



Original Research

Level of blood glucose, fatigue and sexual anxiety in diabetes mellitus sufferers

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Abstract

Diabetes causes a decrease in glycogen which results in fatigue and neurovascular disorders which cause a decrease in body organ function. This condition raises their concerns about sexual problems in themselves and this is the main trigger for sexual problems in DM sufferers apart from physical problems. This study aims to determine the relationship between blood glucose levels and fatigue levels with sexual anxiety in diabetes mellitus sufferers. This research is correlational quantitative research with a cross-sectional time approach. The population of this study were DM sufferers in the Nalumsari Community Health Center working area with a sample of 36 people. The results of the analysis using the Spearman rho test obtained a P value of 0.000 so it can be concluded that there is a significant relationship between blood glucose levels and levels of fatigue and sexual anxiety in diabetes mellitus sufferers in the Nalumsari I Regional Health Center working area.

INTRODUCTION

In 2019, the International Diabetes Federation (IDF) reported that Indonesia was ranked 7th with the highest prevalence of diabetes mellitus (DM) in the world, with a total of 10.7 million cases found. Based on Riskesdas data, the prevalence of DM based on a doctor's diagnosis has increased from 1.5% in 2013 to 25 in 2018 for ages over 15 years. Meanwhile, the prevalence according to blood glukose examination results has increased from only 6.9% in 2013 to 8.5% in 2018. This shows that only around 25% of DM sufferers know that they suffer from DM.¹

Central Java ranks 11th in the province in Indonesia with the highest prevalence of DM cases with 2.1% cases in 2018.² Jepara Regency is one of the cities with a high prevalence of DM incidents based on doctor diagnoses at all ages with 2.35% or the equivalent of 3,273 people experiencing and aware that he was suffering from DM. Apart from this, it was found that the level of regularity of patients checking their blood glukose levels in Jepara Regency was also still low, namely only 2.15% routinely checked their blood glukose levels.³

DM sufferers experience systemic changes due to neurovascular decline. This is one of the causes of sexual anxiety in DM sufferers. Sexual anxiety is a person's tendency to

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experience tension, discomfort, and anxiety about aspects of one's sexual life.⁴ Sexual anxiety is also referred to as sexual performance anxiety (SPA).

SPA is an initial diagnosis used as a measurement of sexual function before a diagnosis of sexual dysfunction is found. SPA itself is in the development stage and is currently only stated as a symptom of sexual behavior disorders.⁵ So SPA is an early diagnosis of sexual disorders before erectile disorders occur in men and decreased libido in women.

Sexual function is a person's physical and psychological abilities related to the body's ability or performance during sexual intercourse. A person's sexual function is influenced by libido or the desire to have sexual relations. Libido or sexual desire is influenced by hormones, mental and physical health, availability of a partner and attraction to that partner.⁶

Pyke states that the cause of sexual performance anxiety is the fear of not being able to satisfy your partner during sexual intercourse due to your health condition, worries about your weight will become easier causes fatigue, worry about experiencing premature ejaculation or premature ejaculation (ED), taking too long to experience orgasm, and also worry about not experiencing pleasure during sexual intercourse.⁵

Sexual anxiety in DM sufferers arise and are influenced by various factors. Current level of health. is a factor that contributes to the level of sexual anxiety experienced by DM sufferers . The health level of DM sufferers is influenced by the blood glukose levels and fatigue level of DM sufferers. For this reason, the author feels it is necessary to conduct research on the relationship between blood glukose levels and fatigue levels with sexual anxiety in DM sufferers. The aim of this study was to determine the relationship between blood glukose levels

and levels of fatigue and sexual anxiety in DM sufferers.⁷⁸

METHOD

This research is quantitative correlational research using survey methods. The approach taken with respondents was a deductive and cross-sectional development approach with a prospective study starting with the independent variable then followed by the consequences of the dependent variable. The independent variables in this research are blood glukose levels and fatigue levels, while the dependent variable is sexual anxiety.

The population of this study was DM sufferers who actively participated in the Prolanis group in the Nalumsari 1 Community Health Center area, aged 55 years and under, totaling 57 people. The respondents taken were the population who met the criteria of being willing to take part in the research, were still sexually active, had a legal partner and lived together, did not have complications from stroke or chronic kidney failure, and did not experience spinal disorders (HNP). The sample of this research consisted of 36 people.

Data was obtained from primary data for respondent characteristics, level of fatigue and sexual performance anxiety. Data on blood glukose levels uses secondary data from the results of blood glukose checks of respondents in 3 consecutive months. The research instrument used a questionnaire containing the characteristics of the respondent, a fatigue level questionnaire using IFRC, a sexual performance health questionnaire, and an observation sheet to write down the respondent's blood glukose levels.

The sexual performance anxiety instrument was tested for validity and reliability on 30 DM sufferers in Terban village. Univariate analysis uses frequency distribution calculations. Bivariate analysis used the

Sparman rank test. The contents of methods section should mention about

RESULTS

The majority of respondents were aged 46-55 years (63.9%). This is in accordance with the previous theory which states that the incidence of DM increases with age. DM is one of the most common degenerative diseases in Indonesia after hypertension. DM is also a disease that is related to genetics and the environment.

Many respondents were women (80.6%). Women are more susceptible to developing DM and are relatively more susceptible to complications when exposed to DM than men. Hormonal changes during menstruation, childbirth and menopause make it more difficult for women to maintain good blood glucose levels. Some types of hormonal contraception also have side effects that can stimulate an increase in blood glucose and reduce the insulin response in the body.

Table 1

| Respondent Characteristics | | | |
|----------------------------|--------------------|----|------|
| Indicators | Criteria | f | % |
| Ages | 25 - 35 | 3 | 8,3 |
| | 36 - 45 | 10 | 27,8 |
| | 46 - 55 | 23 | 63,9 |
| Gender | Male | 7 | 19,4 |
| | Female | 29 | 80,6 |
| Education | elementary school | 23 | 63,9 |
| | Junior high school | 8 | 22,2 |
| | Senior High School | 4 | 11,1 |
| | Bachelor | 1 | 2,8 |
| Occupation | Laborer | 1 | 2,8 |
| | Farmer | 4 | 11,1 |
| | Self-employed | 3 | 8,3 |
| | Employee | 1 | 2,8 |
| | Doesn't work | 18 | 50,0 |
| | Etc | 9 | 25,0 |
| TOTAL | | 36 | 100 |

Many respondents had elementary school education (63.9%) and were not working (50%). Level of education and employment do not directly influence the occurrence of DM. Indirectly, a person's level of education

and occupation can influence their lifestyle and habits. The incidence of DM is closely related to a person's lifestyle. Diet, activity and stress contribute to the occurrence of DM.

Based on table 2, the majority of respondents' blood glucose levels are lack of control (58.3%). DM is a disease that cannot be cured 100%, but it can be controlled so that DM sufferers can have a good quality of life and live without complaints. The basis for managing DM is an effort to control the blood glucose of DM sufferers with implementing self-management diabetik, namely education, diet, activity and pharmacological control.

The majority of respondents experienced moderate fatigue (66.7%). Fatigue is the most common condition experienced by DM sufferers. Fatigue in DM sufferers occurs due to insulin insufficiency or decreased cell sensitivity to insulin. In the body, insulin has the task of converting blood glucose into glycogen so that it can be used as an energy source for cells.

DM sufferers are synonymous with complaints of fatigue. The fatigue they experience affects their physical and mental health. This greatly affects their ability to carry out daily activities. Fatigue is one of the reasons DM sufferers seek treatment. Fatigue is also a major barrier to successful diabetes self-management. This happens because fatigue causes them to experience a decrease in physical function and ability to manage their daily activities.

The majority of respondents experienced moderate sexual anxiety (47.2%). Sexual anxiety is the beginning of sexual dysfunction. Sexual dysfunction is not only caused by physical problems, but is often caused by psychological and emotional problems. Sufferers of chronic diseases, especially DM, often experience sexual anxiety in the form of worries about not being able to fulfill their sexual needs. However, sexual needs are human

psychosocial needs that can help increase their self-actualization.

In this study, of the 12 respondents whose blood glucose levels were uncontrolled, 57.1% had severe sexual anxiety and only 3 respondents had uncontrolled blood glucose levels with mild sexual anxiety, 14.3%. There is a significant relationship between blood glucose levels and sexual anxiety, with a moderate correlation (p value 0.000, r 0.573). Diabetes mellitus sufferers whose blood glucose levels are not controlled are at risk of experiencing severe sexual anxiety compared to diabetes mellitus patients whose blood glucose levels are controlled.

High blood glucose levels are the main source of systemic problems in DM sufferers due to blood vessel damage and neurovascular disorders. In women, impaired vascularization in the vaginal blood vessels results in decreased lubrication so that the vagina becomes dry.⁴⁹ Vaginal dryness is a cause of dyspareunia. High blood sugar levels also put them at greater risk of experiencing infections in the urogenital area, including urinary tract infections and cystitis. Vaginal dryness and infections result in concerns about not being able to enjoy sexual intercourse which can escalate into a decrease in libido.

In men, increased blood glucose levels cause damage to blood vessels which results in impaired blood vascularization to the penis. In DM sufferers, testosterone levels also decrease.⁶ Both of these things cause men with DM to experience a decrease in desire for sexual relations. they also experience problems with the inability to maintain an erection or experience erectile dysfunction. This problem results in increasing concerns about the inability to obtain satisfying sexual relations and the inability to satisfy their partners. This is what causes DM sufferers whose blood glucose levels are not controlled to increase sexual anxiety.

Table 2
Respondents' Blood Glucose, Fatigue, and Anxiety Sexual Levels

| Indicators | f | % |
|---------------------|----|------|
| Blood Glucose Level | | |
| Controlled | 4 | 11,1 |
| Fairly controlled | 11 | 30,6 |
| Lack of control | 21 | 58,3 |
| Fatigue Level | | |
| Mild | 3 | 8,3 |
| Midium | 24 | 66,7 |
| Severe | 9 | 25 |
| Anxiety Sexual | | |
| Mild | 7 | 19,4 |
| Medium | 17 | 47,2 |
| Total | 36 | 100 |

Fatigue in DM sufferers occurs due to high blood glucose levels due to lack of insulin. Insulin is responsible for converting glucose into glycogen so that cells can use it as an energy source.

Increased fatigue results in a lack of physical activity and increases the risk of psychological problems. Fatigue also causes a person to experience a decrease in sexual desire. He will also worry that his tired physical condition will not be able to enable him to achieve sexual satisfaction or satisfy his partner.

In addition, if their fatigue is caused by short-term or long-term complications of DM or due to symptoms of systemic disease. This will further worsen their anxiety including sexual anxiety. Moreover, if the fatigue they feel is fatigue due to depression, the sexual anxiety they face will definitely become more real.

Table 3
Fatigue Level and anxiety Sexual

| Fatigue Level | Anxiety Sexual | | | r | p |
|---------------|----------------|--------|--------|-------|-------|
| | Mild | Medium | Severe | | |
| Mild | 3 | | | 0,638 | 0,000 |
| Medium | 4 | 15 | 5 | | |
| Severe | | 2 | 7 | | |
| Totally | 7 | 17 | 12 | | |

DISCUSSION

The results of the study found a significant relationship between blood glucose levels and levels of sexual anxiety with moderate correlation ($p = 0.000$ and $r = 0.573$). Blood glucose levels are the glucose /glucose content in the blood which is formed from carbohydrates in food and stored as glycogen in the liver and skeletal muscles. In Diabetes Mellitus sufferers, the thing that often appears is high levels of glucose in the blood. This varies greatly for each diabetes mellitus sufferer because it depends on the diabetes sufferer's own metabolism. Blood glucose levels also caused several things like exercise, food intake, metabolism, stress and also the age of diabetes mellitus sufferers.²

Blood glucose levels in diabetes mellitus sufferers in the Nalumsari I Jepara Health Center working area will of course vary according to the habits and lifestyle of each individual. High levels of glucose in the blood will also cause several problems in diabetes mellitus sufferers, such as disruption of metabolism and ending in cell damage, especially in endothelial cells, kidneys and the nervous system.¹

Because damage to the endothelium and blood vessels caused by high blood glucose levels will usually cause complications and the most common complication is neuropathy. This neuropathy will cause damage to the entire body including the reproductive organs and will damage the endothelium of the erectile tissue, this will cause erection and lubrication problems and damage nerve cells to the genitals and cause decreased sensation and difficulty in sexual intercourse and anxiety will occur because of this.¹⁰

Poorly controlled blood glucose levels will of course cause severe hyperglycemia which can cause blockage of blood flow throughout the body. When the blood flow in the body is blocked, it will result in an inadequate blood supply of oxygen needed

by the body's tissues. If this happens, a lot of damage will occur to the organs, with the reproductive organs being one of them. When the reproductive organs receive insufficient blood supply, this will cause disruption to the sexual process. If this sexual process occurs continuously, it will cause a feeling of being lazy about having sexual relations but still having obligations as a partner, then this becomes a constant worry and becomes sexual anxiety. Sexual anxiety is usually felt, such as anxiety about not being able to provide satisfaction to your partner, taking too long/short time in intercourse or the appearance of pain after sexual intercourse.

Based on the researchers' findings, the results showed that there were 3 people with lack of control blood glucose levels with mild sexual anxiety. This can happen because the topic of discussion is sensitive so that the answer given seems like a random answer. We have tried to overcome this but it will still give rise to dishonest answers. This is in accordance with Karyati's previous research which stated that the anxiety of DM sufferers will increase with uncontrolled blood glucose levels. Vice versa, increasing their anxiety will also result in their blood glucose levels becoming increasingly uncontrolled.¹¹ This will become a vicious circle that results in problems getting bigger. Untreated anxiety will affect their psychology and social relationships, including sexual anxiety. Sexual needs are not only biological needs but also psychosocial needs. Psychological readiness and healthy social relationships are the main basis for optimally fulfilling a person's sexual needs.

From the results of this interpretation, it can be concluded that an individual's blood glucose levels will affect libido and sexual anxiety in diabetes mellitus sufferers. This is proven by 12 respondents having high blood glucose levels with high sexual anxiety, 11 people having moderate blood glucose levels with moderate sexual anxiety and 6 people having high blood

glukose levels with moderate sexual anxiety, 3 people having high blood glukose levels with moderate sexual anxiety. medium blood. high with mild sexual anxiety and 4 respondents had low blood glukose levels with mild sexual anxiety. So according to the results of the findings carried out by researchers using the Spearman Rank test, it was obtained that $p=0.000$ was smaller than $p=0.05$, which means they are closely related to each other with r (Continuity Correlation) of 0.573 which is in the range $r = 0.40 - 0.599$ (the correlation has moderate closeness) and has a positive direction of relationship where the higher the blood glukose level, the more severe the sexual anxiety that occurs.

This research concludes that there is a significant relationship between fatigue and sexual anxiety in DM sufferers with a strong correlation level. The fatigue experienced by DM sufferers is the result of an increase in blood sugar levels 1 hour after eating. The more uncontrolled their blood glucose is, the more severe the fatigue they feel. Fatigue is also often associated with complications short-term and long-term diabetes including symptoms of hypoglycemia or hyperglycemia, heart disease, and neuropathy. Fatigue may appear and get worse due to somatic symptoms of depression. On the other hand, the more severe complaints of fatigue will result in anxiety, stress and depression.¹¹

Physiological factors and psychological factors that play an important role in the occurrence of fatigue will also raise concerns about premature ejaculation or taking too long to reach orgasm. This also creates concerns about not feeling pleasure during sexual intercourse or concerns about not being able to satisfy one's partner, resulting in sexual anxiety which is the beginning of sexual disorders in DM sufferers.

Fatigue that occurs in DM sufferers has many causes, such as physiological, activity

and fatigue due to the treatment process. This fatigue will cause a feeling of laziness to do many activities, one of which is a feeling of laziness in having sexual relations. Apart from this, if there is fatigue during sexual intercourse, there could be a decrease in libido or sexual desire, premature erections, and lack of lubrication in women. This will cause concern for the respondent if their partner not experiencing satisfaction in sexual relations. If this happens continuously it will cause sexual anxiety in individuals suffering from diabetes mellitus. Respondents revealed that when the body feels tired, it becomes increasingly lazy to have sexual relations, but still has an obligation to its partner, and this often causes feelings of sexual anxiety.

CONCLUSION

There is a significant correlation between blood glukose levels and sexual anxiety in DM sufferers with a moderate level of closeness. There is a significant correlation between the level of fatigue and sexual anxiety in DM sufferers with a strong level of closeness.

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CONFLICTS OF INTEREST

The author does not have a conflict of interest that could bias the results in the research that has been done.

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