JAGAC: Journal of Applied General Clinical Nursing

Vol. 1, No.2, April 2026, pp. 14-17 ISSN: 3123-9285

The Relationship Between Adherence to Antidiabetic Medication and Blood Sugar Regulation in Type 2 Diabetes Mellitus Patients at UPTD Puskesmas Pringgarata

Muhamad Rafi Akbar[1)*], Vera Yulandasari[2)], Baiq Dewi Asyura[3)],Erwin wiksuarini[4)]
*Email : mrafiakbar907@gmail.com[1]

[1,2,3,4)] Department of Nursing, Universitas Qamarul Huda Badaruddin Bagu, Indonesia

ABSTRACT

Type 2 Diabetes Mellitus (T2DM) is a chronic metabolic disorder with a growing prevalence worldwide. Optimal blood sugar regulation is essential to prevent acute and chronic complications, and adherence to antidiabetic medication plays a crucial role in this process. This study aimed to examine the relationship between medication adherence and blood sugar regulation among T2DM patients at UPTD Puskesmas Pringgarata. A cross-sectional descriptive analytic design was employed with a total of 58 participants selected through purposive sampling. Instruments included the Morisky Medication Adherence Scale (MMAS-8) and blood glucose measurement using a glucometer. Data were analyzed using Spearman Rank correlation. Results showed that 37.9% of patients had low adherence, while 53.4% achieved normoglycemia. Statistical analysis indicated a significant relationship between medication adherence and blood sugar regulation (ρ = -0.334; p = 0.010). This finding highlights the importance of adherence to prescribed therapy in maintaining optimal glycemic control in T2DM patients.

Keywords: Diabetes Mellitus, Adherence, Antidiabetic medication, Blood sugar

1. BACKGROUND

Diabetes Mellitus (DM) is a global health problem that continues to increase in prevalence and constitutes one of the major causes of morbidity and mortality worldwide. According to the World Health Organization (WHO), over 422 million people suffer from diabetes, and it ranks among the top 10 causes of death globally [1]. Type 2 Diabetes Mellitus (T2DM) is the most common form, often linked to sedentary lifestyles, poor dietary habits, and genetic predispositions. In Indonesia, DM ranks as the third leading cause of death, with prevalence continuing to rise annually [2].

T2DM is characterized by impaired insulin secretion and resistance, resulting in chronic hyperglycemia. Poorly controlled blood sugar levels can lead to serious complications, including cardiovascular disease, kidney failure, neuropathy, and retinopathy [3]. Therefore, achieving glycemic control is a critical goal of therapy. One of the most effective strategies

Vol. 1, No.2, April 2026, pp. 14-17 ISSN: 3123-9285

for maintaining normal blood sugar levels is pharmacological intervention through antidiabetic medications.

However, treatment success relies not only on medication availability but also on patient adherence. Non-adherence remains a major obstacle in diabetes management, as studies indicate that up to 30–40% of patients fail to take their medications as prescribed [4]. Factors affecting adherence include socioeconomic conditions, health literacy, side effects of medication, and family support. Inadequate adherence increases the risk of uncontrolled blood sugar and related complications.

Several studies have reported significant associations between adherence to medication and glycemic control. Research by Puspitasari and Septiawan (2022) and Zulfhi and Muflihatin (2020) demonstrated that patients with higher adherence had better blood sugar regulation [5], [6]. Despite such evidence, adherence rates remain suboptimal, particularly in rural areas. At UPTD Puskesmas Pringgarata, preliminary data indicated a substantial proportion of patients struggled with adherence, emphasizing the need for further investigation.

Based on these considerations, this study sought to analyze the relationship between adherence to antidiabetic medication and blood sugar regulation in patients with T2DM at UPTD Puskesmas Pringgarata.

2. RESEARCH METHODS

This study employed a quantitative, descriptive analytic design with a cross-sectional approach. Data collection was conducted at UPTD Puskesmas Pringgarata between May and July 2025.

The population consisted of 137 patients diagnosed with T2DM. Using Slovin's formula with a 10% margin of error, a total sample of 58 patients was obtained. Participants were selected using purposive sampling based on inclusion criteria: (1) diagnosed with T2DM, (2) undergoing oral antidiabetic treatment for at least one month, and (3) willing to participate. Patients with complications were excluded.

Medication adherence was measured using the Morisky Medication Adherence Scale (MMAS-8), consisting of 8 items. Scores classified adherence as high (>8), moderate (6–7), or low (<6). Blood sugar regulation was assessed using glucometer testing. Results were categorized as hypoglycemia (<90 mg/dL), normoglycemia (90–199 mg/dL), and hyperglycemia (>200 mg/dL).

Participants completed the MMAS-8 questionnaire, and their blood glucose levels were measured. Data were processed through coding, entry, cleaning, and analysis using SPSS. Statistical analysis employed Spearman Rank correlation to determine the association between adherence and blood sugar regulation. Ethical clearance was obtained prior to data collection.

3. RESULTS AND DISCUSSION

3.1 Results

The demographic characteristics showed that the majority of respondents were female (62.9%) and aged between 46–65 years. Educational background varied, with most having secondary education.

Vol. 1, No.2, April 2026, pp. 14-17 ISSN: 3123-9285

Table 1.
Adherence Level of Participants

Adherence Level	Frequency	Percentage
High	15	25,9%
Moderate	21	36,2%
Low	22	37,9%

Based on table 1, it can be seen that majority of respondent has moderate adherence level (36,2%.

Table 2.
Blood Sugar Regulation

Blood Sugar Category	Frequency	Percentage
hypoglycemia	5	8.6%
Normoglycemia	31	53,4%
Hyperglycemia	22	37,9%

Based on tabel 2, it can be seen that majority of respondent has normoglycemia (53,4%).

Table 3.
Correlation Analysis

Variable Pair	rho	p-value
Medication Adherence vs Blood Regulation	-0.334	0.010

Table 3 show that the analysis revealed a significant negative correlation (ρ = -0.334, p = 0.010), indicating that higher adherence was associated with better blood sugar regulation.

The findings align with previous studies showing a strong link between adherence and glycemic control. Patients who consistently adhered to antidiabetic therapy were more likely to maintain normoglycemia, reducing risks of long-term complications. This is consistent with research by Puspitasari and Septiawan (2022), which reported that adherence significantly influenced blood glucose outcomes [5].

Non-adherence in this study (37.9%) remains concerning. Factors such as low health literacy, limited access to healthcare, and side effects may contribute to this outcome. According to Loghmani (2018), adherence rates in T2DM range from 64% to 78%, with variability depending on treatment complexity [4]. Our findings suggest that patients with more complex regimens may experience greater difficulty maintaining adherence.

Effective interventions to improve adherence include patient education, family involvement, and simplified treatment regimens. Healthcare professionals play a pivotal role in providing education, motivation, and follow-up care. As highlighted by Handayani (2022), patient adherence directly impacts the risk of complications [7]. Thus, addressing barriers to adherence should be a priority in diabetes management programs.

4. CONCLUSION

This study demonstrated a significant relationship between adherence to antidiabetic medication and blood sugar regulation among T2DM patients at UPTD Puskesmas Pringgarata. Patients with higher adherence were more likely to maintain normoglycemia, highlighting the critical role of adherence in achieving optimal therapeutic outcomes. Efforts to enhance adherence through education, counseling, and supportive interventions are essential in diabetes care.

Vol. 1, No.2, April 2026, pp. 14-17 ISSN: 3123-9285

5. THANKS

The author expresses sincere gratitude to UPTD Puskesmas Pringgarata, all participants, and academic advisors for their invaluable support in completing this study.

BIBLIOGRAPHY

[1] World Health Organization, Diabetes. Geneva: WHO, 2022.

[2] Ministry of Health Republic of Indonesia, Riset Kesehatan Dasar (Riskesdas). Jakarta: Kemenkes RI, 2019.

[3] American Diabetes Association, "Standards of medical care in diabetes," Diabetes Care, vol. 44, no. 1, 2021.

[4] N. Loghmani, "Adherence to treatment in patients with type 2 diabetes," Journal of Diabetes Nursing, vol. 22, no. 4, pp. 120–128, 2018.

[5] N. Puspitasari and T. Septiawan, "Relationship between adherence to medication and blood sugar control in type 2 diabetes," Indonesian Journal of Health Research, 2022.

[6] M. Zulfhi and F. Muflihatin, "Medication adherence and glycemic regulation among T2DM patients," Jurnal Keperawatan, 2020.

[7] D. Handayani, "The impact of adherence on diabetes complications," Jurnal Kesehatan, vol. 15, no. 2, 2022.