Proceeding of
1st International Nursing Conference
Volume 1 (January) 2026

Relationship Between Knowledge and Self-Management in Diabetes Mellitus Patients

Idham Soamole[1], Windarti Rumaolat[1], Hasna Tunny[1]

[1] Stikes Maluku Husada, Indonesia

✉ Corresponding author: **Idham Soamole**; email: idsoamole@gmail.com

Abstract

Background: Diabetes Mellitus (DM) is a non-communicable disease. Uncontrolled diabetes mellitus can cause complications. One important factor in preventing complications is through self-management by the patient, but there is still a gap between the ideal expectations of patient self-management and the reality in the field. This indicates that there are still important factors that have not been optimally addressed, namely patient knowledge about self-management. **Objective**: To analyze the relationship between knowledge and self- management in diabetes mellitus patients. **Method**: This study used a quantitative approach with a cross-sectional design. A sample of 84 respondents was selected using a purposive sampling technique in the working area of the CH M Tiahahu Health Center, Ambon City. The instrument used was a questionnaire that had been tested for validity and reliability. Data analysis was carried out using the Mann-Whitney test. **Results**: The majority of respondents were elderly (53.5%), female (56%), and highly educated (51.2%). Most respondents were unemployed (27.4%), and 45.2% had new diabetes. The results of the study Statistical tests showed a p value = 0.000 (p <0.05). **Discussion**: Knowledge is the result of knowing and occurs after a person senses an object, including through education, information, or experience. Therefore, the better a person's knowledge, the more likely their health behavior will also be better. Self-management is a key factor in the long-term management of Diabetes Mellitus, as this disease is chronic and requires active involvement from the patient in daily life. **Conclusion**: There is a significant relationship between the level of knowledge and self-management abilities in diabetes mellitus patients in the working area of the Ch. M. Tiahahu Health Center, Ambon City, based on the test results.

Keywords: diabetes mellitus, knowledge, self-management

INTRODUCTION

Uncontrolled diabetes mellitus can lead to complications. One important factor in preventing complications is through self-management by the patient themselves; however, there is still a gap between the ideal expectations for patient self-management and the reality in the field [1]. This indicates that an important factor has not yet been optimally addressed: the patient's knowledge of managing their own disease or self-management [2]. Globally, the International Diabetes Federation (IDF) report in 2024 states there are around 537 million people worldwide living with diabetes [3]. Data from the 2023 Basic Health Research shows that the prevalence of DM based on measurements in residents aged 15 years and over is 2.2%, with the highest being in DKI Jakarta (33.1%),

and in Maluku it is 2.1% [4]. One important approach in diabetes management that is currently a focus is the patient's ability to perform self-care, known as self-management [5].

The reality in the field shows that many DM patients have not implemented self-management well. Most of them do not yet understand the correct steps in self-care, find it difficult to change their lifestyle, and still have habits that contradict the principles of Diabetes Mellitus management [6]. This condition reinforces the notion that the success of self-management is highly influenced by the understanding or knowledge the patient possesses [7]. Without adequate knowledge, patients will be unable to make appropriate decisions in caring for themselves [8]. Knowledge about the disease being suffered includes an understanding of the causes, symptoms, treatment, complications, and prevention efforts [9]. DM patients who have good knowledge will be better able to understand the importance of managing the disease independently, maintaining a healthy lifestyle, and recognizing danger signs that require medical attention [10]. Conversely, patients with low knowledge tend to be less aware of the consequences of irregular treatment, inappropriate diet, or not engaging in physical activity [11]. Lack of knowledge also often leads patients to make inappropriate decisions, such as stopping medication when they feel healthy, using alternative treatments without supervision, or ignoring the initial symptoms of complications [12]. Therefore, knowledge is an important basis for guiding patients to perform correct care and be responsible for their own health [13].

Structured and continuous education will help improve patients' understanding of their disease, as well as form better self-management behaviors [14]. In addition, health workers also need to involve the patient's family in the education process so that support from the surrounding environment can strengthen the patient's commitment to carrying out self-care [15]. To ensure the effectiveness of these educational interventions, research is needed that examines the relationship between knowledge and self-management ability in diabetic patients [16].

METHOD

A cross-sectional analytic design was conducted in this study. The population was all patients at the Ch M Tiahahu Community Health Center from June 24 to July 24, 2025. The total sample size was 84 respondents, utilizing purposive sampling.

The independent variable was knowledge among patients with diabetes mellitus, and the dependent variable was Self-Management. The instruments used were the Diabetes Knowledge Questionnaire-24 (DKQ-24) [17], and the DSMQ (Diabetes Self-Management Questionnaire) [18].

The data collection procedure consisted of a preparation phase to complete all administrative tasks related to the research activities, followed by the research implementation phase after obtaining the permit application letter from the Ch M Tiahahu Community Health Center. The research analysis used the Mann-Whitney statistical test with a 95% confidence level (0.05) [19].

RESULTS AND DISCUSSION

The majority of respondents were elderly (53.5%), female (56%), and highly educated (51.2%). Most respondents were unemployed (27.4%), and 45.2% had new diabetes. Most respondents had good knowledge (61.9%), with 48.8% practicing diabetes self-management (Table 1).

Table 1. Respondent characteristics of demographics (n= 84)

Characteristic	Frequency (n)	Percentage (%)
Age		
Adult (18-45 Yrs)	9	10.7%
Pre-Elderly (45-59 Yrs)	30	35.7%
Elderly (>60 Yrs)	45	53.5%
Gender		
Male	37	44.0
Female	47	56.0
Education		
Elementary School	6	7.1
Junior High School	7	8.3
Senior High School	28	33.3
Higher Education	43	51.2
Occupation		
Trader	16	19.0
Entrepreneur (self-employed)	16	19.0
Business Owner	5	6.0
Civil Servant (PNS)	17	20.2
Homemaker (IRT)	7	8.3
Unemployed	23	27.4
Duration of Suffering from DM Disease		
New/short-term	38	45.2
Medium	20	38.1
Long-term/chronic	26	31.0
Knowledge		
Poor	7	8.3
Sufficient	25	29.8
Good	52	61.9
Self-Management		
Poor	11	13.1
Sufficient	32	38.1
Good	41	48.8

The Mann-Whitney U test shows a p-value of 0.000 (<0.05), indicating a significant

difference between knowledge and self-management among diabetes mellitus patients. The Mann-Whitney U test was conducted to examine the difference in knowledge based on self-management, which had been recoded into two categories: good and not good (a combination of sufficient and poor).

Knowledge is the result of knowing and occurs after a person senses an object, including through education, information, or experience. Knowledge also becomes one of the determinants in shaping a person's behavior. Therefore, the better a person's knowledge, the more likely their health behavior will also be better [20]. Good knowledge can influence a person's behavior, including self-management. Self-management in patients with Diabetes Mellitus covers various aspects, including adherence to treatment, dietary regulation, physical activity, blood sugar monitoring, and the ability to recognize and respond to symptoms of complications [21].

Self-management is a key factor in the long-term management of Diabetes Mellitus, as this disease is chronic and requires active involvement from the patient in daily life. Self-management is an individual's ability to manage symptoms, treatment, lifestyle changes, as well as the psychosocial consequences of their chronic condition. This means that success in disease management does not only depend on healthcare workers but is highly dependent on the awareness and skills of the patient themselves [22].

The statistical test results showed a significant difference between the level of knowledge and self-management ability in diabetes mellitus patients. The data obtained indicates that participants with a higher level of knowledge tend to have higher self- management scores as well. They are better able to regulate diet, physical activity, medication use, and monitor blood sugar levels independently. This fact reflects that good knowledge encourages patients to be more active and responsible in managing their health condition. These findings are reinforced by the Health Belief Model (HBM) theory, which explains that a person's health behavior is influenced by perceptions of the disease and the benefits of the actions taken. Adequate knowledge forms the basis for shaping risk. Perception and action effectiveness. In this context, diabetic patients with sufficient knowledge will be more aware of the risks of complications and the importance of good self-management [23]. Another report shows a significant relationship between knowledge and self-management in diabetes mellitus ($p= 0.001$) [24]. Similar results were found that knowledge increases directly proportional to adherence to self-management [25].

CONCLUSION

Respondent knowledge is related to the implementation of personal management in managing diabetes, so various efforts to improve knowledge about diabetes are necessary.

ACKNOWLEDGMENTS

On this occasion, the researchers express their gratitude to the parties involved the Maluku Husada Health Sciences College (STIKes Maluku Husada) Institution for their support in organizing the *Tri Dharma* of Higher Education (the three pillars of higher education: education, research, and community service), the leadership of the Ch. M. Tiahahu Community Health Center for granting permission to the researchers for data collection, and the students who assisted in collecting data in the field.

CONFLICT OF INTEREST

The authors declare no conflict of interest during the research.

REFFERENCES

[1] Marbun, A. S., Aryani, N., & Sinurat LRE. The relationship between knowledge and prevention actions in patients with Diabetes Mellitus. Jurnal Health Reproductive, 6(2), 78–86. https://doi.org/10.51544/Jrh.V6i2.2551.2022

[2] Ispandiyah W, Melati P. Knowledge and Self-Management in the prevention of Diabetes Mellitus complications. Surya Med J Ilm Ilmu Keperawatan dan Ilmu Kesehat Masy. 2023;18(2):90–5.

[3] Kemenkes RI. Ministry of Health of the Republic of Indonesia. Report on the results of basic health research and the health profile of Maluku Province. 2024.

[4] Anani S. The relationship between diabetes control behavior and blood glucose levels in outpatient Diabetes Mellitus patients (Case study at Arjawinangun Regional Hospital, Cirebon Regency). J Kesehat Masy Univ Diponegoro. 2020;1(2).

[5] Redho A, Septinawati Y. The effect of health education on knowledge, attitudes, and preventive actions for diabetic foot ulcers in the working area of the Air Molek Community Health Center Technical Implementation Unit. Al-Asalmiya Nurs J Ilmu Keperawatan (Journal Nurs Sci. 2023;12(2):203–15.

[6] Mulyana, T. N., Lindayani, E., & Sutresna I. The relationship between knowledge and self-management. Jurnal Kesehatan Tambusai. 2024.

[7] Marwanti, Daryani. Description of the level of knowledge of wound care in Diabetes Mellitus patients in Sekarsuli Village. TRIAGE J Ilmu Keperawatan. 2023;9(2):36–40.

[8] Arikunto S. Research Procedures: A Practical Approach (Revised Edition). Jakarta: Rineka Cipta. 2013.

[9] Nursalam. Nursing Science Research Methodology: A Practical Approach (4th Edition). Jakarta: Salemba Medika. Proceedings of the National Health Seminar. 2016.

[10] Mutia Sari, Anggi P. The relationship between knowledge and attitudes of mothers attending toddler mother classes towards the nutritional status of infants at the Jatijajar Community Health Center Technical Implementation Unit in 2024. 2024.

[11] Simanjuntak M. Differences in self-management based on education level in Diabetes Mellitus patients. Jurnal Keperawatan Medikal Bedah, 10(2), 101–110. 2022.

[12] Lorig & H. Self-Management Education: History, definition, outcomes, and mechanisms. Annals Of Behavioral Medicine, 26(1). 2022.

[13] Nurhayati C. The relationship between knowledge levels about Diabetes Mellitus, self- management, and quality of life in Type 2 Diabetes Mellitus patients. Journal Of Nursing And Health Science, 1(2). 2022.

[14] Fitriani et al. The relationship of self-management. Jurnal Edukasi: Jurnal Bimbingan Konseling, 9(2). 2020.

[15] Nuryadi. Improvement of self-management knowledge at Palangkaraya Regional Hospital Journal, 10(2). 2019.

[16] Desveaux L, Shaw J, Saragosa M, Soobiah C, Marani H, Hensel J, Agarwal P, Onabajo N, Bhatia RS, Jeffs L. A mobile app to improve self-management of individuals with type 2 diabetes: qualitative realist evaluation. Journal of medical Internet research. 2018 Mar 16;20(3): e81.

[17] Kompf J. Health Habits for Diabetes: A Patient's Guide to Changing Behaviors & Mindset for Managing Type 2 Diabetes. Hatherleigh Press; 2022 Nov 22.

[18] Kumar R, Itumalla R, Perera B, Elabbasy MT, Singh M. Patient knowledge about diabetes: Illness symptoms, complications and preventive personal lifestyle factors. Health Psychology Research. 2022 Aug 20;10(3):37520.

[19] Ferreira PL, Morais C, Pimenta R, Ribeiro I, Amorim I, Alves SM, Santiago L. Knowledge about type 2 diabetes: its impact for future management. Frontiers in Public Health. 2024 Mar 8; 12:1328001.

[20] Nikpour S, Mehrdad N, Sanjari M, Aalaa M, Heshmat R, Mafinejad MK, Larijani B, Nomali M, Ghezeljeh TN. Challenges of type 2 diabetes mellitus management from the perspective of patients: conventional content analysis. Interactive journal of medical research. 2022 Oct 27;11(2): e41933.

[21] Jiakponna EC, Agbomola JO, Ipede O, Karakitie L, Ogunsina AJ, Adebayo KT, Tinuoye MO. Psychosocial factors in chronic disease management: Implications for health psychology. International Journal of Science and Research Archive. 2024;12(02):117-28.

[22] Alagili DE, Bamashmous M. The Health Belief Model as an explanatory framework for COVID-19 prevention practices. Journal of infection and public health. 2021 Oct 1;14(10):1398-403.

[23] Susanti S, Bistara DN. Relationship between stress level and increased blood sugar levels in patients with diabetes mellitus. Jurnal Keperawatan Respati Yogyakarta (Nursing Journal of Respati Yogyakarta). 2022;9(3):181-6.

[24] Peter PI, Steinberg WJ, van Rooyen C, Botes J. Type 2 diabetes mellitus patients' knowledge, attitude and practice of lifestyle modifications. Health SA Gesondheid. 2022 Oct 21; 27:1921.

[25] Wang X, Tian B, Zhang S, Li J, Yang W, Gu L, Zhang W. Underlying mechanisms of diabetes knowledge influencing diabetes self-management behaviors among patients with type II diabetes in rural China: Based on health belief model. Patient education and counseling. 2023 Dec 1; 117:107986.