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Evaluation of antihypertensive medication adherence among hypertensive patients at Puskesmas Olak Kemang

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Abstract

Background: Hypertension is a condition characterized by elevated systolic and/or diastolic blood pressure exceeding 140/90 mmHg. Medication adherence plays a crucial role in maintaining the long-term health of hypertensive patients, as non-adherence to antihypertensive therapy can lead to various complications such as stroke and even death. **Objective**: The study aimed to assess the level of antihypertensive medication adherence among hypertensive patients at Puskesmas Olak Kemang, especially in 2025. **Methods:** A descriptive study with a prospective approach was conducted, employing purposive sampling to select participants. Medication adherence was measured using the Morisky Medication Adherence Scale (MMAS-8), which consists of eight items.**Results:** The results revealed that 20% of patients demonstrated high adherence, 27% moderate adherence, and 53% low adherence to antihypertensive medication at Puskesmas Olak Kemang. **Conclusion:** Most hypertensive patients at Puskesmas Olak Kemang exhibit at a low level of medication adherence.

Keywords: Adherence; antihypertensive medication; hypertension; Puskesmas Olak Kemang

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INTRODUCTION

Hypertension is a chronic condition characterized by a sustained increase in blood pressure, defined as systolic pressure ≥140 mmHg and/or diastolic pressure ≥90 mmHg, confirmed by at least two consistent measurements within one week.[1] In Indonesia, the prevalence of hypertension in 2018 reached 34,11%, showing an increase compared to previous years. Hypertension was the leading disease among the ten most prevalent conditions in Jambi City with 18,5% of total cases (141.723 out of 766.264) reported in 2019.[2] The high incidence of hypertension directly contributes to the increasing number of individuals requiring antihypertensive therapy [3,4].

Optimal blood pressure control greatly depends on patient adherence to antihypertensive therapy on a regular basis and in accordance with healthcare professional recommendations.[5] Adherence reflects the consistency of patients in taking antihypertensive medications according to the prescribed dose, timing, and frequency.[6] However, patient adherence to hypertension treatment remains relatively low in various regions, including in primary healthcare facilities such as Puskesmas.[7] A previous study conducted at the Puskesmas Sirnajaya showed that the majority of patients had a low level of medication adherence accounting for 62,9%.[8] Research relevant to this study, conducted at the Puskesmas Muka Cianjur showed that the majority of patients had a low level of medication adherence to antihypertensive medication at 50,25%.[9]

Low adherence can lead to uncontrolled blood pressure, thereby increasing the risk of cardiovascular complications such as stroke and ischemic heart disease, as well as contributing to a greater economic burden on the healthcare system.10,[11] Based on the background described above, the researcher was motivated to conduct a study focusing on the evaluation of antihypertensive medication adherence among hypertensive patients at Puskesmas Olak Kemang, Jambi City.

METHODS

Study design and setting

This study employed a descriptive analytic research design with a cross-sectional approach to evaluate the level of antihypertensive medication adherence among hypertensive patients at Puskesmas Olak Kemang. Data were collected at a single-pont in time to describe the relationship between patient characteriscis and adherence behaviour. This research was conducted from October 1 to October 31, 2025.

Population, samples and sampling

The population in this study consisted of all hypertensive patients receiving outpatient care at Puskesmas Olak Kemang. The sample was selected using a purposive sampling technique based on predetermined inclusion and exclusion criteria. The inclusion criteria for respondents were: (1) Patients aged 18 years and above; (2) Diagnosed with hypertension and receiving antihypertensive therapy at Puskesmas Olak Kemang; (3) Willing to participate and signed informed consent. The exclusion criteria were: (1) Patients with cognitive or hearing impairment that hindered communication; (2) Patients who refused to participate during the data collection process. The minimum sample size was determined using the Slovin formula with a margin of error 5%, resulting in total of 100 respondents. The sample size was considered adequate to represent the hypertensive patient population at Puskesmas Olak Kemang.

Instruments and criteria

The research instruments used in this study consisted of a structured questionnaire divided into two main sections. The first section contained questions related to the respondent characteristics, including age, gender, education level, occupation, and comorbid disease. The second section measured medication adherence using the Morisky Medication Adherence Scale (MMAS-8), a standardized and widely used instrument for assessing the level of adherence to antihypertensive therapy.

The questionnaire items, particularly those related to medication adherence using MMAS-8, were adopted from established instruments that had been tested for validity and reliability in prior research. In Indonesia, the MMAS-8 questionnaire has been translated into Indonesian and validated, demonstration tha the MMAS-8 is valid with a correlation coefficient r exceeding the critical r value, and reliable for the population of hypertensive patients taking antihypertensive medications with a Cronbach's alpha coefficient of 0,824 (>0,60).[12] This questionnaire includes eight questions designed to capture different aspects of patient's medication-taking behaviour, such as forgetfulness, carelessness, stopping medication when feeling better or worse, and difficulties in following the prescribed regimen. Seven items are answered with a dichotomous "yes" or "no", while the eight item uses a 5-point Likert scale to assess the frequency of missed doses. The total score ranges from 0 to 8.13,[14].

Procedure and data collection

The data collection procedure for assessing antihypertensive medication adherence among hypertensive patients at Puskesmas Olak Kemang involved several structured steps:

1. Ethical approval obtained from the relevant institutional review board and informed consent was secured from all participants. Eligible patients who regularly attended the health centre were identified from the patient registry. The selected patients were then approached during their routine visits, and the purpose of the study was explained.
2. Participants were provided with a standardized adherence questionnaire and research assistants assisted them in completing it when necessary to ensure clarity and accuracy. Completed questionnaires were reviewed immediately for completeness and any missing information was clarified on the spot.
3. Finally, all data were coded, entered into a secure database, and stored confidentially for subsequent statistical analysis.

Statistical analysis

Data were analysed using a univariate approach and the results from the MMAS-8 questionnaire were classified into three adherence categories. Scores equal to 8 were considered high adherence, scores from 6 to less than 8 were classified as moderate adherence, and scores below 6 were categorized as low adherence.[15] The collected data were then visualized and presented in the form of table.

Ethical concideration

The research protocol has been approved and passed the ethical review by the Health Research Ethics Committee, Faculty of Medicine and Health Sciences, Universitas Jambi, under the approval letter number 3065/UN21.8/PT.01.04/2025.

RESULTS

Demographic patients

Based on the analysis results, the characteristics of the patients such as age, gender, highest education, occupation, and comorbidities, are presented in Table 1.

Table 1. Demographic characteristics of the respondents.

Characteristics	n	%
Age		
18-59 years	46	46
≥60 years	54	54
Gender		
Male	25	25
Female	75	75
Highest Education		
No formal education	2	2
Student	93	93
College student	5	5
Occupation		
Not working (retired, housewife)	89	89
Employee (private, civil servant)	11	11
Comorbidities		
None	83	83
With comorbidities (diabetes mellitus, coronary heart disease)	17	17

Medication adherence of hypertensive patients

Based on the analysis results, the respondent levels of adherence were classified into three categories such as low, moderate, and high, as presented in Table 2.

Table 2. Frequency of Antihypertensive Medication Adherence

Kategory	n	%
High	20	20
Moderate	27	27
Low	53	53
Total	100	100

DISCUSSION

The results of this study showed that the majority of patients (54%) belonged to the non-productive age group, over 60 years old, with a higher proportion of females (75%). This finding aligns with epidemiological data indicating that the prevalence of hypertension increases with age, and older women tend to have a higher risk of hypertension than men in the same age group.[16] Hormonal factors, such as decreased estrogen after menopause, may contribute to the increased risk of hypertension in elderly women.[17]

In terms of education, most respondents (93%) had a secondary education background, ranging from elementary school to senior high school. This level of education can affect patients understanding of the disease and the importance of medication adherence. Patients with a secondary education generally have adequate knowledge about hypertension but may still require additional education to optimize treatment compliance and awareness of long-term complication risks.[18]. About 89%

of patients were unemployed or housewives, while the remaining 11% had jobs in the private or public sector. Employment status can influence patients access to healthcare services, both in terms of time and financial resources. Unemployed patients or housewives may have more flexibility to attend routine check-ups, but economic limitations could pose barriers to purchasing medications or undergoing regular examinations.[19]

Additionally, a small portion of patients (17%) had at least one comorbidity, such as diabetes mellitus or coronary heart disease. These comorbidities increase the risk of hypertension-related complications and require more complex disease management. The presence of DM and CHD among hypertensive patients emphasizes the need for a holistic management strategy, including regular monitoring, lifestyle education, and appropriate pharmacological interventions to prevent serious complications.[20] These patient characteristics help explain the observed adherence patterns. Based on the questionnaire results, 53% of patients had low adherence, 27% had moderate adherence, and only 20% demonstrated high adherence.

The high proportion of low adherence may be influenced by advanced age, limited education, unemployment, and the presence of comorbidities, all of which can reduce understanding, motivation, and ability to follow prescribed treatment.[21] Low adherence is concerning because it increases the risk of uncontrolled blood pressure and subsequent complications.[22] Moderate adherence observed in 27% of patients suggests that some patients can follow the regimen partially but still require support, reminders, or education to achieve optimal compliance. Only a small portion (20%) maintained high adherence, highlighting the need for targeted interventions to improve medication-taking behaviour among the majority of patients.

Previous studies have also reported findings consistent with the low adherence observed in this study. The study in Bandung (2024) found that patients with low adherence to antihypertensive medication had a higher risk of uncontrolled blood pressure compared to those with moderate to good adherence.[23] These findings support the results of the current study, which indicate that low adherence is a key factor affecting blood pressure control and the potential for complications in hypertensive patients. Based on the findings of this study and support from previous research, it can be concluded that low adherence to antihypertensive treatment is a significant issue contributing to uncontrolled blood pressure and an increased risk of long-term complications. Factors such as advanced age, limited education, employment status, and the presence of comorbidities influence patients ability to follow prescribed treatment.24, [25] Therefore, intervention strategies focusing on patient education, social support, and adherence monitoring are crucial to improve hypertension control and prevent serious complications.

CONCLUSIONS

The level of compliance at Puskesmas Olak Kemang remains low, indicating the need for more effective interventions to improve staff adherence. Enhancing compliance can be achieved through increased socialization, training, and more systematic supervision to ensure optimal healthcare service delivery.

CONFLICT OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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DECLARATION OF ARTIFICIAL INTELLIGENCE USE
This study used artificial intelligence (AI) tools and methodologies in the following capacities: Manuscript writing support: AI-based language models, such as ChatGPT, was employed to Language refinement (improving the grammar, sentence structure, and readability of the manuscript), Content summarization (assisting in summarizing the findings and conclusions concisely), Technical writing assistance (providing suggestions for structuring complex technical descriptions more effectively), Generate scientific content, interpret data, and draw conclusions. We confirm that all AI-assisted processes were critically reviewed by the authors to ensure the integrity and reliability of the results. The final decisions and interpretations presented in this article were solely made by the authors.

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