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Association Between Hypertension-Related Knowledge and Medication Adherence Among Patients with Hypertension in the Coastal Area of Wakatobi Regency

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ABSTRACT

Background: Hypertension is a chronic disease that requires lifelong medication adherence to prevent cardiovascular complications. However, medication adherence remains suboptimal, particularly among coastal populations with limited access to healthcare services. Hypertension-related knowledge is considered one of the key factors influencing patients' adherence to prescribed treatment.

Objective: To examine the relationship between hypertension-related knowledge and medication adherence among patients with hypertension living in the coastal area of Wakatobi Regency.

Methods: An analytical observational study with a cross-sectional design was conducted among 100 patients with hypertension selected using proportionate stratified random sampling. Hypertension-related knowledge was assessed using the *Hypertension Knowledge-Level Scale* (HK-LS), while medication adherence was measured using the *Morisky Medication Adherence Scale* (MMAS-8). Data were analyzed using descriptive statistics and the Chi-square test, with statistical significance established at $p < 0.05$.

Results: Most participants demonstrated a moderate level of hypertension-related knowledge (47.0%) and moderate medication adherence (45.0%). Bivariate analysis showed that educational level ($p = 0.009$), duration of hypertension ($p = 0.041$), and family support ($p < 0.001$) were significantly associated with medication adherence. A statistically significant association was also observed between hypertension-related knowledge and medication adherence ($\chi^2 = 39.87$; $p < 0.001$). Participants with higher knowledge demonstrated a substantially greater proportion of high medication adherence than those with lower knowledge.

Conclusion: Hypertension-related knowledge is significantly associated with medication adherence among patients with hypertension living in the coastal area of Wakatobi Regency. Improving patients' knowledge through continuous health education may enhance medication adherence and contribute to better long-term hypertension management.

Keywords: coastal community; hypertension; knowledge; medication adherence; Wakatobi

INTRODUCTION

Hypertension is one of the most prevalent chronic non-communicable diseases and remains a leading cause of cardiovascular

morbidity and premature mortality worldwide. Persistent elevation of blood pressure substantially increases the risk of stroke, coronary artery disease, heart failure, chronic kidney disease, peripheral arterial disease, and other vascular complications. Despite considerable advances in antihypertensive pharmacotherapy and evidence-based clinical guidelines, optimal blood pressure control continues to be a major public health challenge (Abu et al., 2018). Effective hypertension management depends not only on the availability of medications but also on patients' ability to adhere consistently to prescribed treatment regimens and adopt healthy lifestyle behaviors. Medication adherence is recognized as a cornerstone of hypertension management because continuous use of antihypertensive drugs significantly reduces cardiovascular events, prevents target-organ damage, and improves long-term survival. Nevertheless, poor adherence remains widespread, contributing to uncontrolled blood pressure, increased hospitalization, avoidable healthcare expenditures, and diminished quality of life. Since hypertension is often asymptomatic during its early stages, many patients underestimate the importance of lifelong treatment, resulting in inconsistent medication use or premature discontinuation of therapy (Barreto et al., 2014).

Among the numerous determinants of medication adherence, patient knowledge has received increasing attention because it directly influences health-related decision-making and self-management behaviors. Knowledge refers to an individual's understanding of hypertension, including its causes, risk factors, complications, treatment objectives, medication benefits, potential adverse effects, and the importance of continuous therapy even in the absence of symptoms. Patients with adequate knowledge are generally better equipped to recognize the seriousness of hypertension, appreciate the necessity of long-term medication, identify warning signs of disease progression, and actively participate in disease management (Al-Hazmi et al., 2025; Saleem et al., 2015). Conversely, inadequate knowledge may lead to misconceptions regarding treatment effectiveness, inappropriate medication practices, reliance on traditional remedies without medical supervision, and poor compliance with prescribed therapy. Health education therefore represents a fundamental component of chronic disease management because improved knowledge serves as the basis for informed decision-making, strengthens treatment motivation, enhances communication with healthcare providers, and promotes sustainable health behaviors. Understanding the relationship between knowledge and medication adherence is particularly important in chronic diseases such as hypertension, where successful outcomes rely heavily on patients' active participation in their own care (ALruwaili, 2024).

Hypertension continues to pose an enormous global health burden. According to the World Health Organization, approximately 1.28 billion adults aged 30–79 years worldwide are living with hypertension, with nearly two-thirds residing in low- and middle-income countries. Despite the availability of effective treatment, only about 42% of hypertensive individuals are diagnosed and treated appropriately, while approximately 21% achieve adequate blood pressure control. Hypertension contributes to nearly 10.8 million deaths annually and remains one of the leading modifiable risk factors for cardiovascular disease. In Indonesia, hypertension remains among the most common non-communicable diseases managed within primary healthcare services (Giakoumidakis et al., 2024). The 2023 Indonesian Health Survey reported that hypertension prevalence remains high among adults and continues to increase with advancing age. Furthermore, hypertension consistently ranks among the leading causes of outpatient visits under the National Health Insurance system. In Southeast Sulawesi Province, hypertension has

become one of the priority chronic diseases targeted through national non-communicable disease control programs. Likewise, health profile reports from Wakatobi Regency indicate that hypertension is consistently among the most frequently diagnosed chronic conditions at community health centers. Coastal communities within Wakatobi experience unique healthcare challenges related to geographical isolation, transportation barriers, dispersed island settlements, dependence on marine occupations, and limited continuity of healthcare services, all of which may influence patients' knowledge acquisition and adherence to long-term medication (Karaeren et al., 2009; Verulava & Mikiashvili, 2021).

Patients living in coastal communities often face circumstances that limit opportunities to receive continuous health education and routine monitoring. Many residents spend prolonged periods engaged in fishing activities, reducing their availability to attend health promotion programs or regular medical consultations. Geographic separation between islands, limited transportation infrastructure, fluctuating economic conditions, and restricted access to healthcare information further complicate chronic disease management. Consequently, patients may have insufficient understanding of hypertension despite receiving pharmacological treatment. Limited knowledge regarding disease progression, treatment objectives, and the consequences of medication discontinuation may contribute to poor adherence and uncontrolled blood pressure. Existing hypertension management programs implemented through primary healthcare centers have largely emphasized medication distribution and routine blood pressure monitoring, whereas educational interventions tailored to the unique characteristics of coastal communities remain relatively limited. These conditions indicate that improving medication adherence requires not only ensuring drug availability but also strengthening patients' understanding of hypertension through effective educational approaches adapted to local contexts (Pan et al., 2017; Patel et al., 2015).

Previous studies have consistently reported that patient knowledge is associated with medication adherence among individuals with chronic diseases, including hypertension. However, the magnitude of this relationship varies considerably across different populations and healthcare settings. Several studies conducted in developed countries have demonstrated that patients with higher disease-related knowledge exhibit better adherence because they possess greater awareness of treatment benefits and disease complications. Nevertheless, evidence from low-resource and geographically isolated settings remains relatively scarce. In Indonesia, previous investigations have primarily been conducted in urban hospitals or district health centers where healthcare accessibility and educational opportunities differ substantially from those experienced by coastal populations. Moreover, many earlier studies focused predominantly on demographic characteristics, socioeconomic status, or clinical variables while giving comparatively less attention to contextual factors influencing knowledge acquisition in remote island communities. The unique sociocultural characteristics, educational disparities, and healthcare accessibility challenges of coastal populations suggest that findings from urban settings cannot be generalized directly to patients living in Wakatobi Regency. Consequently, additional evidence generated from this specific context is needed to better understand the contribution of patient knowledge to medication adherence within geographically isolated coastal communities (Alzahrani et al., 2019; Raza, 2021).

Examining the relationship between knowledge and medication adherence among hypertensive patients in coastal Wakatobi is important because the findings may provide evidence for developing more effective patient education strategies within

primary healthcare services. Identifying knowledge as a significant determinant of adherence would support the integration of structured educational programs into routine hypertension management, enabling healthcare professionals to deliver targeted counseling that addresses misconceptions, improves disease awareness, and encourages lifelong treatment compliance. Furthermore, evidence derived from coastal communities broadens current understanding of hypertension management beyond conventional urban settings and highlights the influence of geographical and sociocultural contexts on health behavior. By focusing specifically on patients living in remote coastal areas, this study contributes context-specific evidence that may assist policymakers, healthcare providers, and public health practitioners in designing culturally appropriate educational interventions capable of improving medication adherence and long-term hypertension control among underserved populations.

Based on these considerations, the present study aims to analyze the relationship between knowledge and medication adherence among patients with hypertension living in the coastal area of Wakatobi Regency. The findings are expected to enrich the existing body of evidence regarding behavioral determinants of medication adherence while providing practical guidance for strengthening patient education within primary healthcare settings serving coastal populations. The results may also contribute to the development of community-based hypertension management programs that are responsive to local healthcare challenges and cultural characteristics. It is hypothesized that patients with higher levels of hypertension-related knowledge are significantly more likely to demonstrate better adherence to prescribed antihypertensive medication than patients with lower levels of knowledge.

MATERIALS & METHODS

This study employed an analytical observational design with a cross-sectional approach to examine the relationship between knowledge and medication adherence among patients with hypertension living in the coastal area of Wakatobi Regency, Southeast Sulawesi, Indonesia. The study was conducted from March 2026 in the working areas of selected Community Health Centers (Puskesmas) that provide hypertension management services for coastal populations. A cross-sectional design was chosen because it enables the simultaneous measurement of the independent variable (hypertension-related knowledge) and the dependent variable (medication adherence), allowing the assessment of their association within a defined population at a single point in time. The reporting of this study followed the recommendations of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement for cross-sectional studies.

The target population comprised all adult patients diagnosed with primary hypertension who resided in the coastal area of Wakatobi Regency and were registered for hypertension care at the participating Community Health Centers. The source population consisted of hypertensive patients attending outpatient services during the study period. Participants were selected using proportionate stratified random sampling based on the number of registered hypertensive patients at each participating health center to ensure proportional representation of each coastal service area. The minimum required sample size was calculated using the formula for correlation studies with a confidence level of 95%, statistical power of 80%, and an expected correlation coefficient of 0.30, resulting in a minimum sample of 84 participants. To account for possible non-response and incomplete questionnaires, an additional 15% was added, resulting in a final target sample of 100 participants.

Participants were eligible for inclusion if they met the following criteria: (1) aged 18 years or older; (2) diagnosed with primary hypertension by a physician for at least six months; (3) currently receiving antihypertensive medication; (4) residing permanently in the coastal area of Wakatobi Regency; (5) able to communicate effectively in Bahasa Indonesia; and (6) willing to participate by signing written informed consent. Participants were excluded if they had secondary hypertension, severe cognitive impairment, psychiatric disorders that interfered with communication, severe hearing or speech impairments, terminal illness, or incomplete questionnaire responses exceeding 10% of the total instrument items.

The independent variable in this study was hypertension-related knowledge, defined as the patient's level of understanding regarding hypertension, including its causes, risk factors, symptoms, complications, treatment objectives, lifestyle modification, and the importance of continuous medication adherence. Knowledge was measured using the Hypertension Knowledge-Level Scale (HK-LS), a validated questionnaire consisting of multiple-choice and true-or-false items covering major domains of hypertension knowledge. Correct responses were scored as one point and incorrect responses as zero, with higher total scores indicating better knowledge. Based on the total score, participants were categorized into low, moderate, and high knowledge levels using predetermined cut-off values. The dependent variable was medication adherence, assessed using the eight-item Morisky Medication Adherence Scale (MMAS-8). MMAS-8 scores ranged from 0 to 8 and were categorized into low (<6), moderate (6 to <8), and high adherence (8), following the original scoring recommendations. Additional variables collected included age, sex, educational level, occupation, duration of hypertension, presence of comorbidities, smoking status, monthly household income, and family support because these variables have been reported in previous studies as potential determinants of medication adherence.

Prior to data collection, all questionnaires underwent forward translation, content validation by a panel of three experts in public health and community nursing, and pilot testing among 30 hypertensive patients outside the study area. Internal consistency reliability was evaluated using Cronbach's alpha coefficient, with values of at least 0.70 considered acceptable. Item validity was assessed using corrected item-total correlation coefficients, and items with correlation coefficients greater than 0.30 were retained. Data collectors received standardized training regarding participant recruitment, interview techniques, ethical principles, questionnaire administration, confidentiality procedures, and quality control measures to ensure consistency throughout the study.

Data collection was conducted through structured face-to-face interviews after participants had provided written informed consent. Sociodemographic and clinical information was obtained from participant interviews and verified using medical records whenever available. The questionnaires were administered in a standardized manner to minimize interviewer bias. Upon completion, each questionnaire was checked immediately for completeness and accuracy before data entry. Participants were assigned anonymous identification codes to maintain confidentiality. Paper-based questionnaires were stored securely in locked cabinets, whereas electronic databases were password-protected and accessible only to the principal investigator and authorized members of the research team.

Several measures were implemented to minimize potential bias. Selection bias was reduced by using probability sampling and clearly defined eligibility criteria. Information bias was minimized through the use of standardized and validated questionnaires administered by trained interviewers. Recall bias was limited

because respondents were asked about their current medication-taking behaviors rather than long-term historical events. Potential confounding variables were identified from previous literature and included in multivariable analysis when statistically or clinically relevant. Data quality was further maintained through double-entry verification and routine consistency checks during database preparation.

Data were analyzed using IBM SPSS Statistics version 27.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to summarize participant characteristics. Continuous variables were presented as means and standard deviations or medians and interquartile ranges according to data distribution, while categorical variables were summarized using frequencies and percentages. Normality of continuous variables was assessed using the Shapiro–Wilk test. Associations between categorical variables and medication adherence were analyzed using the Chi-square test or Fisher's exact test where appropriate. The relationship between hypertension-related knowledge and medication adherence was examined using Spearman's rank correlation because both variables were ordinal and did not satisfy the assumption of normality. Variables demonstrating p-values below 0.25 in bivariate analyses, together with clinically relevant covariates identified from previous studies, were entered into a multivariable ordinal logistic regression model to determine independent predictors of medication adherence. Adjusted odds ratios (AORs), 95% confidence intervals (95% CI), and p-values were reported. Model assumptions, multicollinearity, proportional odds assumption, and goodness-of-fit were assessed before interpretation of the final regression model. Statistical significance was established at a two-sided p-value of less than 0.05.

Missing data were evaluated before statistical analysis. Participants with missing questionnaire responses exceeding 10% were excluded from the final analysis according to the predetermined exclusion criteria. For questionnaires with minimal missing data, complete-case analysis was performed because the proportion of missing values was considered negligible and unlikely to influence the study findings.

Ethical approval for this study was obtained from the Health Research Ethics Committee of Hasanuddin University (Approval No. 1362/UN4.14.1/TP.01.02/2026). All procedures complied with the ethical principles outlined in the Declaration of Helsinki. Participation was entirely voluntary, and participants were informed about the objectives, procedures, potential risks, and benefits of the study before providing written informed consent. Participants were assured of confidentiality, anonymity, and their right to withdraw from the study at any stage without affecting their access to healthcare services.

RESULT

Table 1. Characteristics of Respondents

Variable	Category	n	%
Age (years)	Mean ± SD	58.42 ± 10.73	
	30–44	12	12.0
	45–59	41	41.0
	≥60	47	47.0
Sex	Male	38	38.0
	Female	62	62.0
Education	Elementary School	34	34.0
	Junior High School	26	26.0
	Senior High School	28	28.0
	College	12	12.0
Occupation	Fisherman	39	39.0
	Housewife	28	28.0
	Farmer	13	13.0

	Civil servant/Private	20	20.0
Duration of Hypertension	<5 years	37	37.0
	5–10 years	40	40.0
	>10 years	23	23.0
Comorbidity	Yes	44	44.0
	No	56	56.0
Smoking	Yes	29	29.0
	No	71	71.0
Family Support	Good	69	69
	Poor	31	31

Table 1 presents the demographic and clinical characteristics of the 100 participants included in this study. The mean age of the respondents was 58.42 ± 10.73 years, with nearly half (47.0%) aged 60 years or older, followed by those aged 45–59 years (41.0%) and 30–44 years (12.0%). Female participants predominated, accounting for 62.0% of the sample, while males represented 38.0%. Regarding educational attainment, the largest proportion had completed elementary school (34.0%), followed by senior high school (28.0%), junior high school (26.0%), and college education (12.0%). In terms of occupation, fishermen constituted the largest occupational group (39.0%), reflecting the coastal setting of the study, followed by housewives (28.0%), private employees or civil servants (20.0%), and farmers (13.0%). Most respondents had been diagnosed with hypertension for 5–10 years (40.0%), whereas 37.0% had lived with hypertension for less than five years and 23.0% for more than ten years. More than half of the participants (56.0%) had no comorbid conditions, while 44.0% reported at least one comorbidity. Smoking was reported by 29.0% of respondents, whereas 71.0% were non-smokers. Furthermore, the majority of participants (69.0%) reported receiving good family support, while 31.0% perceived poor family support.

Table 2. Distribution of Hypertension Knowledge and Medication Adherence (n = 100)

Variable	Category	n	%
Hypertension knowledge	Low	22	22.0
	Moderate	47	47.0
	High	31	31.0
Medication adherence	Low	29	29.0
	Moderate	45	45.0
	High	26	26.0

Table 2 illustrates the distribution of respondents according to their level of hypertension-related knowledge and medication adherence. Almost half of the participants (47.0%) demonstrated a moderate level of knowledge regarding hypertension, while 31.0% had high knowledge and 22.0% had low knowledge. Regarding medication adherence, the largest proportion of respondents exhibited moderate adherence (45.0%), followed by low adherence (29.0%) and high adherence (26.0%).

Table 3. Association between Respondents' Characteristics and Medication Adherence

Variable	Low Adherence n (%)	Moderate/High Adherence n (%)	p-value
Age	10 (21.7)	36 (78.3)	0.124
Sex			0.318
• Male	14 (34.1)	27 (65.9)	
• Female	15 (25.4)	44 (74.6)	
Education			0.009

• Elementary/Junior High	23 (38.3)	37 (61.7)	
• Senior High/College	6 (15.0)	34 (85.0)	
Occupation			0.201
Duration of hypertension			0.041
Comorbidity			0.176
Smoking status			0.088
Family support			<0.001

Table 3 presents the associations between respondents' characteristics and medication adherence. Educational level showed a statistically significant association with medication adherence ($p = 0.009$), indicating that respondents with higher educational attainment tended to demonstrate better adherence to antihypertensive medication. Duration of hypertension was also significantly associated with medication adherence ($p = 0.041$), suggesting that individuals who had lived longer with hypertension were generally more compliant with their prescribed treatment. Family support demonstrated the strongest association with medication adherence ($p < 0.001$), emphasizing the important contribution of social support to long-term treatment compliance. Conversely, age ($p = 0.124$), sex ($p = 0.318$), occupation ($p = 0.201$), comorbidity status ($p = 0.176$), and smoking status ($p = 0.088$) were not significantly associated with medication adherence because their p-values exceeded the predetermined significance level of 0.05.

Table 4. Association between Hypertension Knowledge and Medication Adherence

Knowledge Level	Low Adherence n (%)	Moderate Adherence n (%)	High Adherence n (%)	Total	p-value
Low	15 (68.2)	6 (27.3)	1 (4.5)	22	
Moderate	13 (27.7)	27 (57.4)	7 (14.9)	47	
High	1 (3.2)	12 (38.7)	18 (58.1)	31	
Total	29	45	26	100	<0.001

Table 4 shows the association between hypertension-related knowledge and medication adherence among patients with hypertension. The Chi-square analysis revealed a statistically significant relationship between knowledge level and medication adherence ($\chi^2 = 39.87$; $p < 0.001$). Among respondents with low knowledge, more than two-thirds (68.2%) demonstrated low medication adherence, whereas only 4.5% achieved high adherence. In contrast, respondents with high knowledge exhibited substantially better adherence, with 58.1% classified as having high medication adherence and only 3.2% categorized as having low adherence. Participants with moderate knowledge were predominantly classified as having moderate medication adherence (57.4%).

DISCUSSION

The objective of this study was successfully achieved by identifying the relationship between hypertension-related knowledge and medication adherence among patients with hypertension living in the coastal area of Wakatobi Regency. The findings demonstrated a statistically significant association between knowledge level and medication adherence ($\chi^2 = 39.87$; $p < 0.001$). Respondents with higher levels of knowledge were more likely to demonstrate better adherence to antihypertensive medication than those with limited knowledge. In addition, educational level, duration of hypertension, and family support were also significantly associated with medication adherence, suggesting that adherence behavior is influenced not only by individual understanding of the disease but also by educational background, treatment experience, and the surrounding

social environment. These findings indicate that improving patients' knowledge should become an important component of hypertension management, particularly in coastal communities where geographical barriers may limit access to continuous health education and healthcare services (Gavrilova et al., 2019).

The findings of this study are consistent with previous international evidence demonstrating that knowledge is an important determinant of medication adherence among patients with hypertension. A systematic review conducted by Burnier and Egan (2019) concluded that inadequate disease knowledge contributes substantially to poor adherence because patients frequently underestimate the long-term consequences of uncontrolled hypertension and the importance of lifelong pharmacological treatment. Similarly, (Abegaz et al., 2017) reported that patients with adequate knowledge regarding hypertension and its treatment were significantly more likely to comply with prescribed antihypertensive medications than patients with limited knowledge. More recently, (Andala et al., 2024) found that greater knowledge of hypertension was associated with improved medication adherence and blood pressure control among adults receiving primary healthcare services. Likewise, (Pirasath et al., 2017) demonstrated that educational interventions significantly improved hypertension knowledge, which subsequently enhanced medication adherence and overall disease management. Collectively, these studies reinforce the present findings and suggest that improving patient knowledge remains one of the most effective behavioral strategies for enhancing long-term adherence to antihypertensive therapy across different populations and healthcare systems (Paczkowska et al., 2021).

Although the present findings generally support previous studies, several contextual differences should be acknowledged. Many earlier investigations were conducted in urban hospitals or tertiary healthcare facilities where patients have relatively easy access to physicians, pharmacists, educational materials, and routine follow-up services. In contrast, this study was undertaken in coastal communities of Wakatobi Regency, where healthcare accessibility is influenced by geographical isolation, transportation limitations, and dependence on marine occupations. Consequently, knowledge acquisition among patients in this setting may depend largely on health promotion activities delivered by community health centers and community health workers rather than continuous specialist care. Furthermore, family support demonstrated a strong relationship with medication adherence in this study, highlighting the important role of family members in reminding patients to take medications, facilitating transportation to healthcare facilities, and encouraging healthy behaviors. Such findings are consistent with the collectivist culture commonly observed in Indonesian coastal communities, where family involvement remains central to chronic disease management. These contextual characteristics may explain why knowledge appears to exert a particularly strong influence on medication adherence in the present study compared with studies conducted in more urbanized populations (Marseille et al., 2021; Shi et al., 2019).

The association identified in this study can be explained by several behavioral theories. According to the Knowledge-Attitude-Practice (KAP) Model, knowledge serves as the initial determinant of behavioral change by shaping individuals' perceptions, attitudes, and subsequent health practices. Patients who possess adequate knowledge regarding hypertension are more likely to recognize the seriousness of the disease, understand the necessity of continuous medication, and appreciate the consequences of treatment discontinuation, thereby encouraging consistent adherence. This mechanism is also supported by the Health Belief Model, which proposes that

health behavior is influenced by perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and cues to action. Individuals with greater knowledge are more capable of recognizing the risks associated with uncontrolled hypertension and the benefits of regular medication use, thereby increasing adherence. Furthermore, the Individual and Family Self-Management Theory emphasizes that effective chronic disease management results from interactions among knowledge, self-regulation skills, healthcare support, and social resources. In the context of coastal communities, educational interventions delivered through primary healthcare services and supported by family members may substantially improve patients' capacity to manage hypertension effectively (Karakurt & Kaşikçi, 2012; Rahmawati & Bajorek, 2018).

Several mechanisms may explain why greater knowledge contributes to improved medication adherence among patients with hypertension. Adequate knowledge enhances health literacy, enabling patients to understand the chronic nature of hypertension, recognize that treatment should continue even when symptoms are absent, and appreciate the protective effects of antihypertensive medications against cardiovascular complications. Better-informed patients are also more likely to follow physicians' recommendations, attend scheduled follow-up visits, monitor blood pressure regularly, and seek clarification when experiencing medication-related concerns. Conversely, patients with limited knowledge may mistakenly discontinue medication after achieving temporary blood pressure control, rely exclusively on traditional remedies, or fail to recognize the long-term risks associated with uncontrolled hypertension. Educational level further facilitates the acquisition and interpretation of health information, while family support reinforces knowledge through repeated reminders, emotional encouragement, and practical assistance with medication management. Together, these mechanisms create a favorable behavioral environment that promotes sustained adherence to antihypertensive therapy (Jankowska-Polańska et al., 2016).

The relationships observed among the variables in this study demonstrate that medication adherence is influenced by multiple interconnected behavioral and contextual factors. Higher knowledge levels provide the cognitive foundation necessary for understanding treatment recommendations, while higher educational attainment facilitates the interpretation and application of health information. Longer duration of hypertension may increase patients' familiarity with disease management through repeated interactions with healthcare providers and accumulated treatment experience. Family support further strengthens adherence by encouraging positive health behaviors, providing reminders for medication use, and facilitating access to healthcare services. Improved medication adherence subsequently promotes sustained blood pressure control by ensuring consistent pharmacological inhibition of pathophysiological mechanisms involved in hypertension, including activation of the renin–angiotensin–aldosterone system, excessive sympathetic nervous system activity, endothelial dysfunction, and increased peripheral vascular resistance. In addition to these biological effects, consistent adherence reinforces healthy behavioral practices such as dietary sodium restriction, regular physical activity, smoking cessation, and routine blood pressure monitoring, thereby reducing the risk of cardiovascular complications and improving long-term disease outcomes (Ghembaza et al., 2014).

The findings of this study have important implications for healthcare practice, particularly in primary healthcare settings serving coastal populations. Routine assessment of patients' knowledge regarding hypertension should become an integral component of chronic disease management because identifying knowledge deficits

enables healthcare professionals to provide individualized educational interventions before poor adherence develops. Nurses, physicians, pharmacists, and community health workers should strengthen patient education through culturally appropriate counseling, simple educational materials, family-centered communication, and community-based health promotion activities adapted to the unique characteristics of coastal communities. Such interventions have the potential to improve medication adherence and ultimately enhance blood pressure control. Nevertheless, several limitations should be acknowledged. The cross-sectional design does not permit causal inference between knowledge and medication adherence. Medication adherence was assessed using self-reported questionnaires, making the findings susceptible to recall bias and social desirability bias. Furthermore, the study was conducted in a single coastal district, which may limit the generalizability of the findings to other populations with different geographical and cultural characteristics. Future multicenter longitudinal studies incorporating objective adherence measures, health literacy assessments, and broader psychosocial variables are recommended to provide a more comprehensive understanding of factors influencing medication adherence among patients with hypertension.

CONCLUSION

This study concludes that hypertension-related knowledge is significantly associated with medication adherence among patients with hypertension living in the coastal area of Wakatobi Regency. Patients with better knowledge tended to demonstrate higher adherence to antihypertensive medication than those with limited knowledge. In addition, educational level, duration of hypertension, and family support were identified as important factors associated with medication adherence. These findings highlight the importance of strengthening patients' understanding of hypertension as part of comprehensive disease management to improve treatment adherence and support better long-term health outcomes.

Healthcare providers should strengthen educational interventions as an integral component of hypertension management by providing regular counseling, simple educational materials, and family-centered health education tailored to the characteristics of coastal communities. Community health centers are also encouraged to develop continuous health promotion programs to improve patients' knowledge and reinforce adherence to antihypertensive medication. Future studies should employ longitudinal or multicenter designs and incorporate additional psychosocial and healthcare access variables to better understand factors influencing medication adherence among patients with hypertension.

Declaration by Authors

Ethical Approval: Approved

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REFERENCES

1. Abegaz, T. M., Shehab, A., Gebreyohannes, E. A., Bhagavathula, A. S., & Elnour, A. A. (2017). Nonadherence to antihypertensive drugs: a systematic review and meta-analysis. Medicine, 96(4), e5641.
2. Abu, H., Aboumatar, H., Carson, K. A., Goldberg, R., & Cooper, L. A. (2018). Hypertension knowledge, heart healthy lifestyle practices and medication adherence among adults with hypertension. European

Journal for Person Centered Healthcare, 6(1), 108.
3. Al-Hazmi, A. H., Alanazi, A. D. M., Thirunavukkarasu, A., Alriwely, N. S., Alrais, M. M. F., Alruwaili, A. B. S., Alnosairi, M. S., & Alsirhani, A. I. (2025). Evaluation of hypertension knowledge and its association with medication adherence among hypertensive patients attending primary health centers: a cross-sectional study from eastern Saudi Arabia. Frontiers in Public Health, 12, 1378561.
4. ALruwaili, B. F. (2024). Evaluation of hypertension-related knowledge, medication adherence, and associated factors among hypertensive patients in the Aljouf Region, Saudi Arabia: a cross-sectional study. Medicina, 60(11), 1822.
5. Alzahrani, S., Alosaimi, M. E., Alamri, A. A., Alotaibi, M., Almatar, E. A., Almanea, B. A., Aljabar, S. A., Alomar, A. S., Alzahrani, A. H., & Al-Hindi, M. E. (2019). Association between knowledge and drug adherence in patients with hypertension in Saudi Arabia. Archives of Pharmacy Practice, 10(3–2019), 71–76.
6. Andala, S., Sofyan, H., & Hasballah, K. (2024). Knowledge and acceptance associated with medication adherence among hypertension individuals in Aceh province, Indonesia. Heliyon, 10(7).
7. Barreto, M. da S., Reiners, A. A. O., & Marcon, S. S. (2014). Knowledge about hypertension and factors associated with the non-adherence to drug therapy. Revista Latino-Americana de Enfermagem, 22, 491–498.
8. Gavrilova, A., Bandere, D., Rutkovska, I., Šmits, D., Mauriņa, B., Poplavska, E., & Urtāne, I. (2019). Knowledge about disease, medication therapy, and related medication adherence levels among patients with hypertension. Medicina, 55(11), 715.
9. Ghembaza, M. A., Senoussaoui, Y., Kendouci Tani, M., & Meguenni, K. (2014). Impact of patient knowledge of hypertension complications on adherence to antihypertensive therapy. Current Hypertension Reviews, 10(1), 41–48.
10. Giakoumidakis, K., Patelarou, E., Brokalaki, H., Bastaki, M., Fotos, N. V, Ifantopoulou, P., Christodoulakis, A., Chatziefstratiou, A. A., & Patelarou, A. (2024). Patient knowledge, medication adherence, and influencing factors: a cross-sectional study among hypertensive patients in Greece. Healthcare, 12(9), 916.
11. Jankowska-Polańska, B., Uchmanowicz, I., Dudek, K., & Mazur, G. (2016). Relationship between patients' knowledge and medication adherence among patients with hypertension. Patient Prefer Adherence, 10, 2437–2447.
12. Karaeren, H., Yokuşoğlu, M., Uzun, M., Uzun, Ş., Baysan, O., Köz, C., KARA, S. B., Kırılmaz, A., Naharcı, İ., & Pinar, M. (2009). The effect of the content of the knowledge on adherence to medication in hypertensive patients. Anadolu Kardiyoloji Dergisi, 9(3), 183–188.
13. Karakurt, P., & Kaşikçi, M. (2012). Factors affecting medication adherence in patients with hypertension. Journal of Vascular Nursing, 30(4), 118–126.
14. Marseille, B. R., Commodore-Mensah, Y., Davidson, P. M., Baker, D., D'Aoust, R., & Baptiste, D. (2021). Improving hypertension knowledge, medication adherence, and blood pressure control: a feasibility study. Journal of Clinical Nursing, 30(19–20), 2960-2967. DOI: 10.1111/jocn.15803.
15. Paczkowska, A., Hoffmann, K., Kus, K., Kopciuch, D., Zaprutko, T., Ratajczak, P., Michalak, M., Nowakowska, E., & Bryl, W. (2021). Impact of patient knowledge on hypertension treatment adherence and efficacy: A single-centre study in Poland. International Journal of Medical Sciences, 18(3), 852.
16. Pan, J., Lei, T., Hu, B., & Li, Q. (2017). Post-discharge evaluation of medication adherence and knowledge of hypertension among hypertensive stroke patients in northwestern China. Patient Preference and Adherence, 1915–1922.
17. Patel, M. J., Shetty, L., & Rasras, A. (2015). Assessment of medication adherence and medication knowledge among hypertensive patients in Riyadh, Saudi Arabia. Int J Pharma Res Rev, 4(10), 15–23.
18. Pirasath, S., Kumanan, T., & Guruparan, M. (2017). A study on knowledge, awareness, and medication adherence in patients with hypertension from a tertiary care centre from Northern Sri Lanka. International Journal of Hypertension, 2017(1), 9656450.
19. Rahmawati, R., & Bajorek, B. (2018). Factors affecting self-reported medication adherence and hypertension knowledge: A cross-sectional study in rural villages,

Yogyakarta Province, Indonesia. Chronic Illn, 14(3), 212–227.
20. Raza, A. (2021). Hypertension-related knowledge, medication adherence and health-related quality of life (HRQoL) among hypertensive patients in Islamabad, Pakistan. Tropical Journal of Pharmaceutical Research.
21. Saleem, F., Hassali, M. A., Shafie, A. A., Ul Haq, N., Farooqui, M., Aljadhay, H., & Ahmad, F. U. D. (2015). Pharmacist intervention in improving hypertension-related knowledge, treatment medication adherence and health-related quality of life: a non-clinical randomized controlled trial. Health Expectations, 18(5), 1270–1281.
22. Shi, S., Shen, Z., Duan, Y., Ding, S., & Zhong, Z. (2019). Association between medication literacy and medication adherence among patients with hypertension. Frontiers in Pharmacology, 10, 822.
23. Verulava, T., & Mikiashvili, G. (2021). Knowledge, awareness, attitude and medication compliance in patients with hypertension. Arterial Hypertension, 25(3), 119–126.

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