THE CORRELATION BETWEEN LIFESTYLE HABITS WITH THE INCIDENCE OF DIABETES MELLITUS (Case Study in Work Area of Tahulu Healthcare, Tuban)

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ABSTRACT

Diabetes Mellitus (DM) is one of the biggest health diseases in the world that requires serious treatment. Diabetes mellitus can be caused by a person's lifestyle which includes diet and physical activity. This research aims to determine the relationship between lifestyle and diabetes mellitus at Tahulu Healthcare. The research method used is a cross-sectional approach. The population used was all outpatients who underwent routine check-ups at the Tahulu Village Community Health Center with a total of 50 respondents in the last 3 months (January-March) 2023 and a research sample size of 45 respondents using simple random sampling. The independent variable in this study is lifestyle using a questionnaire instrument, while the dependent variable is the incidence of diabetes mellitus using the Time Blood Sugar instrument. The results of this study indicate that there is a relationship between lifestyle and the incidence of diabetes mellitus in outpatients at the supporting health center in Tahulu Healthcare. This is proven by the contingency coefficient test, the significance of α = 0.05 is obtained by the value of Phi = 0.000 where 0.000 < 0.05, then H1 is accepted, meaning that there is a relationship between lifestyle and the incidence of diabetes mellitus in outpatients at Tahulu Healthcare. This research conclude that there is a significant relationship between lifestyle and the incidence of diabetes mellitus Tahulu Healthcare. It is hoped that respondents can adopt a healthy lifestyle to avoid the incidence of Diabetes Mellitus.
Keywords: Lifestyle; Diabetes Mellitus; Blood Sugar

1. INTRODUCTION

Diabetes Mellitus (DM) is one of the biggest health problems in the world that requires serious treatment. The prevalence and incidence of this disease are expected to continue to increase over the years. Diabetes Mellitus can be caused by a person's lifestyle which includes diet and physical activity. Awareness of the healthy lifestyle of the Indonesian people is considered by the medical world to be still low and poor, this will cause the continued increase in Diabetes Mellitus sufferers. Significant lifestyle changes such as consuming too much instant and sweet food also encourage diabetes sufferers to increase. On the other hand, lack of exercise and movement combined with other bad lifestyles such as smoking and alcohol consumption also worsen the condition. There is a relationship between the amount of energy, eating

schedule, and sedentary behavior with blood sugar control in DM patients (Cahyaningrum, 2023)

In everyday life, unhealthy lifestyle behavior can cause blood sugar levels to be higher than normal limits which can result in the risk of developing Diabetes Mellitus. Some of these lifestyles are diet and physical activity. For example, often eating foods that are high in carbohydrates, instant and sweet foods, using gadget too often, and the habit of smoking. (Chriswinda Bura Mare and Prasetiani, 2022). An unhealthy diet causes an imbalance between carbohydrates and other ingredients needed by the body. As a result, the sugar content in the body becomes high, exceeding the working capacity of the pancreas and resulting in Diabetes Mellitus (Ambarita, Prabawati and Hidayah, 2022).

Not only unhealthy eating patterns, lack of physical activity is also a predisposing factor for Diabetes Mellitus. The increased risk of Diabetes Mellitus during physical activity occurs due to a decrease in muscle contractions which causes a reduction in cell membrane permeability to glucose. Sedentary lifestyle and obesity are closely related to the incidence of diabetes in adolescents (Desmawati, 2019)

The aims of this study are to identify the lifestyle of outpatients at Tahulu healthcare center Identify the incidence of Diabetes Mellitus, and analyzing the relationship between lifestyle and the incidence of diabetes mellitus.

2. METHODS

This research uses the correlation analytical method, which is a way to determine whether there is a relationship between variables. The strength between variables can be seen from the correlation coefficient value with a cross-sectional approach. Respondents in this study were outpatients at the Tahulu Health Center, Merakurak District, Tuban. This research also did in January-May 2023 with a population of 50 and a sample of 45 respondents was taken. To obtain the necessary data, this study used a questionnaire and intermittent blood sugar checks.

The research was conducted at the Tahulu healthcare, Merakurak District, Tuban. Data were collected using the questionnaire, and the researcher explained the objective of the research to respondents. After that, respondents were given a questionnaire sheet and respondents filled in the questionnaire sheet. Then the researchers checked the blood sugar of the respondents.

Data collection techniques: After everything has been collected, data processing is carried out using editing, coding, scoring, tabulating and data interpretation stages.

3. RESULTS AND DISCUSSION

The characteristics of respondents based on age, gender and occupation in this study were

outpatients at the Tahulu Village Community Health Center, Kec. Merakurak District Tuban.

Table 1 Distribution of Respondents Based on Age

No	Age	*f*	Percentage (%)
1	40-54 Years	21	47
2	55-69 Years	21	47
3	70-84 Years	3	6
Total		45	100

Based on table 1, it can be seen that the majority of respondents were aged 40-54 years old and 55-69 years, and a small portion were aged 70-84 years.

Table 2 Distribution of Respondents Based on Gender

No	Gender	*f*	Percentage (%)
1	Boys	17	38
2	Women	28	62
Total		45	100

Based on table 2, it can be seen that the majority of respondents at the Tahulu Health Center were women and a small number were men.

Table 3 Distribution of Respondents Based on their Occupation

No	Occupation	*f*	Percentage (%)
1	Farmers	11	25
2	Laborer	5	11
3	Trader	10	22
4	Not Working	19	42
Total		45	100

Based on table 3, it can be seen that the majority of respondents do not work or not have an occupation and a small portion work as laborers.

Table 4 Distribution of Respondents Based on Lifestyle.

No	Lifestyle	*f*	Percentage (%)
1	Healthy	8	18
2	Fairy Healthy	11	24
3	Unhealthy	26	58
Total		45	100

Based on Table 4, it shows that the majority of respondents at the Tahulu Health Center have an unhealthy lifestyle and a small portion have a healthy lifestyle.

Table 5 Distribution of Respondents Based on the Incident of Diabetes Mellitus

No	Incidence of DM	*f*	Percentage (%)
1	Suffering DM	26	58
2	Not Suffering DM	19	42
Total		45	100

Table 6: Cross table of the relationship between lifestyle and the incidence of diabetes mellitus

No.	Lifestyle	Incidence of DM				Total	
		Suffering DM		Not Suffering DM			
		f	%	*f*	%	*f*	%
1	Healthy	0	0	8	100	8	100
2	Fairy Healthy	0	0	11	100	11	100
3	Unhealthy	26	100	0	0	26	100
	Total	26	58	19	42.2	45	100

Based on Table 6, it is explained that respondents who have a healthy and fairly healthy lifestyle not suffering Diabetes Mellitus, while respondents who have an unhealthy lifestyle have Diabetes Mellitus condition.

The analysis in this study used the Contingency Coefficient test using SPSS For Windows software with a significance level of α = 0.05, obtaining a value of Phi = 0.000, where 0.000 < 0.05, so H1 was accepted, meaning that there was a relationship between lifestyle and the incidence of diabetes mellitus.

DISCUSSION

Identification of the Lifestyle of Outpatients at Tahulu Healthcare

The results of the study showed that the majority of respondents had an unhealthy lifestyle and a small portion had a healthy lifestyle and was quite healthy.

Lifestyle is a person's behavior shown in activities, interests and opinions, especially those related to self-image to reflect their social status. A healthy lifestyle includes sleeping habits, eating balanced nutrition, not consuming soda drinks, and exercising regularly. Patients with high blood sugar conditions have better eating patterns irregularities such as inappropriate meal times, the amount of food consumed is not regulated to keep blood sugar levels in check (Djendra, Pasambuna and Pintan, 2019). Diabetes caused by an unhealthy lifestyle will usually be followed by disease complications. Adolescents with diabetes usually experience complications such as decreased hemoglobin, increased leukocytes and diabetic wound complications when treated (Agustina and Rosfiati, 2018)

This research shows that the majority of respondents still have an unhealthy lifestyle. This is caused by unhealthy eating patterns, namely consuming lots of instant and sweet foods such as instant noodles, canned food, sweets and bread, and not paying attention to eating schedules.

A healthy diet is defined as an eating pattern with a plan, namely the number, type and regular schedule of meals. An unhealthy diet causes an imbalance between carbohydrates and other ingredients needed by the body. As a result, the sugar content in the body becomes high, exceeding the working capacity of the pancreas and resulting in diabetes mellitus. A study conducted in NTB explained that physical activity is closely related to the incidence of DM, so health workers are needed who are able to pay attention to the patient's diet and maximize physical activity (Hariawan, Fathoni and Purnamawati, 2019)

This research shows that the majority of respondents still lack physical activity and exercise. This can be seen from filling out the questionnaire contained in the physical activity and sports points. Most respondents answered rarely, some even answered never. Lack of physical activity is also a factor in an unhealthy lifestyle. This is because, normal muscles in a resting state which can be caused by a lack of physical activity are almost impermeable to glucose unless the muscle fibers are stimulated by insulin. Decreased muscle contractions which cause reduced

permeability of cell membranes to glucose. As a result, there is disruption in the transfer of glucose into cells and a reduced response to insulin, which leads to a state of resistance and can cause high blood sugar in the body. In general, diabetes patients will experience complications, but actually complications due to diabetes can be prevented or delayed by keeping blood sugar levels in the normal category so that metabolism can be controlled properly. Blood sugar levels can be maintained by adopting a healthy lifestyle (Juwita and Febrina, 2018).

From this research it was found that the majority of respondents still did not sleep regularly. Most of the respondents slept less than 6 hours per day. Sleep is a basic and essential biological function in human life. Sleep is an opportunity for physical, mental and emotional restoration. Lack of quality and quantity of sleep can produce metabolic and cardiovascular disorders. Epidemiological data shows that people with a night's sleep duration of less than 6 hours have a high risk of developing Type 2 DM.

From this research, unhealthy lifestyles were often found at ages 55-84 years. Age can influence the gradual decline in digestion, physical, mental and social activity. The older a person is, the more impact it can have on their health and their lifestyle cannot be controlled because in the elderly their cognitive abilities decline.

According to (Azizah, Martiana and Soedirham, 2017), the age group of 60 to 79 years is an elderly age. A person's perceptual and numerical cognitive abilities decline in old age. growing old with predictable physical and behavioral changes that occur in all people experiencing a gradual decline in digestion, physical, mental and social activity.

Identification of the incidence of Diabetes Mellitus in Outpatients at Tahulu Healthcare

The results of the study showed that the majority of respondents at the Tahulu Healthcare had Diabetes Mellitus and a small percentage did not experience Diabetes Mellitus.

Diabetes mellitus is a group of heterogeneous disorders characterized by an increase in blood sugar levels that exceed normal values, namely random blood sugar (GDS) > 180 mg/dl and fasting venous blood sugar (GDP) > 126 mg/dl. Glucose normally circulates in certain amounts in the blood. Glucose is formed in the liver from the food consumed. Insulin, a hormone produced by the pancreas, controls glucose levels in the blood by regulating its production and storage.

From this research, it was found that the majority of respondents had Diabetes Mellitus with the results of random blood sugar checks (GDS) > 180 mg/dl and it occurred more often at ages above 40 years because the ability of the pancreas to produce insulin decreases as the age increases. Diabetes Mellitus is more likely to occur in women, because women's metabolism is slower than man. Respondents who did not work had

more high blood sugar levels than respondents who had jobs. According to (Hariawan, Fathoni and Purnamawati, 2019), it is stated regarding the relationship between work and the incidence of Diabetes Mellitus that the absence of work makes the body less mobile and can trigger obesity. This will cause insulin resistance. This situation causes body tissues to become less sensitive to the effects of insulin. So the sugar in the blood has difficulty leaving the blood and entering the cells. Good physical activity such as regularly cycling or walking 3-4 days a week for 20 minutes each day and reducing sitting activities can be done to prevent rising blood sugar levels (Nurayati and Adriani, 2017).

Analysis of the Relationship between Lifestyle and the Incidence of Diabetes Mellitus in Tahulu Healtcare

On this research explained that respondents who did not experience Diabetes Mellitus were found in respondents who had a healthy and fairly healthy lifestyle, while respondents who experienced Diabetes Mellitus were found in respondents who had an unhealthy lifestyle.

In everyday life, unhealthy lifestyle behavior can result in blood sugar levels being high beyond normal limits which can result in the risk of developing Diabetes Mellitus (Hariawan, Fathoni and Purnamawati, 2019).

Based on this research, respondents who have an unhealthy lifestyle can resulting in Diabetes Mellitus, this is because an unhealthy lifestyle has a bad influence on the results of blood sugar checks, this is because Diabetes Mellitus is a degenerative disease which is not purely damage to the pancreas but a disease caused by an unhealthy lifestyle. For example, often consuming foods that are high in sugar, foods that are high in carbohydrates, not paying attention to eating schedules, and lacking physical activity and exercise. Monitoring blood sugar is one of the five pillars of diabetes mellitus management. If a person's lifestyle is unhealthy, it will also result in high blood sugar check results. One of the reasons for the high incidence of Diabetes Mellitus is the frequent consumption of foods and foods high in sugar.

4. CONCLUSION

Most of the outpatients at Tahulu Healthcare have an unhealthy lifestyle. Most of the outpatients at Tahulu Healthcare have diabetes mellitus. There is a significant relationship between lifestyle and the incidence of Diabetes Mellitus in outpatients at the Tahulu Healthcare

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