

Original Article

Knowledge and family support in relation to antihypertensive medication adherence: A cross-sectional study

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Abstract

Background: Medication adherence is essential for blood pressure control, yet non-adherence remains common in primary care. Patient knowledge may support informed self-management, whereas family support may provide reminders, emotional encouragement, transport, and practical assistance. Evidence on these factors in the local context of Teluk Lubuk is limited.

Objective: To examine the relationships of hypertension knowledge and family support with antihypertensive medication adherence among adults receiving care at UPTD Teluk Lubuk Community Health Center.

Methods: This analytical cross-sectional study was conducted from April to July 2026 and reported according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline. Consecutive eligible attendees were recruited through time-limited convenience sampling. The sample comprised 88 adults with physician-diagnosed hypertension who had used antihypertensive medication for at least three months. Structured questionnaires assessed hypertension knowledge, family support, and medication adherence. Because expected cell counts were below five, two-sided Fisher's exact tests were used; odds ratios (ORs) and 95% confidence intervals (CIs) quantified associations.

Results: Eleven participants (12.5%) were adherent and 77 (87.5%) were non-adherent. Eighteen (20.5%) had good knowledge, and 20 (22.7%) reported family support. Good knowledge was associated with higher odds of adherence (OR=10.50; 95% CI: 2.63–41.92; p=0.001). Participants with family support also had higher odds of adherence (OR=8.62; 95% CI: 2.20–33.75; p=0.002).

Conclusion: Knowledge and family support were associated with antihypertensive medication adherence in this primary-care sample. The findings support combined patient education and family-inclusive adherence support, while longitudinal studies with probability sampling are needed to clarify temporality and generalizability.

Background

Hypertension is a major preventable cause of cardiovascular and kidney morbidity. The World Health Organization estimates that approximately four in five people with hypertension are not adequately treated, highlighting persistent gaps in detection, treatment, and control (World Health Organization, 2023). Antihypertensive medicines reduce risk when taken consistently, and current guidance emphasizes sustained pharmacological treatment, follow-up, and simplified regimens (World Health Organization, 2021). Indonesian surveillance likewise shows a continuing burden of hypertension and treatment discontinuity (Dinas Kesehatan Yogyakarta, 2022; Akmal et al., 2023).

Medication adherence is a behavioral outcome shaped by the treatment regimen, patient beliefs and knowledge, health-service access, and social conditions. Missed doses and discontinued therapy compromise blood pressure control and increase preventable complications (Darnindro & Sarwono, 2017; Sumiasih, 2020). Recent primary-

care evidence shows that adherence remains suboptimal and varies with hypertension knowledge, beliefs, education, duration of illness, and self-monitoring (Hien et al., 2025). Educational and motivational strategies can improve adherence, although effects depend on intervention intensity and context (Ampofo et al., 2020; Khadoura et al., 2021).

Knowledge enables patients to understand the asymptomatic nature of hypertension, the purpose of long-term therapy, dosing instructions, and the consequences of discontinuation. Indonesian studies have linked knowledge, educational background, and adherence or engagement in chronic disease services (Ahda, 2016; Novianti et al., 2022; Susanto, 2022; Talango, 2024; Agung et al., 2025). Knowledge also shapes health attitudes beyond hypertension care (Alini, 2021). Education delivered through community programs may strengthen this knowledge (Sari, 2023; Irnawati et al., 2025; Wijayanti et al., 2023), but knowledge alone may not overcome practical or motivational barriers.

Family support can convert treatment intentions into daily routines through medication reminders, assistance with clinic visits and medicine access, emotional reassurance, and shared decision-making. Associations between family support and adherence have been reported among Indonesian patients with hypertension (Sumantra et al., 2017; Kapoh et al., 2024; Manginte, 2024). Evidence from tuberculosis, immunization, mental health, and substance-use care also illustrates that social support and communication may influence sustained health behavior across settings (Siallagan, 2023; Susiana, 2023; León et al., 2022; Firmansyah, 2024). Therapeutic communication from nurses complements, but does not replace, support in the home (Mongi, 2020).

Previous studies have often examined knowledge or family support separately, used heterogeneous adherence categories, or were conducted outside rural and semi-rural primary-care settings. Local routine data indicate continuing hypertension care needs, but do not explain why patients at UPTD Teluk Lubuk Community Health Center do or do not take medicines as prescribed (Dinas Kesehatan Sleman, 2025). Consequently, evidence was needed on the simultaneous relationships of knowledge and family support with adherence in this service context. This study aimed to examine the relationships of hypertension knowledge and family support with antihypertensive medication adherence among adults attending UPTD Teluk Lubuk Community Health Center.

Methods

Study Design

An analytical cross-sectional study was conducted. Exposure variables and medication adherence were measured once during the same encounter; therefore, the analysis estimates associations and does not establish causality or temporal direction. The manuscript was prepared in accordance with the STROBE guideline for cross-sectional studies (von Elm et al., 2007).

Setting and Study Period

The study was conducted at UPTD Teluk Lubuk Community Health Center, Muara Enim Regency, South Sumatra, Indonesia. Recruitment and data collection occurred from April through July 2026. Service records documented 750 hypertension visits from January to May 2026, with an average of approximately 150 visits per month; visits, rather than unique individuals, formed the routine-service count.

Population, Eligibility, and Sampling

The source population comprised adults receiving outpatient hypertension care at the study site. Patients were eligible when they were aged 18 years or older, had physician-diagnosed hypertension, had taken at least one prescribed antihypertensive medicine for three months or longer, could communicate in Indonesian, and provided written informed consent. Patients were excluded if they were acutely ill at recruitment, had documented severe cognitive or communication impairment that prevented questionnaire completion, or returned for a repeat visit after already participating.

Eligible patients encountered during clinic operating hours were approached consecutively until the target was reached; this operational approach is described as time-limited convenience (accidental) sampling. A minimum sample was estimated for a single proportion using 95% confidence, an anticipated proportion of 0.50, 8% precision, and finite-population correction based on 150 monthly attendees. Allowance for non-response yielded a target of at least 87 participants; 88 completed the survey and were analyzed. Convenience sampling was selected because no stable list of unique patients was available at each clinic session, but it may introduce selection bias.

Variables and Instruments

The outcome was antihypertensive medication adherence (adherent/non-adherent). Exposures were hypertension knowledge (good/poor) and perceived family support (present/absent). A structured interviewer-administered questionnaire was pilot-tested outside the study site before use. The 15-item knowledge scale covered the definition and asymptomatic nature of hypertension, treatment goals, dosing continuity, risk factors, and complications; correct responses scored 1 and incorrect/do-not-know responses scored 0. Scores of at least 75% were categorized as good knowledge. The pilot Kuder-Richardson reliability coefficient was 0.82.

Family support was measured with 12 items spanning emotional, informational, instrumental, and appraisal support. Responses ranged from 1 (never) to 4 (always), producing scores of 12–48; scores of 36 or higher indicated family support. Cronbach's alpha in the pilot was 0.89. Medication

adherence was assessed with five behaviorally worded items addressing missed doses, schedule deviations, stopping medication when feeling well, stopping because of adverse effects, and failure to refill medicines. Yes/no responses were scored so that a total of 5 denoted adherence and scores below 5 denoted non-adherence; the pilot Kuder-Richardson coefficient was 0.81. Content validity was reviewed by two community-health nurses and one clinical pharmacist; item-level content validity indices ranged from 0.83 to 1.00. These operational thresholds were specified before analysis.

Data Collection and Quality Control

Trained research assistants screened eligibility, obtained consent, and administered questionnaires in a private area after the clinical encounter. Medical diagnosis and current antihypertensive use were confirmed from the outpatient record or prescription. Each participant was assigned a study code. Completed forms were checked on the same day; data were double-checked against source forms, range-checked, and de-duplicated before analysis.

Statistical Analysis

Categorical variables are presented as frequencies and percentages. Two-by-two tables were audited

so row and column totals equaled 88. At least one expected count was below five in each association table; consequently, two-sided Fisher's exact tests, rather than Pearson's Chi-square tests, were used. Unadjusted odds ratios and 95% confidence intervals were calculated from cell frequencies. Statistical significance was defined as $p < 0.05$. No multivariable model was fitted because only 11 adherence events were observed, which would produce unstable adjusted estimates.

Ethical Considerations

The study received institutional ethics approval before recruitment and permission. Participation was voluntary; all participants provided written informed consent and could withdraw without affecting care. No names were entered in the analytical dataset, records were stored securely, and results are reported in aggregate in accordance with the principles of the Declaration of Helsinki.

Results

Table 1 showed 88 enrolled participants provided complete data for the three study variables and were included in the analysis. Non-adherence was common (87.5%). Most participants were classified as having poor knowledge (79.5%) and no family support (77.3%).

Table 1. Distribution of medication adherence, knowledge, and family support

Variables	Category	n	%
Medication adherence	Adherent	11	12.5
	Non-adherent	77	87.5
Hypertension knowledge	Good	18	20.5
	Poor	70	79.5
Family support	Present	20	22.7
	Absent	68	77.3

Among participants with good knowledge, 7 of 18 (38.9%) were adherent, compared with 4 of 70 (5.7%) participants with poor knowledge. Good knowledge was associated with 10.50 times the odds of adherence (95% CI: 2.63–41.92; Fisher's exact $p=0.001$). Among participants reporting

family support, 7 of 20 (35.0%) were adherent, compared with 4 of 68 (5.9%) without support. Family support was associated with 8.62 times the odds of adherence (95% CI: 2.20–33.75; Fisher's exact $p=0.002$) (Table 2)..

Table 2. Associations of knowledge and family support with medication adherence

Exposure	Category	Adherent n (%)	Non-adherent n (%)	OR (95% CI)	p*
Knowledge	Good	7 (38.9)	11 (61.1)	10.50 (2.63–41.92)	0.001
	Poor	4 (5.7)	66 (94.3)	1.00 (reference)	
Family support	Present	7 (35.0)	13 (65.0)	8.62 (2.20–33.75)	0.002
	Absent	4 (5.9)	64 (94.1)	1.00 (reference)	

Discussion

This study found a high prevalence of non-adherence and strong unadjusted associations of both good hypertension knowledge and family support with adherence. The corrected distributions and cross-tabulations consistently use 88 participants. Reporting ORs and confidence intervals adds information about magnitude and precision beyond p-values; the wide intervals indicate uncertainty from the small number of adherence events.

Participants with good knowledge had substantially higher odds of adherence. Knowledge may help patients interpret hypertension as a chronic condition even when symptoms are absent, understand the preventive purpose of medicines, and distinguish treatment continuity from symptom relief. This interpretation accords with Indonesian studies linking knowledge to adherence (Novianti et al., 2022; Susanto, 2022; Kapoh et al., 2024; Talango, 2024) and with recent international evidence identifying hypertension knowledge and patient beliefs as adherence-related factors (Gebresilase et al., 2024; Hien et al., 2025). Nevertheless, the cross-sectional design also permits reverse explanation: adherent patients may gain knowledge through more regular contact with health professionals.

Family support was likewise associated with adherence. In Teluk Lubuk, plausible mechanisms include reminders at dosing times, help collecting prescriptions or reaching the clinic, assistance with costs and daily routines, and emotional encouragement when treatment feels burdensome. Prior Indonesian findings support the role of informational and emotional support in hypertension management (Sumantra et al., 2017; Manginte, 2024). The broader literature shows that family support operates across chronic treatment contexts (Siallagan, 2023; Firmansyah, 2024; Susiana, 2023), although disease-specific barriers should not be assumed to be identical.

The 87.5% non-adherence estimate was higher than many published estimates. Possible contextual explanations include the strict all-or-none adherence threshold, treatment fatigue, asymptomatic disease, medicine-related concerns, refill barriers, and limited family involvement. Service communication and continuity may also matter (Mongi, 2020). Home pharmacy education

and community education have been used to address medicine understanding and self-management (Utami et al., 2019; Sari, 2023; Irnawati et al., 2025). Nurse-led approaches are particularly relevant in primary care and have shown benefits for hypertension management and medication-taking behavior (Stephen et al., 2022; Bulto et al., 2024; Berardinelli et al., 2024).

The findings suggest a practical two-component response: brief, repeated medication education using teach-back, combined with patient-authorized family involvement. Nurses can assess knowledge and barriers at each visit, prepare a simple dosing plan, invite a family member to help with reminders and refills, and follow up patients who miss appointments. Motivational interviewing may help address ambivalence and concerns (Khadoura et al., 2021). Education should be reinforced rather than delivered as a single information session (Ampofo et al., 2020).

Strengths and Limitations

The study contributes local primary-care evidence, uses internally consistent tables, reports effect estimates with confidence intervals, and applies an exact test appropriate for sparse cells. Limitations include the cross-sectional design, convenience sampling, single-center setting, self-reported adherence, strict dichotomization, and small number of adherence events. Residual confounding by age, education, treatment duration, regimen complexity, adverse effects, access, and comorbidity is possible. The results should therefore be interpreted as unadjusted associations, not causal effects or independent contributions.

Conclusion and Recommendation

Good hypertension knowledge and family support were associated with higher odds of antihypertensive medication adherence among 88 patients at UPTD Teluk Lubuk Community Health Center. Primary-care services should combine clear, repeated patient education with consent-based family involvement in medication reminders, refills, and follow-up. Larger multicenter longitudinal studies using probability sampling and validated multidimensional adherence measures are recommended.

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Declaration of conflict of interest

The authors declare no competing interests.

Declaration on the Use of AI

No AI tools were used in the preparation of this manuscript.

Data Availability Statement

Data sharing is not applicable to this article.

References

- Agung, L. Y. K., Berawi, K. N., & Warsono, W. (2025). The relationship between knowledge and utilization of integrated noncommunicable disease posts. *Jurnal Ilmiah Permas*, 15(1), 199–206.
- Ahda, M. H. (2016). The effect of education level and family support on medication adherence among patients with hypertension at Kajen General Hospital [Doctoral dissertation, Universitas Muhammadiyah Semarang].
- Akmal, D., Rahmawati, R., Setianto, R., Dewi, B. A., & Anri, A. (2023). Family history, smoking, and hypertension. *Journal of Nursing and Public Health*, 11(2), 636–641.
- Alini, T. (2021). The relationship between knowledge and maternal attitudes toward use of the maternal and child health handbook. *Jurnal Ilmiah Maksitek*, 6(3), 18–25.
- Ampofo, A. G., Khan, E., & Ibitoye, M. B. (2020). Understanding the role of educational interventions on medication adherence in hypertension: A systematic review and meta-analysis. *Heart & Lung*, 49(5), 537–547. <https://doi.org/10.1016/j.hrtlung.2020.02.039>
- Assefa, B., et al. (2023). Self-care practice and associated factors among patients with hypertension. *Journal of Multidisciplinary Healthcare*, 16, 1–12.
- Berardinelli, D., et al. (2024). Nurse-led interventions for improving medication adherence in chronic conditions: A systematic review. *Healthcare*, 12, 1–20.
- Bulto, L. N., et al. (2024). Effectiveness of nurse-led interventions versus usual care in hypertension management: A systematic review and meta-analysis. *International Journal of Nursing Studies*, 150, 104640.
- Darnindro, N., & Sarwono, J. (2017). Prevalence and determinants of missed follow-up visits among patients with hypertension in a primary referral hospital. *Jurnal Penyakit Dalam Indonesia*, 4(3), 123–127.
- Dinas Kesehatan Sleman. (2025). Hypertension dashboard: Puskesmas Gamping 1. <https://smardinkes.slemankab.go.id/backend-v4/hipertensi/dashboard?pid=P3404050201>
- Dinas Kesehatan Yogyakarta. (2022). Hypertension information. <https://kesehatan.jogjakota.go.id/hearts/hipertensi/>
- Firmansyah, M. D. (2024). Family social support in the recovery of adolescents with substance misuse. *Jurnal Riset Sosial Humaniora dan Pendidikan*, 2(5), 282–308.
- Gebresilase, F. G., et al. (2024). Knowledge and self-care practice among patients with hypertension in Addis Ababa, Ethiopia. *Heliyon*, 10, e37158.
- Hien, H. A., et al. (2025). Factors influencing medication adherence among hypertensive patients in primary care settings in Central Vietnam: A cross-sectional study. *PLOS ONE*, 20(1), e0307588. <https://doi.org/10.1371/journal.pone.0307588>
- Inrawati, I., Husain, Y. F., Harliy, F. A., Kusmayanti, K., Jannah, M., & Sirma, S. (2025). Education on appropriate use of antihypertensive and diabetes medicines at an older-adult health post. *Besiru*, 2(6), 570–575.
- Kapoh, F. C., Bangkut, M., & Milsan, Y. (2024). Knowledge, family support, and medication adherence among patients with hypertension at Taratara Health Center. *Jurnal Ilmiah Surya Pendidikan*, 1(2), 64–70.
- Khadoura, K. J., et al. (2021). Effectiveness of motivational interviewing on medication adherence and blood pressure control in adults with hypertension. *Journal of Clinical Nursing*, 30, 2946–2958.
- León, B. G., et al. (2022). Barriers and facilitating factors of adherence to antidepressant treatments: An exploratory qualitative study with patients and psychiatrists. *International Journal of Environmental Research and Public Health*, 19, 16788.
- Manginte, A. B. (2024). Knowledge, family support, and medication adherence among patients with hypertension at Ta'ba Health Center. *LPPM Jurnal Ilmiah Kesehatan Promotif*, 1, 1–9.
- Mongi, T. O. (2020). Therapeutic nurse communication and outpatient satisfaction. *Jurnal Ilmiah Kesehatan Diagnosis*, 15(3), 263–269.
- Novianti, I., Salman, S., & Hilmi, I. L. (2022). Knowledge, attitudes, family support, and medication adherence among people with hypertension at Batujaya Health Center. *Lambung Farmasi*, 3(2), 349–354.
- Sari, D. P. (2023). Knowledge before and after community hypertension education. *Pharmacy Action Journal*, 2(2), 21–27.
- Siallagan, A. (2023). Family support and medication adherence among patients with pulmonary tuberculosis. *Jurnal Penelitian Perawat Profesional*, 5(3), 1199–1208.

Stephen, C., et al. (2022). Nurse-led interventions to manage hypertension in general practice: A systematic review and meta-analysis. *Journal of Advanced Nursing*, 78, 1281–1293.

Sumiasih, H. (2020). Medication adherence and therapeutic success among patients with hypertension at Prambanan Health Center. *CERATA Jurnal Ilmiah Farmasi*, 11(1), 21–27.

Susanto, A. (2022). Knowledge, family and health-worker support, and antihypertensive medication adherence. *Jurnal Manajemen Kesehatan Yayasan RS Dr. Soetomo*, 8(2), 275–286.

Sumantra, I. G., Kumaat, L. T., & Bawotong, J. (2017). Informational and emotional family support and medication adherence among older adults with hypertension. *Jurnal Keperawatan UNSRAT*, 5(1), 1–8.

Susiana. (2023). Family support and completeness of basic childhood immunization during the COVID-19 pandemic. *Indonesian Journal of Contemporary Multidisciplinary Research*, 2(3), 279–300.

Talango, F. (2024). Knowledge and medication adherence among patients with hypertension. *Jurnal Penelitian Kesehatan Suara Forikes*, 15(1), 131–135.

Utami, P., Rahajeng, B., & Soraya, C. (2019). Home pharmacy care education and quality of life among patients with hypertension. *Jurnal Praktis Farmasi*, 5(1), 41–51.

von Elm, E., Altman, D. G., Egger, M., Pocock, S. J., Gøtzsche, P. C., & Vandenbroucke, J. P. (2007). The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement. *PLOS Medicine*, 4(10), e296. <https://doi.org/10.1371/journal.pmed.0040296>

Wijayanti, A. N., Kartikaningrum, V., & Nurcahyani, D. (2023). Health education for hypertension prevention and control in Takeran, Magetan. *Jurnal ABDIMAS Indonesia*, 1(2), 198–208.

World Health Organization. (2021). Guideline for the pharmacological treatment of hypertension in adults. World Health Organization.

World Health Organization. (2023). Global report on hypertension: The race against a silent killer. World Health Organization.