LITERATURE REVIEW: DETERMINANT FACTORS OF MEDICATION CONTROL COMPLIANCE IN HYPERTENSION PATIENTS IN INDONESIA

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ABSTRACT

Hypertension is a type of cardiovascular disease with a prevalence that continues to increase every year and is a global cause of death, especially among the elderly. The World Health Organization (WHO) notes that approximately 1.13 billion people worldwide live with hypertension. One of the major challenges in its management is low patient adherence to medication therapy, which impacts blood pressure control and increases the risk of complications. The level of non-adherence is caused by several internal and external factors. This research method uses a systematic literature review approach to examine the effect of patient knowledge level on compliance in hypertension treatment control. Literature was searched using Google Scholar with the inclusion criteria of relevant articles published in the range of 2015-2025, resulting in one main article and five supporting articles. The results showed that non-compliance is often caused by low patient knowledge, limited access to health services, advanced age, and socio-economic conditions. Patients who have a good understanding of hypertension and regularly follow medication and patient control tend to show better blood pressure control, so strategies related to education and more support are needed to improve patient compliance. Therefore, to improve adherence, an approach of continuous education, counseling, and support from health workers and families is needed. These strategies are important to prevent long-term complications and improve the quality of life of hypertensive patients.

Keywords : Determinants of Adherence; Hypertension; Patient Control

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INTRODUCTIONS

According to data from the Ministry of Health of the Republic of Indonesia, hypertension is among the most prevalent cardiovascular diseases affecting the population. This condition is classified as dangerous and remains one of the leading causes of mortality worldwide each year. The World Health Organization (WHO) reports that approximately 1.13 billion individuals globally live with hypertension. Its prevalence affects roughly one in four men and one in five women, yet fewer than one in five individuals with hypertension achieve adequate blood pressure control. Based on the 2013 Basic Health Research (Riskesdas), hypertension was identified as the most common disease among the elderly population, with a prevalence rate of 57.6%. An individual is categorized as hypertensive when blood pressure measurements exceed the normal threshold, namely above 140/90 mmHg.

One of the primary factors contributing to the difficulty in controlling blood pressure among hypertensive patients is poor adherence to antihypertensive therapy. Research conducted by Anugerah (2020) demonstrated that patient adherence to medication has a significant influence on the success of blood pressure control. Given the crucial role of adherence, this topic is highly relevant to be explored, particularly within the context of improving the quality of health services for chronic disease management. Examining the relationship

between patient adherence and blood pressure control is expected to provide substantial contributions for healthcare providers, researchers, and policymakers in developing more effective and sustainable intervention strategies. Therefore, this subject was selected as the focus of review, serving as a contribution to advancing knowledge and strengthening efforts in hypertension prevention and management.

Globally, the World Health Organization (WHO) estimates that approximately one-third of the population is affected by hypertension. WHO reported that the prevalence of hypertension nearly doubled from 650 million cases in 1990 to 1.3 billion cases in 2019. The condition is responsible for an estimated 8 million deaths annually, 1.5 million of which occur in Southeast Asia. In 2018, the Basic Health Research (Riskesdas) reported an increase in the prevalence of hypertension among individuals aged 18 years and older, reaching 34.1%. This increase occurred in a population exceeding 260 million people.

In Indonesia, the prevalence of hypertension continues to rise annually across various regions. In North Sumatra Province, prevalence was recorded at 29.19%, with 41,131 identified cases among individuals aged 18 years and above. West Java Province reported the highest prevalence rate, reaching 32.4% in 2016. Among the geriatric population, the prevalence continues to rise significantly each year and is projected to double, reaching 2.1 billion cases worldwide by 2050. This increase has substantial implications for patients' quality of life, as long-term uncontrolled blood pressure may result in serious complications such as organ damage, stroke, coronary heart disease, and renal failure.

The management of hypertension typically requires long-term therapy, thereby necessitating strong adherence to antihypertensive treatment regimens. Non-adherence to therapy is one of the key barriers to achieving optimal blood pressure control. Pharmacists play a pivotal role in providing counseling, education, and monitoring in the administration of antihypertensive medications. Adherence is a critical determinant in achieving therapeutic effectiveness and improving patient quality of life, whereas non-adherence is a major cause of therapeutic failure that negatively impacts outcomes. Patient adherence can be assessed through the frequency of visits to healthcare facilities, particularly for blood pressure monitoring and the procurement of antihypertensive medications. Several factors may contribute to non-adherence, including limited patient understanding of the importance of following prescribed treatment guidelines, adherence only during the occurrence of symptoms, and the challenges faced by elderly patients who often require assistance in accessing healthcare facilities for blood pressure control.

This literature review was conducted to compare findings from previous studies related to the level of adherence among hypertensive patients, the factors contributing to non-adherence, and variations in adherence patterns across different regions.

METODHS

In this study, we employed a systematic literature review approach. The first step was to determine the research objective, which was to examine the influence of patients' knowledge levels on their adherence to hypertension treatment control. The next step was to establish the inclusion criteria, which consisted of articles with relevant topics and those published within a 10-year range, from 2015 to 2025.

The literature search was conducted through online electronic databases such as Google Scholar using keywords aligned with the specified topic. After obtaining relevant literature, the next step was the screening process, which involved first reviewing the titles and abstracts, followed by a thorough reading of articles that met the inclusion criteria. All articles were carefully reviewed, and those deemed relevant were downloaded. From this process, one article was identified

as the primary reference and five additional supporting articles that met the inclusion criteria.

All data were then collected and subjected to data extraction in order to summarize essential information such as objectives, methodology, results, and conclusions from each article. Subsequently, the findings from these articles were analyzed.

RESULTS

The study conducted by Khaira et al. involved 30 respondents, with an equal distribution of gender (15 males and 15 females). In terms of age, 22 participants were older than 45 years, while 8 were 45 years or younger. Regarding employment status, 6 were unemployed and 24 were employed. Based on blood pressure classification, 18 respondents were in stage 2 hypertension, 12 were in stage 1, and none had normal blood pressure. Concerning healthcare access, 23 lived within the service area, while 7 resided outside. In terms of treatment adherence, 22 patients adhered to regular medical control, whereas 8 did not.

The study by Akri et al. included 71 respondents, consisting of 28 males and 43 females. Blood pressure control was achieved by 19 patients (<140/90 mmHg), while 52 had uncontrolled blood pressure (≥140/90 mmHg). Therapy regimens varied, with 36 patients receiving monotherapy and 35 receiving combination therapy. In terms of dosage frequency, 64 patients were prescribed once daily regimens, while 7 had more than one dose per day. Regarding adherence, only 13 patients were classified as adherent, compared to 58 who were non-adherent.

The study by Emiliana et al. involved 246 respondents, consisting of 102 males and 162 females. The majority were older than 45 years (221 participants), while 43 were 45 years or younger. Employment status indicated 154 unemployed and 110 employed respondents. Blood pressure distribution showed 114 with stage 1 hypertension, 61 with stage 2 hypertension, and 89 with normal blood pressure. Regarding access to healthcare, 243 respondents lived within the service area, while 21 lived outside. Health insurance coverage was reported by 177 respondents, while 87 were uninsured. Comorbidities were present in 46 participants, while 218 reported no comorbidities. Concerning treatment adherence, 144 were adherent to regular medical control, whereas 120 were non-adherent.

The study by Sinuraya et al. included 226 respondents. Based on age, 12 were under 40 years, 22 were aged 40–49, 70 were aged 50–59, 79 were aged 60–69, and 43 were above 70 years. Gender distribution showed 106 males and 120 females. Education levels varied, with 33 respondents having primary education, 82 secondary education, and 111 tertiary education. Employment status indicated 117 employed, 109 retired or not working, and 51 unemployed. Income levels showed 97 earning below IDR 2,843,000 and 129 earning above this threshold. The duration of hypertension varied: 40 had the condition for less than one year, 104 for 1–5 years, and 82 for more than five years. Family history of hypertension was reported by 94 respondents, while 132 had no such history. A total of 163 respondents had previously received information on hypertension and diet, while 63 had not. Sources of information included healthcare workers (161), media (40), family or neighbors (21), and self-searching (4).

No	Author(s) and Year	Journal Name	Research Title	Variables Studied	Study Design	Sample	Research Method	Statistical Conclusion
1	Nurhikmah, Masadah, Rukiah, et al. (2024)	*PRPOTEP: Journal of Research Results of the D3 Nursing Program Banjarmasin*, Vol. 8 No. 2	Analysis of Medication Adherence in Hypertension Patients	Adherence, respondent characteristics (gender, occupation, duration of hypertension, blood pressure)	Quantitative, observational analytic cross-sectional	30 respondents	Univariate and bivariate analysis, Chi-Square test	No significant relationship (p>0.05).
2	Rano K., Suma, et al. (2018)	*Embrio Journal*, Vol. 7 No. 2	Factors Associated with Medication Adherence in Hypertension Patients in Pasirkaliki Village, Bandung	Age, gender, education, occupation, knowledge, family support, history of hypertension, duration of hypertension, comorbidities, blood pressure	Observational analytic with cross-sectional design	226 respondents	Chi-Square test and Kruskal-Wallis	Knowledge, family support, history of hypertension, duration of hypertension, and blood pressure were significantly associated with medication adherence.
3	Nirmala Arini, Sri Suparti, Sri Sundari, et al. (2022)	*Smart Midwifery Journal*, Vol. 9 No. 2	Analysis of Factors Affecting Medication Adherence in Hypertension Patients	Medication adherence, knowledge, family role, social support, attitude, healthy lifestyle, smoking habits, stress, alcohol consumption, gender, age, occupation, education, blood pressure	Observational analytic with cross-sectional design	78 hypertension patients	Chi-Square test	Medication adherence was influenced by family role, social support, attitude, healthy lifestyle, smoking habits, stress, alcohol consumption, gender, age, occupation, education, and blood pressure.
4	Anjasmara (2021)	*Scientific Journal of Mental Health Nursing*, Vol. 4 No. 2	Analysis of Factors Related to Medication Adherence in Hypertension Patients	Factors related to medication adherence	Cross-sectional study	264 hypertension patients	Chi-Square test with significance level (α=0.05)	There was a significant relationship between family support and medication adherence among hypertension patients in the Panarung Health Center, Palangka Raya City in 2019.
5	Dwi Astuti, Putri Rahmah, Liana Andriani, Riki Bayu, Adityarini (2023)	*JIK (Journal of Health Sciences), Muhammadiyah University of Surabaya*, Vol. 7 No. 2	Knowledge and Medication Adherence of Hypertension Patients at Sungai Raya Dalam Health Center	Knowledge, adherence to medical check-ups, medication adherence	Cross-sectional study	99 hypertension patients	Chi-Square test	There was a significant relationship between knowledge and medication adherence among hypertension patients at Sungai Raya Dalam Health Center.

Table 1. Summary of Study Findings

When comparing the four studies, clear variations can be observed in both the number and type of independent variables employed. Akri et al. used the fewest variables (4), including gender, blood pressure, therapy regimen, and medication adherence. Khaira et al. applied 6 variables: gender, age, employment status, blood pressure status, healthcare access, and treatment adherence. Emiliana et al. expanded this to 8 variables, adding health insurance participation and comorbidities. Meanwhile, Sinuraya et al. incorporated the largest number of variables (10), covering age, gender, education, employment, income, duration of hypertension, family history, previous information about hypertension and diet, and sources of information.

Differences were also observed in sample sizes across the studies. Emiliana et al. included the largest sample with 246 respondents, followed by Sinuraya et al. with 226 respondents. Akri et al. involved 71 respondents, while Khaira et al. had the smallest sample size with 30 respondents. Methodologically, Emiliana et al. employed a cross-sectional design with total sampling and analyzed the data using univariate and bivariate analysis. Akri et al. measured adherence using the Medication Possession Ratio (MPR) and analyzed the data with Chi-Square tests in SPSS. Khaira et al. applied purposive sampling with univariate and bivariate analyses. In contrast, Sinuraya et al. utilized the Indonesian version of the Morisky Medication Adherence Scale (MMAS-8) questionnaire and conducted more complex analyses using Chi-Square and Kruskal-Wallis tests in SPSS version 20.0.

DISCUSSIONS

Medication adherence and regular patient monitoring can achieve therapeutic effectiveness and improve patients' quality of life. According to Purnamawati et al., controlling blood pressure and maintaining

adherence to hypertension treatment can lead to a higher quality of life (Purnamawati et al., 2023). Research by Akri et al. also stated that ineffective blood pressure control is often caused by patients' non-adherence to antihypertensive therapy (Akri et al., 2022). This indicates that the success of therapy does not solely depend on the type of medication or dosage prescribed, but also on the extent to which patients are engaged and consistent in following their prescribed treatment regimen.

In line with this, Sinuraya et al. emphasized that adherence to therapy is a crucial aspect in controlling blood pressure among hypertensive patients (Sinuraya et al., 2018). This reinforces the view that optimal blood pressure control is strongly associated with patient behavior in following their treatment regimen on time and as recommended.

On the other hand, findings from Klinik Pratama Kesuma Bangsa revealed that variables such as age, occupation, and access to healthcare services also influence adherence levels. Geographical and economic limitations may hinder routine visits, ultimately affecting treatment effectiveness. Therefore, approaches should not only emphasize education but also consider patients' socioeconomic conditions. Studies conducted at Puskesmas Pisangan and FKTP in Bandung contributed significantly to broadening the understanding of patient adherence. At Puskesmas Pisangan, visit frequency was used as an indicator of adherence, revealing that patients who attended regular check-ups showed more stable blood pressure. Meanwhile, the use of the MMAS-8 instrument at FKTP Bandung identified that low adherence was closely linked to patients' lack of understanding regarding the importance of long-term treatment.

In the primary study conducted by Purnamawati et al. in the working area of Puskesmas Sungai Raya, it was found that 48 respondents (53.3%) had low levels of knowledge regarding hypertension, and 62 respondents (68.9%) exhibited low adherence to health monitoring. These findings indicate that low knowledge levels may contribute to non-adherent behavior, which in turn affects the effectiveness of blood pressure therapy in hypertensive patients. This strengthens the notion that routine control adherence and proper understanding of hypertension play vital roles in disease management.

Similarly, research by Akri et al. at RSUD dr. Rubini Mempawah highlighted the importance of adherence to antihypertensive medication, particularly among elderly patients. Results showed that 52% of patients were classified as non-adherent based on a Medication Possession Ratio (MPR) of less than 80%, meaning that more than half of patients did not take their medications regularly as prescribed. This demonstrates that non-adherence is a primary factor behind the failure to control blood pressure, even when pharmacological therapy is provided according to standards.

A similar study was conducted at Klinik Pratama Kesuma Bangsa, which used a quantitative approach based on 2023 hypertensive patients' medical records. Out of 30 patients, 60% showed low adherence to treatment control, as measured by fewer than four routine monthly visits in a year. The study revealed that adherence to treatment control was influenced by variables such as age, gender, employment status, and especially access to healthcare. Patients with limited accessibility or poor understanding of the importance of regular monitoring tended to have lower adherence. These findings are consistent with Purnamawati et al., who demonstrated that both knowledge and external factors such as ease of access significantly shape patient adherence behavior.

Furthermore, a 2019 study at Puskesmas Pisangan reaffirmed that visit frequency serves as a key indicator in measuring patient adherence to hypertension treatment. An analysis of 264 outpatients in 2019 showed that about 61.7% of patients did not attend monthly follow-up visits consistently, based on the Puskesmas

Information Management System (SIMPUS). Results indicated that patients with irregular monthly visits tended to have unstable blood pressure. The lack of awareness regarding the importance of long-term monitoring and risks of hypertension complications was suspected to be the main cause of poor adherence.

A study by Sinuraya et al. at Primary Healthcare Facilities (FKTP) in Bandung utilized the validated Morisky Medication Adherence Scale (MMAS-8) to assess patient adherence to hypertension treatment. Involving 226 respondents, the study found that 45.6% had low adherence, 38.1% moderate, and only 16.4% were classified as adherent. Among low-adherence respondents, most admitted to forgetting to take medications, discontinuing treatment when feeling better, or lacking understanding of the long-term consequences of hypertension. The study also revealed that the majority of respondents demonstrated low to moderate adherence, which was strongly associated with their educational level and knowledge of hypertension. Limited knowledge led patients to undervalue the benefits of long-term therapy, sometimes perceiving hypertension symptoms as insignificant.

A consistent pattern emerges that both knowledge and adherence to hypertension treatment are key determinants of successful blood pressure control. The study by Purnamawati et al. showed that many patients had low knowledge and adherence levels, and these findings align with those of four other studies. For instance, Sinuraya et al. found that most patients with low adherence also had limited knowledge of long-term therapy. Similarly, Akri et al. reported that the majority of geriatric patients did not consistently follow healthcare providers' recommendations, resulting in failure to achieve blood pressure targets. Studies from Klinik Pratama Kesuma Bangsa and Puskesmas Pisangan further reinforced that adherence to routine monitoring is heavily influenced by accessibility factors and patient awareness.

These findings suggest that patients' knowledge is a primary determinant of successful hypertension management. Patients with adequate understanding are more likely to adhere to monitoring schedules and treatment, increasing their chances of achieving stable blood pressure. Conversely, non-adherence due to limited knowledge, poor access to services, and sociodemographic factors such as age or economic status can hinder optimal therapeutic outcomes. Overall, this literature highlights that strategies to improve patient adherence can include routine health education, patient empowerment through individual counseling, effective communication between healthcare providers and patients, and family support, all of which contribute to enhancing therapeutic effectiveness and improving the quality of life for hypertensive patients.

CONCLUSION

Hypertension is one of the most common and serious cardiovascular diseases, with a prevalence that continues to rise globally, including in Indonesia. It is a leading cause of death worldwide, particularly among the elderly population. One of the main challenges in hypertension management is the low level of patient adherence to treatment regimens. Non-adherence greatly reduces the effectiveness of blood pressure control and increases the risk of severe complications such as stroke and kidney failure. For this reason, understanding the factors that influence adherence, as well as the role of healthcare professionals—particularly pharmacists—in patient education and monitoring, is essential.

The four reviewed studies highlight notable variations in respondent characteristics, independent variables, sample sizes, and methods of data collection and analysis. Khaira and Emiliana employed a cross-sectional approach with univariate and bivariate analyses, Akri assessed adherence using the Medication Possession Ratio (MPR), while Sinuraya applied the

validated MMAS-8 instrument supported by more complex statistical tests such as Chi-Square and Kruskal-Wallis. These methodological differences illustrate the diversity of approaches in examining medication adherence among hypertensive patients, thereby offering a more comprehensive understanding of the factors that influence adherence and blood pressure control in different healthcare settings.

Adherence to medication and regular blood pressure monitoring plays a crucial role in ensuring the effectiveness of hypertension therapy and improving patients' quality of life. Evidence suggests that non-adherence is frequently associated with low health literacy, limited access to healthcare services, older age, and unfavorable socio-economic conditions. These barriers often hinder patients from achieving optimal blood pressure targets despite receiving standard pharmacological therapy. Conversely, patients with adequate knowledge of hypertension who regularly attend follow-up visits and consistently adhere to prescribed treatments are more likely to achieve stable blood pressure control. Therefore, strategies to improve adherence should include continuous education, routine counseling, personalized healthcare approaches, and strong support from family and social networks. Such interventions are essential to prevent long-term complications of hypertension and to enhance overall patient well-being.

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