



## Short Communication

# Prevalence and Correlates of Sexual Dysfunction in Patients With Type 2 Diabetes at an Endocrine Clinic in Hamadan, Iran

Shafagh Asadi<sup>1</sup>, Mohammad Ahmadpanah<sup>2</sup>, Ali Reza Soltanian<sup>3</sup>, Shiva Borzouei<sup>4</sup>

<sup>1</sup>Department of Medicine, Faculty of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran

<sup>2</sup>Research Center for Behavioral Disorders and Substances Abuse, Hamadan University of Medical Sciences, Hamadan, Iran

<sup>3</sup>Department of Biostatistics, Modeling of Noncommunicable Diseases Research Center, School of Public Health, Hamadan University of Medical Sciences, Hamadan, Iran

<sup>4</sup>Department of Endocrinology, Hamadan University of Medical Sciences, Hamadan, Iran

## Abstract

Diabetes is a metabolic disorder associated with severe medical consequences such as mental illness and sexual dysfunction in adults. In this cross-sectional study, 283 patients with type 2 diabetes, aged 20 to 70 and married, were selected in 2022-2023. Women's sexual function was evaluated with the Female Sexual Function Index (FSFI), and men's sexual function was evaluated with the International Index of Erectile Function (IIEF). Based on the results, 49.8% were men and 50.2% were women. The mean age of the patients was  $48.13 \pm 8.90$  years. The prevalence of sexual dysfunction among men and women was 100% and 66.2%, respectively. A negative correlation was observed between sexual dysfunction and age in women ( $P=0.043$ ) and men ( $P<0.001$ ) and a negative relationship was also found between sexual dysfunction and the duration of diabetes in men ( $P=0.026$ ). Sexual dysfunction is widespread among women and men with diabetes, and due to its adverse effect on the quality of life and marital relationships, it should be taken into consideration.

**Keywords:** Correlation, Sexual dysfunction, Prevalence, Type 2 diabetes

## \*Corresponding Author:

Shiva Borzouei,  
Email: borzooeshiva@yahoo.com

Received: June 1, 2024

Accepted: October 22, 2024

ePublished: November 12, 2024



## Introduction

Type 2 diabetes mellitus (T2DM) is prevalent in developed countries.<sup>1</sup> Mental and sexual disorders have been considered common complications of diabetes that negatively affect the patient's ability to continue the recommended medical care.<sup>2</sup> Sexual function is an important and complex issue in the quality of life and a general feeling of well-being. Sexual problems affect the health of men, women, and society and can cause economic and social complications.<sup>3</sup> Sexual dysfunctions are more prevalent among people with diabetes compared to the general population. This disorder shows a correlation with the decline in the quality of life of people with diabetes. Among the types of sexual dysfunction, including decreased libido, sexual stimulation, and orgasm disorder, the sexual dysfunction in the sexual stimulation phase is reported in 1.4 patients with diabetes.<sup>4</sup> In the past, sexual dysfunctions were considered to be caused by psychological issues. However, now it is known that this disorder has a multifactorial etiology with physiological and psychological factors, such as age, fertility status, hormonal levels, and economic and social conditions. In addition to urological and psychological problems, cardiovascular diseases, autoimmune syndromes, endocrine disorders such as diabetes and hyperthyroidism, nerve defects, and some surgical procedures can affect

sexual function. Considering the importance of sexual satisfaction, this factor can affect the quality of life. The prevalence of sexual dysfunction in the domain of arousal in people with diabetes is three times that of the general population. A study has stated that the most common type of sexual disorder in women with diabetes is decreased sexual desire and that people with diabetes experience a decrease in libido more than others.<sup>5</sup> This study aimed to determine the frequency of sexual dysfunction in patients with T2DM referred to the Endocrinology Clinic in Hamadan in 2022-2023.

## Materials and Methods

This descriptive cross-sectional study was conducted on 283 outpatients with T2DM referred to the Endocrine Clinic in Hamadan from 2022 to 2023. The inclusion criteria were having T2DM, being in the age range of 20-70 years, being married with at least 3 years of cohabitation, and giving consent to participate in the study. Exclusion criteria included mental illness, psychosis, cancer, history of frequent hospitalizations due to diabetes, use of drugs affecting the sexual function of patients, and drug abuse.

The Female Sexual Function Index (FSFI) is a 19-item questionnaire that measures women's sexual function in six independent domains, including sexual desire, arousal, lubrication, orgasm, sexual satisfaction, and dyspareunia,

with the full-scale score ranging between 2 and 36. Women with a score less than 28 were classified as having sexual dysfunction. A higher score indicates better sexual function. Cronbach's  $\alpha$  coefficient was reported to be 0.944, and convergent validity was acceptable for all dimensions<sup>6</sup>.

The International Index of Erectile Function (IIEF) is a 15-item questionnaire that assesses five domains. The severity of sexual dysfunction was determined according to the score as follows: severe sexual dysfunction (0-10), moderate (11-16), mild to moderate (17-21), mild (22-25), and absence of disorder (26-30). The higher score indicates better sexual function. According to the study of Babazadeh et al (2020), the reliability of this questionnaire using Cronbach's  $\alpha$  was 0.86, and convergent validity has also been reported to be optimal.<sup>7</sup>

### Data Analysis

Data were reported as percentages and mean  $\pm$  standard deviation. Data analysis was done using SPSS version 23.0. Independent *t* test, one-way analysis of variance test, and Pearson and Spearman correlation tests were used to analyze the data at a significance level of 0.05.

### Results

Of all 283 cases, 49.8% were men and 50.2% were women. The mean age of patients was  $48.13 \pm 8.90$  years, the duration of diabetes was  $6.73 \pm 5.55$  years, and body mass index (BMI) was  $28.26 \pm 4.93$  kg/m<sup>2</sup>.

Out of 142 women with T2DM, 94 (66.2%) had sexual dysfunction. Sexual dysfunction in the domains of sexual desire, arousal, lubrication, orgasm, sexual satisfaction, and dyspareunia had prevalence rates of 58.2%, 58.2%, 31.0%, 35.9%, 47.2%, and 32.4%, respectively. Out of 141 men with T2DM, 65 (46.1%) had severe sexual dysfunction, 49 (34.8%) had moderate sexual dysfunction, and 27 people (19.1%) had mild to moderate sexual dysfunction (Table 1).

**Table 1.** Assessment of Sexual Function in Women and Sexual Dysfunction in Men with T2DM

Sexual function domains	Sexual function in females	
	Good function, n (%)	Dysfunction, n (%)
Sexual desire	67 (47.2)	75 (58.2)
Arousal	67 (47.2)	75 (58.2)
Lubrication	98 (69)	44 (31)
Orgasm	91(64.1)	51 (35.9)
Sexual satisfaction	75 (52.8)	67 (47.2)
Dyspareunia	96 (67.6)	46 (32.4)
Overall sexual function	48 (33.8)	94 (66.2)
Sexual function	Sexual Dysfunction in males, n (%)	
Severe	65 (46.1)	
Moderate	49 (34.8)	
Mild to moderate	27 (19.1)	
Mild	0(0)	
No dysfunction	0(0)	

The sexual function score of diabetic patients showed a negative correlation with age in both men ( $P < 0.001$ ) and women ( $P = 0.043$ ). Additionally, a significant negative correlation was observed between the duration of diabetes and the sexual function score only in men ( $P = 0.026$ ). The mean score of women's sexual function had a significant relationship with their education ( $P = 0.011$ ) (Table 2).

### Discussion

Diabetes is a chronic disease that can affect physical health, mental health, self-esteem, and sexual health. The primary complications of diabetes in men include erectile dysfunction, ejaculation disorders, and loss of sexual desire. Additionally, it causes sexual problems such as decreased libido and painful intercourse in women.<sup>8</sup>

Based on the results, 80.1% of men and 66.2% of female participants had moderate to severe sexual dysfunction. These findings are consistent with those of a study conducted by Maiorino et al, which also reported a higher prevalence of sexual dysfunction in men with diabetes compared to women.<sup>9</sup>

In an analytical study, 215 diabetic patients in Poland were compared with 183 healthy people. Sexual dysfunction in women with diabetes and the control group based on FSFI was equal to 68% and 17%, respectively. In diabetic men, the IIEF showed that the rate of erectile dysfunction in diabetic men and controls was 82% and 41%, respectively.<sup>10</sup>

In the study conducted by Karimi et al in 2021, the prevalence of sexual dysfunction and orgasm was 81.8% and 24.8%, respectively.<sup>11</sup> In line with the findings of Karimi et al, in our research, the prevalence of sexual dysfunction in the domains of desire and arousal was higher compared to the domain of orgasm (52.8% versus 35.9%). Orgasm disorder in women with diabetes can be due to the lack of sexual arousal in women with diabetes. Another study conducted by Meeking et al on 161 patients with type 1 and T2DM showed that 64% of these patients had a lack of interest in sex, 70% of patients had reduced vaginal lubrication, 36% had loss of genital sensation, and 47% had a reduction in pleasure obtained from sex.<sup>12</sup>

In our study, there was a negative correlation between age and the patient's sexual function score. In line with our findings, in the study conducted by Yenice et al in Turkey

**Table 2.** Correlation Between Sexual Function Score and Demographic Characteristics in Patients With T2DM

Characteristic	Female	Sexual Function		P Value
		P Value	Male	
BMI	-0.148	0.110	-0.029	0.747
Age	-0.170	0.043	-0.327	<0.001
Duration of diabetes	-0.054	0.524	-0.190	0.026
HbA1c	-0.061	0.474	0.091	0.282
Education	$17.70 \pm 5.88$	0.011	$11.44 \pm 5.72$	0.574

BMI: Body mass index; HbA1c: Hemoglobin A1c.

in 2020, there was a significant relationship between the age of patients and their sexual function score.<sup>13</sup> In other words, patients' sexual function decreases with age.

In the present study, no significant relationship was observed between sexual function and education in patients with T2DM. However, in research conducted by Rahimi et al in 2015, a negative correlation was observed between sexual function and education.<sup>14</sup>

Our study found no significant correlation between BMI and the sexual function of diabetic patients. This is consistent with the study conducted by Rahimi et al, which also reported no significant relationship between BMI and sexual function.

The present study has several strengths, including the use of a relatively suitable sample size, evaluation of patients' sexual function with standard questionnaires, and accuracy in collecting patients' information. However, the research has some limitations, such as the poor cooperation of the research units, and their satisfaction with the research team became a significant challenge. Considering the modesty of our society in the field of sexual issues, it may have created a bias in answering some questions related to sexual function; therefore, caution should be taken in generalizing the results.

## Conclusion

The prevalence of sexual disorders in diabetic men and women is high, and age is an influential factor. Therefore, this issue should be included in the management priorities of T2DM.

## Acknowledgments

This article was derived from a thesis approved by the Research and Technology Deputy of Hamadan University of Medical Sciences (Approval No. 9809126947). The researchers gratefully thank the patients who participated in this study.

## Authors' Contribution

**Conceptualization:** Mohammad Ahmadpanah, Shiva Borzouei.

**Data curation:** Shiva Borzouei.

**Formal analysis:** Ali Reza Soltanian.

**Investigation:** Mohammad Ahmadpanah, Shafagh Asadi.

**Methodology:** Mohammad Ahmadpanah.

**Project administration:** Shiva Borzouei.

**Resources:** Mohammad Ahmadpanah.

**Supervision:** Shiva Borzouei.

**Validation:** Shiva Borzouei.

**Writing—original draft:** Shafagh Asadi.

**Writing—reviewing & editing:** Shiva Borzouei.

## Competing Interests

The authors declare that there is no conflict of interests.

## Ethical Approval

Ethical considerations in this study included obtaining permission from the Ethics Committee of Hamadan University of Medical Sciences (IR.UMSHA.REC.1398.680) and obtaining written consent from the participants.

## Funding

This study was financially supported by Hamadan University of Medical Sciences.

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