Advances in Healthcare Research
Volume 3, Issue 2 (2025)
Website: https://advancesinresearch.id/index.php/AHR
OPEN ACCESS
e-ISSN: 2985-9808

Relationship Between Geriatric Patient Characteristics and Adherence to Outpatient Antihypertensive Therapy in Hospitals

Fadlilatul Muthi'atun Nisa [1] Eko Retnowati [2*] Galih Kurniawan [3]

[1] Universitas Muhammadiyah Kudus, Kudus, Indonesia. Email: fadlilatulmn@gmail.com
[2] Universitas Muhammadiyah Kudus, Kudus, Indonesia. Email: ekoretnowati@umkudus.ac.id
[3] Universitas Muhammadiyah Kudus, Kudus, Indonesia. Email: galih@umkudus.ac.id

ARTICLE HISTORY

Received: July 23, 2025
Revised: August 12, 2025
Accepted: August 16, 2025

DOI :
https://doi.org/10.60079/ahr.v3i2.596

ABSTRACT

Purpose: This study aimed to analyze the relationship between geriatric patient characteristics and adherence to antihypertensive therapy in the outpatient department of Sarkies 'Aisyiyah Kudus Hospital, with the hypothesis that sociodemographic factors such as age, gender, education, occupation, socioeconomic status, duration of illness, and knowledge influence treatment adherence.

Research Method: A quantitative analytical observational study with a cross-sectional approach was conducted from May to June 2025. The sample consisted of 60 geriatric hypertensive patients selected through purposive sampling. Data were collected using the validated MARS-5 questionnaire and a knowledge-level questionnaire. Data analysis included validity and reliability tests, as well as univariate and bivariate analyses using the Chi-Square test with SPSS 27.

Results and Discussion: The majority of respondents (96.7%) demonstrated high adherence to antihypertensive therapy. Bivariate analysis revealed significant associations between education level ($p = 0.039$), occupation ($p < 0.001$), and knowledge level ($p = 0.012$) with adherence. In contrast, no significant relationships were found between the variables and gender, age, duration of hypertension, or socioeconomic status. These results suggest that knowledge, education, and daily activities have a significant influence on adherence behavior, whereas demographic characteristics alone do not.

Implications: The findings underscore the importance of health education, family support, and pharmacist counseling in promoting adherence among geriatric patients, particularly those with limited knowledge or educational backgrounds. Future studies should involve larger populations, employ longitudinal designs, and investigate the role of family support and healthcare communication in enhancing long-term adherence.

Keywords: geriatric patients; antihypertensive therapy; medication adherence; sociodemographic factors; knowledge level.

Introduction

Cardiovascular disease is the leading cause of death in Indonesia, accounting for 20–35% of cases related to hypertension. Hypertension is a significant risk factor for chronic kidney disease, coronary heart disease, stroke, and congestive heart failure. In Indonesia, hypertension causes

OPEN ACCESS
e-ISSN: 2985-9808

approximately 427,218 deaths and has a prevalence of 34.1%, but treatment adherence rates remain low. As many as 13.3% of diagnosed patients do not take medication, and 32.3% do not take prescribed medication regularly. The highest incidence of hypertension occurs among individuals aged 31–64 years. According to the Central Java Health Department in 2020, the prevalence of hypertension in Central Java reached 26.4%, with 544,771 cases of essential hypertension (Central Java Health Department, 2020). According to data from the Kudus Regency Health Department in 2020, hypertension ranks third, following arthritis and diabetes, with a total of 54,131 cases, accounting for 7.12% of the population.

Geriatrics, or older adults, is a group of people who experience various physical, psychological, and social changes as they age, which can impact their quality of life. The World Health Organization (WHO) classifies older adults into four categories: middle-aged (45–59 years), older adults (60–74 years), elderly (75–90 years), and very elderly (over 90 years). To maintain health in old age, it is essential to prioritize nutrition, physical activity, rest, as well as psychosocial support and education (Indriani *et al.,* 2021). As they age, older adults face various challenges, including physical, psychological, and social issues. The aging process leads to a decline in productivity, often resulting in retirement and an increased need for healthcare services. According to data from the Basic Health Research in 2013, hypertension is the most common disease among the elderly, with a prevalence of 57.6% (Tartila Akri *et al.,* 2022). Hypertension management encompasses both pharmacological and non-pharmacological therapies. Pharmacological therapy is administered according to the patient's condition, utilizing medications such as ACE inhibitors, ARBs, CCBs, and diuretics. It requires regular monitoring and adjustment if treatment targets are not met. In severe cases, combination therapy may be initiated immediately. Non-pharmacological treatment includes lifestyle modifications such as a healthy diet, regular exercise, and cessation of smoking and alcohol consumption. The success of therapy depends heavily on patient adherence to the treatment regimen.

Patient adherence to antihypertensive treatment is a crucial factor in the success of therapy, reflecting the patient's willingness to follow medical instructions accurately, such as taking medication regularly and implementing lifestyle changes. Educational level, knowledge, motivation, family support, and the role of healthcare providers and pharmacists in providing education and counseling are key factors influencing adherence. Other factors such as gender, occupation, health insurance, and access to medical services also play a role. Good knowledge about hypertension increases awareness and adherence, while low understanding poses a risk of reduced discipline in treatment. Family support has been shown to significantly promote adherence, as demonstrated by Apsari *et al.,* (2021), with 73% of patients in their study reporting adherence to their treatment regimen.

However, in Indonesia, compliance rates remain low, particularly among patients who have suffered from hypertension for a long time due to treatment fatigue. Therefore, identifying factors that influence compliance, such as age, education, occupation, socioeconomic status, and blood pressure, is a crucial step toward improving treatment outcomes and preventing long-term complications. According to a study conducted by Listiana *et al.,* (2020), the factors influencing hypertension treatment adherence are gender, patient occupation, and duration of hypertension. Another study, conducted by Pratiwi et al. (2020), showed that three variables most influence adherence: knowledge level, socioeconomic status, and the highest level of education, with knowledge level being the most influential variable. A study conducted by Adzani & Artistin, (2023) showed that low levels of patient adherence were influenced by age, gender, education, occupation, marital status, and blood pressure. Based on this overview, this study was conducted to analyze the relationship between geriatric patient

OPEN ACCESS
e-ISSN: 2985-9808

characteristics and adherence to antihypertensive therapy in the outpatient department of Sarkies 'Aisyiyah Kudus Hospital. Using the validated MARS-5 questionnaire, this study aims to provide a more contextual understanding of elderly patients' adherence to hypertension treatment at the local level.

Literature Review and Hypothesis Development

Hypertension

Hypertension or high blood pressure is defined as systolic blood pressure ≥ 140 mmHg and diastolic blood pressure ≥ 90 mmHg, measured twice with a five-minute interval and in a sufficiently relaxed state (Ministry of Health of the Republic of Indonesia, 2014). Systolic and diastolic blood pressure vary from person to person. However, the general normal blood pressure for adults (aged 18 years and above) is 120/80 mmHg. According to the WHO, the boundaries for systolic and diastolic blood pressure are:

- Systolic pressure < 140 mmHg and diastolic pressure < 90 mmHg is called normotension.
- Systolic pressure ranging from 140-159 mmHg and diastolic pressure between 91-94 mmHg is called borderline.
- A systolic value > 95 mmHg is called hypertension.

Hypertension is defined as consistently high blood pressure, which can be classified into two types: primary (also known as essential) and secondary. Approximately 90-95% of cases are primary hypertension, influenced by the interaction of genetic and environmental factors. Hypertension is also influenced by age, excessive sodium intake, obesity, alcohol consumption, lack of physical activity, genetic predisposition, and certain health conditions. Other factors, such as sympathetic nervous system disorders, endothelial dysfunction, and inflammation, also contribute to the development of hypertension (Oparil *et al.,* 2018).

Compliance

Compliance refers to the extent to which a person follows the advice or guidelines provided. In the context of health, compliance includes the degree to which individuals adhere to recommended treatments, medications, and behavioral changes prescribed by healthcare professionals, such as nurses and doctors. This concept describes how individuals adjust their actions to follow the instructions given to support their health (Pratama *et al.,* 2021). Compliance consists of three main components, namely initiation, implementation, and discontinuity. Initiation refers to a patient's adherence to starting the prescribed treatment for the first time. Implementation refers to the level of patient adherence to following the treatment regimen from the initiation stage to the last dose used. Meanwhile, discontinuity or continued adherence describes a patient's adherence to maintaining the therapy being undertaken (Dipiro *et al.,* 2023). The World Health Organization (WHO) classifies factors contributing to non-adherence into five main dimensions: socioeconomic factors, factors related to the healthcare team and system, patient medical conditions, therapeutic factors, and individual patient factors (Gede Made Saskara Edi, 2015).

Patient Characteristics

Various factors, including age, gender, education level, genetic factors or family history, unhealthy diet, lack of physical activity, obesity, alcohol consumption, smoking, stress, coffee consumption, and irregular blood pressure monitoring, can influence hypertension. As we age, blood

OPEN ACCESS
e-ISSN: 2985-9808

pressure tends to increase. Additionally, hypertension in children and adolescents is on the rise, in line with the increasing prevalence of overweight and obesity in this age group (NHLBI, 2020). According to the NHLBI (2020), men have a higher risk than women of developing high blood pressure during middle age. However, in older age, the risk of high blood pressure is higher in women than in men.

Research Method

The type of research employed is quantitative, utilizing an analytical observational design with a cross-sectional approach. This study examines the relationship between geriatric patient characteristics and adherence to antihypertensive medication. The study was conducted at Sarkies 'Aisyiyah Kudus Hospital. The research was conducted from May to June 2025. The population in this study consists of all geriatric (elderly) hypertensive patients who are undergoing treatment or routine follow-up at the outpatient department of Sarkies 'Aisyiyah Kudus Hospital. Based on calculations, the sample size for this study is 60 respondents, with the sampling procedure conducted using purposive sampling. In this study, data collection techniques use the MARS-5 questionnaire with a Likert scale, and to measure the level of knowledge, a closed questionnaire with a Guttman scale is used, conducted through interviews with geriatric patients with hypertension at the outpatient department of Sarkies 'Aisyiyah Kudus Hospital in May-June 2025. The data analysis methods used in this study were validity and reliability tests, univariate analysis, and bivariate analysis.

Results and Discussion

Analysis Result

Research Questionnaire Instrument Testing

A test was conducted on the knowledge level questionnaire used in the study, consisting of 15 items, using SPSS 27 software. The results showed that all items had a calculated r value greater than the table r value of 0.344 at a significance level of 5%, except for items 8 and 10, where the computed r value was less than the table r value of -0.666 and 0.192. Therefore, all questions except questions 8 and 10 were deemed valid and suitable for measuring the research variables. Furthermore, the reliability test results showed that the Cronbach's Alpha value was 0.604, which is greater than the minimum threshold of 0.6. This indicates that the questionnaire has sufficient reliability and can be trusted for use in this study.

Research Respondent Profile

Characteristics of Research Respondents

In Table A1 (APPENDIX), the majority of elderly patients with hypertension receiving outpatient care at Sarkies 'Aisyiyah Kudus Hospital were male (60%), which is likely due to higher hypertension risk in men due to hormonal factors, unhealthy lifestyles, and a greater tendency to access health services. Most respondents were aged 45–59 years (46.7%), indicating that hypertension begins to be detected in the pre-elderly stage as blood vessel elasticity decreases. Respondents with a high school education level dominated (30%), suggesting that secondary education is insufficient in equipping individuals with a deep understanding of health. Thirty percent of respondents were unemployed, which is associated with low physical activity and potential psychological issues, thereby increasing the risk of elevated blood pressure. Additionally, 80% of respondents had been diagnosed with hypertension for less than

OPEN ACCESS
e-ISSN: 2985-9808

five years, indicating that they are still in the early stages of awareness regarding the importance of hypertension management and are more likely to seek treatment actively. From an economic perspective, more than half of respondents (55%) have an income below Rp 2,500,000, which can impact their access to treatment and meet their nutritional needs. Meanwhile, respondents' knowledge about hypertension is also low (48.4%), likely due to limited access to information and education from healthcare providers, as well as misconceptions about their health condition.

MARS-5 Compliance Rate

Based on Table 1, the majority of geriatric outpatients at Sarkies 'Aisyiyah Kudus Hospital showed high adherence to hypertension treatment, with 58 respondents (96.7%). This high level of adherence reflects patients' awareness of the importance of taking medication regularly, monitoring blood pressure, and adopting a healthy lifestyle. According to Ariyanto (in, adherence to antihypertensive medication is closely associated with achieving normal blood pressure. This finding differs from the results of a study, which showed that the majority of respondents had low adherence levels.

Table 1. Frequency Distribution of Respondents Based on MARS-5 Compliance Level

	Frequency (n=60)	Percentage (%)
Low	2	3,3
Height	58	96,7

Analysis of the Relationship Between Respondent Characteristics and Adherence to Antihypertensive Therapy

This study used SPSS 27 with the Chi-Square test method to determine the relationship between geriatric patient characteristics and the level of antihypertensive therapy compliance. This method was chosen because it is suitable for analyzing categorical data and testing the significance of relationships between variables. Although it does not indicate causality, the Chi-Square test can determine whether the differences observed are significant or merely coincidental. If the p-value is < 0.05, the relationship between variables is considered significant.

Table 3. Relationship between Gender and Adherence to Hypertension Medication

Gender	Compliance				Total		p-value
	Low		Height		N	%	
	N	%	N	%			
Man	2	3,4	34	56,7	36	60,1	0.606
Woman	0	0	24	39,9	24	39,9	
Total	2	3,4	58	96,7	60	100	

Based on Table 2, the relationship between gender and antihypertensive adherence in outpatient care at Sarkies 'Aisyiyah Kudus Hospital was tested using statistical analysis with SPSS 27 and the chi-square method, yielding a p-value of 0.606 > 0.05. This indicates that H0 is accepted and Ha is rejected, meaning there is no statistically significant relationship between the two variables. The study results suggest that in the elderly group, the proportion of male patients with hypertension is higher than that of females. This condition can be attributed to several biological and lifestyle factors.

OPEN ACCESS
e-ISSN: 2985-9808

Physiologically, men have a higher risk of developing hypertension as they age due to the influence of androgen hormones, which are associated with the renin-angiotensin-aldosterone system (RAAS) and contribute to increased sodium retention and vasoconstriction. Additionally, men tend to have higher prevalence of smoking, alcohol consumption, and high-sodium diets compared to women, which collectively increase the risk of hypertension in older age. Socially and culturally, in many populations, men are more frequently exposed to work-related stress and economic pressures during their productive years, which can lead to changes in neurohormonal responses that impact blood pressure over the long term. Therefore, the predominance of male hypertensive patients in the elderly population is not solely due to aging, but also due to the complex interaction between biological, behavioral, and environmental factors experienced throughout life. Differences in the prevalence of hypertension between men and women in adherence to antihypertensive therapy in the elderly are more influenced by internal factors such as personal awareness, motivation to maintain health, and family support, rather than gender alone. Additionally, in older age, both men and women have relatively equal risks of hypertension complications, so the motivation to adhere to treatment can be equally strong. This suggests that interventions to improve adherence should focus on personalized education and support rather than gender-based approaches.

Table 3. Relationship Between Age and Adherence to Hypertension Medication

Age	Compliance				Total		p-value
	Low		Height		N	%	
	n	%	N	%			
Pre-Elderly	2	3,4	26	43,4	28	46,7	0,847
Young Elderly	0	0	24	40,0	24	40,0	
Middle-aged elderly	0	0	8	13,3	8	13,3	
Total	2	3,4	58	96,7	60	100	

Based on Table 3, the relationship between age and antihypertensive adherence in outpatient care at Sarkies 'Aisyiyah Kudus Hospital was analyzed using statistical testing through SPSS 27 with the chi-square analysis method, yielding a p-value of 0.847 > 0.05. This indicates that the null hypothesis (H0), stating “there is no relationship,” is accepted, while the alternative hypothesis (H1), stating “there is a relationship,” is rejected. Therefore, there is no statistically significant relationship between the two variables. Hypertension tends to begin and increase in prevalence in early old age because, during this age range, significant physiological changes in the cardiovascular system begin to occur. One of the primary changes is a decrease in arterial wall elasticity resulting from a degenerative process known as atherosclerosis. This decrease in elasticity causes blood vessels to become stiff, leading to increased peripheral resistance and ultimately elevated blood pressure. Additionally, at this age, there is an accumulation of oxidative stress and increased activity of the sympathetic nervous system, which also contributes to increased peripheral resistance and sodium retention through activation of the renin-angiotensin-aldosterone system (RAAS). RAAS activation causes vasoconstriction and an increase in intravascular fluid volume, further elevating blood pressure. As age increases, the kidneys' ability to regulate fluid and electrolyte balance also begins to decline, making it easier for blood pressure to rise. The combination of these structural and functional changes makes older adults more susceptible to persistent hypertension. Additional contributing factors include lifestyle changes in early older adulthood, such as reduced physical activity, weight gain, and increased consumption of high-sodium

OPEN ACCESS
e-ISSN: 2985-9808

and high-fat diets. These habits further worsen vascular health and disrupt blood pressure regulation. Researchers suggest that age does not always significantly influence adherence to antihypertensive medication, as internal factors such as self-awareness, motivation to maintain health, and family support play a more crucial role in determining the adherence behavior of elderly patients. Additionally, several studies indicate that adherence among hypertensive patients is more influenced by understanding of the disease and the benefits of therapy than by chronological age alone. For example, a study by researchers in Saudi Arabia (2020) showed that patients with good knowledge were nearly seven times more likely to adhere to treatment. Meanwhile, Frontiers in Pharmacology emphasizes that variables such as knowledge, perception of complication risks, and effective communication with healthcare providers are consistently correlated with adherence. At the same time, age only contributes indirectly through these aspects. Therefore, although the prevalence of hypertension increases with age, adherence rates among older adults do not necessarily decline. On the contrary, older adults can demonstrate high adherence if provided with appropriate education, family support, and adequate access to healthcare services. The findings of this study also indicate that interventions to improve adherence should not focus solely on specific age groups, but rather on individualized approaches that emphasize increasing awareness, knowledge, and personalized support tailored to each individual.

Table 4. Relationship between Education and Adherence to Hypertension Medication

Education	Compliance				Total		p-value
	Low		Height		N	%	
	n	%	N	%			
Elementary School	0	0	16	26,6	16	26,6	0,039
Junior High School	1	1,7	12	19,9	13	21,6	
High School	1	1,7	17	28,4	18	30,1	
Diploma/Bachelor's	0	0	13	21,7	13	21,7	
Total	2	3,4	58	96,6	60	100	

Based on Table 4, the relationship between education and antihypertensive compliance in outpatient care at Sarkies 'Aisyiyah Kudus Hospital was analyzed using statistical testing through SPSS 27 with the chi-square analysis method, yielding a p-value of 0.039 < 0.05. This indicates that the null hypothesis (H0) is rejected, meaning there is a statistically significant relationship between the two variables. This suggests that educational level has a considerable influence on adherence to antihypertensive therapy. Respondents with a high school education (17, 28.4%) constitute the largest group of adherent patients. Higher formal education is significantly associated with improved adherence among hypertensive patients, as individuals with better education tend to have a better understanding of the risks of complications and the benefits of therapy. The analysis results in Table 7, with a p-value of 0.039, confirm that educational level has a significant influence on the adherence of geriatric patients to antihypertensive medication. The researchers argue that these findings are consistent with health literacy theory, which posits that formal education plays a crucial role in shaping individuals' ability to understand medical information, treatment instructions, and awareness of the risks associated with complications of hypertension. Individuals with secondary education or higher, such as respondents with high school education who were the majority of compliant respondents in this study (17, or 28.4%), tend to find it easier to understand education from health workers, read medication

OPEN ACCESS
e-ISSN: 2985-9808

brochures, and understand the importance of regular medication, which has a positive impact on compliance behavior.

Based on the relationship between occupation and antihypertensive adherence in outpatient care at Sarkies 'Aisyiyah Kudus Hospital, using statistical analysis through SPSS 27 with the chi-square method and a p-value of <0.001, the null hypothesis (H0) was rejected, indicating a statistically significant relationship between the two variables. The majority of compliant respondents were unemployed, accounting for 18 (30%) of the respondents. According to the journal, this condition is likely caused by respondents who are still actively working having a higher tendency to forget or miss their medication schedule compared to those who are no longer working. Busy schedules and daily activities can disrupt the regularity of medication intake, potentially hindering the achievement of expected treatment goals. The researchers argue that this condition may also be caused by physical and mental fatigue resulting from work that is still being carried out at an advanced age, thereby diverting attention away from the medication schedule. Additionally, for elderly individuals who are not working, having more free time allows them to focus more on medication schedules, routine health checks, and maintaining a healthy lifestyle. Therefore, interventions that facilitate medication reminders for hypertensive patients who are still actively working, such as the use of electronic reminders or family support, should be considered to improve adherence.

Table 6. Relationship between occupation and adherence to hypertension medication

Work	Compliance				Total		p-value
	Low		Height		N	%	
	N	%	N	%			
Merchant	1	1,7	0	0	1	1,7	< 0,001
Laborer/farmer	1	1,7	9	15	10	16,7	
Entrepreneur	0	0	12	20	12	20	
civil servant	0	0	2	3,3	2	3,3	
Teacher	0	0	3	5	3	5,0	
housewife	0	0	13	21,7	16	26,7	
Not working	0	0	18	30	15	25	
Retiree	0	0	1	1,7	1	1,7	
Total	2	3,4	58	96,7	60	100	

Table 7. Relationship between Duration of Illness and Adherence to Hypertension Medication

Long suffering	Compliance				Total		p-value
	Low		Height		n	%	
	N	%	N	%			
≥ 5 Year	0	0	12	20	12	20	0,575
< 5 Year	2	3,4	46	76,7	48	80	
Total	2	3,4	58	96,7	60	100	

Based on Table 7, the relationship between the duration of hypertension and antihypertensive adherence in the outpatient department of Sarkies 'Aisyiyah Kudus Hospital was analyzed using statistical testing via SPSS 27 with the chi-square analysis method, yielding a p-value of 0.575 > 0.05. This indicates that the null hypothesis (H0) is accepted, and the alternative hypothesis (Ha) is rejected,

OPEN ACCESS
e-ISSN: 2985-9808

meaning there is no statistically significant relationship between the two variables. This indicates that there is no significant relationship between the duration of hypertension and the level of adherence to antihypertensive therapy in the outpatient department of Sarkies 'Aisyiyah Kudus Hospital, with the majority of elderly patients having suffered from hypertension for less than 5 years, accounting for 48 (80%) of the respondents. Hypertension causes target organ damage, with the highest incidence occurring above 60 years of age, and in cases of stage 3 hypertension, low early detection, management, and control of hypertension. The longer a person has hypertension and the higher the stage of hypertension, the more severe the complications involving blood vessels, the heart, brain, and kidneys that arise. Researchers suggest that patients who have had hypertension for a long time may feel accustomed to it and overlook treatment, while new patients may have high adherence due to concerns about their condition. However, not all long-term or new patients consistently exhibit this pattern, so the duration of hypertension is not the sole determinant of adherence. Theoretically, the longer someone has had hypertension, the more they should understand and be accustomed to taking medication. However, in this situation, it can lead to boredom and reduce motivation to adhere to therapy. Conversely, patients newly diagnosed with hypertension often show higher adherence because they still have strong concerns and awareness of the risks of hypertension complications. These results suggest that, within the context of this study, the duration of hypertension is not the primary factor influencing treatment adherence levels. Instead, other factors such as family support, the quality of education provided by healthcare professionals, and individual motivation play a more significant role in determining patient adherence. Therefore, interventions aimed at improving patient adherence should focus on enhancing patient understanding, encouragement, and social support, rather than solely considering the duration of hypertension.

Table 8. Socioeconomic Factors and Adherence to Hypertension Medication

Social Economy	Compliance				Total		p-value
	Low		Height		n	%	
	n	%	n	%			
Low	1	1,7	32	53,2	33	55	0,823
Moderate	1	1,7	24	40	25	41,7	
Height	0	0	2	3,3	2	3,3	
Total	2	3.,4	58	96,5	60	100	

Based on Table 8, the relationship between socioeconomic status and antihypertensive adherence in outpatient care at Sarkies 'Aisyiyah Kudus Hospital was analyzed using statistical tests through SPSS 27 with the chi-square analysis method, yielding a p-value of 0.823 > 0.05. This indicates that the null hypothesis (H0) is accepted, and the alternative hypothesis (Ha) is rejected, meaning there is no statistically significant relationship between the two variables. This indicates that socioeconomic status does not significantly influence adherence to antihypertensive therapy. Respondents with low income, totaling 32 (53.2%) respondents, constitute the largest group of adherent patients. This finding suggests that patients' economic capacity does not solely determine adherence but is more influenced by other factors such as motivation, understanding of the importance of treatment, family support, and access to health information. Patients with low income can remain compliant if they have a good awareness of the risks of hypertension and the importance of regular medication. Conversely, patients

OPEN ACCESS
e-ISSN: 2985-9808

with higher income do not always show better compliance if they lack sufficient knowledge or awareness. The results of this study reveal that socioeconomic status is not the main factor influencing patient adherence to antihypertensive medication. Non-economic factors, such as health education, self-motivation, and family support, have been shown to play a more significant role in promoting patient adherence. Health insurance programs such as BPJS also help reduce cost barriers, enabling low-income patients to continue accessing treatment. Additionally, patients' awareness of the risks associated with hypertension complications, such as stroke or kidney failure, is a crucial motivator for adherence to therapy, in line with the Health Belief Model, which posits that perceptions of disease threats influence health behavior more than economic conditions. These findings emphasize the importance of focusing efforts on continuous education, hypertension risk counseling, and family support to improve adherence. Healthcare workers at Sarkies 'Aisyiyah Kudus Hospital are advised to prioritize patient empowerment through communication and health education, ensuring that patients from all economic backgrounds have equal opportunities to achieve optimal blood pressure control.

Table 9. Relationship between Knowledge Level and Adherence to Hypertension Medication

Knowledge	Compliance				Total		p-value
	Low		Height		N	%	
	n	%	N	%			
Less	0	0	29	48,4	29	48,4	0,012
Enough	1	1,7	13	21,6	14	23,3	
Good	1	1,7	16	26,6	17	28,3	
Total	2	3,4	58	96,6	60	100	

Based on Table 9, the relationship between knowledge level and antihypertensive compliance in outpatient care at Sarkies 'Aisyiyah Kudus Hospital was analyzed using statistical tests through SPSS 27 with the chi-square analysis method, yielding a p-value of 0.012 < 0.05. This indicates that the null hypothesis (H0) is rejected, meaning there is a statistically significant relationship between the two variables. This suggests that the level of knowledge has an essential influence on adherence to antihypertensive therapy. Respondents with low knowledge (29, or 48.4%) were the largest group that adhered to the treatment. Although in theory, good knowledge should support adherence, the results of this study show that patients with low knowledge levels were the largest group that adhered to taking antihypertensive drugs. This phenomenon can be explained through the Authority Dependence Theory, which states that individuals with low levels of knowledge tend to rely entirely on authority figures, in this case, healthcare professionals, and will comply with medical instructions without questioning them. They follow the therapy as directed because they fully trust the ability and knowledge of healthcare professionals, rather than relying on their understanding. Additionally, in specific cultural contexts, such as Indonesia, many patients regard doctors as figures who should not be questioned. This leads to patients adhering to treatment regimens despite limited understanding of their condition. In such cases, adherence arises not from rational awareness but from respect, fear, or complete trust in healthcare providers. This research is essential for healthcare professionals to consider. Compliance based on authority dependence tends to be fragile, as patients lack a fundamental understanding of their illness and its treatment. If circumstances change, such as losing access to the same doctor, compliance is at risk of declining. Therefore, efforts to enhance knowledge remain necessary to ensure that compliance becomes more independent and sustainable. This study is supported by research that found a strong

OPEN ACCESS
e-ISSN: 2985-9808

association between good family support (60.9%) and medication adherence (Spearman's rho = 0.000; r = 0.674) among elderly individuals. This support is typically provided in the form of regular reminders, assistance with medication intake, and emotional encouragement to help the elderly remain consistent despite their limited understanding of the disease. Thus, even with low individual knowledge, the presence of family members as reminders and supporters plays a crucial role in maintaining adherence to antihypertensive therapy. Educational strategies for the elderly should involve family members as part of the intervention, especially for those with limited knowledge, to ensure the success of treatment and prevent complications of chronic diseases such as hypertension. Researchers argue that patients with low educational levels are often considered to be at greater risk of non-adherence to therapy. However, in reality, they can still demonstrate good adherence to antihypertensive medication thanks to the role of Medication Information Counseling (MIC) provided by pharmacists and family support as reminders to take medication. PIO delivered by pharmacists, using language appropriate to the patient's level of understanding, along with repeated explanations or visual aids, enables patients with basic education to understand better how to use medications. On the other hand, family support plays a crucial role in helping patients remember medication schedules, prepare medications, and accompany them to routine check-ups. Actively involved families can motivate patients to remain compliant even if they have limitations in understanding medical information. The synergy between pharmacist education and family involvement demonstrates that formal education level is not the sole determinant of adherence. Instead, effective communication from healthcare providers and consistent social support are the key factors in the success of antihypertensive therapy among patients with low educational attainment.

Conclusion

Based on the results of a study of 60 geriatric patients in the outpatient service of Sarkies 'Aisyiyah Kudus Hospital, it can be concluded that the majority of respondents showed a high level of compliance in undergoing antihypertensive therapy, namely 96.7%. This level of compliance reflects a relatively high awareness among patients of the importance of adhering to their treatment regimen regularly. Bivariate analysis revealed a significant association between educational level, employment status, and knowledge level with adherence to antihypertensive medication. Conversely, no significant association was found between adherence and variables such as gender, age, duration of hypertension, and socioeconomic status. These results suggest that internal factors, such as knowledge and educational background, as well as daily work-related activities, play a significant role in shaping treatment adherence. Meanwhile, other demographic characteristics were not statistically proven to influence elderly patients' adherence in the context of this study.

References

Adzani, A., & Artistin, A. R. (2023). Gambaran Kepatuhan Minum Obat Pada Lansia Penderita Hipertensi di Puskesmas Gatak. Malahayati Nursing Journal, 5(11), 3824–3834. https://doi.org/10.33024/mnj.v5i11.10041

Aldirawi, A., Alhalaiqa, F., Alwawi, A., & Abuzerr, S. (2024). Psychological stress among hypertensive male patients in Jordan: prevalence and associated factors. BMC Public Health, 24(1). https://doi.org/10.1186/s12889-024-20733-0

Algabbani, F. M., & Algabbani, A. M. (2020). Treatment adherence among patients with hypertension: Findings from a cross-sectional study. Clinical Hypertension, 26(1). https://doi.org/10.1186/s40885-020-00151-1

OPEN ACCESS
e-ISSN: 2985-9808

Al Vira, Q., Windyastuti, E., & Suryandari, D. (2024). Hubungan Lama Menderita Hipertensi Dengan Kepatuhan DIIT Pada Lansia Penderita Hipertensi di Posyandu Lansia Ngudi Saras RW 09 Kelurahan Joglo.

Anggraini, M., Meiriza, W., & Kartika, K. (2021). Hubungan Derajat Hipertensi Dengan Kepatuhan Dalam Pengobatan Pada Program Indonesia Sehat Pendekatan Keluarga (PISPK). 2(4).

Annisya, D. S., Ovikariani, O., & Murtisiwi, L. (2024b). Hubungan Karakteristik Pasien dengan Tingkat Kepatuhan Penggunaan Obat Antihipertensi pada Pasien Hipertensi di Puskesmas Gajahan Surakarta. Indonesian Journal on Medical Science, 11(2). https://doi.org/10.70050/ijms.v11i2.495

Apsari, D. P., Putra, I. G. N. M. S. W., & Maharjana, I. B. N. (2021). Hubungan Dukungan Keluarga Dan Peran Tenaga Kefarmasian Terhadap Kepatuhan Minum Obat Antihipertensi. Jurnal Ilmiah Medicamento, 7(1), 19–26. https://doi.org/10.36733/medicamento.v7i1.1499

Brigita, M., Hijrawati, H., & Artama, S. (2023). Characteristics and adherence of the elderly to hypertension treatment management. Jurnal Ilmiah Kesehatan Sandi Husada, 12(2), 435–444. https://doi.org/10.35816/jiskh.v12i2.1114

Cahya Rahmawati, A., Keperawatan, I., & Kesehatan dan Teknologi, F. (2024). Hubungan Dukungan Keluarga dengan Kepatuhan Minum Obat pada Lansia Penderita Hipertensi di Desa Pokak. TRIAGE: Jurnal Ilmu Keperawatan, 11(2), 71–76.

Delva Santi, L., & Oktarina, Y. (2023). Hubungan Dukungan Keluarga Dengan Kepatuhan Minum Obat Pada Lansia Hipertensi di Puskesmas Muara Kumpeh. Jurnal Ners, 7, 1725–1733. http://journal.universitaspahlawan.ac.id/index.php/ners

Dianika Supraptiningsih, Ekbert Mandaku, Tanto Tanto, Harun Wahyudi, & Reni Afriyani. (2025). Hubungan Pengetahuan dengan Kepatuhan Minum Obat Antihipertensi pada Lansia di RSU Bhakti Asih Ciledug. Detector: Jurnal Inovasi Riset Ilmu Kesehatan, 3(1), 128–139. https://doi.org/10.55606/detector.v3i1.4982

Dinkes Jateng. (2020). Buku profil kesehatan provinsi jawa tengah.

Dipiro, J. T., Talbert, R. L., Yee, G. C., Wells, B. G., & Posey, L. M. (2023). Pharmacotherapy: A Pathophysiologic Approach (12th ed.). McGraw-Hill Education.

Fauziah, D. W., & Mulyani, E. (2022). Hubungan Pengetahuan Terhadap Tingkat Kepatuhan Minum Obat Anti Hipertensi. Indonesian Journal of Pharmaceutical Education, 2(2), 94–100. https://doi.org/10.37311/ijpe.v2i2.15484

Gede Made Saskara Edi, I. (2015). Faktor-faktor yang Mempengaruhi Kepatuhan Pasien Pada Pengobatan: Telaah Sistematik (Factors Affecting The Patient Adherence To Medical Treatment: A Systematic Review).

Hanum, S., Puetri, N. R., Marlinda, & Yasir. (2019). Hubungan antara pengetahuan, motivasi, dan dukungan keluarga dengan kepatuhan minum obat pada penderita hipertensi di puskesmas peukan bada kabupaten aceh besar.

Harahap, D. A., Aprilla, N., & Muliati, O. (2019). Hubungan Pengetahuan Penderita Hipertensi Tentang HipertensiDengan Kepatuhan Minum Obat Antihipertensi Di Wilayah Kerja Puskesmas Kampa Tahun 2019.

Indriani, S., Fitri, A. D., Septiani, D., Mardiana, D., Didan, R., Amalia, R., Lailiah, S. N., Abigail, S. C., Indriyani, T., Nurwahyuni, A., Permitasari, K., Studi, P., Masyarakat, K., & Indonesia, U. (2021). Pengetahuan, Sikap, dan Perilaku Lansia dengan Riwayat Hipertensi Mengenai Faktor yang Mempengaruhi Hipertensi. Jurnal Pengabdian Kesehatan Masyarakat: Pengmaskesmas, 1(2), 39–50. https://doi.org/10.31849/pengmaskesmas.v1i2/5754

Iqbal, M., & Salsabila, S. (2023). Validitas dan Reliabilitas Kuesioner Kebiasaan Menonton Mukbang. Muhammadiyah Journal of Nutrition and Food Science (MJNF), 4(2), 102. https://doi.org/10.24853/mjnf.4.2.102-109

Kemenkes RI. (2014). Infodatin Hipertensi.

Kemenkes RI. (2019). Hipertensi Penyaki Paling Banyak Diidap Masyarakat.

Listiana, D., Effendi, S., & Saputra, Y. E. (2020). Faktor-faktor yang Berhubungan dengan Kepatuhan Penderita Hipertensi Dalam Menjalani Pengobatan di Puskesmas Karang Dapo Kabupaten Muratara Factors Who Associated With Obedience Of Hypertension Patient On Doing Treatment In Karang Dapo Primary Health Care Muratara District. In JNPH 8,(1).

OPEN ACCESS
e-ISSN: 2985-9808

Marhani, S., Kurniawati, D., Rahmayani, D., Studi Sarjana Farmasi, P., Kesehatan Universitas Sari Mulia, F., & Studi Keperawatan, P. (2023). Hubungan Pengetahuan dan Dukungan Keluarga Terhadap Kepatuhan Pasien Minum Obat Antihipertensi di Wilayah Puskesmas Pemurus Baru Relationship between Knowledge and Family Support with Patient Compliance Consuming Antihypertensive Drugs in the Pemurus Baru Health Center Area. FARMASIS: Jurnal Sains Farmasi, 4(1).

Masturoh, I., & Anggita, N. (2018). Metodologi Penelitian Kesehatan. Jakarta: Kementerian Kesehatan Republik Indonesia.

Maulia, M., Hengky, H. K., Program, H. M., Kesehatan, S., Fakultas, M., Kesehatan, I., & Parepare, U. M. (2021). Analisis Kejadian Penyakit Hipertensi di Kabupaten Pinrang Analysis of The Event of Hypertension DiseaseIn Pinrang District (Vol. 4, Issue 3). http://jurnal.umpar.ac.id/index.php/makes

Oparil, S., Acelajado, M. C., Bakris, G. L., Berlowitz, D. R., Cífková, R., Dominiczak, A. F., Grassi, G., Jordan, J., Poulter, N. R., Rodgers, A., & Whelton, P. K. (2018). Hypertension. In Nature Reviews Disease Primers (Vol. 4). Nature Publishing Group. https://doi.org/10.1038/nrdp.2018.14

Padaunan, E., Pitoy, F. F., & Wongkar, G. H. (2022). Pengetahuan Penderita Hipertensi Tentang Penyakitnya Terhadap Kepatuhan Obat.

Prastika, Y. D., & Siyam, N. (2021). Faktor Risiko Kualitas Hidup Lansia Penderita Hipertensi. IJPHN, 1(3), 407–419. https://doi.org/10.15294/ijphn.v1i3.47984

Pratama, K. J., Setyawan, A., & Luthfiyanti, N. (2021). Faktor-faktor yang Mempengaruhi Kepatuhan Pengobatan Pasien Diabetes Melitus Tipe 2 di RSUD DR. Moewardi Kota Surakarta.

Pratiwi, W., Harfiani, E., & H Hadiwiardjo, Y. (2020). Faktor-faktor Yang Berhubungan Dengan Kepatuhan Dalam Menjalani Pengobatan Pada Penderita Hipertensidi Klinik Pratama GKI Jabar Jakarta Pusat.

Ramadhani, D. Y., Fitriana, E., Febriyanti, C. D., D3, P., Stikes, K., & Husada, A. (2022). Locus of Control and Self-Efficacy Relationship with Medication Adherence in the Elderly with Hypertension. https://doi.org/10.33086/jhs.v15.i1.2218

Rhamdika, M. R., Widiastuti, W., Hasni, D., Febrianto, B. Y., & Jelmila, S. (2023). Hubungan Aktivitas Fisik dengan Kejadian Hipertensi pada Perempuan Etnis Minangkabau di Kota Padang. https://jurnal.umj.ac.id/index.php/JKK

Rokhimah, I. A., Primadiamanti, A., & Angin, M. P. (2022). 2022), Pages 119-126 with The Use of Antihypertensive Drugs in Outpatient Hypertension Patients at Puskesmas Banyumas Kabupaten Pringsewu 1,2,3 Program Studi Farmasi. Journal of Islamic Medicine, 6(2). https://doi.org/10.18860/jim.v6i2.17442

Sailan, M. Z., Sari, L., Puspita, R., & Purba, K. (2021). Faktor-Faktor yang Berhubungan dengan Kepatuhan Minum Obat pada Penderita Hipertensi Factors Related to Compliance Drinking Medicines in Hypertension. 9(2).

Sharma, S., Sharma, C. R., Sharma, S., Aryal, S., & Bhandari, B. (2024). Adherence to antihypertensive medication and its associated factors among patients with hypertension attending a tertiary hospital in Kathmandu, Nepal. PLoS ONE, 19(7 July). https://doi.org/10.1371/journal.pone.0305941

Sinuraya, R. K., Destiani, D. P., Puspitasari, I. M., & Diantini, A. (2018). Medication Adherence among Hypertensive Patients in Primary Healthcare in Bandung City. Indonesian Journal of Clinical Pharmacy, 7(2), 124–133. https://doi.org/10.15416/ijcp.2018.7.2.124

Supriadi, D., Kusumawaty, J., Nurapandi, A., Putri, R. Y., & Sundewi, A. (2023). Hubungan Kebiasaan Merokok Dengan Intensitas Hipertensi Pada Lansia Laki-Laki Di Kelurahan Ciamis.

Tartila Akri, N., Nurmainah, N., & Andrie, M. (2022). Analisis Kepatuhan Penggunaan Obat Antihipertensi Pasien Hipertensi Rawat Jalan Usia Geriatri Terhadap Tekanan Darah. Journal Syifa Sciences and Clinical Research, 4(1). https://doi.org/10.37311/jsscr.v4i2.14793

Welday, S. J. (2025). Factors influencing antihypertensive medication adherence among hypertensive patients: A cross-sectional study in health facilities of Anseba region, Eritrea. Journal of Clinical Images and Medical Case Reports, 6(1). https://doi.org/10.52768/2766-7820/3445

Yanita, N. I. S. (2017). Berdamai dengan hipertensi. https://books.google.co.id/books?hl=id&lr=&id=yAVjEAAAQBAJ&oi=fnd&

OPEN ACCESS
e-ISSN: 2985-9808

Zhang, Y., Sun, X., Meng, H., Li, Q., & Chen, W. (2022). Predictors of medication adherence among hypertensive patients: A systematic review and meta-analysis. https://www.frontiersin.org/articles/10.3389/fphar.2022.830599/full

Zhou, B., Perel, P., Mensah, G. A., & Ezzati, M. (2021). Global epidemiology, health burden, and effective interventions for elevated blood pressure and hypertension. In Nature Reviews Cardiology (Vol. 18, Issue 11, pp. 785–802). Nature Research. https://doi.org/10.1038/s41569-021-00559-8

Corresponding author

Eko Retnowati can be contacted at: ekoretnowati@umkudus.ac.id

APPENDIX

Table 1. Frequency Distribution of Respondent Characteristics

OPEN ACCESS
e-ISSN: 2985-9808

Respondent Characteristics	Frequency (n=60)	Percentage (%)
Gender		
Man	36	60
Woman	24	40
Age		
Pre-Elderly	28	46,7
Young Elderly	24	40
Middle-aged elderly	8	13,3
Education		
Low education	29	48,4
Elementary School	16	26,7
Junior High School	13	21,7
Higher Education	31	51,7
High School	18	30
Diploma/Bachelor's	13	21,7
Work		
Merchant	1	1,7
Laborer/farmer	10	16,7
Entrepreneur	12	20
civil servant	0	0
Teacher	2	3,3
housewife	3	5
Not working	13	21,7
Retiree	18	30
Merchant	1	1,7
Long suffering		
≥ 5 Year	12	20
< 5 Year	48	80
Social Economy		
Low Income (< Rp 2.500.000)	33	55,0
Moderate Income (Rp 2.500.000 – Rp 5.000.000)	25	41,7
Height (> Rp 5.000.000)	2	3,3
Knowledge		
Less (< 55%)	29	48,4
Enough (56% - 75%)	14	23,3
Good (>76%)	17	28,3