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Original Research Article

Sexual Dysfunction in Diabetes Mellitus Patients: A Cross-Sectional Study

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Abstract

Background: Sexual dysfunction (SD) is a common but underreported complication of diabetes mellitus (DM), affecting both men and women and significantly impairing quality of life.

Objective: To assess the prevalence and types of sexual dysfunction in diabetic patients and evaluate their association with demographic and clinical variables.

Methods: This cross-sectional study included 180 patients (110 males and 70 females) with type 2 DM. Sexual function was assessed using validated questionnaires (IIEF-5, FSFI). Demographic data, HbA1c, duration of diabetes, microalbuminuria, retinopathy, and neuropathy were recorded. Statistical associations were analyzed using chi-square test and logistic regression.

Results: Overall prevalence of SD was 64.5%. SD was significantly associated with HbA1c >8% ($p<0.001$), diabetes duration >10 years ($p=0.003$), microalbuminuria ($p=0.002$), retinopathy ($p=0.01$), and neuropathy ($p=0.001$). Logistic regression showed HbA1c >8%, duration >10 years, and neuropathy as independent predictors.

Conclusion: Sexual dysfunction is common in diabetic patients and associated with poor glycemic control, longer disease duration, and microvascular complications. Routine screening is recommended.

Keywords: Sexual dysfunction, Type 2 DM, HbA1c.

Introduction

Sexual dysfunction (SD) in diabetes mellitus is a significant but often overlooked complication that adversely affects quality of life. It includes a range of disorders such as erectile dysfunction (ED), reduced libido, and impaired arousal [1]. SD may result from vascular damage, autonomic neuropathy, hormonal imbalances, and psychological factors. Despite its prevalence, SD remains underdiagnosed. This study aimed to determine the prevalence and associated factors of SD in patients with type 2 diabetes mellitus (T2DM), focusing on the relationship with glycemic control, disease duration, and microvascular complications including microalbuminuria, retinopathy, and neuropathy.

Materials and Methods

This was a cross-sectional observational study conducted at a tertiary care center over one year. A total of 180 patients with T2DM were included based on the following criteria:

a) Age≥18 years
b) Diagnosis of diabetes ≥1 year
c) Willingness to participate and provide informed consent

Patients with known psychiatric illness, hormonal disorders, or who were on medications affecting sexual function (e.g., antidepressants) were excluded. Data collected included demographics, duration of diabetes, BMI, HbA1c, presence of microalbuminuria, retinopathy (via fundus examination), and peripheral neuropathy (clinical examination and vibration testing). SD was assessed using IIEF-5 in men and FSFI in women [2]. Statistical analysis was performed using SPSS v25. Chi-square test and logistic regression were used. A p-value <0.05 was considered statistically significant.

Results

Among 180 patients (110 males, 70 females), the mean age was 52.4 ± 10.7 years and the mean duration of diabetes was 8.6 ± 5.2 years. Mean

HbA1c was 8.4 ± 1.5%. Sexual dysfunction was present in 116 patients (64.5%).

- Males: 71.8% reported ED or decreased libido
- Females: 52.8% had decreased desire or arousal issues

Associations with Sexual Dysfunction:

- Age >50 years: p=0.02
- Female gender: p=0.03
- HbA1c >8%: p<0.001
- Duration >10 years: p=0.003
- Microalbuminuria: p=0.002
- Retinopathy: p=0.01
- Neuropathy: p=0.001

Logistic regression identified HbA1c >8% (OR 2.3), duration >10 years (OR 1.9), and neuropathy (OR 2.4) as independent predictors of sexual dysfunction.

Table 1: Association of Sexual Dysfunction with Duration of Diabetes

Duration	ED (%)	Libido Decrease (%)	Arousal Issues (%)
<5 years	40	28	30
5–10 years	62	47	44
>10 years	78	66	59

Table 2: Association of Sexual Dysfunction with HbA1c Levels

HbA1c Level	ED (%)	Libido Decrease (%)	Arousal Issues (%)
<7%	32	21	23
7–8%	55	39	41
>8%	74	60	65

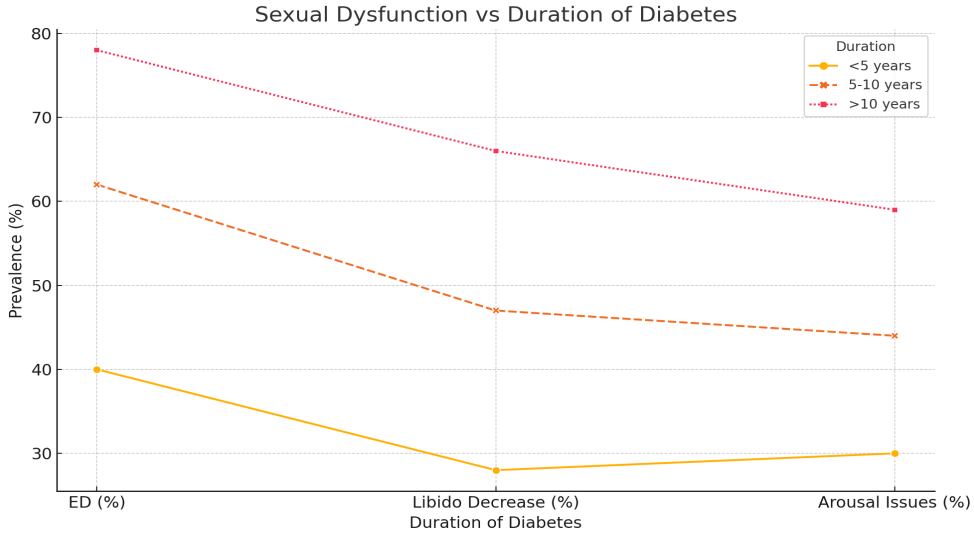

Figure 1: Sexual Dysfunction vs Duration of Diabetes

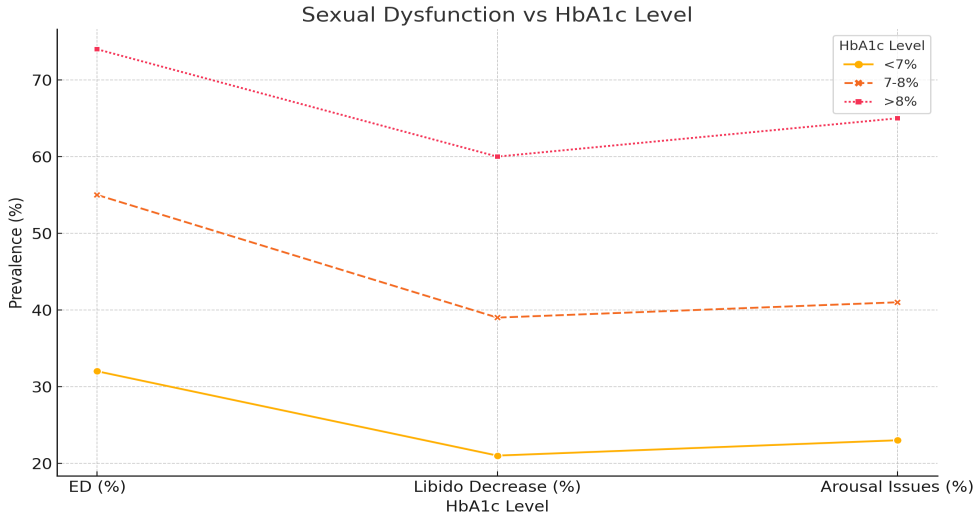

Figure 2: Sexual Dysfunction vs HbA1c Level

Discussion

Sexual dysfunction (SD) is a frequently encountered but underdiagnosed complication in patients with type 2 diabetes mellitus (T2DM). This cross-sectional study of 180 patients (110 males and 70 females) revealed a high overall prevalence of sexual dysfunction (64.5%), with significant associations observed between SD and multiple clinical parameters including poor glycemic control (HbA1c >8%), longer duration of diabetes, and the presence of microvascular complications such as microalbuminuria, retinopathy, and neuropathy [3,4]. The observed prevalence is consistent with previous studies which report SD rates between 35% and 75% among diabetic populations, depending on the population studied and the tools used for assessment. Erectile dysfunction (ED) [5,6,7] was the most common form of SD in males, while in females, decreased libido and arousal difficulties were predominant. These findings reaffirm that SD affects both genders, though manifestations and reporting patterns may differ.

A key finding in our study was the strong correlation between sexual dysfunction and HbA1c levels. Patients with HbA1c >8% had a significantly higher prevalence of SD compared to those with better glycemic control (74% vs 32%, *p*<0.001). This supports the role of chronic hyperglycemia in promoting endothelial dysfunction, oxidative stress, and neuropathic changes that disrupt sexual function. Persistent hyperglycemia leads to glycation end-product accumulation, which impairs nitric oxide bioavailability and vascular smooth muscle relaxation, essential for genital engorgement and arousal response.

Furthermore, the duration of diabetes emerged as another strong predictor of sexual dysfunction. Patients with a diabetes duration of more than 10 years had the highest prevalence of ED (78%) and other sexual complaints [8,9], compared to those with less than 5 years of disease (40%). This reflects the cumulative effect of chronic metabolic derangements, progressive neuropathy, and vascular deterioration on sexual health over time. These findings are aligned with earlier reports suggesting that both the intensity and duration of hyperglycemia are critical factors in the pathogenesis of diabetic complications, including SD.

The study also examined microvascular complications and their association with SD. The presence of microalbuminuria—a marker of endothelial dysfunction and systemic microvascular disease—was significantly linked to SD (*p* = 0.002). Similarly, diabetic retinopathy and peripheral neuropathy showed statistically significant associations (*p* = 0.01 and *p* = 0.001, respectively). Neuropathy is particularly critical in the development of SD, as it affects both autonomic and somatic nerves required for arousal and orgasm. Damage to pudendal and pelvic nerves can impair sensory feedback and reflexogenic sexual responses, further compounding dysfunction [10,11]. In logistic regression analysis, HbA1c >8%, diabetes duration >10 years, and presence of neuropathy were identified as independent predictors of sexual dysfunction. These variables should be routinely assessed in clinical practice to identify high-risk individuals. Interestingly, the study highlighted gender differences in the pattern and perception of SD. While male patients often reported erectile and ejaculatory concerns, female patients expressed issues related to decreased desire and arousal. Female sexual dysfunction (FSD) is frequently under recognized due to socio-cultural factors and lack of validated diagnostic criteria in clinical settings [12]. Moreover, many women may not report their symptoms due to stigma or lack of awareness, which leads to underdiagnosis and undertreatment. This calls for increased physician

sensitivity, education, and the incorporation of FSD screening in diabetes clinics.

From a psychosocial perspective, SD in diabetes not only affects physical intimacy but also contributes to emotional distress, anxiety, low self-esteem, and relationship conflicts. Depression and diabetes share a bidirectional relationship, and the coexistence of SD can exacerbate mental health challenges [13]. A multidisciplinary approach, involving endocrinologists, psychologists, urologists, and gynecologists, is essential for comprehensive management. Despite the strength of including multiple clinical correlates and validated tools for assessment, this study has several limitations. First, its cross-sectional nature restricts causal inference. Second, potential confounders such as depression [14,15], hormonal assays (testosterone, estrogen), and psychotropic medications were not accounted for. Third, the cultural and gender norms in the study population may have influenced patient reporting, especially among female participants.

In summary, sexual dysfunction is highly prevalent in patients with T2DM, especially those with poor glycemic control, longer disease duration, and microvascular complications. Clinicians should be proactive in screening for SD, offering empathetic support, and managing contributing factors to improve overall quality of life in diabetic patients.

Conclusion

Sexual dysfunction is common in T2DM and is strongly associated with HbA1c levels, disease duration, and microvascular complications. Incorporating SD assessment in diabetes care is essential for holistic management.

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