

Effect of sexual dysfunction and sexual quality of life in type 2 diabetes women: a pilot study from Turkey

Mutlu Şahin¹ · Zümrüt Akgün Şahin²

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Abstract In women, it is clinically difficult to measure the sexual functions. Partner's sexual performance, quality of the relationship, cultural-ethnic, educational and socio-economic status of the patient, psychological changes, chronic diseases such as diabetes and its complications affect the sexual functions. This study was conducted in order to determine the sexual dysfunction (SD) and sexual quality of life of women with type 2 diabetes. This cross-sectional and descriptive study was conducted at nine family health centers located in the city center of Kars. We used a questionnaire for data collection, and the Sexual Quality of Life Questionnaire-Female (SQLQ-F) and Female Sexual Function Index (FSFI) were used as the data collection tool. Sexual dysfunction and sexual quality of life of women with type 2 diabetes. The mean total FSFI was 67.36 ± 10.25 and the mean score for sexual desire was 3.28 ± 2.58 , arousal 8.42 ± 4.33 , lubrication 12.57 ± 4.89 , orgasm 7.25 ± 3.52 , satisfaction 9.06 ± 2.18 , and pain 9.28 ± 4.45 . The most common problem was sexual desire (3.28 ± 2.58), while the least common one was lubrication (12.57 ± 4.89). The mean total SQLQ-F score was 38.56 ± 10.89 which is considered to indicate low. Results showed that as the level of sexual quality of life increased, the sexual desire, arousal, lubrication, orgasm, satisfaction and total FSFI increased and a statistically positive significant difference between SD. Sexual quality of life level and pain, increased, indicating a

statistically negative significant difference between SD and sexual quality of life level.

Keywords Sexual dysfunction · Sexual quality of life · Women

Introduction

Sexual dysfunction is a chronic complication of diabetes mellitus (DM). It is reported that especially the duration of diabetes, glycemic control, age, and the pharmacological treatment used are associated with the sexual dysfunction [1]. In the literature, it is observed that such studies are mostly conducted on men. Diabetic patients are under the threat of vascular and neurologic complications and psychological problems. This situation exposes them to the risk of organic and psychological sexual dysfunction. However, the sexual dysfunction among women has been ignored for many years [2]. Studies regarding sexuality in diabetic women have focused on menstrual disorders, genital infections, contraception, hormone replacement therapy, and pregnancies. In fact, sexual dysfunction is a common problem. The frequency of sexual dysfunction among diabetic women has been reported to be 20–80 % [3]. Diabetes mellitus is the leading systematic disease located in the etiology of sexual dysfunction. This effect is formed by neurogenic, psychogenic, and vascular factors or a combination of them [3]. In women, it is clinically difficult to measure the sexual functions. Partner's sexual performance, quality of the relationship, cultural-ethnic, educational and socio-economic status of the patient, psychological changes, chronic diseases such as diabetes and its complications affect the sexual functions [4]. Although the number of diabetic women is higher than the number of diabetic men and the complication rate of diabetes is similar in both sexes,

✉ Zümrüt Akgün Şahin
zumrut8136@hotmail.com

Mutlu Şahin
mutlusahin@hotmail.com

¹ Government Hospital, Kars, Turkey

² Kars Health School, Kafkas University, Kars, Turkey

sufficient attention has not been paid to the subject of sexual dysfunction at diabetic women. The relationship between sexual dysfunction and diabetes in women is not clear as much as is in men [5]. Although there is a consensus regarding the etiological factors of sexual dysfunction of diabetic men, it is not certain whether the same factors are valid for the diabetic women as well [6]. Sexual dysfunction is a problem which is common in women with diabetes and affects overall quality of their lives [7]. When the sexual dysfunction which the women experienced has been determined and treated, improvement on quality of life will make women happy [8]. Although various aspects of erectile dysfunction of men with diabetes have been mentioned at numerous studies, women's sexual dysfunction which is more common than men's sexual dysfunction is less mentioned, and few studies have been conducted on this subject as well [9]. In the literature, it has been determined that number of studies regarding sexual dysfunction caused by diabetes in women was insufficient. There is no any study analyzing the relation between sexual dysfunction and sexual quality of life in type 2 diabetes women in Turkey.

Methods

Aim of the study

This study was conducted in order to determine the sexual dysfunction (SD) and sexual quality of life of women with type 2 diabetes.

Setting

This cross-sectional study was conducted with women aged 18 and above who applied to the Family Health Centers in the city center of Kars at the eastern part of Turkey. According to the results of the last general consensus conducted in 2010, the population of Kars city center was 74.476, and the population of women aged 18 and above was approximately 22.677 (TİK, 2013) [10]. Random cluster sampling method was used for selecting the sample group. Fifteen of thirty-one family health centers were included in the sample group by lot. For the calculation of sample size, it was calculated that the population of married women aged 18 and above in the city center of Kars was $N=22.677$, incidence rate of health problem was $p=0.50$, deviation rate was $d=0.05$, level of significance was $\alpha=0.05$, and the lowest sample size was $n=345$. According to the data obtained from the family health centers, the number of people diagnosed with type 2 diabetes was 7.147. One thousand one hundred thirty women who were diagnosed with type 2 diabetes who met the study criteria and agreed to participate in the study were included.

Sample

The sample for this study was comprised of 1130 women and was obtained using a convenient sampling technique. The participants were found in their homes and data collection was obtained by going from door to door. The participants were found in their homes, and those who met the inclusion criteria and were willing to participate in the study were recruited.

Data collection: methods and procedures

This cross-sectional and descriptive study was conducted at nine family health centers located in the city center of Kars. To be included in the study, the women had to be (1) aged 18 and older, (2) had type 2 diabetes least 1 year at the time of the study and were being medically treated, (3) able to speak, understand, and communicate verbally in Turkish, (4) not pregnant, (5) had an active sexual life, (6) with no psychiatric diseases, (7) with no genital infections, and (8) agreed to participate in the study.

Study instruments

1. We used a questionnaire for data collection, and the Sexual Quality of Life Questionnaire-Female (SQLQ-F), Female Sexual Function Index (FSFI), and Beck Depression Inventory (BDI) were used as the data collection tool. Data were collected through face-to-face interviews conducted with women included in the scope of the study.

Questionnaire form A semi-structured questionnaire was developed by the researchers after a review of the related literature [11, 12]. Demographic variables such as age, educational level, occupation, family type, diabetes duration, and experiencing SD were recorded for each patient.

Female Sexual Function Index (FSFI) The FSFI was developed by Rosen et al. (2000) [13]. Its reliability for Turkey was studied by Aygin and Aslan (2005) [2]. The scale evaluates sexual problems in the preceding 4 weeks. This is a multi-dimensional scale consisting of 19 items that evaluate six dimensions: desire, stimulation, lubrication, orgasm, satisfaction, and pain. Each item is scored between 0 and 5. The lowest score possible is 2, and the highest one is 36. A lower score indicates a more severe SD for desire (1.2–6), for stimulation (0–6), lubrication (0–6), orgasm (0–6), satisfaction (0–6), and pain (0–6). The Cronbach's alpha coefficients for the subscales were 0.85 for sexual desire, 0.95 for arousal, 0.95 for lubrication, 0.96 for orgasm, 0.96 for satisfaction, 0.98 for pain, and 0.98 for the total score. In this study, the Cronbach's alpha coefficients for the subscales were 0.88 for sexual

desire, 0.94 for arousal, 0.93 for lubrication, 0.95 for orgasm, 0.83 for satisfaction, 0.91 for pain, and 0.97 for the total score.

Sexual Quality of Life Questionnaire-Female (SQLQ-F) Symonds, Boolell, and Quirk (2005) developed the SQLQ-F [14], and the Turkish validity and reliability of the scale were made by Turgut and Gölbaşı (2010) [15]. The SQLQ-F consisted of 18 items that measured the quality of sexual life of women between the ages of 18 and 65 years. Participants reported their responses to each item on a 6-point Likert scale ranging from 0 (*completely agree*) to 5 (*completely disagree*) [15]. The positive items 1, 5, 9, 13, and 18 were reverse-scored. The total score of the scale varied between 0 and 90. To standardize this to a 0–100 score, the following algorithm should be applied: Standardized score = (unstandardized score) × 100/90. After converting the raw scores into 0 to 100, higher scores indicated better quality of sexual life. Cronbach's alpha coefficient was .83, which showed a high reliability of the instrument (Turgut and Gölbaşı, 2010). In the present study, Cronbach's alpha coefficient was found .85 [15].

Beck Depression Inventory (BDI) The BDI was developed by Beck, Ward, Mendelson, Mock, and Erbaugh (1961) and translated into Turkish by Hisli (1988). The BDI assesses depressive symptoms and is a 21-item, 4-point scale ranging from 0 (rarely or none of the time) to 3 (most or all of the time). The highest score is 63; 1–10 is considered normal, 11–16 indicates a mild mood disturbance, 17–20 indicates borderline clinical depression, 21–30 indicates moderate depression, 31–40 indicates severe depression, and more than 40 indicates extreme depression. The BDI has had high internal consistency with alpha coefficients of 0.86 and 0.81 for psychiatric and non-psychiatric populations, respectively (Beck et al., 1961). Reported alpha coefficient for the BDI was 0.74 in a Turkish population (Hisli, 1988). In the author's study, the alpha coefficients for patients and caregivers were 0.84 and 0.85, respectively.

2. Clinical measures All patients received routine clinical examination that included recording of the following: duration of diabetes, type of diabetes, body mass index (BMI), and diabetes-related complications. Gynecological examination was performed and screened for genital infections.

Patients were examined by a psychiatrist for depression and other psychiatric diseases.

Depression was assessed with Beck Depression Inventory (BDI) by a blinded psychiatrist.

Ethical considerations

Permission to undertake this study was gained from the ethical committee at the Family Health Centers and informed consent

was obtained from each participant. The patients were informed about the purpose of the research and were assured of their right to refuse the participation into the study or to withdraw from the study at any stage. The anonymity and confidentiality of participants was guaranteed.

Data analysis

The data were recorded and analyzed using SPSS for Windows version 13.0 software. Analysis of variance (ANOVA) was used to examine the impact of selected demographic and disease-related variables. Descriptive statistics (mean, standard deviation, percentage) were used to describe the sample. The relation between SD and sexual quality of life scores was analyzed by Pearson correlation analysis. Cronbach's alpha coefficients for the SD subscales and depression scale provided an estimate of instrument internal consistency reliability. For all the analyses, a $p < 0.05$ was considered to be statistically significant.

Results

Sociodemographic and diabetes mellitus-related characteristics of women who were included in the study are presented in Table 1. Average age of women who participated in the study was 39.66 ± 13.58 , the subjects ranged in age from 18 to 65 years and 56.4 % 36–53 years old. It was observed that 57.4 % of women were literate, 62.4 % of women perceived low income, 73.5 % of women were unemployed, and 59.5 % of women had large families. When the DM-related characteristics were investigated, it was found that 52.6 % of the women had been coping with diabetes for 16 or more years, 45.5 % of women > 7 % HbA1c and 52.6 % of women were obese, and 43.4 % of women were treated with insulin + diet (Table 1).

Of the women, 36.9 % defined that their next sexual relation was more than 1 month, 68.6 % lived problems in sexual intercourse, 71.5 % started that they lived problems in sexual intercourse after to the DM, 42.8 % started that they have been living sexual problems for more than 24 months, 68.2 % did not help for the sexual problems, and 61.1 % does not want sexual intercourse (Table 2).

The mean total FSFI was 67.36 ± 10.25 and the mean score for sexual desire was 3.28 ± 2.58 , arousal 8.42 ± 4.33 , lubrication 12.57 ± 4.89 , orgasm 7.25 ± 3.52 , satisfaction 9.06 ± 2.18 , and pain 9.28 ± 4.45 . The most common problem was sexual desire (3.28 ± 2.58), while the least common one was lubrication (12.57 ± 4.89). The mean total SQLQ-F score was 38.56 ± 10.89 which is considered to indicate low (Table 3).

Results showed that as the level of sexual quality of life increased, the mean scores for sexual desire ($r = 0.344$, $p < 0.05$), arousal ($r = 0.367$, $p < 0.05$), lubrication ($r = 0.328$,

Table 1 Sociodemographic and diabetes mellitus-related characteristics of women

Variables	Number	Percent
Age (years)		
18–35	211	18.7
36–53	637	56.4
54 and above	282	24.9
Educational level		
Illiterate	648	57.4
Literate	223	19.8
Primary school	149	13.2
University	110	9.6
Income level		
Low	705	62.4
Middle	229	20.3
High	196	17.3
Working condition		
Employed	300	26.5
Unemployed	830	73.5
Family size		
Small	457	40.5
Large	673	59.5
Duration of diabetes (years)		
1–5	119	10.6
6–10	193	17.1
11–15	222	19.7
16 or more	596	52.6
HbA1c		
>7 %	615	54.5
<7 %	515	45.5
BMI		
≤20	231	20.5
21–25	303	26.9
≥26	596	52.6
Type of DM treatment		
Insulin	230	20.4
Oral anti-diabetes	158	14.0
Diet + oral anti-diabetes	250	22.2
Insulin + diet	492	43.4
Total	1130	100

$p < 0.05$), orgasm ($r = 0.318$, $p < 0.05$), satisfaction ($r = 0.364$, $p < 0.05$), and total FSFI ($r = 0.377$, $p < 0.01$) increased, and a statistically positive significant difference between SD and sexual quality of life level and pain ($r = -0.349$, $p < 0.01$) increased, indicating a statistically negative significant difference between SD and sexual quality of life level (Table 4).

Women who reported sexual dysfunction were significantly different for duration of diabetes, HbA1c, and BMI compared with those reporting sexual dysfunction. Sexual

Table 2 Sexual life in women

Variables	Number	Percent
Frequency of sexual intercourse		
Once a week	116	10.3
Longer than 1 week	227	20.1
Longer than 2 weeks	369	32.7
Longer than 1 month	418	36.9
Problem in sexual intercourse		
Yes	775	68.6
No	355	31.4
Sexual problems prior the disease		
Had problems	322	28.5
Did not have problems	808	71.5
Duration of the sexual problems		
12 months and shorter	254	22.5
13–23 months	392	34.7
24 months and higher	484	42.8
Getting help for the sexual problems		
Yes	359	31.8
No	771	68.2
Reasons for not getting help		
Shame/hesitation/embarrassment	439	38.9
Did not want sexual relation	691	61.1
Total	1130	100

dysfunction symptoms have commonly been reported, such as reduction or loss of sexual desire, arousal, lubrication, dyspareunia, and loss of the ability to reach orgasm (Table 5).

Women with sexual dysfunction reported more depressive symptoms (Table 6). Based on a cutoff score of 16 on the BDI, women with sexual dysfunction had scores suggestive of clinical depression (BDI score ≥ 16). In women, an association was found between depression and sexual dysfunction. This association was found for sexual dysfunction in general, for libido decrease, for arousal, and for orgasm.

Table 3 FSFI and SQLQ-F average score of women

Scales	Mean±SD	Min-max values
Sexual desire	3.28±2.58	2–10
Arousal	8.42±4.33	0–20
Lubrication	12.57±4.89	4–20
Orgasm	7.25±3.52	2–15
Satisfaction	9.06±2.18	2–20
Pain	9.28±4.45	4–20
Total FSFI	67.36±10.25	4–91
Total SQLQ-F	38.56±10.89	0–72

Table 4 Relationship between FSFI and SQLQ-F

	SQLQ-F	
	<i>r</i>	<i>p</i>
Sexual desire	0.344	<i>p</i> <0.05
Arousal	0.367	<i>p</i> <0.05
Lubrication	0.328	<i>p</i> <0.05
Orgasm	0.318	<i>p</i> <0.05
Satisfaction	0.364	<i>p</i> <0.05
Pain	-0.349	<i>p</i> <0.01
Total FSFI	0.377	<i>p</i> <0.01

Discussion

Sexuality is the ability of individual's emotional, mental, and physical experimentation and demonstration of masculinity or femininity, and contains functions of its own sexual organs, the perception level of sexuality, and expression style [16]. Woman's SD is the deterioration of one or more stages of physiological processes of sexual response cycle's desire, stimulation, lubrication, and orgasm phases, [17, 18] and it is a multifactorial problem which is reducing the quality of life of women and having vascular, neurogenic, hormonal, muscular, and pharmacological aspects [19]. In Turkey, there have been only few studies intended for determination of SD prevalence caused by diabetes [4, 6, 7]. In these studies, it has been determined that 71.5 % of diabetic patients experience sexual problems, and 68.6 % experience problems during sexual intercourse.

Erol et al. (2002) found that the prevalence of SD was 51.3 % in women, and he also revealed that the SD can be regarded as a silent complication of DM [6]. A study by Doruk et al. (2005) demonstrated that female SD affected women with diabetes in all SD items, and the rate of involvement was higher among type 1 diabetic cases [4]. Hindistan and Cilingir (2013) has been that sexual dysfunction rate was 68.8 % prevalence among female with DM [20]. Rates of sexual dysfunction in women with DM showed differences between studies, and it was higher compared with health women, in Turkey [4, 6, 20–22].

There are studies in the literature that showed sexual dysfunction rate reported to change between 42 and 60 % for women by studies [17, 18]. A study from Turkey showed that diabetes significantly impairs the sexual performance of women with diabetes. Social and cultural issues may also be contributing factors to female SD. Some cultures teach women that sex is only for procreation, should not be enjoyed, or that the most important issue in a sexual encounter is pleasing the male partner, at her own expense. These issues are relevant in male-centric cultures [23]. SD in females with diabetes affects lubrication, orgasmic dysfunction, sexual desire, intercourse satisfaction, clitoral sensation, and women's overall satisfaction. Diabetic males' sexual lives may be adversely affected in the areas of orgasmic function, sexual desire, intercourse satisfaction, and overall satisfaction. With the exception of the orgasmic function domain, our study found significant differences in other all domains (lubrication, sexual desire, intercourse satisfaction, clitoral sensation, overall satisfaction) in diabetic women [20–24].

Table 5 Average score distribution of Female Sexual Dysfunction Index (FSFI) by duration of diabetes, HbA1c, BMI

Variables	Desire	Arousal	Lubrication	Orgasm	Satisfaction	Pain
Duration of diabetes (years)						
1–5	5.21±0.50	4.18±0.56	5.11±0.10	4.44±0.54	5.36±0.41	3.22±0.14
6–10	4.60±0.25	4.36±0.30	3.20±0.44	4.08±0.87	4.22±0.28	4.65±0.23
11–15	4.25±0.88	3.44±0.14	3.08±0.21	3.00±0.78	3.24±0.34	4.54±0.20
16 or higher	3.40±0.22	3.28±0.77	2.74±0.52	2.45±0.65	3.15±0.55	4.20±0.36
Test and <i>p</i>	<i>F</i> : 2.820 SD: 2 <i>p</i> <0.05	<i>F</i> : 2.233 SD: 2 <i>p</i> <0.05	<i>F</i> : 2.178 SD: 2 <i>p</i> <0.05	<i>F</i> : 2.974 SD: 2 <i>p</i> <0.05	<i>F</i> : 2.233 SD: 2 <i>p</i> <0.05	<i>F</i> : 0.120 SD: 2 <i>p</i> >0.05
HbA1c						
>7 %	3.68±0.22	2.45±0.51	3.66±0.20	3.17±0.10	2.36±0.88	4.47±0.45
<7 %	4.87±0.35	3.44±0.66	4.41±0.38	5.23±0.34	5.12±0.33	4.55±0.39
Test and <i>p</i>	<i>t</i> : 2.589 <i>p</i> <0.05	<i>t</i> : 2.657 <i>p</i> <0.05	<i>t</i> : 2.428 <i>p</i> <0.05	<i>t</i> : 2.752 <i>p</i> <0.05	<i>t</i> : 2.247 <i>p</i> <0.05	<i>t</i> : 2.179 <i>p</i> >0.05
BMI						
≤20	4.20±0.52	5.12±0.35	4.15±0.22	4.21±0.66	5.14±0.31	5.32±0.10
21–25	3.45±0.31	4.25±0.47	3.28±0.35	3.34±0.84	4.17±0.22	5.21±0.21
≥26	3.20±0.22	3.27±0.52	3.45±0.54	3.10±0.20	3.20±0.43	5.25±0.32
Test and <i>p</i>	<i>F</i> : 2.654 SD: 1 <i>p</i> <0.05	<i>F</i> : 2.725 SD: 1 <i>p</i> <0.05	<i>F</i> : 2.201 SD: 1 <i>p</i> <0.05	<i>F</i> : 2.124 SD: 1 <i>p</i> <0.05	<i>F</i> : 2.254 SD: 1 <i>p</i> <0.05	<i>F</i> : 0.112 SD: 1 <i>p</i> >0.05

Table 6 Relationship between FSFI and BDI

	FSFI	BDI	
		<i>r</i>	<i>p</i>
Sexual desire		0.386	<i>p</i> <0.01
Arousal		0.384	<i>p</i> <0.01
Lubrication		0.378	<i>p</i> <0.01
Orgasm		0.363	<i>p</i> <0.05
Satisfaction		0.398	<i>p</i> <0.01
Pain		0.349	<i>p</i> <0.05
Total FSFI		0.381	<i>p</i> <0.01

The focus of our study was the SD problems which the woman with diabetes had frequently. The average SD scores were high in our study. And in various studies, overall high rates of SD in female patients with diabetes have also been reported [3, 7]. In our study, it was found out that the most common problem related to SD was sexual desire, while the least common problem was lubrication in women with diabetes. In another study carried out to indicate the problems of diabetic women, it has also been reported that they experienced problems with sexual desire, orgasm, and dyspareunia more frequently [3, 12]. Studies have confirmed that diabetes decreases vaginal lubrication, decreases sexual desire and orgasm, and increases dyspareunia. Additionally, it has been found that psychological factors, predominant issues in diabetic women. The other study results consistent with our study results showed us that the woman with diabetes had such SD problems as pain, orgasm, and vaginal dryness frequently [20, 24].

In this study, results showed that as the level of sexual quality of life increased, the mean scores for sexual desire, arousal, lubrication, orgasm, satisfaction, and total FSFI increased and a statistically positive significant difference between SD and sexual quality of life level and pain, indicating a statistically negative significant difference between SD and sexual quality of life level. Sexuality and sexual function problems are conditions that are often not clearly expressed by women, considered taboo, and most of the time, are ignored by health care personnel. Sexual dysfunction is a commonly seen health problem which may affect the life quality of women, decrease self-confidence, cause a feeling of loneliness, and affect relations with others [7, 23, 25]. Seeing sexuality as a taboo results in over-accusing the one who is interested in sexuality and leads to feeling sinful, concern of being red-handed not providing privacy during adolescence or giving wrong information, which cause developing a sexual identity full of provocative attitudes, fear or shyness of sexuality [26]. In our country, social, cultural, and public issues mostly prevent women from expressing their sexual problems [7, 23, 25]. Because sexuality is also taboo for health professionals in our society, most of them do not ask for the history of sexual

life from individuals. This causes problems to last without solving them [5, 23].

This study determined that in women, the predictors of different sexual dysfunctions were depression and adjustment to diabetes. This study showed that more women with diabetes reported depressive symptomatology and that more women reached a BDI score suggestive of clinical depression (BDI score ≥ 16). The present study also revealed that patients with sexual dysfunction reported depressive symptomatology sexual dysfunction. The mean score of women with sexual dysfunction was almost as high as the cutoff score for clinical depression.

We focused our study that risk factor predicted duration of diabetes, HbA1c, and BMI sexual dysfunction in diabetes women. Studies have shown that poor glycemic control, longer duration of diabetes, and chronic diabetic complications were related to elevated incidence of SD in female diabetic cases. This is similar to findings by other researchers indicating a higher incidence of SD among diabetes patients [24, 27].

Considering the high prevalence of SD among patients with diabetes, it seems the management of these disorders should be acknowledged more precisely in health care setting. It is argued that in the absence of definitive treatment evidence, psychological counseling along with hormonal therapies may relieve the SD in female patients with diabetes [28, 29]. In general, patients with diabetes may benefit from educational interventions to reduce the SD impact on their personal life [30]. In addition, cognitive behavior therapy, problem solving skills, and improving family communications might help to minimize the outcomes of SD among the patients. Indeed effective interactions with diabetic patients who suffer from sexual problems remain as the main task of health care workforce. These data are important since various cultures, religions, lifestyle habits, and sexual behaviors are considered [26, 31–33].

Conclusion

The scores obtained from subscale of FSFI were lower for women with SD. Results showed that as the level of sexual quality of life increased, the mean scores for sexual desire, arousal, lubrication, orgasm, satisfaction, and total FSFI increased and a statistically positive significant difference between SD and sexual quality of life level and pain increased, indicating a statistically negative significant difference between SD and sexual quality of life level. Risk factor predicted, duration of diabetes, HbA1c, and BMI sexual dysfunction in diabetes women. Health care professionals must incorporate screening of sexual functionality in women with diabetes, along with thorough physical and nursing examinations, to identify and treat SD effectively. Nurses are the most frequent contact for the patient with diabetes in the health care system.

Nurses' knowledge about sexuality in relation to diabetes should improve patient education and counseling as well as the identification of symptoms that could signal undiagnosed disease or a high risk for disease. In addition, researchers need to continue to explore this subject as the study of the sexual problems of and sexual quality of life in women with diabetes deserves more attention in clinical research and practice.

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