

# Association between Motivation and Dietary Adherence in Patients with Type 2 Diabetes Mellitus

Helmalia Putri<sup>1\*</sup>, Nur Wahyuni Munir<sup>1</sup>, Safruddin<sup>1</sup>

<sup>1</sup>Nursing Study Program, Faculty of Public Health, Universitas Muslim Indonesia, Makassar, Indonesia

## Abstract

\*Corresponding author: **Helmalia Putri**, Nursing Study Program, Faculty of Public Health, Universitas Muslim Indonesia, Makassar, Indonesia  
Email: [helmalia@gmail.com](mailto:helmalia@gmail.com)

### Article info:

Received: 2025-06-30  
Revised: 2025-10-12  
Accepted: 2025-11-02

e-ISSN: 3047-6054  
Volume 2(4): 112-117, November 2025

**Background:** Type 2 diabetes mellitus (T2DM) requires long-term dietary management to achieve optimal glycemic control and prevent complications. However, dietary adherence among patients with type 2 diabetes mellitus remains low. Motivation is an important factor that may influence patients' adherence to dietary recommendations. Therefore, understanding the association between motivation and dietary adherence is essential to support the development of effective interventions aimed at improving diabetes management and patient health outcomes.

**Objective:** This study aimed to analyze the association between motivation and dietary adherence of type 2 diabetes mellitus patients.

**Methods:** This study employed a cross-sectional approach. Lemeshow formula was used to determine the sample size. Sociodemographic questionnaire, Treatment Self-Regulation Questionnaire (TSRQ), and dietary adherence questionnaire were utilized in this study. The Chi-Square test was employed to analyze the correlation between motivation and dietary adherence of patients with type 2 diabetes mellitus.

**Results:** Of 67 respondents, majority of respondents had low dietary adherence, accounting for 43 respondents (64.2%) and over half respondents had good motivation, comprising 38 respondents (56.7%). Based on the Chi Square test, there was a significant association between motivation and dietary adherence in patients with type 2 diabetes mellitus, with a p-value of 0.002.

**Conclusion:** Motivation is associated with dietary adherence of patients with type 2 diabetes mellitus. Therefore, health professionals, especially nurses, should provide continuous motivational support and patient-centered education to encourage dietary adherence among patients with type 2 diabetes mellitus.

**Keywords:** Dietary adherence; motivation; type 2 diabetes mellitus

## Introduction

According to the World Health Organization (WHO) by 2024, 8.5% of adults aged 18 and over will have diabetes. In 2019, diabetes was a direct cause of 1.5 million deaths, and 48% of all deaths due to diabetes occurred before the age of 70. In addition, diabetes causes 460,000 deaths from other kidney diseases. The age-adjusted death rate from diabetes increased by 3% from 2000 to 2019 (WHO, 2024).

The International Diabetes Federation said that in 2021 the prevalence of diabetes mellitus in the world reached 537 million patients and in 2022, there were 41.8 million people with diabetes in Indonesia. Indonesia is the country with the most type 2 sufferers in ASEAN, and ranks 34th out of 204 countries worldwide. (International Diabetes Federation, 2024) Indonesia is one of the developing countries that has a fairly high incidence of type 2 DM. The number of people with type 2 diabetes in Indonesia in 2010 reached 8.4 million people. The increasing population of diabetics has brought Indonesia to the fourth place in the world after India, China and the United States (Haskas, 2017).

Based on the results of Riskesdas 2018, it shows an increase in the prevalence of diabetes mellitus from 2013 to 2018. According to the results of blood sugar examinations, the prevalence of diabetes mellitus in 2018 reached 8.5%, which in 2013 was still at 6.9%. Based on research on the results of the 2018 South Sulawesi Riskesdas in South Sulawesi, the

prevalence of Diabetes Mellitus based on a doctor's diagnosis at all ages is 1.30%. DM based on doctor's diagnosis at the age of  $\geq 15$  years was 1.83% with a total of 34,958 cases. The prevalence of diabetes based on the highest number of doctors diagnosed in Wajo Regency (2.89%), Makassar City (2.42%), Luwu Regency (1.96%). Based on the prevalence of DM in doctors' diagnoses, Makassar City is the city with the most DM cases, namely 8,611 cases (Riskseddas, 2018).

Dietary adherence is the patient's willingness to follow the dietary arrangements recommended by doctors and healthcare workers (Sugion, 2020). Motivation is one of the factors that affect the adherence to dietary therapy in patients with Diabetes Mellitus (Adolph, 2019). Self-motivation can affect a person's health behavior to behave healthily and maintain their health. Good self-motivation will be a driver for a person to comply with and follow the diet program that has been recommended by health workers. Conversely, the lower the motivation of a patient, the lower the level of dietary adherence (Datuela et al., 2021). This is in line with previous studies that explain that there is a significant influence between knowledge (Kusumawati, 2022), motivation (Susanti, 2018), family support (Asnaniar et al., 2024) and health worker support (Anggi and Rahayu, 2020) to the dietary adherence of patients with type 2 diabetes mellitus. Good motivation can encourage patients to eat on time and choose recommended foods (Amaliyah, 2022).

This study aimed to explore association between motivation and dietary adherence in patients with type 2 diabetes mellitus. Thus, this study was expected to answer the research question: "Is there an association between motivation and dietary adherence in patients with type 2 diabetes mellitus?".

## Methods

### Study Design

This study was a quantitative study with a cross-sectional study approach.

### Samples/Participants

The population of this study was patients diagnosed with type 2 diabetes mellitus. The sample determination was carried out using the Lemeshow formula with a sample size of 67 respondents. Inclusion criteria included patients who had been diagnosed with diabetes mellitus by a physician, patients  $> 18$  years of age and patients willing to be involved in the study. Exclusion criteria included patients who could not communicate well and diabetes mellitus patients who were pregnant and breastfeeding.

### Instruments

The questionnaire used to measure patient motivation based on intrinsic motivation (autonomy) and extrinsic motivation (control) was the Treatment Self-Regulation Questionnaire (TSRQ) (Zycinska et al., 2012) The questionnaire consisted of 11 statement items. The modifications made were to only use statement items related to diabetes mellitus diet motivation and changed the seven points of the Likert scale to four Likert scales, change the English language to Indonesian and change the grammar to make it easier for respondents to understand the statement items. This instrument consisted of four answer choices, namely: "strongly disagree" with a score of 1, "disagree" with a score of 2, "agree" with a score of 3 and "strongly agree" with a score of 4. This motivation variable was measured through the acquisition of scores from each statement item, all of which were favorable statements. The higher the total score, the higher the patient's motivation. For further analysis, motivation was categorized into 2, namely good motivation if the answer score was  $\geq 80\%$  of the total score, and less motivation if the answer score was  $< 80\%$  of the total score. Arikunto (2002) stated that the value limit for attitude and behavior research could be used  $\geq 75\%$ -80%.

### Data Collection

Before filling out the questionnaire, the researchers first approached the prospective respondents, then the researchers explained the procedure, topic, time, benefits of the research

and the purpose of the and also the researchers asked if the patient was willing to be a subject in this study. Data were collected directly by researchers.

### Data Analysis

Univariate analysis is an analysis used to explain the characteristics of each variable studied. The independent variable was motivation, and the dependent variable was dietary adherence. The data obtained was displayed in the form of a distribution table. The Chi Square test was utilized to analyze the correlation between motivation and dietary adherence in patients with type 2 diabetes mellitus.

### Ethical Considerations

This study has obtained ethical clearance from the Health Research Ethics Committee (KEP) of Universitas Muslim Indonesia with ethical number of 089/A.1/KEP-UMI/II/2025 and register number of UMI 012411782. Furthermore, the researchers also provided written informed consent to prospective respondents before collecting data.

## Results

A total of 67 respondents participated in this study. According to Table 1, majority of respondents were female, accounting for 54 people (80.6%), aged >50 years old with a total of 41 people (61.2%), had education level of junior high school with a total of 35 people (52.2%), and were employed for 38 people (56.7%). Additionally, over half respondents were diagnosed with type 2 diabetes mellitus for  $\leq$  5 years, comprising 44 (65.7%).

Table 1. Respondents' Characteristics (n= 67)

Characteristics	Frequency (n)	Percentage (%)
<b>Gender</b>		
Male	13	19.3
Female	54	80.6
<b>Age</b>		
19-30 years old	3	4.5
31-50 years old	23	34.3
>50 years old	41	61.2
<b>Education</b>		
Junior High School	35	52.2
Senior High School	23	34.3
College and Above	9	13.4
<b>Length of being Diagnosed</b>		
$\leq$ 5 years	44	65.7
> 5 Years	23	34.3
<b>Work</b>		
Employed	38	56.7
Unemployed	29	43.3
<b>Total</b>	<b>67</b>	<b>100</b>

Source: Primary Data, 2025

Based on Table 2, majority of respondents had low dietary adherence, accounting for 43 respondents (64.2%). Also, over half respondents had good motivation, comprising 38 respondents (56.7%).

Table 3 shows the association between motivation and dietary adherence in patients with type 2 diabetes mellitus. Of 67 respondents, 20 respondents (29.9%) had good motivation with high dietary adherence, while 18 respondents (26.9%) had good motivation and low dietary adherence. Moreover, there were 4 (5.9%) respondents with less motivation and high dietary adherence; meanwhile, there were 25 (37.4%) respondents with motivation and had low dietary

adherence. Based on the Chi Square test, there was a significant association between motivation and dietary adherence of the respondents with a p-value of 0.002.

Table 2. Frequency Distribution of Respondents based on Dietary Adherence and Motivation

Variables	Frequency (n)	Percentage (%)
<b>Dietary Adherence</b>		
High	24	35.8
Low	43	64.2
<b>Motivation</b>		
Good	38	56.7
Less	29	43.3
<b>Total</b>	<b>67</b>	<b>100</b>

Source: Primary Data, 2025

Table 3. Analysis of Correlation between Motivation and Dietary Adherence of Type 2 Diabetes Mellitus Patients

Category	Diet Adherence				Total		p-value
	High		Low		n	%	
Motivation	n	%	n	%	n	%	
<b>Good</b>	20	52.6	18	47.4	38	100	0.002
<b>Less</b>	4	13.8	25	86.2	29	100	
<b>Total</b>	24	56.7	43	43.3	67	100	

Source: Primary Data, 2025

## Discussion

This study found that there were patients with good motivation but had low dietary adherence. This might be due to the availability of various information, with a lot of information circulating among social media or other sources, which might cause confusion so that patients did not know the right dietary choice. Even though the patient is motivated, the patient is exposed to the wrong information. In addition, there is a sense of saturation and boredom in carrying out a diet, especially in patients who suffer from diabetes for more than 5 years, then there will be a sense of boredom in undergoing a diet program.

The results of this study demonstrated a significant association between motivation and dietary adherence among patients with type 2 diabetes mellitus. These findings indicate that patients with higher motivation tend to show better adherence to dietary recommendations compared to those with lower motivation. Motivation plays an essential role in encouraging patients to maintain healthy eating behaviors, control blood glucose levels, and prevent diabetes-related complications. Dietary adherence is one of the main pillars in diabetes management; however, many patients experience difficulties in consistently following dietary recommendations due to boredom, lifestyle habits, and lack of internal encouragement.

The findings of this study are consistent with previous studies which reported that motivation is an important determinant of dietary adherence in patients with type 2 diabetes mellitus. A study by Kusnanto et al. found that higher motivation was significantly associated with better dietary adherence and glycemic control among diabetes patients (Kusnanto et al., 2019). Likewise, Sebire et al. explained that motivated patients are more likely to internalize healthy lifestyle behaviors and integrate dietary changes into their daily lives, leading to more sustainable adherence (Sebire et al., 2018).

From the perspective of Self-Determination Theory, motivation can be categorized into autonomous motivation and controlled motivation. Patients with autonomous motivation perform dietary management because they understand the benefits and personally value healthy behaviors, whereas controlled motivation is driven by external pressure or fear of complications.

Autonomous motivation has been shown to produce stronger and more sustainable behavioral changes in diabetes self-management (Kanako et al., 2025). Therefore, enhancing patients' internal motivation is important to improve long-term dietary adherence.

Dietary adherence among patients with type 2 diabetes mellitus is often influenced by multiple factors such as family support, knowledge, socioeconomic status, psychological condition, and duration of illness. Nevertheless, motivation remains a central factor because motivated patients are generally more willing to seek information, follow dietary plans, and maintain self-care behaviors despite challenges. Patients with low motivation may feel bored, frustrated, or unmotivated to maintain dietary restrictions, which can negatively affect blood glucose control and increase the risk of complications (Kusnanto et al., 2019).

These findings imply that healthcare professionals, especially nurses, should provide continuous motivational support and patient-centered education to encourage dietary adherence among patients with type 2 diabetes mellitus. Motivational interventions such as counseling, diabetes education programs, family involvement, and motivational interviewing may help patients strengthen their self-efficacy and commitment to dietary management. In addition, healthcare providers should assess patients' motivational levels regularly to identify barriers to adherence and provide appropriate interventions.

In conclusion, motivation has an important role in improving dietary adherence among patients with type 2 diabetes mellitus. Strengthening patient motivation through supportive educational and behavioral interventions may contribute to better self-management and improved health outcomes in diabetes care.

## Conclusion

This study emphasizes the significant association between motivation and dietary adherence in patients with type 2 diabetes mellitus. The suggestion for further research is to add other factors that have not been studied related to the dietary adherence of type 2 diabetes mellitus patients and to add a large number of samples to get better and varied results.

## References

- Amaliyah, L. (2022). The Relationship between Motivation and Diet Adherence Level in Type 2 Diabetes Mellitus Patients: Literature Review. p. 47.
- Anggi, S.A. and Rahayu, S. (2020). Dietary Adherence in Type II Diabetes Mellitus Patients. *Stikes Hang Tuah Surabaya Nursing Scientific Journal*, 15(1), pp. 124–138. Available at: <https://doi.org/10.30643/jiksht.v15i1.71>.
- Haskas, Y. (2017). Behavioral Determinants of Diabetes Mellitus Control in the Makassar City Area, *Global Health Science*, 2(1), pp. 138–144.
- International Diabetes Federation (2024) *Diabetes Mellitus*.
- Kanako, M., Nakamura, Y., Fujita, Y., Ogura, M., Tanaka, D., Inagaki, N., & Nin, K. (2025). *Relationship between autonomous motivation for dietary self-care behaviors and quality of life in people with type 2 diabetes: A structural equation modeling approach*. *Asian Nursing Research*, 19(5), 486–493. <https://doi.org/10.1016/j.anr.2025.08.001>
- Kusumawati, F. A. (2022). The Relationship of Knowledge with Dietary Adherence, Physical Activity and Medication Intake in Patients with Diabetes Mellitus in the Working Area of the Sedati Health Center. p. 3.
- Kusnanto, K., Susanti, R. D., Ni'mah, L., & Zulkarnain, H. (2019). The Correlation Between Motivation and Health Locus of Control with Adherence Dietary of Diabetes Mellitus. *Jurnal Ners*, 13(2), 171–177. <https://doi.org/10.20473/jn.v13i2.9700>
- Nurmala Datuela, Hairil Akbar and Ake Royke Calvin Langingi (2021). The Relationship between Self-Motivation and Dietary Adherence in Patients with Diabetes Mellitus at the Kotamobagu Wound Care Center Clinic, *Promotive: Journal of Public Health*, 11(2), pp. 158–163. <https://doi.org/10.56338/pjkm.v11i2.2105>.
- Basic Health Research (Riskesdas) (2018). Riskesdas Report 2018 Nasional. *IAARD Publishing Institute*, p. 156. Available at:

- [https://repository.badankebijakan.kemkes.go.id/id/eprint/3514/1/Laporan Riskedas 2018 Nasional.pdf](https://repository.badankebijakan.kemkes.go.id/id/eprint/3514/1/Laporan_Riskedas_2018_Nasional.pdf).
- Riskedas (2018). *Research Institute of the Health Research and Development Agency of South Sulawesi Province Report Riskedas 2018, Health Research and Development Agency*. Available at: <http://ejournal2.litbang.kemkes.go.id/index.php/lpb/article/view/3658>.
- Sebire, S.J., Toumpakari, Z., Turner, K.M. *et al.* (2018). "I've made this my lifestyle now": a prospective qualitative study of motivation for lifestyle change among people with newly diagnosed type two diabetes mellitus. *BMC Public Health* **18**, 204. <https://doi.org/10.1186/s12889-018-5114-5>
- Susanti, R.D. (2018). *The Relationship between Motivation and Health Locus Of Control with Dietary Adherence of Diabetic Mellitus Patients*.
- Syifa, S.N. and Jaya, M.K.A. (2022). The Effect of Motivation, Family Support, Attitudes and Knowledge on the Compliance Level of Diabetes Mellitus Patients, *Journals of Ners Community*, (6), pp. 672–676. <https://doi.org/10.55129/jnerscommunity.v13i6.2275>.
- Asnaniar, W. O. (2024). Family Support for Dietary Adherence in People with Type 2 Diabetes Mellitus. *Window of Nursing Journal*, 5(1), pp. 85–92. Available at: <https://doi.org/10.33096/won.v5i1.746>.
- WHO (2024) *Diabetes Mellitus*.
- Zycinska, J., Januszek, M., Chrzanowski, W., & Gruszczynski, W. (2012). How to measure motivation to change risk behaviours in the self-determination perspective? The Polish adaptation of the Treatment Self-Regulation Questionnaire (TSRQ) among patients with chronic diseases. *Polish Psychological Bulletin*, 43(4), 261–271. <https://doi.org/10.2478/v10059-012-0029-y>