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Prediction of Women's Marital Intimacy Based on Sexual Satisfaction and Health Literacy among Husbands with Diabetes in Ahvaz, 2021

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Abstract

Objective: Health literacy improves self-regulation and management of diabetes through proper diets in diabetic men. As a result, they will gain more knowledge about the effects of this disease on marital life and sexual relationships. The present study aimed to investigate the relationship between women's marital intimacy with sexual satisfaction and health literacy among husbands with diabetes.

Materials and Methods: The method of the present research was descriptive and correlational. The statistical population of the study included all male patients with diabetes and their wives in Ahvaz in 2021. Convenience sampling was done to select 140 diabetic men with their wives as the research sample. The research instruments included the Intimacy Questionnaire in Marital Relationships, the Index of Sexual Satisfaction, and Health Literacy for Iranian Adults. Pearson's correlation coefficient and simultaneous regression analysis were used for data analysis.

Results: According to the results, sexual satisfaction and health literacy in diabetic men had significant positive relationships with the women's marital intimacy ($P< 0.001$). Furthermore, regression results indicated that sexual satisfaction and health literacy had significant multiple correlations with marital intimacy ($P< 0.001$).

Conclusion: The results highlighted the growing importance of paying attention to the roles of women's sexual satisfaction and their diabetic husbands' health literacy in improving marital intimacy and strengthening both family and marital relationships.

Keywords: Diabetes mellitus, Health literacy, Family conflict, Sexual satisfaction

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Introduction

Diabetes is a chronic condition in which the body fails to use or store glucose. There are two major types of diabetes: type 1 and type 2. In type 1 diabetes (T1D), the body ceases completely to produce any insulin (1,2). Insulin is a hormone that enables the body to use the glucose in food to generate energy. Patients with T1D should have daily insulin shots to survive. In type 2 diabetes (T2D), the body does not produce sufficient insulin or fails to use it properly (3,4). T2D emerges after the age of 40, in overweight individuals, or in those with a family history of diabetes. Nevertheless, there is now a rapid increase in the number of T2D cases among the youth (5). Currently, there are more than 180 million people with diabetes in the world and this number is predicted to double by 2030 (6).

In women, the symptoms of diabetes include dry, itchy skin and frequent fungal infections or urinary tract infections. However, diabetic men experience declined sexual desire, erectile dysfunction, and reduced muscle power (7). These symptoms affect different aspects of a man's life, especially his sexual performance (8). In these patients, reduced sexual desire results in lower marital intimacy. Marital intimacy is among the most important and effective factors in the durability of a successful, healthy and happy marriage. Regarding the identification of factors affecting marital intimacy, experts agree that success in marriage requires both spouses to have specific abilities and skills, communication and problem-solving skills (9). If a marriage and a family life cause unfavorable conditions for satisfaction of psychological needs of spouses, mental health will not be achieved. Such conditions will also have adverse and even sometimes irreversible impacts, which can lead to dangerous family disorders such as depression, suicide, and neurobiological disorders (10). Various factors can affect intimacy in women's marital relationships. A key factor is a sexual satisfaction, which generally affects the quality of life.

Medical conditions and diseases such as diabetes can damage a married sexual life. Diabetic patients face many obstacles to achieving sexual satisfaction. Diabetes often reduces vaginal blood flow because of the changes in the arteries that decrease stimulation and sensitivity (11). Research has shown that diabetic patients have difficulty in reaching orgasm due to vascular changes and neural damage. In other words, what used to be effective in reaching orgasm does not help a patient reach orgasm anymore due to diabetes. As a result, diabetic patients and their sexual partners will experience sexual dissatisfaction (12). Duarte et al. (13) concluded that T2D weakened sexual function and threatened sexual satisfaction in Brazilian and Venezuelan men and women. Cao et al. (14) noticed that sexual satisfaction was an important factor in increasing marital satisfaction in couples and reported that sexual satisfaction would be experienced in the early years of marriage. Granado–Casas et al. (15) reported that quality of life and sexual function in diabetic patients would affect life satisfaction of couples and would result in infidelity on the part of a healthy spouse if sexual dysfunction persisted. Men's health literacy is another factor that seems to affect intimacy in women's marital relationships.

Health literacy includes a series of reading, hearing, analyzing, decision-making skills and the ability to use these skills in health-related situations, which does not necessarily depend on years of education or general reading ability (16). The results of various studies suggest that low levels of health literacy are correlated with a high prevalence of chronic conditions such as diabetes (17,18). Given the considerable negative effects of diabetes, improving health literacy can play a major role in preventing and treating diabetes and in saving resources. In other words, health literacy can help control and improve diabetes

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in men and enhance intimacy in women's marital relationships. By definition, health literacy denotes an individual's capacity to acquire, perceive, and interpret primary health information and health services in order to make the appropriate decisions (19).

Given the importance that women have and the key role they play in maintaining the psychosocial balance of the family, and considering the various problems and difficulties they face due to the affliction of their husbands with diabetes, it is necessary to develop appropriate plans to solve such problems. Due to the paucity of relevant studies in the literature, it was necessary to conduct this research. Therefore, based on the presented materials, the purpose of this research was to predict women's marital intimacy based on sexual satisfaction and health literacy among husbands with diabetes.

Materials and Methods

The method of the present research was analytic cross-sectional. The statistical population in this study included all men with T1D and T2D and their wives living in Ahvaz and enrolled in the Diabetes Society of Khuzestan Province in 2021. Convenience sampling was used to select 140 diabetic patients and their wives, among whom the research questionnaires were distributed, collected after completion and analyzed. Inclusion criteria were: men with diabetes, having at least a middle school education, the age range of 30 to 60 years, no drug addiction, and informed consent to participate in the study. The exclusion criterion was: incomplete questionnaires.

After selecting the research sample based on the inclusion criteria, the research questionnaires were provided to the participants. In this study, women responded to the Intimacy Questionnaire in Marital Relationships, and men with diabetes responded to the Index of Sexual Satisfaction and the Iran Urban Population Health Literacy Scale. As suggested by Kline (20), a sample of about 25 participants per parameter would constitute an adequate sample. In this study, according to the study variables, a total of 75 samples were needed. Overall, in order to reduce the sampling error a total of 156 questionnaires were distributed among the participants, and finally, after removing incomplete questionnaires, 140 questionnaires were analyzed.

Intimacy questionnaire in marital relationships

Thompson and Walker (21) designed this 17-item questionnaire to evaluate the intimacy of couples. The score of each item ranges from 1 ("never") to 7 (always). Higher scores indicate higher levels of intimacy. The reliability of the intimacy questionnaire in marital relationships was reported 0.95 using Cronbach's alpha (22).

Index of sexual satisfaction

This 25-item questionnaire was developed by Hudson et al. (23) to assess levels of sexual satisfaction in couples (for instance, "I feel that my sexual life lacks quality or that my husband cannot sexually satisfy me."). Responses to each item is scored on a five-point Likert scale ranging from 1 to 5 (i.e., 1= "always", 2= "often", 3= "sometimes", 4= "rarely", and 5= "never"). The minimum and maximum scores of this scale are 25 and 125, respectively. Items 1, 2, 3, 9, 10, 12, 13, 16, 17, 19, 21, 22, and 23 are scored inversely. Higher scores indicate higher levels of sexual satisfaction. The reliability of the scale was reported 0.93 using Cronbach's alpha (24).

Iran urban population health literacy scale (18-65 years)

Montazeri et al. (25) designed and normalized this scale according to sociocultural characteristics in Iran. The qualitative content validity of this scale was analyzed by 15 experts in different fields of health. Their recommended modifications were then applied. This tool was finalized with 47 items. The construct validity and reliability were evaluated using exploratory factor

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analysis and internal consistency coefficient, respectively, after data were collected from 335 individuals selected randomly from the 22 districts of Tehran. According to the final results of the exploratory factor analysis, this scale had appropriate construct validity with 33 items in five fields. The reliability of the scale was reported as 0.89 using Cronbach's alpha (25).

Statistical analysis

Data analysis was performed in SPSS 25. The mean and standard deviation (SD) were used for descriptive analysis, whereas the Pearson correlation coefficient and the simultaneous regression analysis were employed for inferential analysis.

Ethical considerations

The study protocol was approved by the Ethics Committee of Islamic Azad University, Ahvaz branch (code: IR.IAU.AHVAZ.REC. 1401.040).

Results

The mean and standard deviation (±SD) of the age of men and women were 47.38 (±6.71) and 42.54 (±5.47) years, respectively. According to the findings on demographic variables, the duration of diabetes was 8-19 years in 69.0% of men and 1-7 years in another 31.0%. Regarding the type of diabetes, 40.5% and 59.5% had T1D and T2D, respectively. Table 1 presents the mean ± SD, skewness, kurtosis, and minimum and maximum values of the research variables.

Before analyzing the data related to the hypotheses, the research data were checked to ensure that they could estimate the underlying hypotheses of the regression analysis model. For this purpose, the regression analysis hypothesis was analyzed. Skewness was used to test for normality. Table 1 presents the results. Moreover, study of the data did not yield the missing data. Tolerance and variance inflation factor (VIF) were employed to detect multi-collinearity. Their values were 0.731 and 1.368, respectively. In other words, the VIF value was below 10, whereas the tolerance value was above 0.1; therefore, the hypothesis regarding the absence of multi-collinearity was accepted.

Table 2 presents the correlation coefficients of the research variables. Our findings indicated that sexual satisfaction had a significant positive relationship with marital intimacy, and health literacy had a positive significant relationship with marital intimacy ($P< 0.01$).

Simultaneous regression analysis was conducted to determine which variables were more effective in predicting marital intimacy. Sexual satisfaction and health literacy (as the two predictor variables) and marital intimacy (as the criterion variable) were entered into the equation. Sexual satisfaction and health literacy had significant multiple correlations with marital intimacy (r= 0.51, $P\leq 0.001$). The beta values of sexual satisfaction and health literacy were 0.46 ($P\leq 0.001$) and 0.11 ($P= 0.047$), respectively.

Discussion

The present study aimed to predict women's marital intimacy based on sexual satisfaction and health literacy among husbands with

Table 1. Mean, standard deviation (SD), skewness, and kurtosis of the research variables

Variable	Mean ± SD	Skewness	Min	Max
Women's marital intimacy	64.84 (± 9.51)	-0.61	35	83
Men's sexual satisfaction	98.35 (± 14.32)	0.27	32	58
Men's health literacy	88.47 (± 11.50)	-0.18	33	65

Table 2. Correlation coefficients between the research variables

Variable	Women's marital intimacy
Men's sexual satisfaction	0.47**
Men's health literacy	0.35**

**: $P<0.01$

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diabetes. The results of this study indicated that the women's sexual satisfaction and their diabetic men's health literacy had significant correlations with the women's marital intimacy. Moreover, there was a positive significant correlation between the diabetic husbands' sexual satisfaction and marital intimacy. This finding is consistent with the results of previous studies (13,14,26,27). According to Cao et al. (14), sexual satisfaction in couples can act as an important factor in improving their marital satisfaction. They concluded this sexual satisfaction was observed in the early years of marriage. Duarte et al. (13) reported that T2D in Brazilian and Venezuelan men and women weakened sexual function and endangered their marital satisfaction. In this regard, Rahmanian et al. (28) reported that diabetic women's sexual dysfunction affected their sexual satisfaction and marital satisfaction. This finding can be explained by stating that sexual satisfaction in a marriage requires an intimate relationship between the husband and wife in the first place. As a result of this intimate relationship, couples will then be able to talk about sexual relationships in a more relaxed way without any fear or shame. Studies have emphasized the importance of a sexual relationship in creating an intimate marital atmosphere. Termination of this relationship can also lead to marital stress and dissatisfaction (28). In other words, marital stability is threatened in the absence of sexual satisfaction. Thus, marital satisfaction is closely correlated with sexual satisfaction because sexual satisfaction is an important aspect of a person's life that should seriously be considered in social health, pharmaceutical care, and medical care. Hence, failure to pay attention to this issue can cause sexual dissatisfaction and even adversely affect marital relationships.

Another finding of this study was that diabetic men's health literacy had a positive significant relationship with women's marital intimacy. This finding is consistent with the results of previous studies (29,30). This finding can be explained by stating that family stability depends on the stability and fundamentality of marriage and marital relationships. In other words, any decline in marital satisfaction will not only disrupt a couple's peace of mind but will also threaten the durability of their family life. Therefore, improving diabetic men's health literacy and informing them of the effects that this disease has on their interpersonal relationships and sexual function, which can reduce their wives' marital satisfaction, makes it possible to control diabetes and hence increase women's marital intimacy. Health literacy improves self-regulation and management of diabetes through proper diets in diabetic men (29). As a result, they will gain more knowledge about the effects of this disease on marital life and sexual relationships. Generally, health literacy is defined as social-cognitive skills that determine people's capacity and ability to acquire, process, perceive, and apply health information in order to make correct decisions on health issues and hence promote their health. Furthermore, health literacy affects diabetic men's moods and attitudes towards sexual relationships and marital life, thereby affecting sexual satisfaction of their wives. Apparently, improving health literacy will increase knowledge about sexual physiology and sexual performance, which will affect sexual satisfaction of their wives (18). In fact, health literacy is defined as people's access to health services, understanding and use of health information systems, interpretation of health-related issues, and proper decision-making (16). Insufficient health literacy among diabetic patients will lead to marital dissatisfaction, which will in turn affect their marital relationships and cause problems for family foundations.

According to the regression results, women's sexual satisfaction and men's health literacy had significant multiple correlations with women's marital intimacy. Generally, these results can be explained by stating that diabetes will not only affect many organs of the body but will also cause major social-behavioral complications. Coping with all

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these difficulties and withstanding the lengthy process of treatment cause many crises for patients with diabetes. At the same time, sexual satisfaction has gained increasing importance at different levels of public literacy and care literacy. In fact, sexual satisfaction is essential to people's capacity to meet the complicated needs of health in a modern society. People with low levels of sexual satisfaction are less likely to perceive the written and spoken information presented by health experts and follow the provided instructions; therefore, they have poorer health.

Diabetes is characterized by numerous complications that require extensive training in self-care and self-management. Diabetic patients who require advanced sexual satisfaction skills are often provided with printed and oral instructions in self-care (18). Wang et al. (29) concluded that sexual satisfaction in diabetic patients would highlight the importance of constant blood sugar checking, improve the quality of their life, and enhance marital satisfaction. Stechova et al. (27) reported that women with T1D suffered from sexual dysfunction, which diminished their marital satisfaction. They concluded that providing the necessary training in the type of control and treatment of this disease and increasing sexual satisfaction in these women could enhance their sexual function and marital satisfaction. According to Wong et al. (30), sexual satisfaction and health literacy behaviors were correlated with marital satisfaction in patients with renal disease. In general, marital satisfaction is closely correlated with sexual satisfaction because sexual relationship is an important aspect of a person's life that should extensively be considered in social health, pharmaceutical care, and medical care (28). Hence, the negligence of this problem can cause sexual dissatisfaction and even affect marital relationships. In fact, a lack of intimate relationships and proper sexual function will reduce health literacy in diabetic men, who will then make no attempts to comply with treatments and diets. As a result, their wives will be dissatisfied (27). If diabetic men become aware of this problem, they can be expected to treat or control diabetes in order to improve their sexual function and experience greater marital satisfaction with their wives, thereby increasing the marital intimacy.

Since the statistical population included male patients with T1D and T2D with their wives visiting endocrinologists in Ahvaz, necessary precautions should be taken into account when generalizing the research results to other populations and patients. Furthermore, this study did not analyze women with T1D and T2D; hence, the research results should cautiously be generalized to women. To solve this problem, similar studies should also be conducted on women. Their results could then be compared. To improve the generalizability of the results of this study, it is recommended that future studies analyze the variables of this study in populations of diabetic women so that their results can be compared with those of the present research.

Conclusions

Diabetic men's health literacy had a positive correlation with their wives' marital intimacy. Therefore, training workshops should be held to improve the sexual satisfaction and health literacy of men with T1D and T2D in order to enhance sexual satisfaction and marital intimacy in their wives and strengthen both marital and family relationships. Since health literacy can be acquired and learned, medical planners and advisors should pay more attention to this issue and teach these skills to diabetic patients through mass media.

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Conflict of Interest

The authors declare that they have no conflicts of interest.

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