Indonesian Journal of Global Health Research
Volume 8 Number 2, April 2026
e-ISSN 2715-1972; p-ISSN 2714-9749
http://jurnal.globalhealthsciencegroup.com/index.php/IJGHR

RELATIONSHIP BETWEEN KNOWLEDGE AND TREATMENT COMPLIANCE IN TYPE 2 DIABETES MELLITUS PATIENTS

Nawang Wulan Nago Pitasari[1], Farhan Imba[1], Innal Saitis[1], Ferdinta Setyawan[1], Risna[2], Fenska Narly Makualaina[3]
[1]Pharmacy of Study Program, Faculty of Health Sciences, Universitas Jayapura, Jl. Kamp Wolker, Yabansai, Heram, Jayapura, Papua 99224, Indonesia
[2]Pharmacy of Study Program, Poltekkes Kemenkes Jayapura, Jln Masuk Poltekkes Padang Bulan No.2, Hedam, Heram, Jayapura, Papua 99351, Indonesia
[3]Nursing of Study Program, Faculty of Health Sciences, Universitas Jayapura, Jl. Kamp Wolker, Yabansai, Heram, Jayapura, Papua 99224, Indonesia
*Innalsaitis92@gmail.com

ABSTRACT
Type 2 diabetes mellitus is a chronic disease with increasing prevalence and requires long-term adherence to therapy to prevent complications. Treatment adherence in diabetes patients remains a challenge, influenced in part by the patient's level of knowledge about the disease and its treatment. This study aims to analyze the relationship between the level of knowledge and adherence to medication therapy in type 2 diabetes mellitus patients at Harapan Community Health Center, Jayapura Regency. This study used a non-experimental quantitative design with a cross-sectional approach. The study sample consisted of 50 type 2 diabetes mellitus patients selected using a total sampling technique. The research instruments used were the Diabetes Knowledge Questionnaire-24 (DKQ-24) to measure the level of knowledge and the Morisky Medication Adherence Scale-8 (MMAS-8) to measure medication adherence. Data analysis was performed univariately and bivariately using the chi-square test with a significance level of 0.05 . The results showed that most respondents had a moderate level of knowledge (54%) and a moderate level of medication adherence (48%). Bivariate analysis showed a significant relationship between the level of knowledge and adherence to medication therapy in type 2 diabetes mellitus patients (p = 0.000). Respondents with a high level of knowledge tended to have better medication adherence.

Keywords: knowledge; treatment compliance; type 2 diabetes mellitus

How to cite (in APA style)
Pitasari, N. W. N., Imba, F., Saitis, I., Setyawan, F., Risna, R., & Makualaina, F. N. (2026). Relationship Between Knowledge and Treatment Compliance in Type 2 Diabetes Mellitus Patients. Indonesian Journal of Global Health Research, 8(2), 559–564. https://doi.org/10.37287/ijghr.v8i2.1376.

INTRODUCTION

Type 2 diabetes mellitus is a non-communicable disease that is a global health problem, with incidence rates increasing annually (IDF, 2021; WHO, 2023). This disease is chronic and requires long-term management to prevent complications that can reduce the quality of life of sufferers (ADA, 2024). The International Diabetes Federation reports that the number of people with diabetes mellitus worldwide continues to increase, with the majority of cases being type 2 diabetes mellitus (IDF, 2021). Indonesia is among the top ten countries with the highest number of diabetes sufferers in the world (Ministry of Health of the Republic of Indonesia, 2023). Type 2 diabetes mellitus is characterized by insulin resistance and impaired insulin secretion, leading to chronic hyperglycemia (PERKENI, 2021). Uncontrolled hyperglycemia can lead to various microvascular and macrovascular complications (ADA, 2024). Management of type 2 diabetes mellitus includes non-pharmacological and pharmacological therapies that must be implemented consistently (WHO, 2023). Successful diabetes management depends heavily on patient adherence to prescribed medication (Kardas et al., 2021). However, various studies show that the level of medication adherence in type 2 diabetes mellitus patients is still low to moderate (Tan et al., 2022; Buyung et al., 2022). Non-adherence to medication can lead to therapy failure and an increased risk of complications (ADA, 2024). Knowledge is a cognitive factor that plays a crucial role in shaping a

person's health behavior, including medication adherence (Ministry of Health of the Republic of Indonesia, 2023). Patients with a good level of knowledge tend to be more compliant with therapy (Alfiah et al., 2021).

Several previous studies have shown a significant relationship between knowledge levels and medication adherence in patients with type 2 diabetes mellitus (Ramlah et al., 2023; Marito & Lestari, 2024). In Jayapura Regency, diabetes mellitus is one of the diseases with the highest number of visits to primary healthcare facilities (Papua Health Office, 2024). Harapan Community Health Center is one of the health centers with a relatively high number of type 2 diabetes mellitus patients. Preliminary studies indicate that some patients still lack understanding of diabetes management and the importance of adherence to therapy. This situation has the potential to impact treatment success. Based on this description, researchers in examining the relationship between knowledge levels and adherence to treatment in patients with type 2 diabetes mellitus at Harapan Community Health Center, Jayapura Regency.

METHOD

This is a non-experimental quantitative study with a correlational analytical design using a cross-sectional approach. The study was conducted at Harapan Community Health Center, Jayapura Regency, from April to May 2025. The study population consisted of all patients with type 2 diabetes mellitus undergoing outpatient treatment. The study sample consisted of 50 respondents selected using total sampling techniques according to inclusion and exclusion criteria. The research instruments used were the Diabetes Knowledge Questionnaire-24 (DKQ-24) to measure knowledge levels and the Morisky Medication Adherence Scale-8 (MMAS-8) to measure adherence to medication therapy. Data were analyzed univariately to describe respondent characteristics and bivariately using the chi-square test with a significance level of 0.05.

RESULT

This study involved 50 patients with type 2 diabetes mellitus as outpatients at Harapan Community Health Center in Jayapura district.

Table 1.
Frequency Distribution of Gender of Diabetes Mellitus Patients type 2 (n= 50)

Gender	f	%
Man	11	22%
Woman	39	78%

This study shows that type 2 diabetes mellitus patients in outpatients at Harapan Health Center are dominated by women 39 people (78%) in line with the results of research conducted (Pratiwi et al., 2022) this can be caused by women having higher LDL (Low Density Lipoprotein) compared to men, and there are also differences in carrying out all activities, daily lifestyles that greatly affect the occurrence of a disease and there are also differences in carrying out all activities and daily lifestyles that greatly affect the occurrence of a disease, and this is one of the risk factors for diabetes mellitus. Women have a greater chance of suffering from diabetes mellitus than men because many women's lifestyles are unhealthy compared to men. More elderly women are unemployed than men, in elderly women it has also occurred post-menopause which causes body fat to easily accumulate due to hormonal processes. It is hoped that elderly women will maintain a healthy lifestyle to avoid diabetes mellitus and avoid environmental factors such as poor lifestyle and stress (Damayanti et al., 2020).

Table 2.
Frequency Distribution of Age of Type 2 Diabetes Mellitus Patients (n= 50)

Age	f	%
21-35 years	5	10
36-50 years	9	18
51-60 years	16	32
> 61 Years	20	40

The distribution results show that the number of elderly respondents tends to have the potential to develop diabetes mellitus. This result is shown in the study above where the age category with the largest number is in the range of over 60 years with 20 patients (40%). This result is in line with research conducted by (Saibi et al., 2020) where the age of more than or equal to 60 years dominates the number of respondents, namely 66.3 % . This result is also in line with data from the Ministry of Health which states that the prevalence of diabetes mellitus based on a doctor's diagnosis is higher in sufferers aged 12 years (12.45 %) (Ministry of Health of the Republic of Indonesia, 2018) Impaired glucose tolerance is associated with aging and postprandial hyperglycemia is a prominent characteristic of type 2 diabetes in older adults. Age- related insulin resistance is associated with changes in body composition and physical activity (Kalyani et al., 2017). Overview of the level of compliance with taking medication in diabetes mellitus patients at Harapan Health Center in Jayapura Regency, which is shown from the compliance score obtained from the answers to the MMAS-8 questionnaire, which consisted of 8 questions, with the following results.

Table 3.
Frequency Distribution Profile of Diabetes Mellitus Patient Compliance Level Type 2 (n= 50)

Compliance Level	f	%
High Compliance	16	32
Moderate compliance	24	48
Low compliance	10	20

Based on table 3, it can be seen that 24 respondents (48%) have a moderate level of compliance in using antidiabetic drugs, while 16 respondents (32%) have a high level of compliance and the remaining 10 respondents (20%) have a low level of compliance so that it can be concluded that the level of compliance in taking medication in type 2 DM patients at Harapan Health Center in Jayapura Regency shows that the level of compliance in taking medication is moderate, this is a value that can be influenced by several factors, namely, first, there are several patients who still forget to take medication, second, there are no patients who have forgotten to take medication for the past 2 weeks, third, a small number of the patient population yesterday reduced or stopped taking medication without telling the doctor, fourth, some patients who sometimes forget to take medication when traveling or leaving the house, fifth, from the results of interviews with respondents stated that patients did not forget to take medication the previous day, sixth, some of the patients who felt their condition improved chose to stop taking medication, seventh, some of the patients who felt uncomfortable if taking medication every day felt disturbed by such a situation and eighth, there were several patients who occasionally forgot to take medication but many of the patient population never forgot to take medication (Handinisari, 2023). Therefore, the results of this study indicate that the patient's medication adherence level is moderate, with a result of 46%. This assumes that these factors influence the achievement of this score. This difference in numbers based on compliance levels aligns with the results of a study conducted at the East Jakarta Community Health Center, which found that 46% of respondents had moderate compliance, 34% had high compliance, and the remaining 10 respondents had low compliance (Saibi et al., 2020).

Table 4.
Frequency Distribution Profile of Knowledge Level of Diabetes Mellitus Patients Type 2 (n= 50)

Level of Knowledge	f	%
Tall	11	22%
Currently	27	54%
Low	12	24%

Table 4 explains that of the 50 respondents, the majority had high knowledge of diabetes mellitus (11 respondents (11%), moderate knowledge of diabetes mellitus (27 respondents (54%), and low knowledge of diabetes mellitus (12 respondents (24%). Knowledge itself can be defined as the result of an individual's knowledge of something through the ability of the senses such as eyes, nose, ears, and so on (Notoatmodjo, 2014). Patient knowledge about diabetes mellitus is very important so that patients can decide on behaviors that can reduce the occurrence of complications. Good knowledge about treatment will lead to good treatment behavior, conversely, insufficient

knowledge can lead to poor treatment behavior. One factor that plays a role in the failure of blood glucose control in DM patients is patient non-compliance with treatment (Hamid, Maliga, & Rafi'ah, 2022).

Table 4.
Distribution Profile of the Relationship between Knowledge and Adherence to Treatment Therapy (n= 50)

Knowledge	Compliance			Total	*P*
	Tall	Currently	Low		,000
Tall	8	3	0	11	
	72.7%	27.3%	0.0%	100.0%	
Currently	8	17	2	27	
	29.6%	63.0%	7.4%	100.0%	
Low	0	4	8	12	
	0.0%	33.3%	66.7%	100.0%	

The tabulation results above show that out of 11 respondents, 8 respondents had high knowledge category, while respondents with high knowledge and low level of medication adherence were not found in this study. This study also showed that 12 respondents had low knowledge and no respondents had high knowledge category. This means that the higher the knowledge, the higher the level of medication adherence. The level of knowledge and the level of medication adherence show a very clear and consistent pattern: the higher the respondent's knowledge, the higher the level of adherence to type 2 diabetes mellitus medication. In the group of respondents with high knowledge, 72.7 % were in the high compliance category and none were in low compliance. Conversely, in the low knowledge group, 66.7 % of respondents were in the low compliance category and none achieved high compliance. Meanwhile, the group with moderate knowledge showed a more diverse distribution, with the majority (63.0%) having moderate compliance, a small portion (29.6%) having high compliance, and the remainder (7.4%) having low compliance. Thus, this study shows a significant relationship between knowledge and compliance.

The results of the study showed a significant relationship between knowledge levels and medication adherence in Type 2 Diabetes Mellitus patients at Harapan Community Health Center, Jayapura Regency. Statistical analysis showed a significance value of 0.000 ($p < 0.05$) with a correlation coefficient (r) of 0.664, which is categorized as a strong relationship. This indicates that the higher the respondent's knowledge about the disease and regimen, the higher the level of adherence to the therapy regimen. This study aligns with the results of Ramlah et al. (2023) who found a significant relationship between knowledge and medication adherence in type 2 diabetes mellitus patients at the Antang Community Health Center, Makassar, with a very strong correlation value ($r = 0.842$; $p = 0.001$). The study concluded that patients with good knowledge better understand the importance of routine treatment and are more motivated to carry it out consistently. Similar results were also found by Alfiah et al. (2021) at PKU Muhammadiyah Gubug General Hospital, who found a significant relationship between knowledge and medication adherence ($r = 0.549$; $p = 0.000$).

DISCUSSION

The results of this study indicate a significant relationship between knowledge levels and adherence to medication therapy in patients with type 2 diabetes mellitus. Patients with better knowledge levels tend to have higher medication adherence. This finding aligns with previous research that suggests knowledge is a crucial factor in shaping health behaviors, including medication adherence (Alfiah et al., 2021; Ramlah et al., 2023). The knowledge levels of most respondents, which were in the moderate category, indicate that the education received was not fully optimal. Insufficient knowledge can lead to medication errors and low motivation to undergo therapy (Tan et al., 2022). The predominantly moderate medication adherence indicates that patients are not yet fully consistent in following their treatment. This can be influenced by factors such as age, education, and understanding of the disease (Kardas et al., 2021). Therefore, ongoing and structured health

education efforts by healthcare professionals are needed to improve knowledge and adherence to medication therapy in patients with diabetes mellitus.

CONCLUSION

This study shows that most type 2 diabetes mellitus patients at Harapan Community Health Center, Jayapura Regency have a moderate level of knowledge and adherence to treatment therapy. The results of the bivariate analysis proved that there was a significant relationship between the level of knowledge and adherence to medication therapy. Patients with better levels of knowledge tend to have higher medication adherence. Therefore, improving structured and sustainable health education is very necessary to increase patient knowledge so that it can have a positive impact on therapy compliance and control of type 2 diabetes mellitus.

REFERENCES

Alfarisi, A. M., & Purwanti, O. S. (2021). (2021). Gambaran Tingkat Pengetahuan Penderita Diabetes Mellitus Terhadap Komplikasi Diabetes Mellitus di Wilayah Kerja Puskesmas Pajang. Universitas Muhammadiyah Surakarta, 5(3), 248 http://eprints.ums.ac.id/94112/11/Naskah%2520Publikasi_Abdullah%2520Muhammad%252%0A0Alfarisi_J210170038. Pdf.

American Diabetes Association (ADA). (2011). Standards of medical care in diabetes-2011. Diabetes Care, 34(SUPPL.1). https://doi.org/10.2337/dc11- S011

American Diabetes Association (ADA). (2016). Standards of Medical Care in Diabetes—2016 : Summary of Revisions. Diabetes Care, 39(Supplement_1), S4–S5. https://doi.org/10.2337/dc16-s003.

American Diabetes Association (ADA). (2023). American Diabetes Association Standards of Care in Diabetesd 2023. American Diabetes Association, 46 (January), 64–64. https://doi.org/10.1057/978-1-349-96073-6_16356

Aschner, P. (2017). New IDF clinical practice recommendations for managing type 2 diabetes in primary care. In Diabetes Research and Clinical Practice. International Diabetes Federation (Vol. 132). https://doi.org/10.1016/j.diabres.2017.09.002

Fenwick, E. K., Xie, J., Rees, G., Finger, R. P., & Lamoureux, E. L. (2013). Factors associated with knowledge of diabetes in patients with type 2 diabetes using the diabetes knowledge test validated with Rasch analysis.

PLoS ONE, 8(12), 8–14. https://doi.org/10.1371/journal.pone.0080593

IDF Diabestes Atlas. (2021). International Diabetes Federation Diabetes Atlas 10TH edition. In Diabetes Research and Clinical Practice (Vol. 102, Issue 2). https://doi.org/10.1016/j.diabres.2013.10.013

Istiqomah, I. N., & Yuliyani, N. (2022). Efektivitas Latihan Aktivitas Fisik Terhadap Penurunan Kadar Glukosa Darah Pada Pasien Diabetes Melitus Tipe 2: Kajian Literatur the Effectiveness of Physical Activity Exercise Towards Reducing Blood Glucose Levels in Patients With Type 2 Diabetes Mellitu. Berkala Ilmiah Mahasiswa Ilmu Keperawatan Indonesia, 10(1), 1–10. https://doi.org/10.53345/bimiki.v10i1.196

Kemenkes, 2020. (2022). LAPORAN TAHUNAN.

Kemenkes RI. (2019). Petunjuk Standar Pelayanan Kefarmasian Di Apotek.

Kementerian Kesehatan Republik Indonesia, 1–74.

Notoadmojo. (2012). Promosi Kesehatan dan Perilaku Kesehatan. PT. Rineka Cipta.

Novia, S., Hidayat, M., & Rahman, F. (2025). Understanding barriers to medication adherence among type 2 diabetes patients in Indonesia. Journal of Pharmaceutical Health Services Research, 16(1), 11-19. https://dergipark.org.tr/en/pub/jrespharm/issue/91143/1693752

Mohammadi Zeidi, I., Shahriari, M., & Kamran, A. (2023). Self-efficacy and medication adherence in type 2 diabetes patients: A systematic review. Diabetes & Metabolic Syndrome: Clinical Research & Reviews, 17(1), 102600. https://doi.org/10.1016/j.dsx.2022.102600

Perdana, A. A., Ichsan, B., & Rosyidah, D. U. (2013). Hubungan Tingkat Pengetahuan Tentang Penyakit Dm Dengan Pengendalian Kadar Glukosa Darah Pada Pasien Dm Tipe Ii Di Rsu Pku Muhammadiyah Surakarta. Biomedika, 5(2), 17–21 https://doi.org/10.23917/biomedika.v5i2.265

Perkumpulan Endokrinologi Indonesia (PERKENI). (2021). Pedoman Pengelolaan dan Pencegahan Diabetes Melitus Tipe 2 Dewasa di Indonesia 2021. Global Initiative for Asthma, 46. www.ginasthma.org.

Smith, A., & Jones, L. (2023). Factors influencing medication adherence among adults with diabetes and comorbidities: A qualitative review. Current Diabetes Reports, 23(7), 257-268. https://link.springer.com/article/10.1007/s11892-023-01532-0

Riskesdas. (2018). Hasil Utama Riset Kesehata Dasar (RISKESDAS). [Internet]. Jakarta: Kementerian Kesehatan Republik Indonesia Badan Penelitian Dan Pengembangan Kesehatan. https://doi.org/10.1088/1751-8113/44/8/085201

Patel, R., & Sharma, K. (2024). Impact of knowledge on medication adherence in Indian patients with type 2 diabetes mellitus. Indian Journal of Endocrinology and Metabolism, 28(2), 107-113. https://pubmed.ncbi.nlm.nih.gov/37970170/

Sitorus, B., Fatmawati, & Rahmaniah, S. E. (2020). Peran Pengawas Menelan Obat (PMO) Terhadap Pengobatan Penderita Tuberkulosa Diwilayah Kerja Unit Pengobatan Penyakit Paru-Paru (UP4) Pontianak. Jurnal Ilmiah Ilmu Sosial Dan Ilmu Politik Universitas Tanjungpura, 3, 1–21.

Tamrin, I. (2023). Faktor-Faktor Yang Mempengaruhi Kepatuhan Minum Obat Hipoglikemik Oral (Oho) Pada Pasien Dm Tipe 2 Di Puskesmas Antara Kota Makassar. In Skripsi.Program Studi Ilmu Keperawatan Fakultas Keperawatan Universitas Hasanuddin Makassar.

Wawan, A. (2019). Teori Pengukuran, Sikap dan Perilaku Manusia. Nuha Medika.