Original Article

Effect of Sexual Quality of Life on Self-Management Perceptions of Women with Type 2 Diabetes

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ABSTRACT

Background: The quality of sexual life of women with type 2 diabetes has an impact on their self-management perceptions. **Aim:** To evaluate the effect of quality of sexual life on self-care perceptions of women with type 2 diabetes mellitus (DM). **Material and Methods:** It was an online descriptive study of 127 women with type 2 DM. The questionnaire consisted of a patient information form, sexual quality of life scale-female, and diabetes self-management perception scale. **Results:** There was a significant relationship between diabetes self-management perception and sexual quality of life (P = 0.000). The individuals' diabetes self-management perception scores differed significantly according to their age (F = 3.12; P = 0.047), and the sexual quality of life scores differed significantly according to their treatment type (F = 4.01; P = 0.020). **Conclusion:** There is a relationship between quality of sexual life and self-management perceptions of women with type 2 DM. As the quality of sexual life increases, diabetes self-management perceptions increase. Age affects diabetes self-management perception, and the type of treatment used by individuals also affects their quality of sexual life.

KEYWORDS: *Self-management perception, sexual life, type 2 diabetes, women*

INTRODUCTION

Diabetes mellitus (DM) is the most common and rapidly increasing chronic metabolic disease in the world.[1] Due to its effects on the body during and after insulin release, DM negatively affects the quality of life of the individual, shortens the life span, and brings economic and moral burden to the individual and society.[2]

Urogenital complications of diabetes can be classified as lower urinary tract dysfunction, sexual dysfunction, and urinary tract infections. Diabetes can cause sexual dysfunction in both men[3] and women.[4] The causes of sexual dysfunction in women with diabetes include hyperglycemia, infections, vascular/neurological damage, and hormonal disorders. It is reported that hyperglycemia disrupts the secretions of vaginal mucosal glands, decreases lubrication, and causes dyspareunia.[5,6] In addition, genitourinary infections also cause vaginal pain.[5]

Decreased quality of life due to complications of diabetes also decreases sexual performance.[6] It is stated that any deterioration that may occur in sexual health causes deterioration in the mental, family, and social health of the individual and reduces the quality of life. The quality of sexual life of women in special periods of their lives such as menopause, pregnancy, and old age should be examined.[7,8]

Individuals with diabetes have the ability to self-manage, such as diet, exercise time, foot care, control of changing blood glucose levels, and adjusting medications and/or insulin amount, to maintain the necessary self-management in line with their daily needs.[9] Symptoms such as excessive thirst, dry mouth, fatigue, difficulty in thinking, drowsiness, and fluctuations in blood glucose levels indicate inadequate self-management perception of the patient. It is important for individuals with diabetes to increase their self-management

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perception in order to successfully manage the problems they experience when symptoms occur.[6] DM causes sexual dysfunction by negatively affecting reproductive organs and sexual activity. Physiological diseases such as DM and hypertension (HT), medications, and surgical operations also cause the emergence and persistence of SIB.[10]

Nurses should support individuals with diabetes to actively participate in their own care for diabetes management and behavior change.[6] One of the most important obstacles in sexual education is the lack of knowledge of health professionals about preventive measures, diseases, treatments, and improvement of sexual health.[11] In a study conducted in our country, it was concluded that only 19.4% of nurses provide sexual health care services.[12] This may be due to the fact that women do not follow their own problems and even if they realize the presence of a sexual problem, they postpone applying to a health institution due to embarrassment and sense of privacy. It is important to evaluate the diabetes self-management perception of patients due to reasons such as frequent blood sugar irregularities and increased incidence of complications in individuals with diabetes.[11]

Assessing patients' sexual health and concerns about sexuality is an important part of the professional nursing role and holistic care. However, very few nurses can integrate this skill into their clinical practice.[13] A significant portion of nurses are reluctant to discuss sexuality with their patients. It is important that nurses create appropriate environments by ensuring that they can easily express their sexual problems, that their sexual functions are evaluated and addressed in the patient care plan, and that they give greater coverage to training on the protection of sexual health in patient education. This will enable them to support an important element in the protection and development of sexual health and improving the quality of life.[14]

This study will contribute to the literature on diversifying the sexual lives of women with type 2 diabetes according to their self-management understanding. There are not many studies on this subject in the literature.

Materials and Methods

The research was conducted between March 2022 and August 2022 after receiving permission from the Fenerbahçe University Academic Research and Publication Ethics Board (FBU/2020-54).

Purpose and type of study

This descriptive study was planned and conducted to evaluate the effect of quality of sexual life on self-care perceptions of women with type 2 diabetes.

Inclusion criteria

These included being a woman diagnosed with type 2 diabetes, 18 years of age and above, having a sexual partner, and volunteering to participate in the study.

Exclusion criteria

Those with psychiatric and neurological problems and those who could not communicate were not included from the study.

Research questions

How the quality of sexual life of women with type 2 diabetes affects their self-management?

Place and time of the study

The study was conducted with patients who applied to the endocrinology outpatient clinic of a private hospital and volunteered to participate in the study after obtaining ethics committee permission.

Population and sample

The population of the study consisted of women with type 2 diabetes on the unknown social platform. Power analysis was performed to determine the sample of the study. The power of the test was calculated with the G*Power 3.1 program. The effect size was taken as 0.15 as a medium level according to the multiple regression analysis determined by Cohen (1988).[15] In order to exceed the 95% value in determining the power of the study, 107 people were calculated at 5% significance level and 0.15 effect size (df = 2; F = 3.08); 127 women with type 2 diabetes participated in the study.

Method of the study

It was a descriptive online survey. The questionnaire form was sent to women with type 2 diabetes who agreed to participate in the study via online tools (e-mail, WhatsApp, Facebook, and Instagram). Data were obtained from those who agreed to participate in the study and fully responded to the questions (n = 127).

Data collection tools

Patient Information Form: The patient information form created by the researcher in line with the literature consists of eight questions including individual and disease-specific characteristics of the individuals.

Sexual quality of life scale (SQLS-S)

It was developed by Symonds *et al*. (2005).[16] The validity and reliability of SQLS-S were determined by Tuğut[10] (2010) in our country. It is a six-point Likert-type scale and consists of 18 items. The range of points that can be obtained from the scale is 18–108, and a high score indicates a good quality of sexual life. The Cronbach's alpha reliability coefficient showing the internal consistency of the scale was found to be 0.75.

Perception of self-management in diabetes scale

The Diabetes Self-Management Perception Scale (DSMAS) was prepared by Wallson *et al*. (2007),[17] and its Turkish validity and reliability were determied by Bayındır Çevik and Özcan. It is a five-point Likert-type scale and consists of eight items. Four items of the scale (1, 2, 6, 7) are negative expressions, and a high level of participation in these items indicates low self-efficacy. For this reason, these four items are reverse scored compared to the other items. Scores that can be obtained from the scale vary between 8 and 40. The higher the total score, the higher the awareness in diabetes management. The Cronbach alpha value of the scale was determined as 0.76.[18]

Data evaluation

The data obtained in the study were evaluated in a computer environment through the SPSS 22.0 statistical program. Frequency and percentage analyses were used to determine the descriptive characteristics of the women participating in the study, and mean and standard deviation statistics were used to analyze the scale. Kurtosis and skewness values were analyzed to determine whether the research variables were normally distributed. In the relevant literature, the results of the kurtosis and skewness values of the variables between +1.5 and -1.5[19] and between +2.0 and -2.0[20] are accepted as normal distribution. It was determined that the variables showed normal distribution. Parametric methods were used to analyze the data. The relationships between the dimensions determining the scale levels of women with type 2 diabetes were examined through Pearson correlation and linear regression analyses. Independent groups *t*-test, one-way analysis of variance (ANOVA), and *post hoc* (Tukey) analyses were used to examine the differences in scale levels according to descriptive characteristics. Cohen (d) and eta square (η2) coefficients were used to calculate the effect size. The effect size indicates whether the difference between the groups is large enough to be considered significant: Cohen's value of 0.2: small; 0.5: medium; 0.8: large; eta squared value of 0.01: small; 0.06: medium; 0.14: large.

Results

The women with type 2 diabetes were distributed according to age: 39.4% (n = 50) were 50 and under, 39.4% (n = 50) were 51–60, and 21.3% (n = 27) were 61 and over. The curriculum includes 49.6% (n = 63) high-school students and below and 50.4% (n = 64) university students. In their marital status, 59.8% (n = 76) are married and 40.2% (n = 51) are single. According to working hours, 43.3% (n = 55) are working and 56.7% (n = 72) are not working. The diagnosis period for the diseases is 1–5 years for 59.1% (n = 75) and 6 years or more for 40.9% (n = 52). It was determined that the treatment method was 29.9% (n = 38) insulin, 33.1% (n = 42) oral antidiabetic (OAD), and 37.0% (n = 47) oral antidiabetic + insulin [Table 1].

Table 1: Descriptive characteristics of women with type 2 diabetes

Groups	Frequency (*n*)	Percentage
Age		
50 and under	50	39.4
51-60	50	39.4
61 and above	27	21.3
Educational status		
High school and below	63	49.6
University	64	50.4
Marital status		
Married	76	59.8
Single	51	40.2
Working status		
Working	55	43.3
Not working	72	56.7
Diagnosis time		
1–5 years	75	59.1
6 years and above	52	40.9
Treatment method		
Insülin	38	29.9
OAD	42	33.1
OAD + Insülin	47	37.0

Table 2: Correlation analysis between scale scores

	Sexual quality of life
Perception of diabetes self-management	
r	0.43**
P	0.000

*<0.05; **<0.01; Pearson Korelasyon Analizi

When the correlation analyses between sexual quality of life, diabetes self-management perception, and valid n (listwise) scores of women with type 2 diabetes were analyzed, a positive weak ($P = 0.000 < 0.05$) correlation of r = 0.43 was found between diabetes self-management perception and sexual quality of life [Table 2].

Regression analysis performed to determine the cause and effect relationship between sexual quality of life and diabetes self-management perceptions of women with type 2 diabetes was found to be significant (F = 29.80; $P = 0.000 < 0.05$). The total change in diabetes self-management perceptions was explained by sexual quality of life by 18.6% (R2 = 0.18). Sexual quality of life increased the perception of diabetes self-management (β = 0.43) [Table 3].

Diabetes self-management perception scores of women with type 2 diabetes showed a significant difference according to age (F = 3.12; $P = 0.04 < 0.05$; η2 = 0.04).

Table 3: Effect of sexual quality of life on diabetes self-management perception

Independent variable	Unstandardized Coefficients		Standardized Coefficients	*t*	*P*	95% Confidence Interval	
	B	SE	ß			Lower	Top
Constant	12.99	2.37		5.48	0.000	8.30	17.68
Sexual quality of life	0.30	0.05	0.43	5.45	0.000	0.19	0.40

*Dependent Variable=Perception of diabetes self-management, R=0.43; R^2=0.18; F=29.80; P=0.000; Durbin Watson value=1.96

Table 4: Differentiation of scale scores according to descriptive characteristics

Demographic features	*n*=127	Sexual quality of life	Perception of diabetes self-management
Age		Ort±SS	Ort±SS
50 and under	50	43.5±8.0	26.9±5.3
51-60	50	42.0±6.2	25.3±4.2
61 and above	27	41.2±6.3	24.3±4.5
F=		1.07	3.12
P=		0.346	0.047
Post hoc=			1>3 (*P*<0.05)
Educational status		Ort±SS	Ort±SS
High school and below	63	41.6±6.7	25.0±4.8
University	64	43.3±7.2	26.4±4.7
t=		-1.37	-1.69
P=		0.171	0.093
Marital status		Ort±SS	Ort±SS
Married	76	42.6±7.3	26.0±4.9
Single	51	42.2±6.6	25.3±4.6
t=		0.28	0.69
P=		0.775	0.487
Working status		Ort±SS	Ort±SS
Working	55	42.8±6.1	25.6±4.6
Not working	72	42.1±7.6	25.8±4.9
t=		0.56	-0.31
P=		0.573	0.751
Diagnosis time		Ort±SS	Ort±SS
1-5 years	75	41.6±6.4	26.0±4.5
6 years and above	52	43.6±7.6	25.3±5.1
t=		-1.54	0.79
P=		0.126	0.426
Treatment method		Ort±SS	Ort±SS
Insulin	38	44.9±8.1	26.6±5.2
OAD	42	40.6±5.3	25.0±4.5
OAD + Insulin	47	42.0±6.9	25.6±4.6
F=		4.01	1.18
P=		0.020	0.311
Post hoc=		1>2 (*P*<0.05)	

F: Anova Testi; T: Bağımsız Gruplar T-Testi; PostHoc: Tukey, LSD

Table 5: Scale score averages

	n	Mean	SS	Min.	Max.	Kurtosis	Skewness
Sexual quality of life	127	42.4	7.0	28.89	67.78	1.07	0.71
Perception of self-management in diabetes	127	25.7	4.8	16.00	40.00	0.02	0.33

The reason for the difference is that the diabetes self-management perception scores of those aged 50 and below are higher than those of those aged 61 and above ($P < 0.05$). Sexual quality of life scores did not differ significantly according to age ($P > 0.05$). The sexual quality of life scores of the participants showed a significant difference according to the type of treatment ($F = 4.01$; $P = 0.02 < 0.05$; $\eta 2 = 0.06$). The reason for the difference was that the sexual quality of life scores of those whose treatment type was insulin were higher than the sexual quality of life scores of those whose treatment type was OAD ($P < 0.05$). Women's diabetes self-management perception scores did not differ significantly according to treatment type ($P > 0.05$) [Table 4].

The mean "quality of sexual life" was 42.48 ± 7.02 (Min = 28.89; Max = 67.78), and the mean "perception of self-management in diabetes" was 25.75 ± 4.81 (Min = 16; Max = 40) [Table 5].

Discussion

When the literature was examined, no study on this subject was found. Therefore, it will contribute signicantly to the existing body of knowlege in type 2 DM.[16] It is known that the presence of diabetes has a negative effect on the sexual functions of individuals. Diabetes specialists who take care of individuals should be concerned not only with the glycemic control of their patients but also with their sexual problems because these problems can negatively affect the quality of life of individuals.[21] Sexuality, which is an important part of a woman's daily life, can harm her diabetes, general health, relationships, and self-confidence.[22]

The education level of 64 (50.4%) of the women with type 2 diabetes who participated in our study was university graduate. In a previous study, the education level of the participants was high school. At the same time, it was stated that the level of education is important in the quality of life of individuals with diabetes. It has been stated that individuals with diabetes are effective in improving self-efficacy, self-care, attention or focus, awareness, and also quality of life after leaving the hospital through education.[23]

In our study, when the relationship between sexual quality of life and diabetes self-management perception scores of women with type 2 diabetes was examined, a

positive weakly significant relationship was found. In a study, it was reported that women with diabetes had sexual dysfunction and their quality of life was low. The sexual quality of life of women with diabetes was found to be lower than that of men.[24] As problems increase in the sexual relationships of women with diabetes, quality of life decreases. Sexual satisfaction is related to quality of life.[25] Satisfying and enjoyable sexual activity positively affects quality of life. On the contrary, the quality of life of the individual deteriorates.[26] This situation is thought to affect the individual's self-care behaviors and self-management perception.

The regression analysis performed to determine the cause and effect relationship between the quality of sexual life and diabetes self-management perceptions of women with type 2 diabetes who participated in the study was found to be statistically significant. An increase in sexual quality of life also increases the perception of diabetes self-management. In their systematic review and meta-analysis study, Pontiroli *et al*.[27] reported that the development of sexual dysfunction in people with type 2 diabetes was 2.4% higher than in people without diabetes. Meeking *et al*. (1998) reported a decrease in sexual desire, vaginal lubrication, satisfaction, and orgasm in 64%, 70%, 36%, and 47% of patients, respectively.[28] Enzlin *et al*.[4] reported that 35% of women with type 2 diabetes experienced orgasm disorder in their study. It is very important that health policy makers, physicians, and health care providers put this disorder among the most important problems seen in women with type 2 diabetes and focus on quality of life in women with diabetes. How the individual perceives the disease, the meaning of the disease, adaptation to the disease and treatment, and solving psychosocial problems are some of the issues that need to be addressed.[29]

Three quarters of diabetics reported burning, tingling, and numbness in hands and feet and vision problems, and one third reported that diabetes affected their sexual life. It is important for health professionals to include family members in the education and counseling of individuals with diabetes in order to promote both individual compliance and self-care perceptions. According to the findings of a study conducted with 78 adults diagnosed with type 1 and type 2 diabetes, better marital life was found to be associated with better diabetes prognosis, fewer diabetes-related problems, and better quality of life.[30]

Diabetes self-management perception scores of women with type 2 diabetes show a significant difference according to age. The reason for the difference is that the diabetes self-management perception scores of those aged 50 and below are higher than the scores of those aged 61 and above. Sexual quality of life scores did not differ significantly according to age ($P > 0.05$). In one study, higher age was associated with an increased likelihood of sexual dysfunction in diabetic patients. The increased risk of sexual dysfunction at advanced age may be due to advanced age, long treatment duration, diabetic complications, and/or other complications related to diabetes, changes in hormonal function, and BMI, which may affect sexual intercourse.[31] In a study examining the relationship between age and sexual satisfaction, it was reported that women's frequency of experiencing sexuality, communication, satisfaction, avoidance, and total dissatisfaction with touch increased as age increased.[32]

The sexual quality of life scores of the study participants showed a significant difference according to the treatment type. The reason for the difference is that the sexual quality of life scores of those whose treatment type is insulin are higher than the sexual quality of life scores of those whose treatment type is OAD ($P < 0.05$). Women's diabetes self-management perception scores did not differ significantly according to treatment type ($P > 0.05$). In the study conducted by Kızılay and colleagues, they stated that strict glycemic control is important in delaying the onset of sexual problems and improving them when they occur.[29] In a qualitative study conducted with 20 insulin-dependent and 20 non-insulin-dependent women with diabetes, the physical effects of diabetes on their sexual lives were identified. It was stated that problems affecting sexuality include fatigue, perimenstrual cycle, changes in blood sugar control, vaginitis, decreased sexual desire, vaginal dryness, and prolonged time to orgasm.[22] Ovarian hormones have an effect on sexual desire; therefore, a factor such as diabetes can disrupt the secretion of these hormones and thus affect the sexual desire of women with diabetes.[33] Diabetes can also negatively affect the secretion of endocrine glands at the beginning of the vagina, causing vaginal dryness and irritation, and couples may experience painful intercourse.[34]

Limitations of the study

Since the subject of the study was related to sexuality, there was difficulty in reaching the sample size. The results of this study are specific to this group and cannot be generalized.

Conclusion

There is a signicant relationship between sexual life quality and self-management perceptions of women with type 2 diabetes. As the quality of sexual life increases, diabetes self-management perceptions increase. Age affects diabetes self-management perception, and the type of treatment used by individuals also affects their quality of sexual life.

Recommendations

Holistic care of women with type 2 DM should include attending to their sexuality, and nurses should always

consider this in communication and interaction with the patients. Guildelines in this perspective will be helpful.

Author contribution

NE, was responsible for the study conception, study design, data collection, statistical analysis, revising the manuscript for intellectual content, final approval for publication.

Ethical approval

Ethical approval was obtained from Fenerbahce University Academic Research and Publication Ethics Committee (approval no: FBU/2020-54) to conduct the research. Participants were given written information about the research and their informed written consent was obtained. The study was done in accordance with the principles of the Helsinki Declaration.

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Conflicts of Interest

There are no conflicts of interest.

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