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THE RELATIONSHIP BETWEEN FAMILY SUPPORT AND MEDICATION ADHERENCE WITH BLOOD PRESSURE AMONG PATIENTS WITH HYPERTENSION IN THE WORKING AREA OF JAGALEMPENI PUBLIC HEALTH CENTER

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ABSTRACT

Background: Blood pressure control is influenced not only by pharmacological therapy but also by medication adherence and family support. Family support plays an important role in improving patient motivation and treatment adherence among individuals with hypertension. Therefore, this study aims to analyze the relationship between family support and medication adherence with blood pressure among hypertensive patients in the working area of Jagalempeni Primary Health Care.

Method: This quantitative correlational study employed a cross-sectional design. The sample consisted of 31 outpatient hypertensive patients enrolled in the Prolanis program at Jagalempeni Public Health Center, Brebes Regency, in January 2026, using a total sampling technique. Data were collected using the Family Support questionnaire, the MMAS-8 (Morisky Medication Adherence Scale), and direct blood pressure measurements. Data analysis was performed using the Spearman rank correlation test.

Result: Most respondents had blood pressure in stage 1 and stage 2 hypertension categories (38.7%), with the majority demonstrating moderate medication adherence and moderate family support (54.8%). A significant moderate negative correlation was found between family support and blood pressure ($p = 0.006$; $r = –0.479$), while medication adherence showed a very strong negative correlation with blood pressure ($p = 0.000$; $r = –0.864$).

Conclusion: Family support and medication adherence were significantly associated with blood pressure among hypertensive patients. Better family support and higher medication adherence were associated with better blood pressure control.

Keywords: family support, medication adherence, blood pressure, hypertension

INTRODUCTION

Hypertension is one of the major non-communicable diseases and a leading contributor to cardiovascular complications, including heart disease, stroke, and kidney failure. Persistently uncontrolled blood pressure can lead to serious complications, reduce quality of life, and increase the risk of death. Therefore, hypertension control remains a priority in health services because of its substantial morbidity and mortality burden.[1]

In Indonesia, hypertension remains highly prevalent among adults. National health survey data indicate that approximately 30.8% of people aged 18 years and older have hypertension, while the reported prevalence in Central Java is approximately 38.2% among people aged 15 years and older.[2–4] These figures emphasize that hypertension is an important public health problem, particularly in primary care. The burden also affects district and community health services, including the service area of Jagalempeni Primary Health Center in Brebes Regency.

Poor medication adherence has been identified as an important behavioral contributor to uncontrolled blood pressure among patients receiving antihypertensive treatment. A systematic review and meta-analysis found that nonadherence was common among patients with apparent treatment-resistant hypertension, highlighting the importance of evaluating adherence when assessing blood pressure control.[5] In addition, evidence suggests that family-based interventions can improve self-management behaviors and reduce systolic and diastolic blood pressure, supporting the potential value of family involvement in hypertension management.[6]

Hypertension control depends not only on the availability of medication but also on patients' adherence

to prescribed treatment. Poor adherence can contribute to uncontrolled blood pressure and increase the risk of complications. Family support also plays an important role in shaping health-related behavior. Family members can provide emotional support, remind patients to take their medication, and offer practical assistance that encourages adherence. A systematic review reports that social support, including support from family members, is positively associated with medication adherence among patients with hypertension. [7,8]

Evidence from systematic reviews indicates that medication adherence interventions, including patient education, medication reminders, and self-monitoring strategies, may improve adherence to antihypertensive treatment.[9] Poor adherence has also been associated with less favorable blood pressure outcomes and increased healthcare utilization.[10]

However, local empirical data on family support, medication adherence, and their relationship with blood pressure remain limited in the Jagalempeni Primary Health Center service area. This information gap needs to be addressed to inform appropriately targeted family-based interventions. Therefore, this study aims to analyze the associations of family support and medication adherence with blood pressure among patients with hypertension in the Jagalempeni Primary Health Center service area, as a basis for strengthening hypertension control in primary care.

METHODS

This study was conducted at Jagalempeni Primary Health Center, Brebes Regency, in January 2026. The field of study was family medicine, with a focus on hypertension management in primary care. A quantitative correlational approach with a cross-sectional design was used. The independent and dependent variables were measured during the same period to examine the associations of family support and medication adherence with blood pressure among patients with hypertension.

The target population consisted of all patients with hypertension in the Jagalempeni Primary Health Center service area. The accessible population comprised patients with hypertension who participated in the Chronic Disease Management Program (Program Pengelolaan Penyakit Kronis/Prolanis) in January 2026. The sample included all patients who met the inclusion and exclusion criteria. Total sampling was used, and 31 respondents met the criteria and were included in the study.

The inclusion criteria were a diagnosis of hypertension made by a health professional, participation in Prolanis in January 2026, residence in the Jagalempeni Primary Health Center service area, living with family, and willingness to participate by signing informed consent. The exclusion criteria were severe complications (acute stroke, end-stage renal failure, heart failure, or diabetes mellitus) and incomplete data.

Primary data were collected using a respondent-characteristics questionnaire, a Family Support questionnaire consisting of 16 items rated on a four-point Likert scale, and the eight-item Morisky Medication Adherence Scale (MMAS-8) to assess medication adherence. The Family Support instrument had been tested for validity and reliability, with Cronbach's alpha of 0.927. The Indonesian version of MMAS-8 had a reported Cronbach's alpha of 0.759. Blood pressure data were obtained from medical records and digital blood pressure measurements.

Data processing involved editing, coding, scoring, and tabulation. Univariate analysis was used to describe the frequency distribution of each variable. Bivariate analysis was performed using Spearman's rank correlation because the variables were ordinal, with SPSS version 25. Ethical approval was obtained from the Health Research Ethics Committee of the Faculty of Nursing and Health Sciences, Muhammadiyah University of Semarang (approval number 008/KE/01/2026). The study was funded by the researcher

RESULTS

Table 1. Respondent Characteristics

No.	Respondent Characteristics	Category	Frequency (n=31)	Percentage (%)
1.	Age	Young adults (<45th)	3	9,7
		Late middle aged adults (45-59th)	10	32,3
		Early older adults (60-74th)	15	48,4
		Late older adults (>74th)	3	9,7
2.	Sex	Male	4	12,9
		Female	27	87,1
3.	Living Arrangement	Family	31	100,0
4.	Family Support	Low	5	16,1
		Moderate	17	54,8
		High	9	29
5.	Medication adherence	Low	7	22,6
		Moderate	17	54,8
		High	7	29
6.	Blood Pressure	Prehypertension	7	22,6

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	Grade 1 hypertension	12	38,7
	Grade 2 hypertension	12	38,7

Based on Table 1, most respondents were in the early older adult age group (60–74 years), comprising 15 respondents (48.4%), followed by the late middle-aged adult group (45–59 years), with 10 respondents (32.3%). The late older adult group (>74 years) and the young adult group (<45 years) each comprised 3 respondents (9.7%). Regarding sex, the majority of respondents were female (27; 87.1%), while 4 respondents (12.9%) were male. In terms of living arrangements, all respondents lived with their families (31; 100.0%). Regarding family support, most respondents reported moderate support (17; 54.8%), followed by high support (9; 29.0%) and low support (5; 16.1%). Similarly, most respondents had moderate medication adherence (17; 54.8%), while 7 respondents (22.6%) had low adherence and another 7 (22.6%) had high adherence. Regarding blood pressure, 12 respondents (38.7%) had grade 2 hypertension, 12 (38.7%) had grade 1 hypertension, and 7 (22.6%) were classified as having prehypertension.

Table 1. Association Between Family Support and Blood Pressure in Patients with Hypertension

Variable		Blood Pressure						Total		p-value	r
		Prehypertension		Grade 1 Hypertension		Grade 2 Hypertension					
		n	%	n	%	n	%	n	%	0,006	-0,479
Family Support	Low	0	0,0	0	0,0	5	41,7	5	16,1		
	Moderate	3	42,9	9	75,0	5	41,7	17	54,8		
	High	4	44,4	3	25,0	2	16,7	9	29,0		
Total		7	100,0	12	100,0	12	100,0	31	100,0		

Based on Table 2, which presents the association between family support and blood pressure among patients with hypertension, the distribution of respondents was as follows. Among respondents with low family support, all 5 respondents were classified as having grade 2 hypertension (41.7%), with none classified as having prehypertension or grade 1 hypertension (0.0%). Among respondents with moderate family support, 9 were classified as having grade 1 hypertension (75.0%), 5 had grade 2 hypertension (41.7%), and 3 had prehypertension (42.9%). Meanwhile, respondents with high family support showed a more favorable blood pressure distribution: 4 had prehypertension (44.4%), 3 had grade 1 hypertension (25.0%), and 2 had grade 2 hypertension (16.7%).

The Spearman rank correlation test yielded a p-value of 0.006 ($p < 0.05$) and a correlation coefficient of $r = -0.479$, indicating a statistically significant, moderate negative association between family support and blood pressure among patients with hypertension. This finding suggests that higher levels of family support were associated with better blood pressure control.

Table 2. Association Between Medication Adherence and Blood Pressure in Patients with Hypertension

Variabel		Blood Pressure						Total		p-value	r
		Prehypertension		Grade 1 Hypertension		Grade 2 Hypertension					
		n	%	n	%	n	%	n	%	0,000	-0,864
Medication adherence	Low	0	0,0	0	0,0	7	58,3	7	22,6		
	Moderate	0	0,0	12	100,0	5	41,7	17	54,8		
	High	7	100,0	0	0,0	0	0,0	7	22,6		
Total		7	22,6	12	100,0	12	100,0	31	100,0		

Based on Table 3, the bivariate analysis showed an association between medication adherence and blood pressure among patients with hypertension. Among respondents with low medication adherence, all 7 respondents were classified as having grade 2 hypertension (58.3%), with none classified as having prehypertension or grade 1 hypertension (0.0%).

Among respondents with moderate medication adherence, all 12 respondents with grade 1 hypertension belonged to the moderate-adherence group (100.0%). In addition, 5 respondents with grade 2 hypertension (41.7%) had moderate medication adherence, while none of the respondents in this group had prehypertension (0.0%).

Meanwhile, among respondents with high medication adherence, all 7 respondents with prehypertension belonged to the high-adherence group (100.0%). No respondents with grade 1 or grade 2 hypertension were found in the high-adherence group (0.0%).

The Spearman rank correlation test yielded a p-value of less than 0.001 and a correlation coefficient of r =

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−0.864, indicating a statistically significant, very strong negative association between medication adherence and blood pressure among patients with hypertension. This negative association suggests that higher medication adherence was associated with better blood pressure control.

DISCUSSION

Association Between Family Support and Blood Pressure in Patients with Hypertension

Bivariate analysis shows a significant association between family support and blood pressure among patients with hypertension. This finding is consistent with previous studies indicating that family support contributes to better blood pressure control by reminding patients to take their medication, encouraging healthy lifestyle practices, and helping reduce stress. These forms of support may ultimately facilitate hypertension management in outpatients. A cross-sectional study conducted in a primary healthcare setting also identifies an association between perceived family support and blood pressure control among patients with hypertension, highlighting the importance of family involvement in long-term hypertension management.[11]

Theoretically, family support plays an important role in hypertension management because family members can help patients adhere to medication schedules, encourage appropriate health behaviors, and reduce stress that may affect blood pressure. Adequate family support not only promotes medication adherence but also helps patients maintain a healthy lifestyle, including a low-sodium diet, regular physical activity, and routine visits to healthcare facilities. These behaviors contribute to better blood pressure control. Other studies indicate that family support serves as an important motivator for patients with hypertension in managing their condition, as emotional and informational support from family members can help patients maintain consistency in medication use and daily health behaviors, potentially contributing to improved blood pressure control.[6,12]

Studies conducted across different populations also report that family support is positively associated with blood pressure control and medication adherence among patients with hypertension. This association may occur because family support encourages consistent medication-taking behavior, which may subsequently contribute to better blood pressure control. [1,13]

Furthermore, the significant association between family support and blood pressure observed in this study may also be related to the respondents' age distribution, as most participants belong to the older adult population. Among older adults, dependence on family members may increase as physical and cognitive functions decline and the ability to adapt to chronic diseases becomes more challenging. Older adults may experience difficulties managing their medication independently, remembering medication schedules, and following recommended lifestyle modifications. Therefore, active family involvement may be particularly important in supporting their daily hypertension management.[14]

The observed association may also be influenced by the respondents' economic circumstances. Most respondents are participants in Indonesia's National Health Insurance program (BPJS Kesehatan), which may reduce the financial burden of medication and routine healthcare visits. This situation may allow family members to focus more on providing non-financial support, such as accompanying patients to healthcare facilities, monitoring medication adherence, and providing emotional and motivational encouragement. Reduced financial barriers may facilitate family involvement in hypertension management and potentially contribute to better blood pressure control. [12]

Family support for older adults serves not only as a source of emotional motivation but also as a form of instrumental assistance, such as helping with daily activities, accompanying patients to healthcare facilities, and supporting adherence to prescribed treatment. Therefore, family support may be particularly important for blood pressure management among older adults compared with younger populations. These considerations reinforce the importance of family involvement in maintaining blood pressure control among patients with hypertension, particularly older adults who may depend more heavily on their family environment. [12]

Association Between Medication Adherence and Blood Pressure in Patients with Hypertension

The analysis of the association between medication adherence and blood pressure revealed a significant negative relationship, indicating that higher levels of medication adherence were associated with lower blood pressure among respondents. This finding is consistent with scientific evidence showing that adherence to antihypertensive therapy is an important factor in achieving adequate blood pressure control. Medication nonadherence has been identified as one of the major reasons patients fail to achieve target blood pressure despite receiving long-term treatment. Previous research has indicated that nonadherence to antihypertensive regimens contributes substantially to the national prevalence of poor blood pressure control. Therefore, strategies to improve medication adherence should focus not only on patients but also on the broader healthcare system.[9,15,16]

In the context of this study, high medication adherence may also have been influenced by the accessibility and availability of antihypertensive medications at no cost through Indonesia's National Health Insurance program (BPJS Kesehatan) and the Chronic Disease Management Program (Prolanis). A reduced financial burden may help minimize economic barriers to obtaining medications regularly, allowing patients to take their medication more consistently as prescribed. The continuous availability of medications at primary healthcare facilities may also help patients avoid missed doses due to financial constraints, ultimately contributing to lower and more stable blood pressure.[14]

A study by Siwi et al. conducted in a primary healthcare setting, also found a significant association between medication adherence and blood pressure. Patients who adhered to their antihypertensive medication regimens tended to have more stable blood pressure than those with lower adherence.[11] Furthermore, other literature has emphasized the importance of social support, including family support, in improving medication adherence. Such support can help patients establish regular medication-taking habits and understand the importance of following their prescribed treatment schedules, ultimately contributing to lower and more stable blood pressure.[1]

Patients' health beliefs may influence their adherence to antihypertensive treatment, emphasizing the importance of considering patients' perceptions of hypertension, treatment benefits, and the need for long-term medication use when addressing medication adherence.[17]

Overall, the findings of this study are consistent with those of Rahayu et al. who reported that family support and medication adherence are interrelated factors that both contribute to better blood pressure control among patients with hypertension, although their effects may operate through different behavioural and psychosocial pathways.[12]

Medication adherence is influenced by a combination of intrinsic and extrinsic factors. Intrinsic factors include patients' knowledge of hypertension and its treatment, beliefs about the benefits of medication, personal motivation, perceptions of disease severity, and psychological conditions such as stress, anxiety, and treatment fatigue associated with long-term therapy. Patients with a good understanding of their condition and strong internal motivation tend to be more consistent in taking antihypertensive medication. Extrinsic factors include family support, relationships with healthcare professionals, accessibility of healthcare services, medication availability, and medication reminders or supervision. Family and social support serve as external reinforcements that help patients maintain adherence, particularly older adults who may experience limitations in managing their medication independently. Thus, the association between medication adherence and blood pressure in this study reflects a complex interaction between patients' internal factors and their external environment, which collectively influences the effectiveness of blood pressure control among patients with hypertension.[18,19]

Nonadherence to antihypertensive medication is influenced by multiple interrelated factors, including patient-related, treatment-related, and healthcare-related barriers. Understanding these factors is essential for developing appropriate strategies to improve medication adherence and blood pressure control.[20]

CONCLUSION AND RECOMMENDATIONS

Conclusion

Most patients with hypertension in the Jagalempeni Primary Health Care catchment area were classified as having grade 1 or grade 2 hypertension, while medication adherence and family support were generally at moderate levels. This study showed that better family support and higher medication adherence were associated with better blood pressure control. Medication adherence demonstrated a stronger association with blood pressure control than family support. These findings highlight the importance of family involvement and consistent adherence to therapy in managing hypertension in primary healthcare settings.

Recommendations

Future studies are recommended to employ longitudinal or interventional designs to assess the potential causal relationships between family support, medication adherence, and blood pressure. In addition, studies involving larger sample sizes and additional variables, such as dietary patterns, physical activity, stress levels, and types of antihypertensive therapy, are needed to provide a more comprehensive understanding of blood pressure control among patients with hypertension.

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