of SWBS determines the total SWBS score.³⁷ The reliability of SWBS was reported 0.85 using Cronbach's alpha.³⁸

Index of Sexual Satisfaction (ISS)

ISS was developed by Hudson *et al.*³⁹ to evaluate satisfaction of couples with their sexual relationship. The items in this 25-item tool are scored on a five-point Likert scale including always (score 1), most of

the time (score 2), sometimes (score 3), rarely (score 4), and never (score 5). Total scores range from 25 to 125, with higher ISS scores indicating higher levels of sexual satisfaction. Talayizadeh *et al.*⁴⁰ reported a Cronbach's alpha of 0.93 for the questionnaire.

Body Mass Index (BMI)

BMI is the most common anthropometric method for diagnosing obesity, which is calculated by dividing a person's weight (kg) by the square of their height (m²). BMI was introduced in the early 19th century by a Belgian mathematician. Lambert Adolphe Jacques Quetelet noticed that the weight of people who had a normal body shape was proportional to the square of their height. BMI is the most reliable tool for determining if a person is overweight or underweight.⁴¹

Statistical analyses

The proposed model was tested via SEM in SPSS 27 and AMOS 25.

RESULTS

Based on the demographic findings, 1.5%, 14.5%, 32%, and 52% of the participants had master's degrees, bachelor's degrees, high school diplomas, and lower degrees, respectively. In addition, 6%, 40%, and 54% of the women were in the 25–34, 35–44, and 45–58 year-old age groups, respectively. The majority of the participants were housewives (69.4%) and the rest (30.6%) had jobs. Table 1 shows the mean, standard deviation (SD), and Pearson correlation coefficients for the variables. Figure 2 presents a preliminary model designed to explain women's quality of married life based on their body mass index, spiritual well-being, and sexual satisfaction.



Table 1. Mean, standard deviation (SD), and correlation between research variables

Variables	Mean ± SD	1	2	3	4
1- Quality of married life	47.90 ± 6.71	1			
2- Body mass index	24.08 ± 3.12	-0.52**	1		
3- Spiritual well-being	80.81 ± 12.42	0.36**	-0.37**	1	
4- Sexual satisfaction	66.25 ± 7.14	0.48**	-0.49**	0.59**	1

** : P<0.01

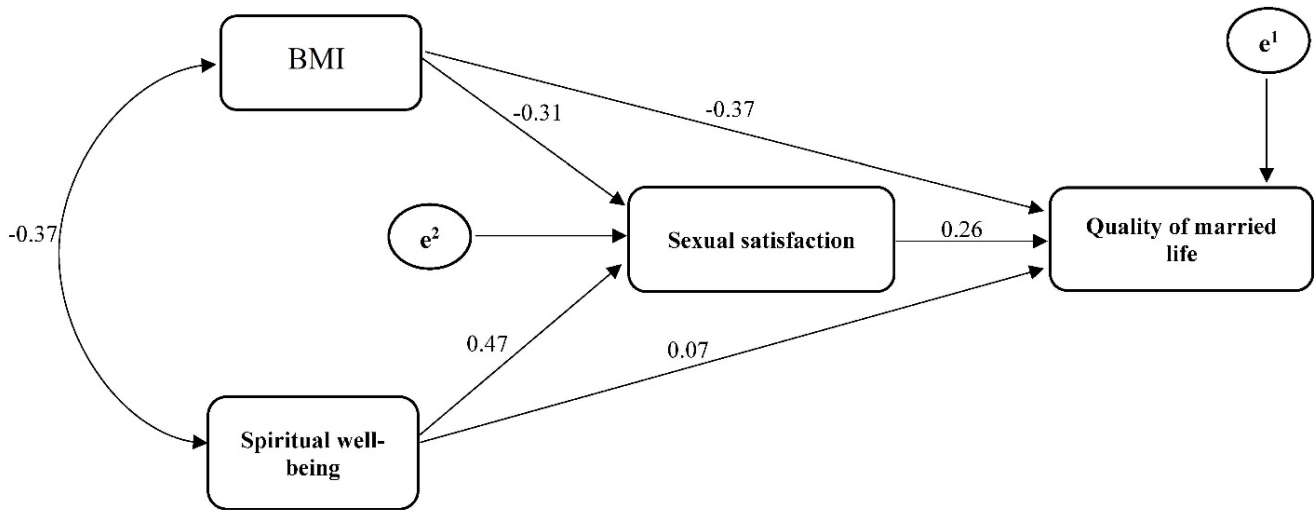


Figure 2. The initial model of the mediating role of sexual satisfaction in the relationship of spiritual well-being and BMI with quality of married life

As presented in Table 2, the value of root mean square error of approximation (RMSEA) was 0.428; hence, the initial model needed to be modified. Since the initial model was saturated (i.e., all possible paths were drawn), the authors were unable to calculate chi-square and other indices. After omitting the non-

significant path (spiritual well-being → quality of married life), the model became unsaturated, and thereby chi-square and other indices were calculated. The final model is shown in Figure 3. The value of RMSEA was 0.019 for the final model, indicating that this model fit the data well.

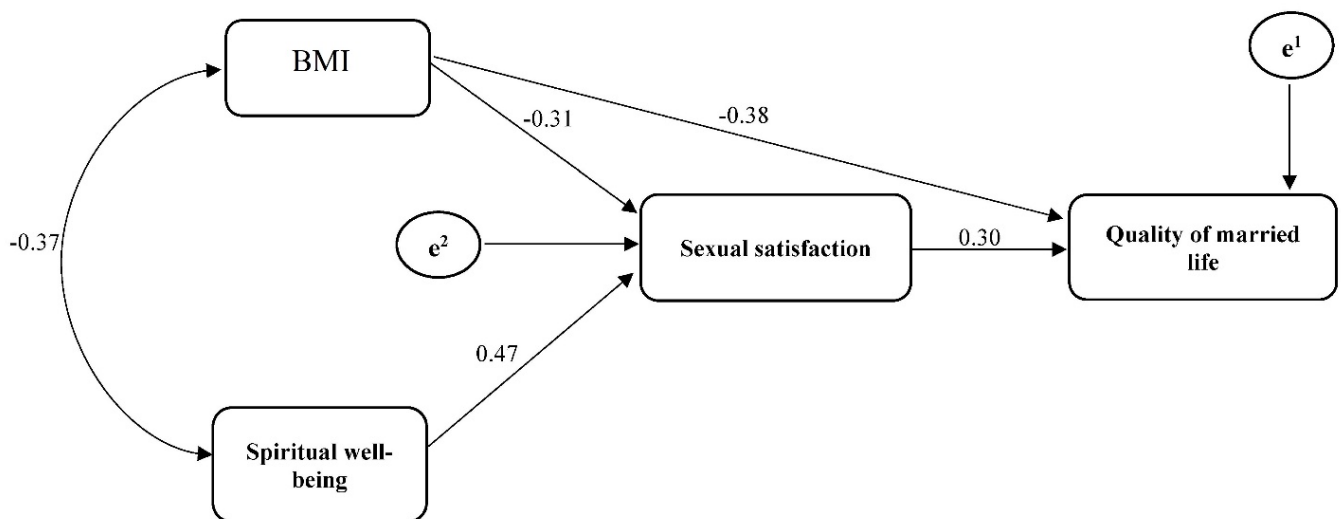


Figure 3. The modified final model of the mediating role of sexual satisfaction in the relationship of spiritual well-being and BMI with quality of married life



Table 2. Fit indicators in the initial and final models

Fit indicators	χ^2	df	(χ^2/df)	IFI	RFI	TLI	CFI	NFI	RMSEA
Initial model	-	-	-	0.91	-	-	0.84	0.87	0.428
Final model	1.07	1	1.07	0.99	0.97	0.99	0.99	0.99	0.019

RFI: Relative Fit Index; TLI: Tucker–Lewis index; CFI: Comparative Fit Index; NFI: Normed Fit Index; RMSEA: Root Mean Square Error of Approximation

Table 3 presents the estimated path coefficients of the research variables for the analysis of direct paths. According to the results, there was a direct and significant relationship between spiritual well-being and sexual satisfaction ($\beta= 0.47, P= 0.001$), and between sexual satisfaction and quality of married life ($\beta=0.30, P=0.001$) in women with breast cancer.

There was a negative and significant relationship between BMI and quality of married life ($\beta=-0.38, P=0.001$), and between BMI and sexual satisfaction ($\beta=-0.51, P=0.001$). The direct paths from spiritual well-being to quality of married life was not significant ($\beta=-0.07, P=0.300$).

Table 3. Path coefficients of direct relationship between research variables in the initial and final models

Path	Initial model		Final model	
	β	P	β	P
BMI → Quality of married life	-0.37	0.001	-0.38	0.001
Spiritual well-being → Quality of married life	0.07	0.300	-	-
BMI → Sexual satisfaction	-0.31	0.001	-0.31	0.001
Spiritual well-being → Sexual satisfaction	0.47	0.001	0.47	0.001
Sexual satisfaction → Quality of married life	0.26	0.001	0.30	0.001

As shown in Table 4, sexual satisfaction significantly mediated the relationships of BMI ($\beta= -0.20, P=0.010$) and spiritual well-being ($\beta=0.07,$

$P=0.015$) with quality of married life in the participants.

Table 4. Estimation of indirect paths in the final model

Paths	Final model	
	β	P
Body mass index to quality of married life through the mediating role of sexual satisfaction	-0.20	0.010
Spiritual well-being to quality of married life through the mediating role of sexual satisfaction	0.07	0.015

DISCUSSION

This study aimed to investigate the mediating role of sexual satisfaction in the relationships of BMI and spiritual well-being with the quality of married life in women with breast cancer. There were significant direct paths from all variables (except for spiritual well-being) to quality of married life. In addition, sexual satisfaction mediated the indirect relationships between the research variables and quality of married life. There was a significant negative relationship between BMI and quality of married life. This finding is consistent with the research results of previous studies.^{14,16}In this regard, it can be argued that putting emphasis on biological factors (such as body weight) will overshadow the important components of sexual satisfaction and functions such as intimacy, peace, honesty, mutual respect and affection, and satisfaction resulting from intimacy. Female sexual response is mainly influenced by non-physical and

non-biological factors such as desire and happiness to be with the partner rather than eagerness for physical-sexual stimulation.¹⁶ Cancer progression, which in some cases necessitates mastectomy, causes these women to have an undesirable body image and may make them feel frightened of intimacy and close marital relationships. In general, the levels of marital dispute and maladjustment are significantly related to body image disturbance, especially after controlling for the effects of BMI.⁴² In other words, a poor body image may disrupt sexual and social relationships of couples, which in turn increase marital stress and decrease the quality of married life.

The second finding of the research showed that there was no significant relationship between spiritual well-being and the quality of married life. This finding is inconsistent with the results reported by Garduno-Ortega *et al.*²⁰ Previous studies confirmed the significant relationship between spiritual well-



being and the quality of married life using correlation coefficient and regression testing; however, in the present research, the authors used path analysis to test the hypotheses.²⁰ In this study, the significant relationship between these two variables was confirmed using Pearson correlation test; however, spiritual well-being was significantly related to quality of married life through the indirect effects of the mediating variables. In other words, in the present model, the variable of spiritual well-being still had an effect, though an indirect one, on the quality of married life. Therefore, this finding is somehow consistent with the results of previous studies.²⁰ Spirituality greatly affects the quality of married life. From an intrapersonal point of view, religious beliefs and practices enable people to control their anger physiologically, cognitively and emotionally and help them accept responsibility for their actions during conflicts. From an interpersonal perspective, religious practices enable couples to think of God when they are angry and support them to avoid marital conflict. Relationship with God has an interactive and compensatory role in marital relationships. In fact, spirituality is an organized system of beliefs including moral values, customs, and participation in the religious community that help people reinforce their belief in God or a higher power. Religious beliefs are an effective method for coping with painful tragic events and experiences. They also influence human relationships when problems and troubles arise.²³

The third finding demonstrated that there was a significant direct relationship between sexual satisfaction of women with breast cancer and quality of their married life. In other words, an improvement in sexual satisfaction of these women is expected to significantly enhance the quality of their married life. This finding is consistent with the research results of previous studies.^{29,30} A satisfying sexual relationship requires the development of an intimate relationship between the couple. This would allow them to talk about their sexual relations more comfortably without any fear or shame. On the other hand, lack of a satisfying sexual relationship can create a tense atmosphere and reduce satisfaction of the couple with their married life. In addition, poor sexual relationships would reduce the strength of marital relationships.³⁰ Therefore, marital satisfaction is closely associated with sexual satisfaction. Sex is an essential part of an individual's life and the quality of sexual relations should be seriously taken into account in social health and medical and pharmaceutical care. Breast cancer can considerably reduce sexual satisfaction and the quality of married life in women; thus, this issue can result in sexual dissatisfaction and even influence marital relationships.

Sexual satisfaction mediated the relationships of BMI and spiritual well-being with the quality of married life of breast cancer patients. No relevant previous research was found to compare its results with this finding of the present study. The first hypothesis revealed a significant negative relationship between BMI and the quality of married life. This is probably due to the fact that an unhealthy BMI adversely affects women's body image, which in turn decreases their emotional intimacy and sexual satisfaction, and consequently reduces their overall quality of married life. On the other hand, there was no significant direct relationship between the variables of spiritual well-being and the quality of married life in the direct path. However, spiritual well-being was found to indirectly influence the quality of married life in breast cancer patients through the mediating role of sexual satisfaction. Spiritual well-being can be generally conceptualized as understanding and establishing a friendly relationship with God and gaining virtues. Establishment of a disciplined relationship between man and woman is among the major pillars of spiritual well-being, which facilitates success in its other pillars and affects many dimensions of individual, social, and spiritual life of people. In fact, a marriage should be arranged from the beginning in a way that ensures optimal functioning and great spiritual well-being of all family members. Spirituality is a prerequisite for marital success and satisfaction because spiritual well-being influences people and their relationships, thereby affecting their sexual satisfaction level and quality of married life.²⁴ Religious attitude and well-being can affect marital relationships; therefore, it can be argued that sexual satisfaction strongly mediates the relationships of BMI and spiritual well-being with quality of married life.

The present study had some limitations. For example, only women with breast cancer visiting the specialized clinics in Tehran were enrolled; thus, the results must be cautiously generalized to women with breast cancer residing in other cities. Therefore, researchers may carry out similar studies on different populations in order to increase the generalizability of the results.

CONCLUSION

Consequently, there was a negative relationship between BMI and the quality of married life. There was a positive relationship between sexual satisfaction in women with breast cancer and their quality of married life. Moreover, sexual satisfaction mediated the relationship of BMI and spiritual well-being with the quality of married life in women with breast cancer. The proposed model fitted the data



well; therefore, the results may be used to help improve the quality of married life in women with breast cancer. It is suggested that the relevant authorities hold special educational workshops to improve spiritual well-being of women with breast cancer thereby increasing their sexual satisfaction and enhancing the quality of their married life.

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ETHICAL CONSIDERATIONS

The study was approved by the Ethical Committee of Islamic Azad University- Ahvaz Branch (code: IR.IAU.AHVAZ.REC.1401.037).

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CONFLICT OF INTEREST

There are no conflicts to declare.



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