Indonesian Journal of Global Health Research
Volume 7 Number 5, October 2025
e-ISSN 2715-1972; p-ISSN 2714-9749
http://jurnal.globalhealthsciencegroup.com/index.php/IJGHR

DETERMINANT FACTORS OF MEDICATION COMPLIANCE IN DM2 PATIENTS: A SYSTEMATIC REVIEW

Faza Khilwan Amna*, Chatila Maharani, Ari Yuniastuti, Sri Ratna Rahayu, Evi Widowati
Program Doctor of Public Health, Universitas Negeri Semarang, Jl. Kolonel HR Hadijanto, Sekaran Gunungpati, Semarang, Central Java, 50229, Indonesia
*fazakhilwan@gmail.com

ABSTRACT
Type 2 Diabetes Mellitus (DM2) is a chronic disease that requires high compliance in treatment to prevent complications. However, many DM2 patients are not compliant in undergoing drug therapy, which can hinder the effectiveness of treatment. Various factors have been identified as determinants of patient compliance, including demographic factors, knowledge, social support, and technology utilization.This study aims to analyze factors that influence medication adherence in DM2 patients based on a systematic review of several studies that have been conducted. The method used in writing this article is a literature review study with a systematic review method. The articles reviewed were obtained through searches on Google Scholar, Pubmed, Proquest, and ScienceDirect in the period 2015-2025 with the search keywords being Type 2 Diabetes Mellitus, Medication Compliance, Compliance Factors, Medication Supervisors . By using PRISMA, from 10,697 articles found, 10 journal articles were obtained to be reviewed. Based on the analysis of several studies, factors that have a significant influence on patient compliance in taking medication are the level of knowledge ($p = 0.002$), family support ($p = 0.000$; PR = 8.17) , and support from health workers ($p = 0.000$; PR = 6.10). Social Marketing, Frailty Syndrome and Age were also found to have a relationship with DM medication compliance. In addition, the use of technology such as medication reminder applications (PMO) has been shown to help improve patient compliance in undergoing DM2 therapy. Compliance of DM2 patients in undergoing drug therapy is influenced by various factors, including level of knowledge, social support, social marketing, age , frailty syndrome, and use of technology. Therefore, strategies to improve compliance must involve an educational approach, strengthening the role of families and health workers, and utilizing digital-based technology to increase the effectiveness of DM2 therapy.

Keywords: compliance factors; medication compliance; medication supervisors; type 2 diabetes mellitus

How to cite (in APA style)
Amna, F. K., Maharani, C., Yuniastuti, A., Rahayu, S. R., & Widowati, E. (2025). Determinant Factors of Medication Compliance in DM2 Patients: A Systematic Review. Indonesian Journal of Global Health Research, 7(5), 33-42. https://doi.org/10.37287/ijghr.v7i5.6587.

INTRODUCTION

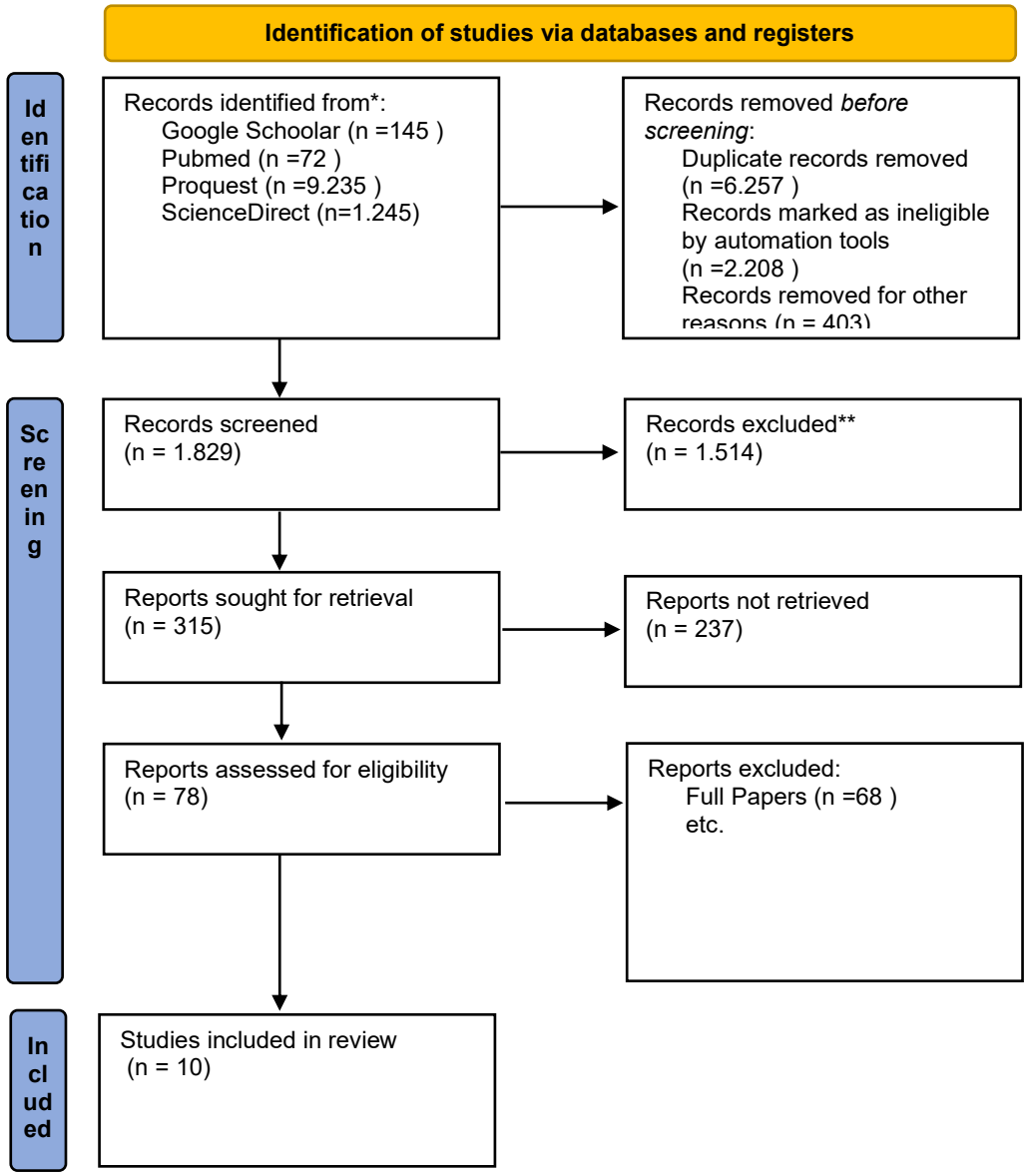
Diabetes Mellitus type 2 (DM2) is a chronic metabolic disease characterized by hyperglycemia due to insulin resistance and impaired insulin secretion by pancreatic beta cells. Based on the World Health Organization (WHO) report, diabetes is one of the ten leading causes of death in the world, with the number of sufferers continuing to increase every year. The International Diabetes Federation (IDF) noted that in 2019, Indonesia was ranked 7th with the highest number of diabetes sufferers in the world, and is expected to continue to increase until 2045.(Gusnanda, 2023)Patient compliance in undergoing pharmacological therapy is a major factor in the management of DM2. Non-compliance with treatment can cause serious complications such as diabetic nephropathy, neuropathy, retinopathy, and cardiovascular disease (Harahap et al., 2020). A study showed that the level of compliance with antidiabetic therapy is still low, with many patients not following the rules for taking medication according to doctor's recommendations (Yusron & Fauzia, 2022). Therefore, an in-depth understanding of the factors that influence patient compliance is very important in efforts to improve the effectiveness of therapy and the quality of life of DM2 patients. (Almira et al., 2019)

Several factors that have been identified as influencing medication adherence in DM2 patients include individual factors (age, gender, education, and motivation), economic factors (income, occupation), drug-related factors (number of drugs, side effects), and social factors (family support and relationships with health workers). For example, patients with higher levels of education tend to have a better understanding of the importance of medication adherence (Putri & Cholisoh, 2023). In addition, patients with good motivation and strong family support also show higher levels of adherence (Almira et al., 2019). Several studies have shown that intervention methods such as health education, the use of medication reminder applications, and the active role of health workers, especially pharmacists, in providing pharmaceutical counseling can improve patient compliance with treatment (Putri & Cholisoh, 2023). Technology-based approaches such as medication reminder applications have been shown to improve patient compliance by providing periodic notifications and records of doses consumed (Harahap et al., 2020).

However, previous studies have been fragmentary and tend to focus on certain aspects of the factors that influence patient compliance. Therefore, a systematic review is needed to compile a more comprehensive mapping of the various factors that contribute to medication adherence in DM2 patients. A systematic review can provide a broader picture by integrating various previous research findings, so that it can help in designing more effective interventions to improve patient compliance. (Ningrum, 2020). This study aims to analyze the factors that influence medication adherence in DM2 patients based on a systematic review of studies that have been conducted.

METHOD

This study is a systematic review *using* the PRISMA (*Preferred Reporting Items for Systematic Reviews and Meta-analyses*) method. This method is carried out systematically by following the correct research stages or protocols. The *systematic review procedure* consists of several steps, namely: 1) compile background *and purpose* ; 2) *research question:* 3) *searching for the literature;* 4) *selection criteria ;* 5) *practical screen;* 6) *quality checklists and procedures;* 6) *data extraction strategy;* 7) *data synthesis strategy*.(Wibowo et al., 2022) Literature search was obtained from *Google Scholar, Pubmed, Proquest, and ScienceDirect* . The keywords used are type 2 diabetes mellitus, medication adherence, compliance factors, medication supervisors **.** In addition to keywords, the article search was based on articles written in the period 2015-2025 and obtained 10,697 journal articles. The final result, as many as 10 articles met the inclusion criteria for analyzed. The selected journal articles are based on several inclusion criteria. The inclusion criteria in this study include the following: 1) The research article was published in 2015-2025; 2) The type of research design is cross sectional and experimental; 3) The research study discusses factors of compliance in taking diabetes mellitus medication: 4) Using a test statistically.



RESULT

Results review literature on article with range time rise year 2015-2025, use Language Indonesia And Language English And overall study found 10 Article based on Topic systematic discussion review.

Table 1.
Literature Review

No	Researcher	Country	Title	Method	Variables Studied	Research result
1	Zahra Najafpour, Isa Mohammadi Zeidi, Rohollah Kalhor (2021)	Iran	The effect of educational intervention on medication adherence behavior in patients with type 2 diabetes: application of social marketing model	Experiment (RCT)	Educational interventions, medication adherence, social marketing models	Social marketing-based intervention significantly improved attitudes, self-efficacy, subjective norms, awareness, and adherence to treatment in patients with type 2 diabetes.

2	Tavares, VB, Farias, ALd, et al. (2023)	Brazil	Sociodemographic Factors, Health Literacy, Biochemical Parameters and Self-Care as Predictors in Patients with Type 2 Diabetes Mellitus	Cross-Sectional	Health literacy, sociodemographic factors, biochemical parameters, self-care	Health literacy is associated with control of biochemical parameters and self-care behavior in type 2 diabetes patients, with sociodemographic factors predicting health literacy.
3	Bonikowska, I., Szwamel, K., Uchmanowicz, I. (2022)	Poland	Adherence to Medication in Older Adults with Type 2 Diabetes Living in Lubuskie Voivodeship in Poland: Association with Frailty Syndrome	Cross-Sectional	Frailty syndrome, medication compliance	Frailty syndrome is associated with low medication compliance in elderly type 2 diabetes patients.
4	Botrel, FZ, Faria, KJ, et al. (2021)	Brazil	Medical compliance and associated factors in Type 2 Diabetes Mellitus	Cross-Sectional	Treatment compliance, education level, family support, clinical factors	Adherence to type 2 diabetes treatment is influenced by education level, presence of a partner, and adherence to physical activity.
5	Laoh, JM, Lestari, SI, & Rumampuk, MVH (2018)	Indonesia	The Relationship between Family Support and Treatment Compliance in Type 2 Diabetes Mellitus Patients at the Endocrine Polyclinic BLU RSU Prof. Dr. RD Kandou Manado	Quantitative; Cross-Sectional	Family support, treatment compliance	There is a significant relationship between family support and medication compliance in diabetes mellitus patients.
6	Marito, R. & Lestari, I.C. (2021)	Indonesia	Relationship Between Level of Knowledge and Level of Medication Compliance of Type 2 Diabetes Mellitus Patients	Quantitative; Cross-Sectional	Level of knowledge, compliance in taking medication	There is a relationship between the level of knowledge and compliance with type 2 diabetes mellitus treatment with a moderate correlation.
7	Almira, N., Arifin, S., & Rosida, L. (2019)	Indonesia	Factors Related to Compliance Behavior in Taking Anti-Diabetes Medication in Type 2 Diabetes Mellitus Patients at Teluk Dalam Health Center, Banjarmasin	Analytical Observational; Cross-Sectional	Age, gender, knowledge, motivation, medication compliance	There is a relationship between age, knowledge, and motivation with compliance in taking anti-diabetic medication, but there is no relationship with gender.

8	Harahap, U., et al. (2020)	Indonesia	Utilization of Medication Reminder Application (PMO) to Improve Compliance of Type 2 Diabetes Mellitus Patients	Quantitative; Experimental	Use of PMO applications, patient compliance	Socialization of PMO application can increase compliance of type 2 diabetes mellitus patients.
9	Yusron, MW & Fauzia, D. (2022)	Indonesia	The Relationship between Compliance in Taking Antidiabetic Medication and Controlled Blood Glucose in Type 2 Diabetes Mellitus Patients at the Tenayan Raya Health Center, Pekanbaru City	Quantitative; Cross-Sectional	Medication compliance, blood glucose level control	There is a significant relationship between medication compliance and blood glucose level control.
10	Ningrum, DK (2020)	Indonesia	Medication Compliance in Type II Diabetes Mellitus Patients	Quantitative; Cross-Sectional	Gender, education level, number of drugs taken, family support, health worker support, compliance with taking drugs	There is a relationship between gender, level of knowledge, number of drugs taken, family support, and support from health workers with compliance in taking medication.

DISCUSSION

Knowledge

Knowledge is one of the main factors that influences patient compliance in taking medication in patients with type 2 Diabetes Mellitus (DM2). Patients who have a good understanding of their disease and the importance of drug therapy tend to be more compliant in following the treatment prescribed by medical personnel. A study conducted by Marito et al. (2021) showed that there was a significant relationship between the level of knowledge and medication adherence ($p = 0.002$) with a positive correlation direction, which means that the higher the patient's level of knowledge, the higher their compliance in undergoing therapy. (Marito & Lestari, 2021)The relationship between knowledge and adherence can be explained by patient awareness of the risk of complications due to non-adherence in taking medication. Patients who understand the consequences of not taking medication regularly, such as increased blood sugar levels and the risk of complications such as neuropathy and nephropathy, are more likely to follow treatment recommendations. In addition, patients who have good knowledge are also more active in seeking information about DM2 management, either through medical personnel, health education, or other sources such as the internet and social media. This helps them make better decisions regarding adherence to treatment. (Marito & Lestari, 2021)

However, although knowledge influences adherence, there are still challenges in increasing patient awareness, especially for those with low levels of education or limited access to information. One study found that patients with low levels of education had a higher risk of non-adherence compared to those with higher education ($p = 0.000$; PR = 29.6) . Therefore,

interventions that focus on improving patient education, such as routine counseling, counseling by health workers, and the use of digital media to increase awareness, are needed to improve patient compliance in undergoing DM2 drug therapy. (Ningrum, 2020)

Family Support

Family support plays an important role in improving the compliance of type 2 Diabetes Mellitus (DM2) patients with treatment. The study showed that there was a significant relationship between family support and compliance with DM2 patients' treatment at the Endocrine Polyclinic BLU RSU Prof. Dr. RD Kandou Manado (p = 0.001). Patients who receive good family support tend to be more disciplined in undergoing treatment, because there are reminders from family members to take medication on schedule. In addition, family involvement in understanding the patient's disease condition can also help in overcoming obstacles faced by patients in drug therapy compliance. (Laoh et al., 2015)Family support as a supervisor of taking medication has also been shown to be the most dominant factor in patient compliance. Research conducted at the Elderly Clinic of Tanjung Enim Health Center found that family support has the strongest relationship with patient compliance in taking medication compared to other factors such as education level and occupation. Families who provide more attention, such as helping to remind medication schedules, preparing medication, and providing motivation to patients, can help improve patient compliance in long-term treatment. (Laoh et al., 2015)However, not all patients receive sufficient family support in undergoing DM2 therapy. Several factors such as family members' busyness, lack of family understanding of the importance of medication adherence, and minimal involvement in patient therapy supervision can be obstacles. Therefore, educational interventions for families regarding their role in supporting DM2 patients are very necessary. Health centers and other health facilities can hold educational programs for patient families so that they better understand the importance of medication adherence and effective ways to help patients undergo optimal drug therapy. (Laoh et al., 2015)

Social Support

Social support is one of the important factors that contribute to the compliance of type 2 Diabetes Mellitus (DM2) patients in undergoing treatment therapy. Social support can come from family, friends, and health workers, all of whom play a role in providing motivation and ensuring that patients adhere to their medication schedule. Research shows that family support has a significant relationship with patient compliance in taking DM2 medication, with a p value = 0.000 and Prevalence Ratio (PR) = 8.17 , which means that patients with good family support have an 8.17 times greater chance of being compliant with treatment compared to patients who do not get support. (Ningrum, 2020)In addition to family, support from health workers is also an important factor in increasing patient compliance. The study found that support from health workers, such as doctors and pharmacists, had a significant relationship with patient compliance in taking medication (p = 0.000; PR = 6.10) . This shows that good interaction between patients and medical personnel, including providing adequate education about the benefits of treatment and possible side effects, can increase patient awareness of the importance of following therapy properly. Friendly health services and effective communication can also increase patient trust in health workers, so that they are more compliant with treatment recommendations. (Almira et al., 2019)

Social support can also be obtained from the community of fellow DM2 sufferers. Studies show that support from fellow diabetes sufferers is significantly related to patient adherence to therapy (p = 0.000). Patients who join support groups or communities have access to experiences and information from other individuals who face similar conditions, which can increase their motivation to undergo treatment. Therefore, a broader strategy is needed to

increase social support for DM2 patients, both from family, health workers, and the community, in order to increase their adherence to therapy and prevent more serious complications. (Gu et al., 2017)

Health Worker Support

Support from health workers plays an important role in improving medication adherence in DM2 patients. According to the results of the study, there is a significant relationship between support from health workers and medication adherence in patients with type 2 diabetes mellitus. Health workers play a role in providing education regarding the importance of therapy adherence, as well as ensuring that patients understand how to use drugs correctly. In addition, the involvement of health workers in providing motivation and counseling can help patients overcome psychological and practical barriers that often cause non-compliance in undergoing treatment therapy. (Ningrum, 2020)In addition, previous studies have also shown that pharmacist intervention through counseling significantly increases patient adherence to treatment. Counseling provided by pharmacists can help patients understand the importance of regular drug use and the negative impacts if therapy is not followed properly. A multidisciplinary approach involving doctors, nurses, and pharmacists has been shown to be more effective in optimizing medication adherence and patient blood sugar control . This success shows that ongoing interaction between patients and health workers can form positive habits in undergoing long-term therapy. (Putri & Cholisoh, 2023)Furthermore, other studies also strengthen the findings that patients who receive regular guidance from health workers have better blood glucose control. This shows that education and monitoring provided by health workers contribute to increasing patient awareness in undergoing regular medication therapy. Therefore, health worker-based intervention programs, such as regular consultations and compliance monitoring, are needed to increase the effectiveness of DM2 treatment and prevent long-term complications. (Yusron & Fauzia, 2022).

Age Factor

Age is one of the factors that can affect the level of patient compliance in taking type 2 Diabetes Mellitus (DM2) medication. Several studies have shown that younger patients tend to have higher levels of compliance compared to elderly patients. This is because young patients generally have better cognitive abilities in remembering medication schedules and are more active in seeking information about their diseases and treatments. (Almira et al., 2019). On the other hand, in elderly patients, various physical limitations such as memory impairment, decreased vision, and difficulty in accessing drugs can be obstacles to therapy compliance . (Ningrum, 2020)However, there are research results that show that medication adherence is actually higher in the elderly group . The study found that elderly patients were more compliant in taking medication compared to younger patients ($p = 0.004$; $PR = 0.243$). This can be explained by the increasing awareness of elderly patients of the serious impact of DM2 disease and the complications that can occur if they do not follow therapy properly. In addition, older patients tend to have more experience in undergoing treatment so that they are accustomed to the routine of taking medication regularly. (Almira et al., 2019)The differences in the results of this study indicate that age is not the only factor that determines patient adherence to DM2 therapy. Other factors such as family support, education level, and patient understanding of the importance of treatment also play a role in therapy adherence. Therefore, interventions aimed at improving patient adherence need to be adjusted to each age group. In elderly patients, additional strategies are needed such as family assistance and the use of assistive devices such as medication reminder applications to improve their adherence. (Marito & Lestari, 2021).

Utilization of Technology

The use of technology, especially medication reminder (PMO) applications, has been shown to help improve compliance with type 2 Diabetes Mellitus (DM2) patients in undergoing drug therapy. This application functions as a tool that reminds patients to take their medication on schedule, thereby reducing the risk of forgetting or being late in taking medication. Studies show that the majority of patients who use the PMO application experience increased compliance in taking medication compared to patients who do not use similar applications. This shows that technology-based interventions can be an effective solution in overcoming the problem of patient compliance with long-term treatment. (Harahap et al., 2020) In addition to reminder applications, technology also plays a role in providing broader and more accessible health education for DM2 patients. With health applications and digital platforms, patients can obtain information about the importance of adherence to treatment and the negative impacts of non-adherence, such as increased blood glucose levels and the risk of complications. (Harahap et al., 2020) . The results of the research study also highlighted that patients with better access to information through technology are more likely to understand the importance of drug therapy and are more compliant in taking their treatment. Thus, technology not only functions as a reminder but also as a source of education that can increase patient awareness. (Almira et al., 2019)Although technology has great potential in improving compliance in DM2 patients, there are still challenges in its implementation. Not all patients have access or the ability to use digital applications, especially elderly patients who are less familiar with modern technolog (Ningrum, 2020). Therefore, a more inclusive strategy is needed, such as training for patients and families in using health applications, as well as integrating a medication reminder system via SMS or phone calls for those who do not have access to smartphones. With the right approach, the use of technology can further improve compliance in DM2 patients with treatment and reduce the risk of long-term complications.

Social Marketing

Social marketing-based interventions have been shown to be an effective approach to improving medication adherence in patients with type 2 diabetes mellitus. In a study conducted by Najafpour et al. (2021), an intervention program was implemented that combined various social marketing strategies to promote medication adherence among diabetes patients. This program involved group education, telephone counseling, and dissemination of educational messages through a mobile messaging application. The results showed that this intervention significantly improved attitudes, self-efficacy, subjective norms , and awareness of the importance of medication adherence in the experimental group, which ultimately had a positive impact on improving patient medication adherence behavior.(Najafpour et al., 2021)Social marketing focuses on behavioral change by prioritizing an audience-oriented approach, paying attention to the needs and barriers faced by patients in implementing their treatment. In the context of diabetes, the application of the social marketing model aims to create positive changes in how patients view their treatment and increase their motivation to adhere to the prescribed treatment regimen. Najafpour et al. (2021) noted that the attitude changes and increased awareness gained through this intervention are crucial in reducing psychological barriers that often affect medication adherence, such as disbelief in the effectiveness of treatment or ignorance about the negative impacts of non-adherence.(Najafpour et al., 2021).

Frailty Syndrome

Frailty syndrome is a clinical condition that is often found in patients with type 2 diabetes, especially in the elderly , which can affect the level of compliance with treatment. In a study conducted by Bonikowska et al. (2022), it was found that diabetic patients who experience frailty syndrome have a lower level of compliance with treatment compared to patients who

do not experience this syndrome. Frailty itself is a syndrome characterized by a decrease in the body's physiological reserves, which has an impact on various physical and cognitive functions. This makes patients more susceptible to difficulties in undergoing the treatment needed to control diabetes, such as remembering to take medication regularly (Bonikowska et al., 2022).(Gu et al., 2017), (Bonikowska et al., 2022)In addition, frailty syndrome affects the psychological aspects of patients which can hinder their motivation to adhere to treatment. Bonikowska et al. (2022) explained that patients with frailty syndrome often experience fatigue, physical weakness, and difficulty in performing daily activities, which can make them feel that treatment is no longer a priority. Decreased quality of life and feelings of helplessness often make patients more likely to neglect their treatment. Thus, the deteriorating physical condition of patients with frailty is directly related to the low level of adherence to the treatment they are undergoing.Research by Bonikowska et al. (2022) also shows that frailty syndrome can worsen the impact of non-adherence to medication in patients with type 2 diabetes. Patients with frailty are more likely to experience long-term complications, such as cardiovascular disorders or kidney disorders, which of course worsen their condition. Therefore, it is important for health workers to pay special attention to patients with frailty syndrome, by providing more intensive support and a tailored approach to improve adherence to medication. Interventions focused on improving patient quality of life and managing frailty can help improve medication adherence levels in older and ulnerable patients with type 2 diabetes. (Bonikowska et al., 2022)

CONCLUSION

Based on the results of the research that have been analyzed, there are several factors that influence medication adherence in patients with type 2 diabetes mellitus (DM2). The main factors that are closely related to medication adherence include family support, Frailty Syndrome, and the patient's level of knowledge about the disease and its treatment. In addition, support from health workers and social marketing, such as education and counseling, have been shown to increase patient compliance in taking antidiabetic drugs. Other factors that play a role include age , the number of drugs consumed, and the use of technology such as medication reminder applications (PMO), which can help patients maintain regular treatment. Thus, a multidisciplinary approach involving health workers, families, and technological innovation is needed to improve compliance with DM2 therapy in order to prevent complications and improve the quality of life of patients.

REFERENCES

Almira, N., Arifin, S., & Rosida, L. (2019). Faktor-Faktor yang Berhubungan dengan Perilaku Kepatuhan Minum Obat Anti Diabetes pada Penderita Diabetes Mellitus Tipe 2 di Puskesmas Teluk Dalam Banjarmasin. Homeostasis, 2(1), 9–12.

Bonikowska, I., Szwamel, K., & Uchmanowicz, I. (2022). Adherence to Medication in Older Adults with Type 2 Diabetes Living in Lubuskie Voivodeship in Poland: Association with Frailty Syndrome. Journal of Clinical Medicine, 11(6). https://doi.org/10.3390/jcm11061707

Gu, L., Wu, S., Zhao, S., Zhou, H., Zhang, S., Gao, M., Qu, Z., Zhang, W., & Tian, D. (2017). Association of social support and medication adherence in Chinese patients with type 2 diabetes mellitus. International Journal of Environmental Research and Public Health, 14(12), 1–10. https://doi.org/10.3390/ijerph14121522

Gusnanda, R. (2023). Narrative Review : Faktor yang Mempengaruhi Tingkat Kepatuhan Terapi pada Pasien Diabetes Melitus Tipe 2 Narrative Review : Factors that Influence the Level of Treatment Compliance in Type 2 Diabetes Mellitus Patients.

Harahap, U., Dalimunthe, A., Hasibuan, P. A. Z., & Muchtar, R. (2020). Pemanfaatan Aplikasi Pengingat Minum Obat (Pmo) Untuk Meningkatkan Kepatuhan Pasien Diabetes Mellitus Tipe 2. ANR Conference, 3(2), 143–146. https://doi.org/10.32734/anr.v3i2.961

Laoh, J. M., Lestari, S. I., & Rumampuk, M. V. H. (2015). Hubungan Dukungan Keluarga Dengan Kepatuhan Berobat Pada Penderita Diabetes Mellitus Tipe 2 Di Poli Endokrin BLU RSU Prof. Dr. R. D. Kandou Manado. Jurnal Ilmiah Perawat Manado, 2(1), 92921.

Marito, R., & Lestari, I. C. (2021). Hubungan Antara Tingkat Pengetahuan Dengan Tingkat Kepatuhan Minum Obat Pasien Diabetes Melitus Tipe 2. Jurnal Kedokteran Ibnu Nafis, 10(2), 122–127. https://doi.org/10.30743/jkin.v10i2.180

Najafpour, Z., Zeidi, I. M., & Kalhor, R. (2021). The effect of educational intervention on medication adherence behaviour in patients with type 2 diabetes: Application of social marketing model. Clinical Diabetology, 10(4), 359–369. https://doi.org/10.5603/DK.a2021.0040

Ningrum, D. K. (2020). Kepatuhan minum obat pada penderita diabetes melitus tipe II. Higeia Journal of Public Health Research and Development, 4(3), 492–505.

Putri, N. A., & Cholisoh, Z. (2023). Model Intervensi Kepatuhan Minum Obat Dan Kontrol Gula Darah Pada Pasien Diabetes Mellitus Tipe 2: Tinjauan Sistematis Intervention Model of Drug Compliance and Blood Sugar Control in Type 2 Diabetes Mellitus Patients: Systematic Review. JPP) Jurnal Kesehatan Poltekkes Palembang, 18(1), 103–114. https://doi.org/

Wibowo, M. I. N. A., Yasin, N. M., Kristina, S. A., & Prabandari, Y. S. (2022). Exploring of Determinants Factors of Anti-Diabetic Medication Adherence in Several Regions of Asia – A Systematic Review. Patient Preference and Adherence, 16, 197–215. https://doi.org/10.2147/PPA.S347079

Yusron, M. W., & Fauzia, D. (2022). Hubungan Kepatuhan Minum Obat Antidiabetik terhadap Terkontrolnya Glukosa Darah pada Pasien DM Tipe 2 di Puskesmas Tenayan Raya Kota Pekanbaru tahun 2019. Jurnal Kedokteran Syiah Kuala, 22(3), 98–105. https://doi.org/10.24815/jks.v22i3.22565.