



Medication Adherence in Type 2 Diabetes Melitus Patients

Nawang Wulan Nago Pitasari¹, Farhan Imba², Innal Saitis³, Ferdinta Setyawan⁴

Pharmacy Study Program, Jayapura University. Jl. Kamp Wolker, Yabansai, Heram, Jayapura, Papua 99224, Indonesia
*nwnps65@gmail.com

ABSTRACT

Type 2 Diabetes Mellitus is a chronic disease characterized by metabolic disorders, marked by elevated blood glucose levels exceeding the normal range. This study aimed to determine the level of adherence of type 2 diabetes mellitus patients to antidiabetic medication at Harapan Community Health Center (Puskesmas Harapan), Jayapura Regency. The research employed a descriptive design using the Morisky Medication Adherence Scale (MMAS-8) questionnaire as the data collection instrument, involving 50 outpatient type 2 diabetes mellitus patients at Puskesmas Harapan. Sampling was conducted using purposive sampling. Data were analyzed using frequency distribution. The results showed that the majority of respondents fell into the moderate adherence category, with 24 respondents (48%), high adherence in 16 respondents (32%), and low adherence in 10 respondents (20%). Medication adherence among type 2 diabetes mellitus patients at Harapan Community Health Center, Jayapura Regency, was generally moderate, with most patients being elderly females.

Keywords: harapan community health center; jayapura regency; medication adherence; MMAS-8; type 2 diabetes mellitus

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INTRODUCTION

Diabetes mellitus is a chronic disease accompanied by various metabolic disorders caused by insufficient insulin production, partly due to damage to the pancreas. If not managed promptly, this condition can lead to chronic complications (Lestary et al., 2022). According to the World Health Organization (WHO) in 2014, there were approximately 347 million people with diabetes worldwide, with Indonesia ranking seventh in the world for the highest number of diabetes cases. The IDF Diabetes Atlas (2021) reported that 537 million people worldwide had diabetes in 2021. This number is projected to continue increasing, reaching 643 million by 2030 and 783 million by 2045. According to the International Diabetes Federation (IDF), Indonesia has a rapidly rising diabetes prevalence, with 19.5 million diagnosed cases in 2021, projected to reach 28.6 million by 2045 (Ministry of Health of the Republic of Indonesia, 2020). Based on the “Health Profile of Jayapura Regency 2023,” diabetes mellitus is one of the main factors contributing to increased mortality in Jayapura Regency, and non-communicable diseases (NCDs) rank third among the top ten causes of death in community health centers (Dinkes Jayapura, 2023).

Medication adherence is a crucial factor in achieving optimal treatment, which can lower blood glucose levels and improve quality of life. Non-adherence to prescribed medications can lead to treatment failure, resulting in further complications from diabetes and even death (Triastuti et al., 2020). According to Citri (2018), there is a significant relationship between patient characteristics and adherence to medication among diabetes patients. The study found that 37.78% of patients were compliant with their therapy, while 62.22% were non-compliant. Furthermore, most compliant patients were male (38.89%), aged 18–65 years (22.22%), and took at least five types of medication (60%). One strategy to improve patient adherence is to foster patient awareness and concern while strengthening family support in the care process. Such support not only helps patients carry out physical activities but also ensures regular medication intake and adherence to other therapies. Nurses play an important role in providing nursing care focused on health problems experienced by

diabetes patients, involving the family as part of the nursing intervention. Nursing care for diabetes patients should consider the impact of emotional relationships and closeness among family members on the patient's health condition (Wahyuni, 2022). Therefore, the purpose of this study was to determine the level of medication adherence among patients with type 2 diabetes mellitus at Harapan Community Health Center, Jayapura Regency.

METHOD

The type of research used in this study is descriptive quantitative research. The population of this study includes all type 2 diabetes mellitus (DM) outpatients at Harapan Community Health Center (Puskesmas Harapan) in Jayapura Regency in 2024. The sampling method used was non-probability sampling with a purposive sampling technique, which involves selecting samples based on specific criteria established by the researcher. The total number of respondents in this study was 50. This study only involved patients who had been diagnosed with type 2 diabetes mellitus, according to medical examination records at Puskesmas Harapan. This criterion was chosen to ensure that the study focused on the population of type 2 diabetes patients relevant to the research problem. In addition, the respondents were outpatients at Puskesmas Harapan, meaning they received care and routine check-ups without being hospitalized. Outpatients were selected because this group is more suitable for observing medication adherence independently outside of a healthcare facility.

This study involved 50 outpatients with type 2 diabetes mellitus (DM) at Harapan Community Health Center (Puskesmas Harapan) in Jayapura Regency. Patients were grouped based on their characteristics, including gender, age, education level, and occupation. The analysis of these characteristics aimed to describe each variable. Data were collected using the Morisky Medication Adherence Scale (MMAS-8) questionnaire, which measures the level of adherence to antidiabetic medication through eight standardized questions. Each respondent's total score was categorized into three adherence levels: high, moderate, and low. The collected data were then analyzed using frequency distribution analysis to describe the proportion of respondents in each adherence category.

RESULT

Patient Demographics

The results of the study, based on a univariate analysis of gender, age, and education, are as follows:

Gender

Table 1.

Frequency Distribution of Gender among Type 2 Diabetes Mellitus Patients

Gender	f	%	Cumulative Percentage (%)
Male	11	22	22 %
Female	39	78	100 %

Table 1 shows that the majority of type 2 diabetes mellitus patients at Harapan Community Health Center (Puskesmas Harapan) were female, accounting for 39 respondents (78%), while male patients made up only 11 respondents (22%). This indicates that female patients dominate the population of type 2 diabetes mellitus outpatients at Puskesmas Harapan. The higher number of female patients may be associated with factors such as hormonal differences, lifestyle, or health-seeking behavior, where women tend to visit healthcare facilities more regularly than men.

Age

Table 2.

Frequency Distribution of Age among Type 2 Diabetes Mellitus Patients

Age (years)	f	%	Cumulative Percentage (%)
21 - 35	5	10	10 %
36 - 50	9	18	28 %
51 - 60	16	32	60 %
> 61	20	40	100 %

Table 2 shows that the majority of type 2 diabetes mellitus patients at Harapan Community Health Center (Puskesmas Harapan) were elderly, with the highest proportion in the >61 years age group, accounting for 20 respondents (40%). The 51–60 years age group followed with 16 respondents (32%), while younger age groups, 36–50 years and 21–35 years, accounted for 18% and 10%, respectively. This indicates that type 2 diabetes mellitus is more prevalent among older adults, suggesting that age is a significant factor in the occurrence of the disease.

Education

Table 3.

Frequency Distribution of Education among Type 2 Diabetes Mellitus Patients

Education	f	%	Cumulative Percentage (%)
Elementary	17	34	34 %
Junior High	16	32	66 %
Senior High	13	26	92 %
Diploma/Bachel	4	8	100 %

Table 3 shows that the majority of type 2 diabetes mellitus patients at Harapan Community Health Center (Puskesmas Harapan) had a low to moderate level of education. The highest proportion of patients completed elementary school (SD) with 17 respondents (34%), followed by junior high school (SMP) with 16 respondents (32%), senior high school (SMA) with 13 respondents (26%), and only 4 respondents (8%) had diploma or bachelor-level education (D/S1). This indicates that most patients have basic to moderate education levels, which may influence their understanding of disease management and adherence to medication therapy.

Overview of Medication Adherence Levels

The results of the study describe the level of medication adherence among diabetes mellitus patients at Harapan Community Health Center (Puskesmas Harapan) in Jayapura Regency, as measured by adherence scores obtained from the MMAS-8 questionnaire, which consists of 8 questions. The results are as follows:

Table 4.

Frequency Distribution Profile of Medication Adherence Levels among Type 2 Diabetes Mellitus Patients

Adherence Level	f	%	Cumulative Percentage (%)
High Adherence	16	32	32
Moderate Adherence	24	48	80
Low Adherence	10	20	100

DISCUSSION

Table 1 shows that type 2 diabetes mellitus outpatients at Harapan Community Health Center (Puskesmas Harapan) were predominantly female, with 39 patients (78%). This gender distribution aligns with research conducted by Pratiwi et al. (2022), which suggests that females tend to have higher LDL (Low-Density Lipoprotein) levels than males. Differences in daily activities and lifestyle also significantly influence disease occurrence. These factors contribute to a higher risk of developing diabetes mellitus among women. Elderly women, in particular, are more likely to be unemployed compared to men, and post-menopausal hormonal changes can lead to easier accumulation of body fat. It is recommended that elderly women maintain a healthy lifestyle to prevent diabetes mellitus and avoid environmental factors such as poor habits and stress (Damayanti et al., 2020). The distribution in Table 2 shows that elderly respondents are more likely to develop diabetes mellitus. The age category with the highest number of patients was over 60 years, with 20 patients (40%). This finding aligns with Saibi et al. (2020), where respondents aged ≥60 years dominated at 66.3%. Similarly, the Indonesian Ministry of Health reports that the prevalence of doctor-diagnosed diabetes is higher in older adults (12.45%) (Kemenkes RI, 2018).

Impaired glucose tolerance is associated with aging, and postprandial hyperglycemia is a characteristic feature of type 2 diabetes in older adults. Age-related insulin resistance is linked to

changes in body composition and physical activity (Kalyani et al., 2017). Based on education levels in Table 3, the highest number of type 2 diabetes patients had elementary education (SD), totaling 17 patients (34%), while the lowest was among those with diploma/bachelor's degrees at 4 patients (8%). According to Pahlawati & Nugroho (2020), education level can affect the incidence of diabetes mellitus. People with higher education generally have better health knowledge, which increases awareness in maintaining their health.

Higher education also makes it easier to obtain and understand information about the importance of medication adherence, for example, through social media. Education can thus enhance knowledge and awareness, encouraging adherence to treatment regimens. Based on Table 4, 24 respondents (48%) had moderate medication adherence, 16 respondents (32%) had high adherence, and 10 respondents (20%) had low adherence. This indicates that medication adherence among type 2 diabetes patients at Puskesmas Harapan is moderate. Several factors contribute to this level: some patients occasionally forget to take their medication; some reduce or stop medication without informing their doctor; some forget medication when traveling; some stop taking medicine when feeling better; and some feel uncomfortable taking medication daily (Handinisari, 2023). This result is consistent with a study at Puskesmas in East Jakarta, where 46% of respondents had moderate adherence, 34% had high adherence, and the remainder had low adherence (Saibi et al., 2020). Low adherence may also be influenced by forgetfulness, modifying or stopping medication without informing the doctor, traveling, feeling better, discomfort with daily medication, and occasional forgetfulness (Handoko & Hanaratri, 2021).

Family support is crucial for type 2 diabetes patients, as it provides motivation and assistance in care (Nanda et al., 2018). The complexity of the medication regimen also affects adherence; more complex regimens reduce the likelihood of adherence due to discomfort and reduced therapy effectiveness (Jasmine et al., 2020). To address non-adherence among type 2 diabetes patients, pharmacists play a vital role in education, assessing patient knowledge, understanding, and skills in managing their therapy, and monitoring adherence. Interventions may include leaflets and booklets on the importance of medication adherence, drug counseling, and home visits for elderly patients with chronic illnesses (Kemenkes RI, 2015). Patients also play a role by following their prescribed regimen, actively seeking information, monitoring side effects, and sharing their experiences with pharmacists during follow-ups (Nabilah et al., 2023).

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