

## A Long Relationship With Diabetes Mellitus With The Incidence Of Sexual Dysfunction In The Working Area Of The Tilongkabila Health Center

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### ABSTRACT

Diabetes Mellitus (DM) is a chronic disease that can cause various complications, one of which is sexual dysfunction. The length of suffering from DM is suspected to play a role in increasing the risk of sexual dysfunction due to progressive nerve and blood vessel damage. This study aims to determine the relationship between the length of time suffering from Diabetes Mellitus and the incidence of sexual dysfunction in the working area of the Tilongkabila Health Center, Bone Bolango Regency. This study uses a correlational descriptive design with a cross-sectional approach. The study population was 278 DM patients, with a sample of 74 respondents selected using the Proportionate Stratified Random Sampling technique. Data was collected through questionnaires and analyzed using the Chi-Square test. The results showed that most of the respondents had suffered from DM for more than 5 years as many as 44 people (59.5%) and experienced indications of sexual dysfunction as many as 69 people (93.2%). The results of the statistical test showed a p-value of 0.151 ( $p > 0.05$ ), which means that there was no significant relationship between the length of time of suffering from Diabetes Mellitus and the incidence of sexual dysfunction. Although theoretically a longer duration of the disease can increase the risk of sexual complications, the results of this study show that the incidence of sexual dysfunction in DM patients is multifactorial and is influenced by various other factors such as age, psychological condition, lifestyle, and blood sugar level control. Therefore, a comprehensive approach is needed in the prevention and treatment of sexual dysfunction in Diabetes Mellitus patients.

### INTRODUCTION

Diabetes Mellitus (DM) is a metabolic disorder characterized by increased blood glucose levels (hyperglycemia) due to impaired insulin function, impaired insulin production, or a combination of both. Diabetes mellitus is not an infectious disease, but its prevalence continues to increase every year. In Indonesia, diabetes is one of the highest causes of death. The top five non-communicable diseases that cause the most deaths in Indonesia include stroke, high blood pressure (hypertension), diabetes, cancer, and chronic obstructive pulmonary disease (COPD) (Shafriani, 2021).

DM, also known as blood sugar disease, is a chronic condition that can last a lifetime. This disease arises due to a disorder of the metabolic system in the pancreas, which causes glucose levels in the blood to increase abnormally or known as hyperglycemia, because the production of the hormone insulin decreases and can cause various complications, both in large (macrovascular) and small (microvascular) blood vessels. One of the serious impacts of DM is also a disorder of the cardiovascular system, which if not treated immediately can trigger serious diseases such as hypertension and heart attack. It is the disease most afflicted by the population worldwide and is the fourth highest national research priority for degenerative diseases. The increasing number of DM disease will indirectly result in pain and death due to complications from diabetes mellitus itself (Biology, 2021).

Data from *International Diabetes Federation* (IDF) in 2021 revealed that as many as 537 million people worldwide between the ages of 20 and 79 are living with Diabetes Mellitus (DM). DM is also responsible for 6.7 million deaths or one person every five seconds. In 2021, China led as the country with the highest number of adults

affected by diabetes mellitus, reaching 149.86 million people. Next is India with 74.19 million people with diabetes mellitus, followed by Pakistan with 32.96 million, and the United States with 32.22 million people. Indonesia is in fifth position with a total of 19.47 million people affected by diabetes mellitus (Arfania, 2022).

Based on data from the 2023 Indonesian Health Survey (SKI), the level of DM according to blood sugar level checks in the population aged 15 years and above reached 11.7%. However, based on medical diagnosis, the prevalence of DM in individuals aged 15 years and older is 2.2%. In addition, according to SKI 2023, the percentage of people who receive education about DM treatment and undergo treatment reaches 81.4% (Uverni et al., 2024).

Based on data from the Gorontalo Provincial Health Office, the number of Diabetes Mellitus (DM) sufferers in Gorontalo Province in the last three years was recorded at 23,950 people in 2023, decreased to 23,585 people in 2024, and decreased again to 22,087 people in 2025. The highest prevalence was recorded in Bone Bolango Regency with 2,251 patients, where the Tilongkabila Health Center was the area with the highest number of cases (278 people) (Gorontalo Provincial Health Office, 2023).

Data obtained from the Bone Bolango Regency Health Office shows that the highest prevalence of diabetes mellitus (DM) in Bone Bolango Regency in 2025 is spread across the working area of the Tilongkabila Health Center with a total of 2,251 people, which is the latest diagnosis figure and spread across various health centers. The Tilongkabila Health Center is one of the health facilities in this area with the highest record of Diabetes Mellitus patient visits. The Tilongkabila Health Center is seen to have experienced a significant increase in 2025 as many as 278 patients with diabetes mellitus (Monoarfa, 2025).

Diabetes mellitus can cause complications that directly affect sexual function. This condition occurs because chronic hyperglycemia causes damage to the nervous system and blood vessels that play a role in reproductive function. Poorly treated DM can lead to a variety of complications that directly affect sexual function, such as diabetic neuropathy, which is damage to the autonomic nerves that regulate erection and ejaculation function in men as well as lubrication in women. In addition, diabetic angiopathy or vascular disorders cause blood flow to the genital organs to be disrupted, resulting in decreased erection, orgasm, and sexual arousal ability (Mohan et al., 2024). This condition is aggravated by hormonal disorders due to high blood sugar levels in the long term, which can lower testosterone and estrogen levels. This is important because diabetes mellitus now also occurs in early adulthood, which is a productive period and plays an important role in the sustainability of offspring. If not properly controlled, these complications not only have an impact on sexual life, but can also reduce quality of life and affect long-term reproductive ability. Sexual dysfunction due to progressive nerve damage. Macrovascular complications in diabetic patients such as atherosclerosis also play a role in the occurrence of sexual dysfunction. Imoptimal blood flow to the reproductive organs due to narrowing of blood vessels causes disruption of erectile function in men and sexual response in women. This condition shows that the duration of suffering from diabetes is directly proportional to the severity of vascular complications that can worsen the incidence of sexual dysfunction (Atamenta et al., 2024).

Not only that, psychological factors also play an important role in diabetic patients. The long-lasting burden of chronic illness, coupled with physical complications, can lower confidence, increase anxiety, and worsen depression. This condition can inhibit sexual function, both in terms of desire, arousal, and satisfaction. The longer the patient suffers from DM, the greater the risk of psychological disorders, which ultimately aggravates sexual dysfunction. Based on this description, it can be understood that the length of suffering from diabetes mellitus is strongly related to the increased risk of sexual dysfunction. Sexual dysfunction not only impacts intimate relationships, but also affects quality of life, mental health, and patient compliance in undergoing treatment (Dilixiati et al., 2024).

This results in sexual dysfunction problems if they last for a long time. One of the disorders of sexual function that is commonly experienced by men is erectile dysfunction, In women, the disorders that appear include decreased sexual desire, difficulty in feeling pleasure, difficulty reaching orgasm, and pain during intercourse, with a proportion of dysfunction of about 40-50%. A preliminary study found that of 15 women with type 2 diabetes mellitus aged 35-60 years, 60% had sexual dysfunction. Diabetes mellitus in both men and women can lead to a decrease in sexual desire. An increase in glucose levels in the blood affects the resistance of blood vessels, which further reduces the blood supply to the endoneurium, thereby reducing the supply of oxygen to the tissues. Blood flow to the vagina, uterus, and clitoris is also reduced or even stopped, which can result in a loss of sexual sensation as well as a decrease in the ability to feel sexual stimulation (Puspitasari et al., 2024).

Based on the Problem Sexual dysfunction that can occur not only has an impact on physical function, such as erection difficulties in men or lubrication disorders in women, but also affects psychological and social aspects. Patients often feel inferior, stressed, and even depressed because they think they are unable to meet the needs of their partner. This condition can disrupt household harmony, reduce intimacy, and trigger conflicts in the family. If left untreated, sexual dysfunction can also worsen the quality of life as well as the management of diabetes itself (Terkas et al., 2024).

Based on the results of initial observations, Prolanis participants conducted interviews with patients related to complaints of sexual dysfunction, especially in patients who have suffered from diabetes mellitus. From the interview, information was obtained from 10 patients and 8 of them experienced complaints in the form of premature ejaculation of less than 3-5 minutes and decreased sexual arousal. In 49-year-old female patients,

complaints of sexual dysfunction are increasing. However, there are also patients who have been suffering from diabetes mellitus for more than 10 years but do not experience the same complaints. Although not all of them experience a decrease in passion. This shows that sexual dysfunction in DM patients is complex, can be caused by the length of time they suffer from DM, hormonal changes, or the patient's psychological condition. Based on these conditions, the researcher was interested in conducting a study titled The Long-Term Relationship of Suffering from Diabetes Mellitus with the Incidence of Sexual Dysfunction.

## RESEARCH METHODS

### Research Location and Research Time

The location of this research was carried out in the working area of the Tilongkabila Health Center. The time for this research was carried out from November to January.

### Research Design

The design of this research used is descriptive correlation with a cross sectional approach, which is a research plan that is arranged in such a way that the researcher can get answers to his research questions. Correlation research is to find out the relationship that occurs in a phenomenon. Cross sectional approach, which is research by taking measurements or observations at the same time (one observation time) between risk factors or exposure to disease (Sagala & Harahap, 2021).

### Population and Sample

The population in this study is all patients with Diabetes Mellitus in the work area of the Tilongkabila Health Center as many as 278 people. This study uses the Proportionate Stratified Random Sampling technique, which is a sampling technique where the population is divided into several groups (strata) called villages. After that, samples are taken randomly from each strata with proportionally adjusted amounts based on the size of each strata in the population. The goal is for each village to be represented in a balanced manner in the sample, so that the results of the research better describe the actual conditions and have a higher level of accuracy (Trianasari et al., 2025). The sample was in 7 villages with a total population of 278 people and a sample of 74 people.

## Data Analysis Techniques

### Univariate Analysis

Univariate analysis aims to explain or describe each research variable. In general, this analysis only produces the frequency distribution and percentage of each variable (Frizky Ikhfa Humaira et al., 2022).

### Bivariate Analysis

Bivariate analysis is an analysis carried out on two variables that are suspected to be related or correlated (Frizky Ikhfa Humaira et al., 2022). In this study, bivariate analysis was conducted to determine the length of time suffering with the incidence of sexual dysfunction in patients with diabetes mellitus. The data analysis in this study used the chi-square test. Data processing and analysis is carried out using SPSS.

## RESULTS

### Respondent Characteristics

Patients who are respondents in this study as many as 74 respondents general data in this study present data on respondent characteristics based on age, address, education, occupation, and DM history.

### Characteristics of Respondents by Age

Table 1 Characteristics of respondents based on age in the Working Area of the Tilongkabila Health Center , Bone Bolango Regency.

| Yes   | Age                       | Frequency<br>(n) | Percentage<br>(%) |
|-------|---------------------------|------------------|-------------------|
| 1.    | 23-34 Years (Young Adult) | 9                | 12,2              |
| 2.    | 35-49 Years (Old Adult)   | 65               | 87,8              |
| Total |                           | 74               | 100               |

Source: Primary Data, 2026

Based on Table 1 above, it can be seen that the characteristics of respondents based on age in the working area of the Tilongkabila Health Center, Bone Bolango Regency show that most of the respondents are in the age group of 35–49 years, namely 65 respondents (87.8%), while respondents with the age group of 23-34 years are 9 respondents (12.2%)

### Characteristics of Respondents Based on Family History of Diabetes Mellitus

Table 2. The characteristics of respondents based on the history of diabetes mellitus in families in the work area of the Tilongkabila Health Center , Bone Bolango Regency are as follows:

| Yes   | DM History On Respondent's Family | Frequency (n) | Percentage (%) |
|-------|-----------------------------------|---------------|----------------|
| 1.    | No                                | 23            | 31,1           |
| 2.    | Yes                               | 51            | 68,9           |
| Total |                                   | 74            | 100            |

Source: Primary Data, 2026

Based on Table 2 above, it can be seen that most of the respondents did not have a history of diabetes mellitus in the respondent family, namely 51 respondents (68.9%), while the respondents who had a history of diabetes mellitus in the respondent family were 23 respondents (31.1%).

### Univariate Analysis

#### Long Results of Suffering from Diabetes Mellitus in the Working Area of the Tilongkabila Health Center , Bone Bolango Regency.

Table 3. The Results of Long Suffering from Diabetes Mellitus in the Working Area of the Tilongkabila Health Center , Bone Bolango Regency are as follows:

| Yes   | Long Suffering DM | Frequency (n) | Percentage (%) |
|-------|-------------------|---------------|----------------|
| 1.    | > 5 years         | 44            | 59,5           |
| 2.    | ≤ 5 years         | 30            | 40,5           |
| Total |                   | 74            | 100            |

Source: Primary Data, 2026

Based on Table 3 above, it can be seen that the length of suffering from diabetes mellitus in respondents is mostly in the >5-year category, which is 44 respondents (59.5%), while the ≤5-year category is 30 respondents (40.5%).

Table 4. The Results of Sexual Dysfunction in the Working Area of the Tilongkabila Health Center , Bone Bolango Regency are as follows:

| Yes   | Sexual Dysfunction                | Frequency (n) | Percentage (%) |
|-------|-----------------------------------|---------------|----------------|
| 1.    | Indications of Sexual Dysfunction | 69            | 93,2           |
| 2.    | Normal Sexual Function            | 5             | 6,8            |
| Total |                                   | 74            | 100            |

Source: Primary Data, 2026

Based on Table 4 above, it can be seen that most of the respondents experienced indications of sexual dysfunction, namely 69 respondents (93.2%), while respondents who had normal sexual function were 5 respondents (6.8%).

### Bivariate Analysis

#### Long Relationship Suffering from Diabetes Mellitus with the Incidence of Sexual Dysfunction in the Working Area of the Tilongkabila Health Center , Bone Bolango Regency.

Table 5. Long Relationship Suffering from Diabetes Mellitus with the Incidence of Sexual Dysfunction in the Working Area of the Tilongkabila Health Center , Bone Bolango Regency.

| Long Suffering<br>from Diabetes | Sexual Dysfunction        |       |                                      |       | Quantity |       | <i>p-value</i> |
|---------------------------------|---------------------------|-------|--------------------------------------|-------|----------|-------|----------------|
|                                 | Normal Sexual<br>Function |       | Indications of Sexual<br>Dysfunction |       |          |       |                |
|                                 | f                         | %     | f                                    | %     | f        | %     |                |
| > 5 years                       | 1                         | 20,0  | 43                                   | 62,3  | 44       | 59,5  | 0,151          |
| ≤ 5 years                       | 4                         | 80,0  | 26                                   | 37,7  | 30       | 40,5  |                |
| Quantity                        | 5                         | 100,0 | 74                                   | 100,0 | 74       | 100,0 |                |

Source: Primary Data, 2026

Based on Table 5 regarding the long-standing relationship between diabetes mellitus and the incidence of sexual dysfunction in the work area of the Tilongkabila Health Center, Bone Bolango Regency, out of a total of 74 respondents, most of them experienced indications of sexual dysfunction, namely 69 people (93.2%), while respondents with normal sexual function amounted to 5 people (6.8%). In respondents who had diabetes for more than 5 years, 43 people (58.1%) had sexual dysfunction and 1 person (1.4%) had normal sexual function. With a total of 44 respondents (59.5%). In the long-term group suffering  $\leq 5$  years, as many as 26 people (35.1%) experienced sexual dysfunction and 4 people (5.4%) had normal sexual function, with a total of 30 respondents (40.5%).

The results of the statistical test using the Chi-Square test obtained a significance value ( $p$ -value) = 0.151 ( $>0.05$ ) which means that there is no significant relationship between the length of time suffering from Diabetes Mellitus and the incidence of sexual dysfunction in respondents in the working area of the Tilongkabila Health Center, Bone Bolango Regency. This shows that statistically long suffering from Diabetes Mellitus is not a factor that is meaningfully related to the incidence of sexual dysfunction in this study. However, theoretically, the longer a person suffers from Diabetes Mellitus, the risk of chronic complications such as vascular disorders and neuropathy can increase, which ultimately has the potential to affect sexual function. However, because the significance value is greater than 0.05, the relationship is not statistically significant and the strength of the relationship is classified as very weak, there is almost no relationship.

## DISCUSSION

### Long Suffering from Diabetes Mellitus in the Working Area of the Tilongkabila Health Center , Bone Bolango Regency

Based on the results of the study on 74 respondents with diabetes mellitus in the working area of the Tilongkabila Health Center, Bone Bolango Regency, it is known that as many as 44 respondents have suffered from diabetes mellitus for  $>5$  years, while 30 other respondents have been  $\leq 5$  years. This shows that most of the respondents are in a condition of diabetes mellitus with a relatively long duration of the disease. In theory, the longer a person suffers from diabetes mellitus, the greater the risk of complications due to chronic hyperglycemia that can damage blood vessels and nerves. However, in this study, the incidence of sexual dysfunction was not only found in the group with a duration of  $>5$  years, but also in the  $\leq 5$ -year group, thus showing that the length of suffering is not the only factor that affects the occurrence of sexual dysfunction. This is in line with research that states that the relationship between the duration of diabetes and sexual dysfunction is not always consistent and can be influenced by other factors such as glycemic control and vascular conditions (Derosa et al., 2023).

In addition, diabetes mellitus is a chronic disease that is progressive and lasts for life, characterized by a chronic hyperglycemia condition that can last for years before it is even clinically diagnosed (Scavello et al., 2020).

Related to this condition, out of a total of 74 respondents, as many as 69 respondents experienced sexual dysfunction. Based on the results of the questionnaire, the disorders experienced covered all domains of sexual function, namely decreased desire, arousal disorders, difficulty reaching orgasm, decreased satisfaction, lubrication disorders, and pain during sexual intercourse. The majority of respondents complained of a decrease in sexual desire which is characterized by a decrease in desire to have sexual intercourse. In addition, respondents also experience stimulation disorders, where it is difficult to achieve a stimulated state even though they have received stimulation. In the orgasm domain, most respondents stated that they were unable to reach orgasm or that it took longer. This has an impact on decreased overall sexual satisfaction. Lubrication disorders are also widely found, which cause discomfort and even pain during sexual intercourse. Complaints in these various domains show that the sexual dysfunction experienced by the respondents is comprehensive. This condition can be caused by the effects of diabetes mellitus that causes damage to blood vessels and nerves (diabetic neuropathy), thereby interfering with blood flow and nerve responses to sexual stimuli. As a result, the sexual response becomes suboptimal, which is characterized by decreased desire, disturbances of stimulation, and difficulty reaching orgasm as found in the results of the questionnaire.

In contrast to this group, there were 5 respondents who did not experience sexual dysfunction. Based on the results of the questionnaire, these five respondents showed good conditions in all domains of sexual function, namely having normal sexual desire, being able to respond well to stimuli, being able to achieve orgasm, feeling sexual satisfaction, not experiencing lubrication disorders, and not feeling pain during sexual intercourse. This shows that overall sexual function in the respondents is in normal condition. When viewed from their characteristics, respondents who did not experience sexual dysfunction mostly had a high school education. This level of education allows respondents to have basic knowledge about diabetes mellitus, including the importance of maintaining a healthy lifestyle, controlling blood sugar levels, and maintaining physical and psychological conditions. This knowledge plays a role in maintaining good sexual function.

This shows that age is a factor that aggravates sexual dysfunction in people with diabetes mellitus. When viewed from the age aspect, the majority of the 69 respondents who experienced sexual dysfunction were in the age range of 35-49 years. In this age group, the results of the questionnaire showed that the domains that experienced the most disturbance were desire, stimulation, and orgasm. Decreased sexual desire at this age can be

caused by physiological changes in the body, such as decreased hormones and metabolic disorders due to diabetes mellitus. In addition, disturbances of stimulation and difficulty reaching orgasm are also related to decreased nerve and blood vessel function (Anugrah et al., 2022).

These findings show that the majority of respondents are in the late adulthood phase with a long duration of the disease. Physiologically, the increase in age is related to a decrease in the body's metabolic function, especially in terms of insulin sensitivity and pancreatic beta cell function. This condition causes individuals in adulthood to be more susceptible to diabetes mellitus and tend to have a longer duration of the disease (American Diabetes Association, 2023).

In contrast, in 5 respondents who did not experience sexual dysfunction, no disturbances were found in all domains of sexual function even though they were in the same age range. This shows that age is one of the factors that can aggravate sexual dysfunction in people with diabetes mellitus.

In addition to age, the work factor also plays a role. Most of the 69 respondents who experienced sexual dysfunction were housewives (IRT). Activities as a housewife last most of the day without a clear division of working time, thus causing physical and mental fatigue. This condition of fatigue has an impact on a decrease in interest or desire to have sexual intercourse. In addition, fatigue can also affect sexual satisfaction as well as exacerbate disorders in other domains. This explains why most respondents experience complaints of sexual dysfunction. Meanwhile, respondents who did not experience sexual dysfunction tended to have a more stable condition both physically and psychologically, so they did not experience disturbances in the domain of sexual function (Rosaline, 2025).

Although in theory long suffering from diabetes mellitus is associated with an increased risk of complications, in this study no significant association was found between the length of suffering and the incidence of sexual dysfunction. This can be caused by the dominance of other factors such as age, fatigue due to work, psychological conditions, and the management of blood sugar levels that are not directly researched (Ayu et al., 2022).

The researcher assumes that the high incidence of sexual dysfunction in this study is more influenced by disturbances in the domains of desire, stimulation, and orgasm experienced by respondents aged 35–49 years and aggravated by fatigue due to activities as housewives. Meanwhile, respondents who did not experience sexual dysfunction showed good conditions in all domains, which may be influenced by knowledge, physical condition, and the ability to maintain a balance of activity and health. Therefore, optimal control of blood sugar levels, adherence to medication, and the implementation of a healthy lifestyle are essential to prevent long-term complications in people with diabetes mellitus (Priambodo et al., 2023)

**Incidence of sexual dysfunction in Diabetes Mellitus patients in the Working Area of the Tilongkabila Health Center, Bone Bolango Regency**

Based on the results of the study, it was found that of the 74 DM respondents in the work area of the Tilongkabila Health Center, Bone Bolango Regency, almost all respondents experienced indications of sexual dysfunction, namely as many as 69 people (93.2%), while only a small number of respondents still had good sexual function, namely 5 people (6.8%). This figure illustrates that while some respondents are able to maintain their sexual function through good glycemic control and a healthy lifestyle, others experience disruption due to long-term complications of diabetes. Impaired sexual function is a condition in which a person experiences difficulty in one or more phases of sexual response, including the phase of desire, arousal, orgasm, or resolution. Impaired sexual function is a chronic complication that is often overlooked in people with diabetes mellitus, especially in women.

Respondents with the "less" category showed low scores in several domains of female sexual function, especially in the aspects of lubrication, orgasm, satisfaction, and pain during sexual intercourse. In addition, a decrease is also seen in the desire and arousal domains. Based on the data obtained, the lowest scores are generally found in the lubrication and orgasm domains, which reflect a disturbance in the body's ability to respond optimally to sexual stimuli. This condition is related to physiological changes due to diabetes mellitus that affect vascular and neurological function.

In addition, the diabetic neuropathy theory explains that uncontrollably high blood glucose levels damage the peripheral nerves that regulate sexual sensation and the response of genital reflexes. This is reinforced by Karaca (2021) which suggests that patients with DM duration of more than 10 years have a 2.5 times higher risk of sexual dysfunction due to autonomic nerve damage. The long-term impact of this disorder is not only physiological but also psychosocial, the patient becomes anxious, loses confidence, and is at risk of depression and relationship tension with a partner (Pang, 2021). Clinically, it also has the potential to worsen blood sugar control because chronic stress can increase cortisol secretion and worsen insulin resistance.

Respondents with "good" results showed the ability to maintain high passion, satisfaction, and emotional intimacy. Based on the results of the questionnaire, respondents with good scores showed good conditions in all domains of sexual function, including desire, arousal, lubrication, orgasm, satisfaction, and absence of pain during sexual intercourse. This indicates that respondents are still able to maintain optimal sexual function, which may be influenced by good physical condition, psychological balance, and support from their partner. The average FSFI total score in respondents with the good category was in the high score range indicating normal sexual function.

Some recent studies also support these results. Questions on FSFI item 2 (arousal), shows that basic sexual desire is still fairly preserved despite the occurrence of physiological disorders. Theoretical analysis shows that sexual desire is influenced by psychological and hormonal components (dopamine, testosterone, estrogen). In most respondents, despite the complications of diabetes, the neuroendocrine system that regulates libido has not been completely disrupted. This is in accordance with (Gao, 2022) which mentions that sexual drive is not always reduced in diabetic patients, as long as psychological factors and partner relationships are maintained.

These findings are in line with research by (Asefa et al., 2019) which states that sexual dysfunction is a common complication in patients with diabetes mellitus and is related to metabolic disorders that affect the function of nerves and blood vessels.

This is in line with research (Atnafu et al., 2023) which states that sexual dysfunction is a common complication in diabetes mellitus patients with a fairly high prevalence globally. This condition is not only influenced by biological factors such as nerve and blood vessel disorders, but also by psychological and social factors that play a role in the patient's sexual function. In addition, when viewed from the characteristics of the respondents, most of the patients who experience sexual dysfunction are in the adult to elderly age group. This suggests that increasing age contributes to decreased sexual function due to physiological changes and hormonal decreases. This shows that the incidence of sexual dysfunction in patients with diabetes mellitus in this study is multifactorial, where factors of age, length of illness, blood sugar level control, and psychological and social conditions interact with each other in influencing the patient's sexual function.

These findings are in line with the theory that sexual function tends to decline with age, and is supported by research (Cannarella et al., 2021) which states that age factors play an important role in the occurrence of sexual dysfunction in patients with diabetes mellitus. In addition to the age factor, a family history of diabetes mellitus was also found in some respondents who experienced sexual dysfunction. This suggests that there is a possible influence of genetic factors on a person's susceptibility to developing diabetes complications, including sexual dysfunction. This condition is in accordance with the theory that hereditary factors can influence the development and complications of diabetes mellitus.

In addition, most of the respondents who experienced sexual dysfunction also had diabetes mellitus for more than 5 years. This is in line with the theory that chronic hyperglycemia in the long term can lead to neuropathy and damage to blood vessels that play a role in impaired sexual function. Research by (Tonolo, 2023) states that diabetes mellitus can cause sexual dysfunction through the mechanisms of vascular disorders and neuropathy.

Meanwhile, respondents who did not experience sexual dysfunction tended to have better control of blood sugar levels as well as adherence in treatment. This is in accordance with research (Petolicchio et al. 2025) which states that optimal glycemic control can prevent diabetes complications, including sexual dysfunction.

In addition, there are also respondents who have suffered from diabetes mellitus for a long time but do not experience sexual dysfunction. This is not entirely in line with theory. This condition may be influenced by other factors such as good psychological condition, partner support, and a healthy lifestyle. This is reinforced by the research of Gebeyehu et al. (2023) which states that sexual dysfunction in patients with diabetes mellitus is influenced by biological, psychological, and social factors simultaneously.

In addition, although in theory diabetes mellitus has the potential to cause sexual dysfunction, the results of this study suggest that the relationship cannot always be directly proven in every study population. Therefore, a more comprehensive approach is needed in understanding the incidence of sexual dysfunction in patients with diabetes mellitus by considering biological, psychological, and social factors simultaneously.

Sexual dysfunction in patients with diabetes mellitus is known to be one of the chronic complications that can occur due to prolonged metabolic disorders. However, not all patients with diabetes mellitus experience this condition. In this study, it was found that some respondents still had good sexual function. This is influenced by the individual's ability to control their disease, including adherence to treatment, regularity in conducting health checkups, and the implementation of a healthy lifestyle such as dietary regulation, adequate physical activity, and blood sugar level control (Petolicchio et al. 2025).

The researcher assumes that most of the respondents with diabetes mellitus in the work area of the Tilongkabila Health Center, Bone Bolango Regency experience sexual dysfunction with a fairly high level of disorders. This condition shows that sexual dysfunction is one of the dominant complications in people with diabetes mellitus, especially in women. Physiological factors such as damage to blood vessels and nerves, as well as psychosocial factors such as stress and relationships with partners, play a major role in the condition. The results of the questionnaire showed that most of the respondents experienced impairments in various domains of sexual function, reflecting the presence of vascular and neurological disorders due to diabetes. However, in a small percentage of respondents who did not experience sexual dysfunction, this condition showed that psychological, emotional, and partner support aspects could still be well maintained.

#### **A Long Relationship With Diabetes Mellitus With The Incidence Of Sexual Dysfunction In The Working Area Of The Tilongkabila Health Center**

However, the results of the data distribution showed that out of a total of 74 respondents, as many as 69 people (93.2%) experienced sexual dysfunction, while only 5 people (6.8%) had normal sexual function. The high

incidence of sexual dysfunction in almost all respondents led to the absence of sufficient variation between groups of long-time diabetics, so statistically no significant association was shown.

Based on the results of the statistical test using the Chi-Square test, a p-value of 0.151 ( $p > 0.05$ ) was obtained, indicating that there was no significant relationship between the length of suffering from Diabetes Mellitus and the incidence of sexual dysfunction in the respondents. This shows that statistically, the length of time a person suffers from diabetes mellitus does not have a meaningful effect on the occurrence of sexual dysfunction.

The results of this study are consistent with previous studies that have stated that sexual dysfunction is often found in women with diabetes (Котлер et al., 2023). It also explains that damage to blood vessels and nerves due to uncontrolled blood sugar levels in the long term is the main factor in sexual dysfunction.

The results of this study confirm that sexual dysfunction can be experienced by people with Diabetes Mellitus regardless of the length of the disease. Whether at shorter or longer durations, the risk of sexual dysfunction remains. Theoretically, this condition can be explained through the mechanism of diabetic neuropathy and vascular disorders due to hyperglycemia that can appear from the early stages of the disease, especially if blood sugar levels are not optimally controlled. From a psychological aspect, individuals with Diabetes Mellitus tend to face emotional distress such as stress, anxiety, and depression due to the chronic nature of the disease and the need for long-term management. These psychological conditions have an effect on a decrease in sexual desire, a decrease in sexual response, and a decrease in satisfaction in intimate relationships. In many cases, psychological factors even have a greater role than the length of time they have been suffering from the disease. Therefore, the psychological condition of the respondents is suspected to have contributed to the high incidence of sexual dysfunction in both groups.

In addition, the characteristics of respondents as housewives are also aspects that need to be considered. Domestic roles often demand a high level of physical activity and great responsibility for the family. This condition can trigger prolonged fatigue, decreased energy, and reduced interest in sexual activity. On the other hand, economic pressure as well as limited time for oneself can worsen psychological conditions, which ultimately impacts sexual functioning. Thus, status as a housewife can be a factor that contributes to the occurrence of sexual dysfunction. The age factor also has a significant influence. Respondents in the older adult age group tend to experience decreased levels of the hormone estrogen and enter menopause. These physiological changes can cause reduced vaginal lubrication, decreased sexual arousal, and discomfort during sexual intercourse. Therefore, age is a factor that can aggravate the condition of sexual function, so that the incidence of sexual dysfunction is not only influenced by the length of time you suffer from Diabetes Mellitus (Magazine, 2022).

In addition, adherence to medication and blood sugar level control is an important factor that also determines it. Individuals with low adherence to therapy as well as poor glycemic control tend to have a higher risk of developing complications, including impaired sexual function. This shows that the quality of disease management has a bigger role than just the duration of the disease. Thus, despite the difference in length of suffering, the risk of sexual dysfunction remains high if the management of the disease is not optimal. This means that patients with long duration but good blood sugar control may have a lower risk of complications compared to patients with poor control.

This phenomenon shows that the incidence of sexual dysfunction in patients with diabetes mellitus is multifactorial, so it is not only influenced by the duration of the disease, but also by age, psychological conditions, lifestyle, and comorbidities that the patient has.

In addition, diabetic neuropathy that has occurred due to a long history of DM (>5 years) can be *irreversible*, so that even though blood glucose has been controlled, the nerve and endothelial damage that has occurred has not been completely recovered. This theory is supported by Feldman *et al.* (2022) which states that damage from chronic oxidative stress to peripheral nerve tissue takes a long time to recover, even after sugar levels are stabilized.

The findings are supported by research that states that risk factors such as hypertension, obesity, and psychological disorders can accelerate the onset of sexual dysfunction, even in patients with a relatively short duration of diabetes. This shows that the internal condition of individuals has a major contribution to the occurrence of sexual dysfunction disorders.

In theory, this condition corresponds to the concept of chronic complications of diabetes which explains that long-term exposure to hyperglycemia can cause progressive damage to nerves and blood vessels. Both of these systems have an important role in sexual response, so the damage done will have a direct impact on the sexual function of the individual. This indicates that the duration of the disease is not the sole factor that determines the occurrence of the disorder (Laksono et al., 2022).

These results are reinforced by other studies that state that age factors, glycemic control, and psychological conditions have a greater influence on the incidence of sexual dysfunction compared to the length of time they have diabetes. On the other hand, there are studies that show different results, where the duration of diabetes is associated with an increased risk of sexual dysfunction. This difference indicates that the relationship between the two variables is complex and influenced by various other factors.

Based on the researcher's analysis, no significant relationship was found between the length of suffering from diabetes mellitus and the incidence of sexual dysfunction, but clinically and descriptively there was a tendency

to be linked. This can be seen from the condition of both groups who both experience sexual dysfunction. Therefore, diabetes mellitus can still be considered as a risk factor for sexual dysfunction, which can occur without being affected by the duration of the disease. The insignificance in this study is more due to the similarity of conditions between groups and the influence of other factors that are more dominant.

## CONCLUSION

Most of the diabetes mellitus patients in the work area of the Tilongkabila Health Center in Bone Bolango Regency have suffered from diabetes mellitus for a period of  $\leq 5$  years, while a small proportion have up to 10 years. Most of the diabetes mellitus patients in the work area of the Tilongkabila Health Center, Bone Bolango Regency experience sexual dysfunction. There is no long-term relationship between suffering from diabetes mellitus and the incidence of sexual dysfunction in the work area of the Tilongkabila Health Center, Bone Bolango Regency.

## ADVICE

It is recommended to conduct regular screening for sexual dysfunction in patients with diabetes mellitus, especially in patients with a disease duration of  $>5$  years to provide education about blood sugar control, healthy lifestyle, and psychosocial impact on sexual function.

Patients are encouraged to maintain blood sugar control through a balanced diet, regular physical activity, and adherence to drug therapy. In addition, patients need to communicate complaints of sexual function to health workers so that they can get early and appropriate treatment.

It is recommended to conduct longitudinal or cohort studies with a larger sample to assess the causal relationship between length of diabetes mellitus, glycemic control, psychological factors, and sexual dysfunction. Further research can also add social variables and interpersonal relationships to get a more comprehensive picture. In addition, it is recommended to expand the research area, not only limited to one work area of the health center, so that the results obtained are more diverse and representative. With a wider area coverage, it is hoped that not only the incidence of sexual dysfunction can be identified, but also can identify various other health problems related to diabetes mellitus more comprehensively.

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