

Original Research

# The Effect of Self-Management Education Based on the Health Promotion Model on Compliance Behavior of Hypertension Patients



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Article Info	Abstract
Article history: Received: 8 September 2024 Accepted: 23 October 2024	<i>Introduction:</i> Hypertension is a condition characterized by elevated blood pressure, in which an individual's blood pressure consistently remains above normal levels. Compliance with medication, adherence to dietary restrictions, and regular blood pressure monitoring are key components in the successful treatment of hypertensive patients. One approach to improving patient compliance in managing hypertension is the implementation of Self-Management Education (SME) based on the Health Promotion Model (HPM). This study aims to examine the effect of SME on compliance behavior among hypertensive patients in the Baumata Health Center, Kupang Regency.
Keywords: blood glucose status, cognitive status, duration of illness, patient characteristics, type- 2 diabetes mellitus	<i>Methods:</i> A quasi-experimental design was used in this study, with 70 participants selected through purposive sampling, divided into two groups: 35 participants in the intervention group and 35 in the control group. The instruments used included the Morisky Medication Adherence Scale (MMAS-8), a hypertension diet questionnaire, and a blood pressure monitoring questionnaire. Data were analyzed using an independent t-test for bivariate analysis and MANOVA for multivariate analysis. <i>Results:</i> The findings indicate a significant effect of SME on the intervention group, with a p-value of < 0.05. The SME approach, based on HPM principles, involved patient empowerment and behavioral strategies. Ongoing support also contributed to sustained progress, leading to improved compliance in medication adherence, diet, and blood pressure monitoring among hypertensive patients. <i>Conclusion:</i> Future research should include larger sample sizes, more precise instruments, and longer study durations to achieve more robust results regarding compliance in hypertension management.

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## INTRODUCTION

The World Health Organization (WHO) defines hypertension as a systolic blood pressure above 140 mmHg or a diastolic blood pressure above 90 mmHg [1]. Data from the 2018 RISKESDAS survey indicated that 7.2%, or 76,130 cases, occurred in Nusa Tenggara Timur (NTT), making hypertension the fourth most common disease [2]. In the Baumata community health center area, there are 688 hypertensive patients. Managing hypertension is a long-term process requiring effective strategies to manage the condition. The earlier hypertensive patients are informed about their condition, the more likely they are to adopt self-management programs. To achieve this, patients need information that enhances their ability to manage their own care. Self-management interventions help patients acquire and practice the skills necessary to follow medical regimens, modify health behaviors, and receive emotional support to manage their condition.

Interviews revealed that many hypertensive patients do not comply with treatment recommendations provided by healthcare workers. Several factors influence non-compliance, including a lack of knowledge about the importance of therapy, discomfort associated with taking medication, and the belief that once blood pressure returns to normal, medication is no longer needed.

Martins et al. reported that hypertensive patients tend to seek healthcare services only when symptoms appear, even in cases of complications such as stroke. Awareness increased in the treatment group after

receiving Self-Management Education (SME), with SME contributing to 28.4% of blood pressure control compliance. This suggests that 71.6% of the factors influencing compliance are attributable to factors beyond SME provision [3]. Compliance in hypertensive treatment is crucial because hypertension is an incurable disease that must be consistently managed to prevent complications that could lead to death. Non-compliance is a common issue in treating chronic conditions such as hypertension.

Data obtained from initial interviews and observations of hypertensive patients in the villages of Oeletsala and Baumata revealed that 70% were non-compliant with taking their medication, monitoring their blood pressure, or attending elderly health services. Additionally, 20% were smokers, and 10% did not follow a hypertension-specific diet. Although there is no cure for hypertension, it can be controlled through regular health monitoring, a low-salt diet, and consistent medication use, which can reduce the risk of complications affecting the cardiovascular system and other organs.

One way to improve hypertensive patients' behavior is through health education. The researchers propose a self-management education method based on the Health Promotion Model (HPM). This method provides education on preventing and managing hypertension, focusing on independent behavioral interventions, such as disease monitoring and dietary management. Previous studies have shown a correlation between knowledge and self-management in hypertensive patients. SME offers guidance, counseling, and behavioral

intervention aimed at increasing knowledge about hypertension and enhancing the skills of individuals and families in managing the condition. Blood pressure control in hypertensive patients will be more effective if patients and their families prioritize self-control, focusing on preventive, curative, and rehabilitative efforts. Self-management helps patients and their family members treat and prevent complications, work cooperatively with healthcare providers, and foster independence in managing health. Educational programs improve compliance with treatment regimens because SME goes beyond ordinary education by empowering patients to take autonomous actions in managing their disease. More importantly, SME increases patients' knowledge about their condition.

One of the behavioral health models is the Health Promotion Model (HPM) by Pender (2002), which describes human interactions with their physical and interpersonal environments from various perspectives. The HPM is one of the most relevant theories for health-related behaviors. This model encompasses factors necessary for improving compliance behavior, including internal and external components found in behavioral-specific cognitions and affect, such as perceived benefits, perceived barriers, perceived self-efficacy, activity-related affect, and interpersonal influence. The HPM is particularly effective in explaining health behaviors through its two stages: decision-making and action. It integrates two theories, Expectancy Value Theory, and Social Cognitive Theory, aligning with theories that emphasize health promotion and disease

prevention [4]. It is anticipated that implementing Self-Management Education (SME) based on the Health Promotion Model has the potential to enhance compliance among hypertensive patients. This study aims to explore how SME impacts the compliance behavior of hypertensive patients in the working area of the Puskesmas Baumata, Kupang Regency.

## **METHODS**

### ***Design***

This study is quantitative research utilizing a quasi-experimental design with a pre-test and post-test control group. The goal of this design is to compare the effects of self-management training on the compliance behavior of hypertensive patients before and after the intervention. The population in this study consisted of all hypertensive patients in the Baumata Public Health Center's service area who met the inclusion criteria set by the researcher. These criteria included hypertensive patients aged 18 years or older who were willing to participate as respondents. The exclusion criteria were patients with mental, hearing, or visual impairments, as well as those with complications from other diseases, such as diabetes mellitus, kidney failure, or heart disease. A total of 70 respondents were involved in the study. The sampling technique used was purposive sampling, where only those meeting the inclusion criteria were selected as respondents. The independent variable in this study was self-management education for hypertensive patients, which involves teaching individuals with chronic

conditions the knowledge, skills, and motivation to make informed decisions and increase their confidence in applying self-care skills in daily life. The dependent variable was compliance behavior, which includes actions such as medication adherence, adherence to a hypertension diet, and blood pressure control.

### ***Procedures***

Before conducting the research, the researcher submitted a research permit request to the Nursing Program at STIKes Maranatha Kupang. This request was then forwarded to the Kupang District Health Office for official approval. Upon receiving approval, the letter was sent to the Baumata Public Health Center. The researcher then coordinated with the Head of the Baumata Public Health Center and the Head of Baumata Village to discuss the research plan. The researcher also informed hypertensive patients about the upcoming study and invited them to participate. Primary data were collected through questionnaires distributed to the selected respondents, while secondary data were obtained from supplementary sources such as journals, books, and relevant patient medical records. This comprehensive data collection ensured a solid foundation for analysis.

### ***Instrument***

The instruments used in this study were standardized questionnaires: the Morisky Medication Adherence Scale (MMAS-8) for medication adherence, a hypertension diet questionnaire, and a blood pressure control

questionnaire. Each instrument consisted of eight questions, presented in both positive (favorable) and negative (unfavorable) forms. The validity and reliability of these instruments have been tested in previous studies, ensuring their appropriateness for scientific research. The MMAS-8 has demonstrated strong construct validity, effectively measuring medication adherence as intended. Similarly, the hypertension diet and blood pressure control questionnaires have undergone relevant validity testing, ensuring the questions accurately reflect essential aspects of adherence to diet and blood pressure control behaviors.

For the MMAS-8, questions 1–7 are scored as follows: If the answer is "Yes," the score is 0; if "No," the score is 1. For question 8, responses are measured on a 5-point Likert scale: 0 = Never, 0.25 = Almost never, 0.5 = Sometimes, 0.75 = Almost always, and 1 = Always. The total score is then interpreted as follows: a score of 8 indicates high adherence; a score of 6 to <8 indicates moderate adherence; and a score of <6 indicates low adherence. The MMAS-8 has shown high reliability, with Cronbach's Alpha values typically exceeding 0.7, indicating strong internal consistency. The hypertension diet and blood pressure control questionnaires also exhibit significant reliability, as confirmed by internal reliability testing, ensuring consistent measurement of adherence behaviors across different conditions and time points. Therefore, the instruments used in this study are reliable for assessing patient adherence.

### **Data Analysis**

Data analysis was conducted using SPSS software through several stages. First, univariate analysis was performed to describe the variables and respondent characteristics using frequency distribution tables. Bivariate analysis was then carried out using an independent t-test to compare differences between the treatment and control groups, with the Wilcoxon test applied for non-normally distributed data. Finally, multivariate analysis using MANOVA was conducted to evaluate the simultaneous effects of variables. Normality and homogeneity tests were performed to ensure the validity of the results.

### **Ethical Consideration**

Prior to conducting the research, all necessary licensing processes were completed, and the study underwent an ethical review by the Ethics Committee of the Chakra Brahmanda Lentera Institution, which granted approval under the number No. 129/007/IX/EC/KEP/LCBL/2023.

## **RESULTS**

### **Patient Characteristics Based on Clinical Data**

General data related to the clinical condition of patients is referred to as clinical data. This includes blood pressure measurements, duration of hypertension, and classification of hypertension. The diagnosis of hypertension was obtained from the Baumata Health Centre and from measurements taken during the study, while the duration of hypertension was

gathered through interviews. Table 1 below shows the distribution of respondents based on their clinical characteristics.

Table 1 shows that the majority (60%) of patients have been diagnosed with hypertension for more than two years and are classified as having stage 2 hypertension, both in the SME group and the control group.

### **Overview of Patient Compliance**

#### **Levels Before the Intervention**

The pre-test was conducted before SME was administered to determine the initial compliance scores of hypertensive patients in both the treatment and control groups. Compliance was measured in terms of medication adherence, hypertension diet, and blood pressure control. The results are shown in Table 2 below.

Table 2 shows the pre-test compliance behavior scores for hypertensive patients. The mean total compliance behavior score was 12.54 in the control group and 13.91 in the SME group, with no significant difference between the groups.

### **Effect of SME on Medication**

#### **Adherence in Hypertensive Patients**

Table 3 below presents the analysis of differences in medication adherence between the control and treatment groups.

Table 3 shows significant differences in medication adherence, diet compliance, and blood pressure control between the control and SME groups ( $p < 0.05$ ). The treatment group had a significantly higher average compliance score (19.97) compared to the control group (15.40).

To evaluate the simultaneous effects of SME on the three variables (medication adherence, diet compliance, and blood pressure control), a multivariate analysis of variance (MANOVA) was conducted.

**Effect of SME on Medication Adherence, Dietary Compliance, and Disease Control in Hypertensive Patients**

The results of the simultaneous test using MANOVA are presented in Table 4. Table 4 indicates a significant relationship between SME and the three dependent variables: medication adherence, dietary compliance, and blood pressure control ( $p = 0.000$ ). SME

accounts for 52.7% of the variance in compliance behavior.

A post hoc analysis using Bonferroni correction was conducted to identify significant differences in the variables.

**Post Hoc Analysis of the Differences in Mean**

Table 5 shows that all three variables—medication adherence, hypertension diet, and blood pressure control—significantly differ between the SME and control groups ( $p < 0.05$ ). SME contributed 30.7% to medication adherence, 27.7% to diet adherence, and 28.4% to blood pressure control adherence.

**Table 1**  
Frequency Distribution of Clinical Data of Hypertensive Patients

Blood Pressure (BP)	Control Group (n=35)		SME Group (n=35)	
	(Mean±SD)	Min-Max	(Mean±SD)	Min-Max
Systolic	159.4 ± 12.4	140-190	159.4 ± 14.9	140-190
Diastolic	93.71 ± 7.7	80-110	93.71 ± 8.1	80-110
<b>Hypertension Classification</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
Stage II	14	40	14	40
Stage III	21	60	21	60
<b>Hypertension Diagnosis</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
< 1 Year	4	11.4	7	28
> 1 Year	31	88.6	28	80

**Table 2**  
Compliance Behavior Scores Before Intervention

Variable	Control Group		SME Group	
	(Mean±SD)	Min-Max	(Mean±SD)	Min-Max
Medication Adherence	4,23±1,61	1-7	4,54±1,42	2-7
Hypertension Diet	4,26±1,63	1-7	4,80±1,23	2-7
Blood Pressure Control	4,06±1,69	1-7	4,57±1,31	2-7
Total Compliance Behavior	12,54±2.57	5-17	13,91±2.11	10-19

**Table 3**

Analysis of the Effect of SME on Medication Adherence in Hypertensive Patients

Variable	Control	SME	Difference	T-value	P-value
	Mean ± SD	Mean ± SD			
Medication Adherence	5,14±1,332	6,71±1,045	1,571	5,492	0,000
Diet Compliance	5,17±1,361	6,63±1,003	1,457	5,100	0,000
Blood Pressure Control Compliance	5,09±1,401	6,63±1,060	1,543	5,196	0,000
Overall Compliance Behavior (medication adherence, diet, and blood pressure control)	15,40±2,488	19,97±1,886	4,571	8,663	0,000

**Table 4**

Analysis of the Effect of SME on Medication Adherence, Dietary Compliance, and Disease Control in Hypertensive Patients

Variable	Control	SME	P-value	Partial Eta Squared
	Mean ± SD	Mean ± SD		
Medication Adherence	5.14±1.33	6.71±1.05	0,000	0,527
Dietary Compliance	5.17±1.36	6.63±1.00		
Blood Pressure Control Compliance	5.09±1.40	6.63±1.06		

**Table 5**

Post Hoc Analysis of the Differences in Mean Post-Test Scores for Medication Adherence, Hypertension Diet, and Blood Pressure Control between the SME Group and the Control Group

Variable	Group	Mean Difference	t-value	P-value	Partial Eta Squared	95% CI	
						Min	Max
Medication Adherence	Control	1,571*	5,492	0,000	0,307	1,000	2,142
	SME						
Dietary Compliance	Control	1,457*	5,100	0,000	0,277	0,887	2,027
	SME						
Blood Pressure Control Compliance	Control	1,543*	5,196	0,000	0,284	0,950	2,35
	SME						

**DISCUSSIONS*****The Influence of Self-Management******Education on Medication Adherence******Behaviour in Hypertensive Patients***

Medication adherence in hypertensive

patients refers to the consistency with which patients take their prescribed medications regularly and as directed by their doctors, in terms of both dosage and timing. The study results indicate that the mean adherence score in the SME group was 6.71, which was

higher than the control group's mean score of 5.14. The analysis reveals a significant difference in medication adherence scores between the intervention group, which received SME, and the control group, which received only standard care from the health center. This finding demonstrates that SME positively influences medication adherence in hypertensive patients. These results align with previous studies by Golshahi et al. (2015) and Delavar et al. (2019), which found that providing educational programs enhances adherence to treatment regimens. This is because SME not only offers education but also empowers patients to manage their condition independently. More importantly, SME increases patients' knowledge about their condition[5];[6].

Changes in medication adherence behavior were observed through responses to the questionnaire, where most patients reported not forgetting to take their medication, whether at home or while traveling. In the intervention group, more patients exhibited awareness of medication adherence by consistently taking their medication as prescribed, continuing their medication even after their blood pressure decreased, and regularly consulting healthcare professionals. In contrast, many in the control group discontinued medication when their blood pressure dropped or their supply ran out. This suggests that SME raises awareness and fosters positive health behaviors in hypertensive patients. Additionally, SME enhances patients' commitment and self-confidence, which contrasts with the control group, who continued to view hypertension management

as long and challenging. This finding is consistent with Mulyati et al. (2013), who emphasized that hypertension requires long-term management, and that patients must take responsibility for self-management to alleviate symptoms and reduce complications [7].

Self-management involves patients regulating their own behavior, using available resources to control their condition [8]. The theory highlights the need for cognitive processes to change behavior. The three types of self-beliefs in this theory are: a) self-attribution (self-recognition), b) self-evaluation (evaluating oneself to regulate behavior and environment and motivate oneself), and c) self-efficacy (confidence in one's ability to take action, which develops through learning and experience) [9]. In the Health Promotion Model (HPM), barriers to health behaviors are recognized as internal or external. Internal barriers include a lack of knowledge or motivation, while external barriers might involve limited social support.

### ***The Effect of Self-Management Education on Hypertension Diet Behaviour***

One objective of this study was to assess the effect of SME on adherence to a hypertension-friendly diet. A hypertension diet involves regulating food intake, particularly by limiting sodium and fatty foods to help control blood pressure. The results showed that the average diet adherence score for the SME group was higher at 6.63, compared to 5.17 for the control group. The analysis revealed a p-value of  $< 0.05$ , indicating that SME significantly

influences dietary behavior in hypertensive patients. This finding is consistent with a study in Iran involving elderly hypertensive patients, where SME effectively reduced sodium intake [10]. A separate study involving 146 uncontrolled hypertensive patients in Africa found that culturally tailored SME approaches significantly improved adherence to healthy dietary habits [6]. Behavioral changes following the SME intervention were evident in respondents' adherence to doctors' recommendations for a low-sodium diet and limiting the intake of fatty foods. In contrast, the control group, although limiting sodium, was more likely to consume fatty foods. The SME group also prioritized vegetables and fruits more than the control group, contributing to their higher diet adherence score.

Moradi et al. (2019) noted that the effectiveness of SME in dietary management is influenced by recommendations focusing on vegetable and fruit consumption alongside limiting high-fat and high-sodium foods [10]. Hwang et al. (2014) demonstrated that SME reduced salt and alcohol consumption in hypertensive patients, with SME contributing 32% to low-sodium diets. In this study, SME contributed 27.7% to diet adherence, suggesting that other factors also play a role [11]. Green (1997) noted that adherence is a behavioral change from non-compliance to compliance with recommended actions [12]. Two factors influence adherence, according to Kyngas (1999): internal factors, such as patient characteristics and emotions, and external factors, including education, healthcare interactions, and family support [13].

In both the treatment and control groups, some respondents did not follow the hypertension diet according to their responses. This is due to the fact that the community still adheres to traditions and habits that cannot be eliminated, such as alcohol consumption during traditional ceremonies. This is consistent with the findings of Mega et al. (2020), where alcohol consumption was found to be positively associated with hypertension among the NTT population aged 35 to 55 years [14]. In reality, many areas in NTT produce various types of alcoholic beverages, which supports these habits and environmental situations [15].

Providing education about proper diet management for hypertensive patients has been shown to enhance understanding and change respondents' behavior, making them more compliant by the end of the study. Edelman and Mandle (2002) in Delaune & Ladner (2011) stated that the goal of health education is to help individuals achieve optimal health levels through their own actions. Providing education is one of the important functions of nurses in meeting clients' information needs [16]. In HPM theory, knowledge is a personal factor component that interacts with other factors to influence health behavior. Knowledge enhances self-efficacy. Perceived self-efficacy is an individual's assessment of their ability to manage and implement actions that promote health. Self-efficacy affects perceived barriers to action, allowing individuals to overcome obstacles that could impact their health behavior. It can be said that knowledge is one of the personal components affecting a person's health behavior.

***The Effect of Self-Management  
Education on Compliance with Blood  
Pressure Control in Hypertensive  
Patients***

In this study, compliance with blood pressure control refers to patients' adherence to regularly monitoring their blood pressure at health centers, with doctors, or during monthly elderly health checks. The results showed that the average compliance score in the intervention group after receiving SME was 6.63, while the control group scored 5.09. The analysis indicated a significant difference in compliance between the two groups, suggesting that SME positively affects blood pressure control.

A similar study in Thailand on hypertensive patients found that a three-month SME program reduced both systolic and diastolic blood pressure. Another study in China demonstrated that SME improved blood pressure monitoring behaviors in 78% of participants [17]. In this study, the SME group reported more regular blood pressure checks and better emotional control, while the control group often avoided monitoring, citing stress. The education provided to the SME group increased their awareness of the importance of regular monitoring.

Patients with better self-management skills tend to achieve better disease control. Several factors influence compliance with blood pressure control, including financial support. Patients with health insurance were more likely to monitor their blood pressure regularly [18]. According to the questionnaire responses, the SME group demonstrated regular compliance with blood pressure

checks at health facilities without waiting for symptoms to arise and could control their emotions when angry. In contrast, many in the control group did not monitor their blood pressure because they felt that doing so added to their emotional stress. The study also showed that most hypertensive patients monitored their blood pressure during elderly health checks conducted by healthcare providers at Posyandu Lansia. This indicates that hypertensive patients have a level of self-awareness and are willing to adhere to a scheduled blood pressure monitoring routine. The pre-test revealed that both groups initially felt it was burdensome to check their blood pressure at the community health center. However, the education provided to the SME group increased their understanding and awareness of the importance of regular blood pressure monitoring.

Patients with higher self-management skills are more likely to achieve better disease control. Hypertensive patients with good self-management also demonstrated the ability to monitor their physical condition, manage their diet, and control their emotions. Compliance with blood pressure monitoring is heavily influenced by various factors, one of which is financial support. Patients who pay for their own healthcare tend to monitor their blood pressure less frequently compared to those covered by health insurance [18]. A study conducted in Tanzania identified several factors influencing blood pressure control compliance, including knowledge level, medication adherence, obesity, and availability of financial resources. Interestingly, there was no significant difference in blood pressure control between

urban and rural populations [19]. In this study, several aspects contributed to the improvement of compliance with blood pressure control. From an individual perspective, the key factors were self-awareness and confidence in recovery. External factors included the role of healthcare workers and family support. The community in East Nusa Tenggara (NTT) places high value on social relationships, and the commitment to recovery is often driven by the influence of others. Family support and the involvement of healthcare workers are significant forms of social support that play a crucial role in behavior change, in addition to the individual's own efforts. However, further research is needed to substantiate the impact of social support on health behavior changes. Previous studies have demonstrated that social support and the role of healthcare workers contribute to behavioral changes in individuals suffering from various illnesses [19]. According to the Health Promotion Model (HPM) theory, an individual's behavior is shaped by their commitment to an action plan. This commitment is partly formed by interpersonal influences, which encompass the cognitive behaviors, beliefs, or attitudes of others. Interpersonal influences include modeling (learning by observing others' behaviors), norms (expectations from significant others), and social support (both instrumental and emotional encouragement). Peers, doctors, and family members serve as primary sources of interpersonal influence.

#### ***The Simultaneous Effect of Self-Management Education on***

#### ***Medication Adherence, Hypertension Control, and Hypertension Diet***

This analysis examines the simultaneous effects of Self-Management Education (SME) on medication adherence, dietary management, and blood pressure control in hypertensive patients. The total compliance behavior score after SME intervention was 19.97, higher than the control group, which received standard counseling from the community health center (Puskesmas) and scored 15.40. The analysis revealed a significant difference between the intervention group and the control group after receiving SME. Using the General Linear Model (GLM) MANOVA post-hoc Bonferroni test, it was found that SME significantly influenced medication adherence, dietary management, and blood pressure control in hypertensive patients, with an effect contribution of 52.7%. The remaining percentage is influenced by other variables outside this study that have yet to be explained. Two general factors influencing the self-management of hypertensive patients are demographic and health-related factors. Demographic factors include age, gender, marital status, education level, income, and place of residence. Younger adults and early elderly individuals with higher education levels tend to manage hypertension better than those with lower education levels and older age. Health-related factors include daily living activities, duration of hypertension, and comorbidities related to hypertension [20].

Several factors, such as knowledge, education level, social support, self-efficacy, and the duration of hypertension, influence

self-management in hypertensive patients. Patients' knowledge boosts their confidence and fosters trust in effective hypertension treatment. Therefore, a comprehensive understanding of the disease, including its risk factors, diagnosis, treatment, and complications, is crucial. Effective self-management in hypertensive patients can enhance patient satisfaction, reduce healthcare costs, boost self-confidence and independence, and improve their quality of life [20];[21];[7]. In this study, SME was an intervention aimed at improving patients' understanding to foster compliant behavior in medication adherence, dietary management, and blood pressure control. However, other interventions are likely contributing to the increase in these areas of compliance. In a separate study by Sakinah et al. (2020), it was found that age, education level, and knowledge were factors related to hypertension self-management among the Timorese. Individuals over 55 years old and those with lower education levels exhibited poorer hypertension self-management, while those with better knowledge demonstrated stronger self-management skills. The study also found no significant relationship between gender and occupation with hypertension self-management [22].

Understanding disease management is believed to play a critical role in patient compliance with medication, diet, and blood pressure control in this study. In hypertensive patients, this understanding develops alongside the progression of the disease. Those who lack awareness of the importance of good self-management are more likely to be non-compliant with their medication, diet,

and blood pressure control. If left unchecked, this non-compliance can lead to disease complications and, ultimately, death. Self-management refers to an individual's ability to manage the symptoms, treatments, physical and psychological impacts, and lifestyle changes associated with chronic conditions. It encompasses behaviors such as: (1) participating in activities that promote health, (2) monitoring and managing disease symptoms, (3) managing the impact of the disease on functioning, emotions, and interpersonal relationships, and (4) adhering to prescribed treatment regimens [23]. Chronic disease self-management, as an intervention, involves systematic monitoring and active participation in decision-making or both [24]. In the context of Self-Management Education (SME) for hypertensive patients, some aspects remain unexplained, particularly regarding the enhancement of patients' self-awareness concerning their condition. Self-awareness arises from a sense of responsibility for recovery and develops based on the patient's experiences with their illness and external factors influencing recovery.

Self-awareness and self-regulation are critical and depend on the patient's ability to incorporate healthcare routines into daily life, such as exercise, weight control, blood pressure monitoring, and stress management. Self-regulation refers to the individual's ability to manage their behaviors through self-monitoring of bodily signs and symptoms, by identifying life situations and their relation to specific behaviors [24]. The researcher suggests that other factors, not yet fully explored in this study, likely contribute to the

self-management of hypertension in these patients, particularly self-awareness and self-regulation. This is especially relevant to the Timorese community in Nusa Tenggara Timur (NTT), where the majority of respondents in this study belong to the Timorese ethnic group. Cultural beliefs, values, and practices also influence perceptions and healthy behaviors within this community. Among hypertensive patients in the village of Oeletsala, Kupang Regency, NTT Province, these factors are believed to play a significant role in their self-management of hypertension.

## CONCLUSION

Self-Management Education based on the Health Promotion Model can enhance adherence to medication, dietary management, and blood pressure control among hypertensive patients. Simultaneously, SME significantly influences medication adherence, hypertension-related dietary behaviors, and blood pressure monitoring.

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## CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest related to this study. This research was conducted without any financial or personal relationships that could influence the results or interpretations presented.

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