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## **Experiences of male patients with diabetes mellitus with erectile dysfunction: A literature review**

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**Abstract**---Diabetes mellitus (DM) is a disease or chronic metabolic disorder with multiple etiologies characterized by high blood sugar levels and impaired carbohydrate, lipid, and protein metabolism resulting from insulin function insufficiency. Various complications occur in DM patients, one of which is erectile dysfunction. In men with the same age profile, erectile dysfunction is more common than in non-diabetics. To determine the experience of male patients with diabetes mellitus who suffer erectile dysfunction. Journal search with literature review system using diabetes mellitus and erectile dysfunction. PICO framework as a strategy in article search. The investigation was carried out on PubMed, Scopus, Ebsco, ProQuest, and Science Direct websites. Journal reviews were carried out on four articles, and the research results with article inclusion criteria ranged from 2015-to 2021. The research design used an observational with a cross-sectional approach. The initial search resulted in 329 articles showing high relevance to the topics. From the six kinds of literature that have been analyzed, the results show that the experience of male patients with Diabetes Mellitus has a high increase in anxiety that causes depression due to loss of self-confidence in their manhood; apart from that, there is an increase in prevalence when increasing age causes an increase in the severity of Erectile Dysfunction. Erectile dysfunction (ED) is one of the chronic complications that often occur in male patients with diabetes mellitus in all patients based on their

experience of complaining of feelings of depression and anxiety, even to a severe level that can threaten their psyche.

**Keywords**---Diabetes Mellitus, Erectile Dysfunction, Impaired Carbohydrate, Male, Anxiety.

## **Introduction**

Diabetes mellitus (DM) is a disease or chronic metabolic disorder with multiple etiologist characterized by high blood sugar levels accompanied by impaired carbohydrate, lipid, and protein metabolism as a result of insulin function insufficiency. Insufficiency of insulin function can be caused by impaired or deficient insulin production by the beta cells of Langerhans of the pancreas or caused by the body's cells being less responsive to insulin (WHO, 2022). In people with diabetes mellitus for a long time and uncontrolled blood sugar, there will be disturbances in nerve cells, microvascular small blood vessels, and macrovascular large blood vessels; damage to each of these blood vessels causes a different impact(Barrett et al., 2017; Chawla et al., 2016).

Damage to small blood vessels occurs in the eyes, kidneys, and nerves. Meanwhile, damage to large blood vessels can accelerate the occurrence of atherosclerosis. Diabetes mellitus can cause acute complications such as hypoglycaemia and diabetic ketoacidosis, while chronic complications include macroangiopathy and neuropathy. Chronic macrovascular complications resulting from neuropathic damage usually occur in patients with uncontrolled diabetes mellitus. Diabetes mellitus is also said to cause erectile dysfunction. Erectile dysfunction (ED) as a diabetes-related difficulty is joint in male patients. Given the increasing life expectancy and high incidence of ED in an ageing population, further increases in patients with ED should be expected. Erectile dysfunction (ED) dramatically increases with age. However, in men with diabetes, ED was more common than in men of the same age who did not have diabetes. The onset of ED also occurs 10-15 years earlier in men with diabetes than in those without diabetes (Sooriyamoorthy & Leslie, 2022; Thethi et al., 2005; Yafi et al., 2016).

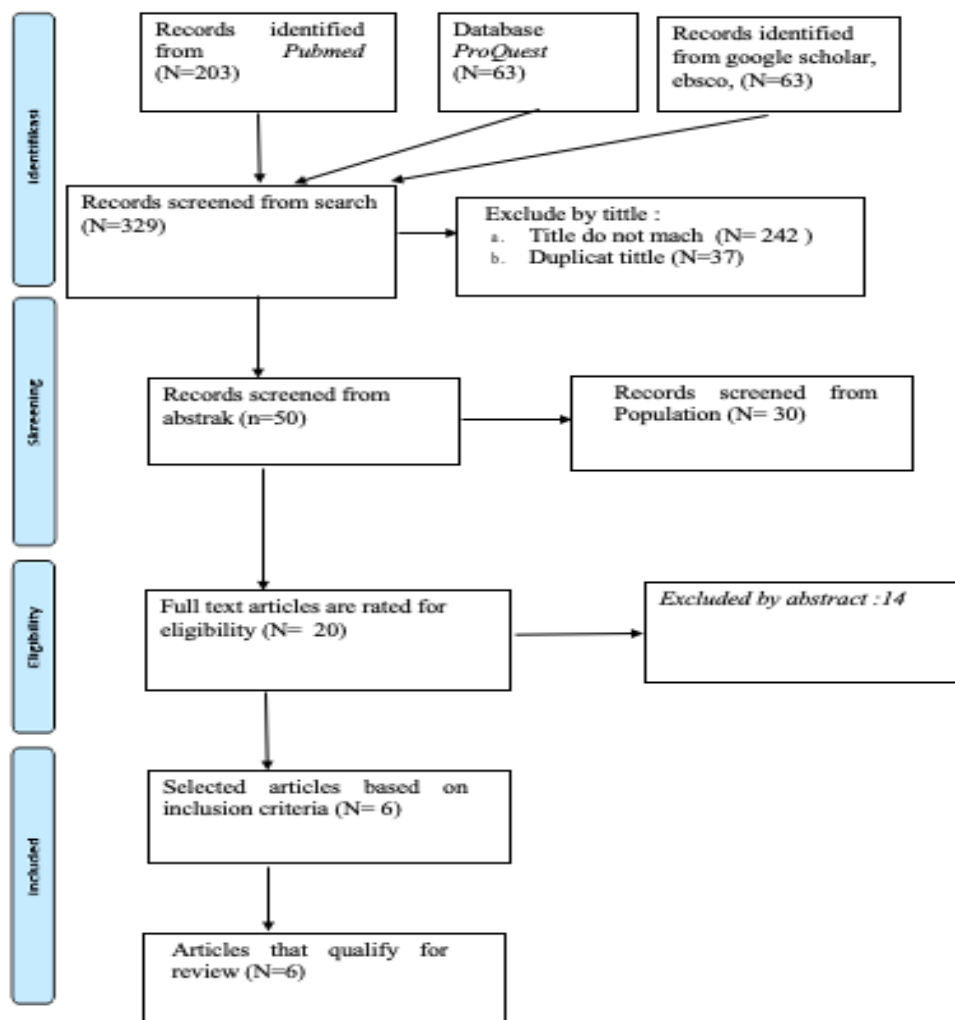
For patients with blood sugar reaching 400mg/ml, almost all individuals have experienced erectile dysfunction or impotence, at least temporarily. If the blood sugar is not controlled below 200mg/ml, then neuropathy will continue to develop, which will cause erectile dysfunction, which is difficult to cure. The state of blood sugar that rises to 400mg/ml and causes erectile dysfunction suddenly is not due to neuropathy but is caused by the endothelium of the sinusoids being disrupted so that they cannot deliver nitrogen oxides (NO) to activate cGMP and an erection does not occur(M.o\* et al., 2020; Shindel & Lue, 2000). For this reason, the critical studies in revealing how DM sufferers experience when they have erectile dysfunction complications and the prevalence of DM patients with erectile dysfunction complications are essential for nurses to study as a basis for planning the subsequent nursing care.

The purpose of this study was to find out how the experience of people with diabetes mellitus with their sexual condition. Moreover, how is the condition of erectile function in male patients suffering from diabetes mellitus.

### **Materials and Methods**

The research method uses a journal search method with a literature review system using the keywords diabetes mellitus and erectile dysfunction. PICO framework as a strategy in article search. The search was carried out on PubMed, Scopus, Ebsco, ProQuest, and Science Direct websites. Journal reviews were carried out on four research articles with article inclusion criteria ranging from 2015-to 2021. The research design used observational with a cross-sectional approach. Literature published from 2018 to 2021, in English, Interventions used are non-pharmacological, Respondents used in the literature are adult clients (aged 25-60 years), and Research settings are carried out in hospitals. Full-text manuscript. Keywords taken: Erectile dysfunction, depression, diabetes mellitus. The course of the research is that after the articles were obtained, the researchers grouped the inclusion and exclusion criteria, after which the researchers conducted title screening, skimming abstracts, and reading the entire manuscript. Then the last researcher conducted a study.

Figure 1. PRISMA DIAGRAM



## Results and Discussions

### Results

No	Author, Year	Setting	Design	Participan	Data Collection	Finding	Implication
1.	(AlMogbel, 2014)	It was conducted among 376 male types 2 diabetes patients enrolled in the primary care clinic at King Khalid University Hospital,	Cross-sectional study	The sample size obtained for this study was 370 men with diabetes. Inclusion criteria were identified as: Patient from Saudi, male,	Demographic data included the patient's age, occupation, education level, and monthly family income.	The findings of the study showed that the prevalence of ED was high in type 2 diabetic patients (83%). Prevalence increases with	Research shows that glycemic control does not correlate with ED. It is recommended that family physicians and diabetes

		Riyadh, Saudi Arabia.		aged 25 years or older, married, diagnosed with type 2 diabetes.		age and with the duration of diabetes. On the other hand, no significant association was found between the five sexual activities as measured by IIEF and glycemic control. However, the worst functioning in all of these sexual activities occurred in men with uncontrolled diabetes.	specialists inquire about these complications regularly in diabetic patients as with other diabetes complications.
2.	(Zelege et al., 2021)	A sample of 352 adult male diabetic patients was randomly selected from the Adare and Hawassa public hospitals.	An institution-based cross-sectional study was conducted on 352 male adult diabetic patients randomly selected from Adare and Hawassa general hospitals using a simple randomized sampling technique.	The number of patients who will be selected from each hospital is determined proportionally based on the total population of diabetes mellitus patients who follow chronic care during the study period.	Descriptive statistics and multiple logistic regression (bivariate and multivariate analysis) were performed. Inclusion criteria included adult male patients aged 18 years with a diagnosis of DM were included. Exclusion criteria Study participants with known secondary ED from patients with genetic, endocrine, neurological, or surgical causes who were seriously ill and with neurocognitive impairment were excluded.	The incidence of erectile dysfunction in this study was very high. Alcohol drinking habits, poor glycemic control, age, and duration of diabetes are predictors of erectile dysfunction.	Assessment and management of erectile dysfunction in a diabetes clinic should be part of routine medical care during follow-up visits with diabetic patients. Health care providers should emphasize screening and care for older patients and those with a diagnosis of diabetes for a longer period.
3.	(Edah et al., 2020)	Cross-sectional descriptive research design	A total of 64 adult male patients with DMT1. Seven patients refused to participate in this study.	The patients were asked to fill out demographic, depression, anxiety, and stress questionnaires.	The results of the Beck depression inventory (BDI) showed the prevalence of undiagnosed depression was	Sexual dysfunction is another aspect that affects the quality of sexual life and the possibility of	Our study contributes to a growing area of research by exploring the prevalence of erectile dysfunction in

			<p>Eleven agreed to participate without a blood or sperm test. Forty-six agreed to participate in the full extension; however, seven patients were subsequently unable to produce a sperm sample due to sexual dysfunction.</p>		<p>14.8% (8 of 54). Three additional patients (5.6%) had previously been diagnosed and treated for depression. Thus, every fifth DMT1 patient in our study had depression.</p>	<p>reproduction. Several investigators reported a higher prevalence of erectile dysfunction in DMT1</p>	<p>young Central European DM patients (mean age of 33 years).</p>
4.	(Balasingam et al., 2019)	<p>Erectile dysfunction and associated factors among men with diabetes mellitus from a tertiary diabetic center in Northern Sri Lanka</p>	<p>Using a descriptive cross-sectional study design on 326 male diabetic patients between the ages of 18-60 years.</p>	<p>Data were collected through interviews. The majority (62.9%; 95% CI 57.5-68.0%) of diabetic patients had ED and 22.4% (95% CI 17.8-26.8%) were found to have severe ED. Most of the patients (98.8%) were not screened or treated for ED.</p>	<p>Bivariate analysis showed age over 40 years, duration of DM (&gt; 5 years), type of diabetes (type 2), having microvascular complications, concomitant hypertension, BMI, unsafe alcohol consumption and beta-blocker use were associated with ED at level 5% (<math>P &lt; 0.05</math>). This study failed to demonstrate an association with dyslipidemia, macrovascular complications such as coronary artery disease (CAD, <math>P=0.052</math>), glycemic control (<math>P=0.082</math>) and smoking.</p>	<p>Regression analysis showed age &gt; 40 years (AOR: 2.13; 95% CI 1.05-4.33), duration of diabetes (AOR: 2.90; 95% CI 1.67-5.01), accompanying hypertension (AOR: 1.8; 95% CI 1, 06-3.06), and level of unsafe alcohol intake (AOR: 3.14; 95% CI 1.76-5.59) were independent risk factors. This was a cross-sectional study in patients presenting to a diabetes center. Jaffna Education. All male diabetic patients between the ages of 18-60 were recruited during the study period. Mentally incompetent patients; suffering from</p>	<p>Among the participants erectile dysfunction (ED) was identified at 62.9% (CI 57.5-68.0%), while 22% (CI 17.8-26.8%) was found to have severe ED and most of the patients involved in the study (98.8%) were not screened or managed for ED.</p>

						<p>end-stage organ failure such as chronic disease, chronic disease and heart failure; history of spinal cord injury and those who had a major stroke were excluded from the study. 56% of the disease had been diagnosed around 5 years and 23.6% had diabetes for more than 10 years. (62.0%) participants did not control diabetes up to signs (HbA1C<math>\geq</math>7). A significant percentage (45.7%) of the participants identified as having microvascular complications such as neuropathy (15.3%), nephropathy (25.5%), and retinopathy (22.5%), but only 9.2% had identified as having macrovascular complications such as cerebrovascular accidents.</p>	
5.	(Bahar et al., 2020)	Sexual dysfunction in men with type II diabetes	By using a descriptive cross-sectional research design	A total of 350 male patients suffering from type II diabetes were referred to an endocrinology clinic in the city of Sari.	Patients were asked to complete a 21-item demographic, depression, anxiety, and stress scale (DASS-21) and a 15-question International Index of Erectile	A total of 196 (77.2%) patients aged over 50 years and 22 (23.2%) patients under 50 years had ED. The probability of developing ED among diabetic patients aged	The effect of increasing age on the prevalence rate of ED among diabetic patients is a frequent complication.

					Function (IIEF) questionnaire. Data were analyzed using IBM SPSS statistical software.	over 50 is 11.21 times greater than that of individuals under 50 (odds ratio (OR): 11.21, 95% confidence interval (CI): 6.40-19.62). The frequency of ED incidence among patients without a high school diploma (p=0.002) and retirees (p<0.001).	
6.	(Zamorano-Leon et al., 2018)	Research set to reveal the relationship between Erectile Dysfunction, Diabetes, and Dyslipidemia in Men Treated with Hypertension.	Using a descriptive cross-sectional design.	Forty male patients were divided into 34 groups who experienced sexual dysfunction and 16 did not experience sexual dysfunction.	Men recruited in this study were randomly selected and matched by age. This study applied inclusion criteria such as age greater than or equal to 18 years with arterial hypertension which was defined as a previous diagnosis by a physician. All included hypertensive patients received optimal antihypertensive therapy. Patients with the following conditions were excluded: Uncontrolled hypertension, malignant hypertension, a secondary form of hypertension	A clear paradoxical observation is that in older patients with ED (.65 years) only 1 in 9 patients presented with diabetes as comorbidity indicating a lower frequency of diabetes as comorbidity than in younger hypertensive patients with ED. This may suggest that hypertension and diabetes may be independent risk factors for ED.	Total plasma TST levels in ED patients older than 65 years tend to decrease compared to younger ED patients and patients without ED. Therefore, it was analyzed whether total plasma TST levels could influence cardiovascular comorbidities in hypertensive patients. In this regard, exogenous TST therapy has been associated with increased cardiac risk factors, particularly in patients with hypertension.

The results in this literature review have described the article selection process according to the guidelines of the Preferred Reporting Systematic Reviews and Meta-analysis (PRISMA) (Moher et al., 2009). The initial search resulted in 580 articles showing high relevance to the topics reviewed between 2015 – 2021. After duplication of articles was removed and title and abstract screening was carried out, 22 articles were entered into the next stage, namely a full-text review and



eligibility based on the inclusion and exclusion criteria that had been set. Set by the researcher. Four research articles that met the requirements were then reviewed for quality and synthesized in the final report of this literature review.

In the first literature study by (AlMogbel, 2014) it was found that there was an increase in the prevalence of 85%, which along with increasing age, indicates the severity of erectile dysfunction. In addition, there is an increase in the level of depression in men when viewed from the perception by men who experience erectile dysfunction. In the second literature study belonging to (Zelege et al., 2021) it was found that the results of 325 men who participated in the study who experienced erectile dysfunction found an increase in blood glucose levels as a result of lifestyle patterns such as drinking alcohol, consuming foods containing carbohydrates that were not under the recommendations. Doctors and this pattern of rest triggers an increase in diabetes which in the long term causes erectile dysfunction; this leads to the perception of decreased self-esteem in partners.

In the third literature study belonging to (Edah et al., 2020), it was found that the results of 64 male patients with diabetes mellitus found an increase in the prevalence of depression experienced by male patients where they felt they had lost their manhood in front of their partners. In the 4th study belonging to (Balasingam et al., 2019), it was found that from a total male population of 365 people with diabetes mellitus and aged between 18 to 65 years with comorbidities in the form of cardiovascular and complications of Erectile Dysfunction, this made the patient in a certain period lead to depression, resulting in the wrong perception.

In the 5th study belonging to (Bahar et al., 2020) it was found that as many as 350 male respondents who experienced erectile dysfunction based on demographic distribution experienced very high perceptions of anxiety based on DASS 21; this is very life-threatening for a person when experiencing depression due to diabetes mellitus which causes erectile dysfunction. The 6th study belonging to (Zamorano-Leon et al., 2018) 2018 found that 40 males had diabetes mellitus based on a cross-sectional study design describing the perception that men experience anxiety and poor self-image when comorbid diabetes results in erectile dysfunction.

## **Discussion**

One of the experiences of DM sufferers with ED complications is feelings of anxiety and depression. This follows the theory from (Isworo & Saryono, 2010) that the inability to fulfil sexual needs causes people with diabetes to experience depression. Depression is a mood disorder (affective mood) characterized by gloomy sadness, lethargy, loss of passion for life, no enthusiasm, helplessness, guilt or guilt, uselessness, and hopelessness. It is a very personal matter that not everyone can talk about it. People with diabetes who experience sexual dysfunction feel ashamed to talk about this problem with their doctor or wife, so long-buried problems are not resolved.

This triggers stress or anxiety, lacks confidence, and appears with physical symptoms such as difficulty sleeping, no appetite, unfocused and erectile dysfunction. Should continue to improve education to remind clients about the principles of DM management, such as diet, exercise, and monitoring blood sugar regularly. Routine. By controlling blood sugar, complications such as erectile dysfunction can be prevented, so good sexual activity can positively influence physical and mental health.

Severe depression will be life-threatening in (Isworo & Saryono, 2010) study. The results of this study illustrate that in the DM group with mild erectile dysfunction, none experienced severe depression (0%), but in the group with severe erectile dysfunction, 2 (13%) had significant depression. Reinforced by the results of statistical tests with a p-value of 0.03 means that there is a relationship between erectile dysfunction and depression. The OR = 8 means that a person with diabetes with severe dysfunction has an eight times greater chance of experiencing major depression than a DM with mild erectile dysfunction. At the 95% confidence level, the chances of a DM experiencing severe erectile dysfunction can experience significant depression by 1-63 times greater than a person with diabetes with mild erectile dysfunction. This is in line with (Rizal, 2022) that erectile dysfunction is a sexual problem often experienced by older men due to degenerative diseases and blood vessel disorders such as Diabetes Mellitus.

Sexual dysfunction can also hurt mood and emotional states, ranging from anxiety to depression. Efforts are needed to overcome this problem and overcome depression through peer support group therapy, such as (Smit et al., 2021) showing that peer support groups can reduce depression levels. According (Pradnyadiansari et al., 2018) revealed the results of their research on laughter therapy could reduce the level of depression from moderate to severe. Another effort is to do work as a hobby, exercise regularly according to ability, consume healthy food according to diet rules, sunbathe in the morning, get enough rest and fight evil thoughts.

Description of diabetes mellitus with erectile dysfunction Based on a review of the journals that have been collected, all research results show a picture of patients with diabetes mellitus with erectile dysfunction. From the four journals, it can be seen that patients with diabetes mellitus can cause complications in the form of chronic diseases such as cardiovascular disease and sexual dysfunction, one of which is erectile dysfunction. Thus, it can be concluded that based on evidence of diabetes mellitus, it will cause a decrease in sexual function, one of which is erectile dysfunction.

Strengths The advantages that can be analysed from the articles mentioned above are that all of these studies focused on patients with diabetes mellitus with erectile dysfunction, using a standardized measuring instrument, IIEF (The International Index of Erectile Function).

Potential Side Effects Based on reviews from collected journals, all research articles explain that complications that can occur in patients with diabetes mellitus are sexual disorders, one of which is erectile dysfunction. Protocol: The four journals only mention the prevalence and relationship of diabetes mellitus

with erectile dysfunction in male patients. Men who suffer from diabetes mellitus with uncontrolled blood sugar levels will experience damage to the vascular and nervous systems. Vascular damage will reduce and inhibit blood flow resulting in endothelial reflex dysfunction in blood vessels, including a lack of blood flow to the penis resulting in impaired erectile function. In contrast, nerve damage can cause loss of sensation due to autonomic neuropathy, resulting in premature ejaculation.

Sex is an integral part of basic human needs. Unfulfilled sexual needs can lead to feelings of guilt and rejection, causing problems in the harmony of the couple's relationship (Soleimani et al., 2015). (Zhu & Chang, 2019) argues that in dealing with these sexual changes, each individual's response is different and highly dependent on sexual perception. In middle adulthood, men have begun to shape their personalities into responsible men; the real men want to maintain their roles and functions as men and the roles inherent in them, including their sexual functions.

### **Conclusion**

Diabetes mellitus with complications of erectile dysfunction (ED) is one of the chronic complications that often occur in male patients with all sufferers based on their experiences complaining of feelings of depression and anxiety, even to a severe level that can threaten their psyche. It is recommended that nurses' follow-ups related to nursing care regarding sexual needs and psychological assistance.

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