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Relationship between family support and medication adherence among older adults with hypertension: A cross-sectional study in Indonesian primary care

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ABSTRACT

Introduction: Globally, hypertension continues to impose a substantial burden on older populations, and suboptimal medication adherence further compromises blood pressure control while elevating the risk of adverse outcomes. This study set out to determine whether family support is associated with medication adherence among older adults with hypertension receiving primary healthcare.

Research Methodology: Fifty older adults with hypertension were enrolled through consecutive sampling in this cross-sectional analytical study. Structured face-to-face interviews captured data on family support (20 items) and medication adherence (8 items); because the resulting scores departed from a normal distribution, Spearman's rho was used to test their association.

Results: Most participants reported moderate family support (60%) and high medication adherence (68%). A moderate, statistically significant positive correlation emerged between the two variables ($\rho = 0.569$, $p < 0.001$): participants reporting stronger family support tended toward more consistent medication-taking.

Conclusion: Family support emerges as a meaningful psychosocial correlate of medication adherence among older adults with hypertension, suggesting that primary healthcare programs stand to gain from embedding family-based strategies that sustain adherence and improve long-term clinical outcomes.

Keywords: chronic disease management; family support; hypertension; medication adherence; primary healthcare.

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INTRODUCTION

Worldwide, hypertension ranks among the most common non-communicable diseases and remains a leading driver of cardiovascular illness and death. Older adults are disproportionately affected, as age-related loss of arterial elasticity makes sustained pharmacological management necessary in this group (Togatorop, 2024). Population aging is driving a parallel rise in the global burden of hypertension, underscoring the need for effective management to avert complications such as stroke, myocardial infarction, and renal failure (WHO, 2021). Effective antihypertensive therapies notwithstanding, adherence among older adults frequently falls short, a shortfall compounded in primary care settings by cognitive decline, polypharmacy, and limited health literacy (WHO, 2023).

Evidence from the chronic disease literature points consistently to family support as a correlate of stronger medication adherence: families extend emotional, informational, and instrumental help that enables older adults to navigate complex regimens and overcome barriers such as polypharmacy and forgetfulness (Nurannisa et al., 2022). This link appears most pronounced in Asian settings, where close intergenerational ties influence how older adults access care and sustain treatment (Wiedyaningsih et al., 2023). Complementary strategies, among them nurse-led medication therapy management and eHealth-based reminder systems, have likewise been trialed to support adherence, especially for older adults with cognitive impairment (Kim & Parish, 2021; Burnier & Egan, 2019).

Much of this evidence nonetheless originates in high-income countries with well-resourced healthcare systems, leaving its applicability to more diverse, resource-constrained primary care settings comparatively untested (Liu et al., 2022). Quantitative research examining this association within Indonesian primary care, especially work that also accounts for sociodemographic factors such as age, sex, education, and employment status that could shape the relationship, remains limited; most Indonesian studies treat adherence broadly, without isolating what family support specifically contributes (Suprapto et al., 2026; Aini et al., 2024). This gap bears particular relevance for community health centers, which typically serve as families' first point of contact with the healthcare system for older adults managing chronic disease.

Accordingly, this study examined the relationship between family support and medication adherence among older adults with hypertension attending a primary healthcare center (UPT Puskesmas Lawawoi) in Sidenreng Rappang, Indonesia (Almutairi et al., 2022). In generating evidence specific to this Indonesian primary care population, the study is intended to inform healthcare providers and policymakers about the value that family-centered strategies may add to hypertension management in older adults.

RESEARCH METHODOLOGY

Study Design

This cross-sectional analytical study explored the relationship between family support and medication adherence among older adults with hypertension, conducted within the working area of UPT Puskesmas Lawawoi in Sidenreng Rappang, Indonesia, between November and December 2025. As a government-run primary healthcare facility, UPT Puskesmas Lawawoi serves older adults through promotive, preventive, and curative programs, among them routine health check-ups, chronic disease screening, elderly exercise sessions, and community-based nutrition counseling, aimed at improving their quality of life. This setting was chosen because it

typically functions as the first point of contact between families and the healthcare system for older adults.

Population and Sample

Older adults with hypertension aged ≥60 years, registered and actively receiving care at UPT Puskesmas Lawawoi in 2025, constituted the study population, from which 50 participants were drawn. Eligibility required participants to be 60-74 years old, living with family, able to communicate effectively, and under treatment at UPT Puskesmas Lawawoi, Sidenreng Rappang; those unavailable during data collection or unwilling to participate were excluded. Consecutive sampling was used to enroll participants: every eligible respondent encountered during the data collection period was invited until 50 participants had been reached.

Variables and Measurements

Family support constituted the independent variable, with medication adherence as the dependent variable; age, sex, education, and employment status were additionally recorded as participant and family characteristics. A 20-item structured questionnaire spanning emotional, informational, instrumental, and appraisal support was used to assess family support, while an 8-item scale developed for this study assessed medication adherence. Both instruments were administered face-to-face, with scores on each subsequently grouped into low, moderate, and high categories using predetermined cutoffs.

Data Collection Procedures

Face-to-face interviews conducted by trained researchers yielded the study data over a fixed collection period. Participants received a briefing on the study's objectives and procedures before giving consent, and each interview lasted approximately 15 to 20 minutes.

Data Analysis

Statistical software was used to analyze the data: descriptive statistics, namely frequencies and percentages, summarized participant characteristics and variable distributions, while Spearman's rho correlation, appropriate given the non-normal distribution of the data, tested the relationship between family support and medication adherence. Statistical significance was set at $p < 0.05$.

RESULT

This study included 50 older adults with hypertension receiving care at UPT Puskesmas Lawawoi, Sidenreng Rappang, Indonesia. The findings are presented through descriptive and bivariate analyses. Descriptive statistics summarize participants' sociodemographic characteristics, family caregiver profiles, levels of family support, and medication adherence. Subsequently, Spearman's rank correlation analysis examines the association between family support and medication adherence, providing evidence of the strength, direction, and statistical significance of this relationship.

Table 1. Sociodemographic characteristics, family support, and medication adherence among participants (n = 50)

Variables	Categories	n	%
Participant characteristics			
Age	<65 years	33	66.0
	>65 years	17	34.0
Sex	Male	30	60.0
	Female	20	40.0
Educational background	Higher education	15	30.0

Variables	Categories	n	%
	Senior high school	23	46.0
	Junior high school	5	10.0
	Primary school	7	14.0
Family caregiver characteristics			
Sex	Male	30	60.0
	Female	20	40.0
Educational background	Higher education	7	14.0
	Senior high school	33	66.0
	Junior high school	5	10.0
	Primary school	5	10.0
Occupation	Unemployed	5	10.0
	Fisherman	4	8.0
	Private employee	20	40.0
	Farmer	8	16.0
	Civil servant	3	6.0
	Entrepreneur	10	20.0
Family support			
	Good	19	38.0
	Moderate	30	60.0
	Poor	1	2.0
Medication adherence			
	High	34	68.0
	Moderate	15	30.0
	Low	1	2.0

Table 1 summarizes the sociodemographic characteristics, family support, and medication adherence among 50 older adults with hypertension. Most participants were younger than 65 years (66.0%), male (60.0%), and had completed senior high school (46.0%). Among family caregivers, the majority were male (60.0%), had attained senior high school education (66.0%), and worked as private employees (40.0%). Regarding family support, 60.0% of participants reported moderate support, followed by good support (38.0%) and poor support (2.0%). Medication adherence was predominantly high (68.0%), while 30.0% demonstrated moderate adherence and 2.0% reported low adherence. These findings indicate that most participants experienced at least moderate family support and maintained relatively favorable medication adherence. However, the descriptive distributions alone do not establish an association between family support and medication adherence.

Spearman's rank correlation analysis was conducted to examine the relationship between family support and medication adherence among older adults with hypertension. Table 2 presents the strength, direction, and statistical significance of this association.

Table 2. The association between family support and medication adherence among older adults with hypertension (n = 50)

Correlations				
			Family Support	**Medication Adherence**
Spearman's rho	Family Support	Correlation Coefficient	1.000	.569**
		Sig. (2-tailed)	.	.000
		N	50	50
	Medication Adherence	Correlation Coefficient	.569**	1.000
		Sig. (2-tailed)	.000	.
		N	50	50

Table 4 presents the association between family support and medication adherence among older adults with hypertension. Spearman's rank correlation analysis revealed a statistically significant, moderate positive association between family support and medication adherence ($\rho = 0.569$, $p < 0.001$, $n = 50$). This finding indicates that participants reporting higher levels of family support tended to demonstrate better adherence to antihypertensive medication. However, given the cross-sectional study design, the observed association does not establish a causal relationship. These findings highlight the potential relevance of family involvement in supporting medication adherence within primary healthcare settings.

DISCUSSION

The present study identified a statistically significant, moderate positive association between family support and medication adherence among older adults with hypertension receiving primary healthcare services in Sidenreng Rappang, Indonesia (Spearman's $\rho = 0.569$, $p < 0.001$). Participants reporting stronger family support tended to demonstrate better adherence to prescribed antihypertensive medication. These findings suggest that family support is an important psychosocial factor associated with medication-taking behavior in older adults. However, the cross-sectional design limits interpretation to an association rather than a causal relationship.

The findings are consistent with previous research highlighting the importance of family involvement in hypertension management. Akbaba et al., (2025) reported that family support was positively associated with medication adherence among older adults attending primary healthcare facilities in Indonesia. Similarly, (Shahin et al., 2021), in a systematic review, identified social support as a relevant factor associated with medication adherence among patients with hypertension. Shen et al., (2022) further demonstrated an association between social support and medication literacy among older adults with hypertension (Cahyaningrum et al., 2024). Collectively, these studies support the relevance of interpersonal relationships in sustaining long-term treatment adherence, particularly among populations requiring continuous medication management.

Family support may contribute to medication adherence through emotional, informational, instrumental, and appraisal mechanisms. Emotional support may strengthen patients' motivation and confidence in managing hypertension, while informational support can improve understanding of medication schedules, treatment benefits, and the consequences of discontinuing therapy (Eugenia del Pilar et al., 2026). Instrumental support, including medication reminders, assistance with healthcare appointments, and prescription collection, may help older adults overcome practical barriers to adherence (Fauzia, 2023). Appraisal support may reinforce positive treatment behaviors through encouragement and constructive feedback. These mechanisms are consistent with the findings of Sari & Meilina, (2025), who emphasized the role of family caregivers in supporting medication management among older adults in Asian healthcare settings. Nevertheless, the present study did not examine the independent contribution of each support dimension (Kardas et al., 2023; Margiati & Panma, 2026).

An important finding was that most participants reported moderate family support (60.0%), whereas a larger proportion demonstrated high medication adherence (68.0%). This pattern suggests that favorable medication-taking behavior may occur even when perceived family support is not consistently high. Medication adherence is a multidimensional behavior potentially influenced by individual motivation, medication knowledge, perceived disease severity, treatment complexity, and healthcare accessibility (Murray et al., 2020). Consequently, family support

should be considered alongside other behavioral and healthcare-related factors rather than interpreted as the sole determinant of adherence (Murray et al., 2020). The descriptive distributions also cannot establish whether participants with moderate family support were the same individuals reporting high adherence (Rasdiyanah et al., 2026).

The sociodemographic characteristics of participants and their family caregivers provide additional context for interpreting these findings. Most participants were male (60.0%), and senior high school was the most frequently reported educational attainment (46.0%). Among family caregivers, 66.0% had completed senior high school, and 40.0% were employed in the private sector. Educational background and occupational responsibilities may influence caregivers' availability, understanding of treatment recommendations, and ability to provide practical assistance (Sadewa, 2023). However, these potential influences remain hypothetical because the present analysis did not evaluate sociodemographic characteristics as confounders or moderators of the relationship between family support and medication adherence (Shin et al., 2022; Savira et al., 2023).

From a clinical perspective, the findings underscore the potential value of family-centered approaches to hypertension management in primary healthcare settings. Nurses and other healthcare professionals may consider involving family members in medication counseling, treatment planning, and routine adherence assessments (Trijayanti et al., 2025). Practical strategies could include educating caregivers about prescribed medication regimens, encouraging appropriate medication reminders, identifying barriers to treatment continuity, and strengthening communication between patients, families, and healthcare providers. Such approaches may complement existing chronic disease management services at community health centers. However, intervention studies are required to determine whether these strategies produce measurable improvements in adherence or blood pressure control.

The findings also have implications for nursing practice. Family assessment may be incorporated into routine hypertension care to identify available support resources and potential barriers to medication management. Nurses can facilitate shared decision-making, provide individualized education, and encourage appropriate caregiver participation while respecting older adults' autonomy (Tsao et al., 2022). For patients with limited family support, community health workers and other locally available support systems may provide additional assistance. (Boonyathee et al., 2021) demonstrated the potential relevance of structured family caregiver training in community-based hypertension prevention and management, although the effectiveness of comparable interventions in the present study population remains to be established.

Several limitations should be acknowledged. First, the cross-sectional design prevents determination of temporal relationships and causal effects. Second, the relatively small sample of 50 participants recruited from a single primary healthcare center limits the generalizability of the findings. Third, consecutive sampling may introduce selection bias because participants were recruited according to their availability and eligibility during the study period. Fourth, family support and medication adherence were assessed through self-reported questionnaires, which may be affected by recall and social desirability biases. Finally, the analysis was limited to bivariate correlation without adjustment for potential confounding variables, including educational attainment, treatment complexity, comorbidities, and healthcare accessibility. These limitations should be considered when interpreting the observed association (Zuriati et al., 2025).

Future studies should employ larger, multicenter samples and longitudinal designs to clarify the temporal relationship between family support and medication adherence. Multivariable

analyses could help determine whether the association persists after adjustment for relevant sociodemographic and clinical characteristics. Further investigation of specific family support dimensions may identify which forms of assistance are most strongly associated with adherence. Randomized controlled trials evaluating structured family-centered nursing interventions would also provide stronger evidence regarding their effectiveness in improving medication adherence and hypertension-related clinical outcomes. Overall, this study contributes context-specific evidence of a moderate positive association between family support and medication adherence among older adults with hypertension in Indonesian primary healthcare. The findings support consideration of family involvement as a component of comprehensive hypertension management while emphasizing the need for further research to establish the effectiveness of family-based adherence interventions.

CONCLUSION

This study identified a meaningful positive association between family support and medication adherence among older adults with hypertension receiving primary healthcare services in Sidenreng Rappang, Indonesia. Participants who experienced stronger family support tended to demonstrate more consistent adherence to prescribed antihypertensive medication. The findings suggest that family involvement is an important consideration in supporting long-term hypertension management, particularly among older adults who may require assistance in maintaining their treatment routines. These findings emphasize the relevance of integrating family-centered approaches into routine primary healthcare services. Nurses and other healthcare professionals should consider strengthening caregiver education, medication counseling, and family participation in treatment planning. At the policy level, incorporating family support assessments into chronic disease management programs at Puskesmas may help identify patients requiring additional assistance. Nevertheless, the observed relationship should not be interpreted as causal. Further research involving larger populations, longitudinal designs, and structured family-based interventions is needed to evaluate their effectiveness in improving medication adherence and blood pressure control. Strengthening collaboration between patients, families, and healthcare providers may contribute to more sustainable and patient-centered hypertension care.

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Conflict of Interest

No competing interests are declared by the authors, who further confirm that no financial, personal, or professional relationship influenced the findings reported in this study.

Declaration of generative AI

Generative artificial intelligence (AI) tools were used by the authors in preparing this manuscript to improve linguistic precision and clarity; all AI-assisted text was subsequently reviewed and revised by the authors for accuracy and originality. Full responsibility for the manuscript's content rests with the authors.

Ethical Approval

Ethical standards governing research with human participants guided the conduct of this study. Every participant gave informed consent before taking part, and personal information was kept

strictly confidential throughout. Internationally recognized ethical principles, among them voluntary participation, confidentiality, and protection of participants' rights, were rigorously observed; each participant was informed of the study's aims and procedures and of the right to withdraw at any time without consequence. Written informed consent was collected from every participant, and all data were handled with strict confidentiality and used solely for research purposes.

Data Availability

Privacy and ethical restrictions mean that the datasets generated and analyzed in this study are not publicly available; they can, however, be obtained from the corresponding author on reasonable request, consistent with applicable ethical research regulations.

Authors' Contributions

Sulkifli Nurdin: Conceptualization, methodology, investigation, data collection, and writing – original draft.
A Rushaimin: Methodology, validation, and formal analysis.
Ishak Kenre: Data curation, statistical analysis, and interpretation of findings.
Sri Sakinah: Literature review, visualization, and writing – review and editing.
Hasrul Hasrul: Supervision, validation, and critical revision of the manuscript.

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