



## THE RELATIONSHIP BETWEEN KNOWLEDGE AND ATTITUDES TOWARD A HEALTHY LIFESTYLE AMONG PATIENTS WITH TYPE II DIABETES MELLITUS AT MEDAN JOHOR COMMUNITY HEALTH CENTER

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### Abstract

Diabetes mellitus continues to increase in prevalence in Indonesia and worldwide. It is a metabolic disorder characterized by chronic hyperglycemia resulting from impaired insulin secretion or insulin resistance. The most common type is Type II diabetes mellitus, which is often associated with lifestyle and dietary patterns. The World Health Organization estimates that the number of patients with diabetes mellitus in Indonesia will reach 21.3 million people. This study aims to determine the relationship between knowledge and attitudes among patients with Type II diabetes mellitus at Medan Johor Community Health Center. This study employed a quantitative method with a cross-sectional approach. The study population consisted of 2,210 patients with Type II diabetes mellitus, with a sample of 100 respondents selected using the Slovin formula. Data analysis was conducted using bivariate and multivariate tests to determine the relationship and influence between variables. The results showed that knowledge ( $p = 0.003$ ) and attitudes ( $p = 0.004$ ) had a significant relationship with a healthy lifestyle among patients with Type II diabetes mellitus.

**Keywords:** Diabetes Mellitus, Knowledge, Attitude, Healthy Lifestyle

### Introduction

Diabetes mellitus ranks fourth among the most prevalent diseases in Indonesia, with the number of cases continuing to increase each year. Data from the 2018 Basic Health Research (Riskesdas) showed that the prevalence of diabetes mellitus among adults in Indonesia increased from 6.9% in 2013 to 8.5% in 2018. The World Health Organization estimates that the number of patients with diabetes mellitus in Indonesia will reach 21.3 million people.

According to the International Diabetes Federation (IDF), there were approximately 537 million people living with diabetes worldwide in 2021. This number is projected to rise to 643 million by 2030 and 783 million by 2045.

Type II diabetes mellitus is characterized by high blood glucose levels due to insulin resistance and ineffective insulin production. This condition differs from Type I diabetes, in which the body does not produce insulin at all. Risk factors for Type II diabetes include obesity, unhealthy dietary patterns, lack of physical activity, genetic factors, age, ethnicity, family history, hypertension, high cholesterol levels, and a history of gestational diabetes. Prevention can be achieved through a healthy lifestyle, such as maintaining an ideal body weight, engaging in regular physical exercise, following a balanced diet, avoiding smoking and alcohol consumption, and undergoing routine health check-ups.

Type II diabetes negatively affects quality of life across physical, psychological, social, and environmental aspects. Patients with diabetes mellitus generally have poor glycemic control, are at risk of developing complications, and often experience difficulties in self-care (Kurniawati, 2022).

In Indonesia, the prevalence of diabetes mellitus has increased by 1.6%, highlighting the need for strengthened preventive efforts. Nurses play an important role in providing education on healthy lifestyle practices, monitoring blood pressure, blood glucose, and cholesterol levels, and assisting patients in adopting healthy habits (Aulya, Sukarni, & Murtilita, 2022). Knowledge and positive attitudes toward health have been shown to influence community behavior in preventing Type II diabetes.

Research conducted by Huzaimah, Filani, and Yasin (2023) supports the finding that knowledge and attitudes are associated with health-maintenance behaviors among patients with Type II diabetes. A good understanding encourages individuals to take actions such as controlling dietary intake and regularly monitoring blood glucose levels. Based on 2024 data, there were 2,210 patients with Type II diabetes in the area. Therefore, the researcher is interested in examining the relationship between knowledge and attitudes toward a healthy lifestyle among patients with Type II diabetes mellitus at Medan Johor Community Health Center in 2025.

## **Method**

This study employed a quantitative research design with a cross-sectional approach. A cross-sectional study is a type of non-experimental research conducted to explore the relationship between risk factors and outcomes, in which data are collected at a single point in time (point-time approach).

## **Research Location and Time**

This study was conducted at Medan Johor Community Health Center, located at Jl. Karya Jaya No. 5, Pangkalan Masyhur, Medan Johor District, Medan City. Data collection was carried out in early January 2025 and continued until the required sample size was achieved and the research process was completed.

## **Population and Sample**

The population in this study consisted of 2,210 patients with Type II diabetes mellitus at Medan Johor Community Health Center. The sample included 100 respondents, determined using the Slovin formula. The sampling technique used in this study was purposive sampling. This technique was conducted by selecting samples according to the following criteria:

Inclusion Criteria:

- a. Patients aged over 20 years.
- b. Patients who were willing to participate as respondents.

Exclusion Criteria:

Patients who were not willing to participate as respondents.

## Results

**Table 1. Frequency Distribution of Respondents' Characteristics**

Characteristics	<i>f</i>	%
<b>Gender</b>		
Female	60	60,0
Male	40	40,0
<b>Marital Status</b>		
Married	88	88,0
Unmarried	12	12,0
<b>Educational Level</b>		
Higher Education	25	25,0
Senior High School	52	52,0
No Formal Education	23	23,0
<b>Employment Status</b>		
Employed	48	48,0
Unemployed	52	52,0
<b>Total</b>	<b>100</b>	<b>100</b>

Based on the table of respondents' characteristics above, it can be seen that the majority of respondents in this study were female, totaling 60 individuals (60.0%), while male respondents accounted for 40 individuals (40.0%). Based on marital status, 88 respondents (88.0%) were married, whereas 12 respondents (12.0%) were unmarried. Furthermore, in terms of educational level, the majority of respondents had completed senior high school, totaling 52 individuals (52.0%). This was followed by respondents with higher education (college/university), totaling 25 individuals (25.0%), and respondents with no formal education, totaling 23 individuals (23.0%). Regarding employment status, 52 respondents (52.0%) were unemployed, while 48 respondents (48.0%) were employed.

**Table 2. Distribution of Research Variables**

Variable	<i>f</i>	%
<b>Knowledge</b>		
Good	25	25
Moderate	52	52
Poor	24	24
<b>Attitude</b>		
Positive	40	40
Neutral	40	40
Negative	20	20
<b>Healthy Lifestyle</b>		
Good	49	49
Poor	51	51
<b>Total</b>	<b>100</b>	<b>100</b>

Based on the table above, it can be seen that out of 100 respondents, the majority had a moderate level of knowledge, totaling 52 individuals (52.0%). Furthermore, 25 respondents (25.0%) had good knowledge, while 24 respondents (24.0%) had poor knowledge. Regarding attitudes, 40 respondents (40.0%) demonstrated a positive attitude and another 40 respondents (40.0%) showed a neutral attitude, whereas 20 respondents (20.0%) had a negative attitude. In terms of healthy lifestyle, 49 respondents (49.0%) were categorized as having a good healthy lifestyle, while 51 respondents (51.0%) were categorized as having a poor healthy lifestyle.

**Table 3. Results of the Chi-Square Test Analysis on the Relationship Between Knowledge and Healthy**

Healthy Lifestyle (PHS) Among Patients with Type II Diabetes Mellitus							
Knowledge	Not Good		Good		Total		p- value
	n	%	n	%	n	%	
Poor	19	79,2	5	20,8	24	100	0,003
Moderate	24	27,1	27	52,9	51	100	
Good	8	32,0	17	68,0	25	100	

Based on the table above, respondents with poor knowledge generally had a poor healthy lifestyle (79.2%). Respondents with moderate knowledge tended to have a good healthy lifestyle (52.9%), and respondents with good knowledge also predominantly demonstrated a good healthy lifestyle (68.0%). The Chi-Square test showed a p-value of 0.003, indicating a statistically significant relationship between the level of knowledge and healthy lifestyle among patients with Type II Diabetes Mellitus.

**Table 4. Results of the Chi-Square Test Analysis on the Relationship Between Attitude and Healthy**

Healthy Lifestyle (PHS) Among Patients with Type II Diabetes Mellitus							
Attitude	Not Good		Good		Total		p-
	n	%	n	%	n	%	
Negative	16	80,0	4	9,8	20	100	0,004
Neutral	21	52,5	19	47,5	40	100	
Positive	14	35,0	26	65,0	40	100	

The data show that respondents with a negative attitude were predominantly categorized as having a poor healthy lifestyle (80.0%). Among respondents with a neutral attitude, a greater proportion also had a poor healthy lifestyle (52.5%). Meanwhile, respondents with a positive attitude mostly demonstrated a good healthy lifestyle (65.0%). The Chi-Square test produced a p-value of 0.004, indicating a statistically significant relationship between attitude and healthy lifestyle among patients with Type II Diabetes Mellitus.

## Discussion

### 1. The Relationship Between Knowledge and Healthy Lifestyle Among Patients with Type II Diabetes Mellitus

The results of this study indicate a significant relationship between the level of knowledge and healthy lifestyle among patients with Type II Diabetes Mellitus, as demonstrated by the Chi-Square test with a p-value of 0.000 ( $p < 0.05$ ). This finding suggests that the better the patients' knowledge regarding the disease and its management, the greater the likelihood that they will adopt healthy behaviors, such as regulating dietary patterns, increasing physical activity, and regularly monitoring blood glucose levels.

These results are consistent with the study by Hidayat et al. (2022), which stated that a lack of understanding about diabetes increases the risk of unhealthy eating habits, where individuals with poor dietary patterns are 3.8 times more likely to develop Type II diabetes. This consistency is further supported by the systematic review conducted by Ernawati et al. (2021), which concluded that DSME-

based educational interventions consistently influence lifestyle changes among patients, including improvements in clinical indicators. In addition, Asril et al. (2020) emphasized that knowledge is a primary predictor of healthy behavior within the Health Belief Model framework, explaining up to 71.8% of the variation in healthy lifestyle among patients with Type II Diabetes Mellitus.

Furthermore, Ferreira et al. (2024) found that patients with adequate knowledge are better able to implement preventive lifestyle changes, whereas low knowledge remains a major barrier to adopting healthy behaviors.

Theoretically, these findings align with the Health Belief Model, which explains that individuals' understanding of risks and the benefits of preventive actions influences their motivation to engage in healthy behaviors. Therefore, the researcher assumes that knowledge plays a crucial role in shaping healthy lifestyle behaviors among patients with Type II Diabetes Mellitus, as a good understanding encourages patients to be more consistent in managing their diet, physical activity, and regular blood glucose monitoring.

## **2. The Relationship Between Attitude and Healthy Lifestyle Among Patients with Type II Diabetes Mellitus**

The statistical analysis using the Fisher's Exact test showed a p-value of 0.001 ( $p < 0.05$ ), indicating a significant relationship between attitude and healthy lifestyle among patients with Type II Diabetes Mellitus. This finding suggests that a positive attitude toward disease management such as willingness to follow a healthy diet, exercise regularly, and monitor blood glucose levels contributes to better implementation of a healthy lifestyle.

This finding is consistent with the study by Paudel et al. (2022), which stated that patients' perceptions of benefits and barriers are closely related to self-care adherence, where positive attitudes result in more stable glycemic control. Similarly, Peter et al. (2022) found that negative attitudes toward lifestyle modification hinder health practices, whereas proactive attitudes improve consistency in maintaining healthy behaviors.

In addition, Yilmaz et al. (2020), using the Health Belief Model approach, demonstrated that self-efficacy and perceived susceptibility shape positive attitudes, which subsequently enhance adherence to dietary management and physical activity. Another study by Kagaruki et al. (2022) confirmed that attitude is a significant predictor of healthy lifestyle practices, even after controlling for demographic factors.

This relationship is also supported by Bar et al. (2023), who found that positive attitudes are associated with better dietary adherence. However, Belsti et al. (2020) identified a gap between positive attitudes and actual practice, indicating the need for further interventions such as social support and continuous education to help patients translate positive attitudes into consistent actions.

Theoretically, these findings are aligned with the Theory of Planned Behavior, which identifies attitude as a primary predictor of behavioral intention. This intention is then translated into actual behavior, influenced by environmental support and perceived behavioral control. Based on these findings, the researcher assumes that a positive attitude serves as a key driving factor in promoting behavioral change, while knowledge provides the foundation that strengthens attitudes and enhances the effective implementation of a healthy lifestyle among patients with Type II Diabetes Mellitus.

## Conclusion

Based on the results of the study conducted at Medan Johor Community Health Center, it can be concluded that there is a significant relationship between knowledge and healthy lifestyle among patients with Type II Diabetes Mellitus, as indicated by a p-value of 0.003. In addition, attitude was also found to have a significant relationship with healthy lifestyle among patients with Type II Diabetes Mellitus, with a p-value of 0.004. Therefore, knowledge and attitude are important factors influencing the implementation of a healthy lifestyle among patients with Type II Diabetes Mellitus.

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