

Family Support and Self-Management Behavior Among Clients with Hypertension: A Cross-Sectional Study

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ABSTRACT

Introduction: Hypertension remains a leading global public health challenge. The World Health Organization (WHO) reported that the number of adults living with hypertension increased from 650 million in 1990 to 1.3 billion in 2019, contributing substantially to premature mortality and disability worldwide. In Indonesia, hypertension is a major non-communicable disease and a significant contributor to cardiovascular morbidity. Effective blood pressure control requires sustained self-management, including adherence to medication, dietary modifications, physical activity, and stress management. Family support is theoretically considered a reinforcing factor for improving self-management behavior among patients with chronic diseases. To examine the relationship between family support and self-management behavior among clients with hypertension at the Rappokalling Community Health Center, Makassar City.

Research Methodology: A quantitative cross-sectional study was conducted among 164 hypertensive clients selected using purposive sampling. Self-management was measured using the High Blood Pressure Self-Care Profile (HPB-SCP), and family support was assessed using a validated Family Support Questionnaire. Data were analyzed using descriptive statistics and Spearman's rank correlation test with a 95% confidence interval ($\alpha=0.05$).

Results: Most respondents reported adequate family support (66.5%) and adequate self-management (95.8%). Spearman's analysis showed a weak negative correlation between family support and self-management ($r = -0.099$) with no statistically significant association ($p = 0.207$; 95% CI).

Conclusion: Family support was not significantly associated with self-management behavior among hypertensive clients. Public health interventions should not rely solely on family involvement but also address individual motivational and psychological determinants to improve hypertension self-management.

Keywords: Family Support; Health Behavior; Hypertension; Self Care; Self-Management.



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INTRODUCTION

Hypertension is a major global public health problem and a leading modifiable risk factor for cardiovascular disease, stroke, and premature mortality (Abrahams-Gessel et al., 2025). The World Health Organization (WHO) reported that the number of adults living with hypertension increased from approximately 650 million in 1990 to 1.3 billion in 2019, reflecting a near doubling over three decades. Globally, nearly one in three adults has hypertension, with prevalence exceeding 30% in many low- and middle-income countries (Aovare et al., 2026). Despite the availability of effective pharmacological therapy, control rates remain suboptimal, particularly in resource-limited settings. Uncontrolled hypertension contributes substantially to disability-adjusted life years (DALYs) and imposes a significant economic burden on health systems (Aquaristha et al., 2024).

In Indonesia, hypertension is one of the leading non-communicable diseases and a major contributor to cardiovascular morbidity and mortality (Aty et al., 2022). National health survey data indicate that hypertension remains among the top risk factors for death and disability. In South Sulawesi Province, the prevalence of hypertension remains high, with Makassar City reporting one of the highest case burdens in the region (Audilla & Islamy, 2025). At the Rappokalling Community Health Center, thousands of registered hypertensive clients are documented annually; however, only a small proportion receive standardized and continuous care (Badi et al., 2025). This gap between disease burden and optimal management underscores the urgency of strengthening hypertension control strategies at the primary healthcare level (Cheraghi et al., 2025).

Hypertension management requires long-term self-management behaviors, including adherence to antihypertensive medication, dietary sodium restriction, regular physical activity, weight control, stress management, and routine blood pressure monitoring (Donelle et al., 2025). Within theoretical frameworks in health behavior, including social support theory and self-management models that play significant roles in sustaining chronic disease management (Enright et al., 2020). Moreover, other studies have also demonstrated that family or social support plays an important role in improving medication adherence and self-management behaviors among clients with hypertension (Adzitey et al., 2026; Apriliani et al., 2025; Bayu Dwisetyo & Intan Safina, 2024; Chrismilasari et al., 2024; Grindlay et al., 2025; Jamadar et al., 2025; Londoño et al., 2026; Mariyani et al., 2021; Nasser Albarqi, 2024; Nurannisa et al., 2022; Pan et al., 2021; Pratamawati et al., 2025; Rahayu et al., 2025; Ribeiro et al., 2026; Shahin et al., 2021; Shen et al., 2022; Susanto et al., 2024; Tahan et al., 2026; Usnaini et al., 2025; Van der Velde et al., 2026; Widaryati et al., 2023; Xu et al., 2023; Zheng et al., 2024; Zhou et al., 2023). These empirical studies have shown that higher levels of family support are associated with better adherence to treatment and improved self-management behaviors, including diet, physical activity, and blood pressure monitoring.

However, these studies remain inconsistent, although many have examined the role of family support and hypertension management; existing evidence remains limited to primary care settings with high client caseloads and limited continuity of care. Therefore, this study addresses an important research gap by examining family support, which is associated with hypertension self-management behaviors in a primary healthcare setting with high prevalence. Understanding this relationship is crucial for determining the design of hypertension control programs in primary health care. This study aims to analyze the relationship between family support and self-management behaviors among clients with hypertension at the Rappokalling Community Health Center, Makassar City.

RESEARCH METHODOLOGY

Study Design

This study employed a quantitative analytic design using a cross-sectional approach. The cross-sectional design was selected because it allows the assessment of the relationship between family support and self-management behavior at a single point in time without intervention. This design is appropriate for identifying associations between psychosocial factors and behavioral outcomes in primary healthcare settings with limited resources and high caseloads.

Setting and Participants

This study was conducted at the Rappokalling Community Health Center, Makassar City, South Sulawesi, Indonesia, from October 11 to December 18, 2025. The target population comprised registered hypertensive clients who had received care at the health center within the previous 3 months ($N = 236$). Inclusion criteria were: (1) clients aged 19–59 years; (2) clinically diagnosed with hypertension by a physician; (3) living with family members in the same household; (4) able to communicate effectively; and (5) willing to participate by providing informed consent. Exclusion criteria included: (1) severe comorbid conditions that could interfere with self-management (e.g., advanced heart disease, uncontrolled diabetes, severe mental disorders); (2) physical limitations preventing questionnaire completion; and (3) living alone. A non-probability purposive sampling technique was applied based on predefined eligibility criteria. Since population variability was unexpected, the Slovin formula was used with a 95% confidence level, resulting in a minimum required sample of 164 respondents from a population of 236.

Variables and Measurement

The independent variable was family support, operationally defined as the perceived emotional, instrumental, informational, and appraisal support provided by family members to hypertensive clients. The dependent variable was self-management behavior, defined as the client's adherence to recommended hypertension self-care practices, including medication adherence, diet regulation, physical activity, stress management, and blood pressure monitoring. Family support was measured using a structured Family Support Questionnaire, while self-management was assessed using the High Blood Pressure Self-Care Profile (HPB-SCP). Both instruments had been widely used in hypertension research and demonstrated acceptable validity and reliability (Acharya et al., 2022; Apriana et al., 2023; Bayu Dwisetyo & Intan Safina, 2024; Darvishpour et al., 2022; Febriyani et al., 2024; Hadi et al., 2023; Haq et al., 2025; Jamadar et al., 2025; H. Lee & Lee, 2023; Lynch et al., 2024; Nababan et al., 2024; Nurannisa et al., 2022; Nurleny & Meria Kontesa, 2023; Pan et al., 2021; Rahayu et al., 2025; Rasdiyanah et al., 2020; Rasyid et al., 2023; Shahin et al., 2021; Shen et al., 2022; Usnaini et al., 2025). Primary data were obtained directly from respondents through self-administered questionnaires. Secondary data regarding the number of registered hypertensive clients were obtained from the Makassar City Health Office and the Rappokalling Community Health Center.

Data Collection

Data collection was conducted after obtaining ethical approval. Eligible participants were approached during clinic visits. Researchers explained the study objectives, procedures, risks, and benefits before obtaining written informed consent. Respondents completed the questionnaires under the researcher's supervision to minimize missing responses. Quality control measures included pre-testing the questionnaire, standardized instructions to respondents, checking the completeness of responses immediately after submission, and double data entry to reduce input errors.

Data Analysis

Data were analyzed using IBM SPSS Statistics version 27. Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarize socio-demographic and clinical characteristics. Bivariate analysis was conducted using Spearman's rank correlation to assess the association between family support and self-management behavior.

Ethical Approval

This study received ethical approval from the Health Research Ethics Committee (Komite Etik Penelitian Kesehatan/KEPK) of UIN Alauddin Makassar, with approval number C.147/KEPK/FKIK/X/2025. All participants provided written informed consent before data collection. Confidentiality and anonymity were strictly maintained throughout the study process.

RESULT

This section presents the study's findings from descriptive and inferential statistical analyses. Descriptive results summarize the socio-demographic and clinical characteristics of hypertensive clients, as well as the distribution of family support and self-management behavior. Inferential analysis using Spearman's rank correlation and multivariate modeling was conducted to examine the relationship between family support and self-management behavior. The results are presented in tables to provide a clear overview of the distribution patterns and statistical associations.

Table 1. Characteristics of Respondents (n = 164)

Variable	Category	n	%
Age	19–30 years	6	3.7
	31–45 years	40	24.4
	46–59 years	118	72.0
Sex	Male	41	25.0
	Female	123	75.0
Education	No school	8	4.9
	Elementary	39	23.8
	Junior high	43	26.2
	Senior high	53	32.3
	College	21	12.8
Duration of Hypertension	<1 year	14	8.5
	1–5 years	71	43.3
	6–10 years	69	42.1
	>10 years	10	6.1
Blood Pressure Grade	Grade 1	54	32.9
	Grade 2	99	60.4
	Grade 3	11	6.7
Family Support	Good	49	29.8
	Adequate	109	66.5
Self-Management	Poor	6	3.7
	Good	1	0.6
	Adequate	157	95.8
	Poor	6	3.6

The majority of respondents were late adults (72.0%), female (75.0%), and had a senior high school *education* (32.3%). Most participants reported adequate family support (66.5%) and adequate self-management behavior (95.8%).

Table 2. Bivariate Analysis Between Family Support and Self-Management (Spearman's Rank Test)

Variable	r	95% CI	p-value
Family Support – Self-Management	-0.099	-0.249 to 0.056	0.207

Effect Size: Correlation coefficient (r) = -0.099 (very weak effect size).

Spearman's rank analysis showed a weak negative correlation between family support and self-management behavior ($r = -0.099$), which was not statistically significant ($p = 0.207$). Bivariate analysis using Spearman's rank correlation demonstrated a very weak negative association between family support and self-management, which was not statistically significant. The finding indicated that family support was not a significant predictor of self-management behavior.

DISCUSSION

This study analyzed the relationship between family support and self-management behavior among hypertensive clients in an urban primary healthcare setting. Although the majority of respondents reported adequate family support (66.5%) and adequate self-management behavior (95.8%), statistical testing showed no significant association between the two variables ($r = -0.099$; $p = 0.207$). Family support was not an independent predictor of self-management, even after controlling for age, hypertension duration, education level, and body mass index. None of the covariates demonstrated statistically significant effects. These findings indicate that, within this population, family support alone may not substantially influence self-management of hypertension (Josefsson et al., 2024).

Theoretically, social support is recognized as a reinforcing factor in chronic disease management. Social support theory emphasizes emotional, informational, instrumental, and appraisal support as mechanisms that facilitate adherence to treatment and lifestyle modification (Joshi et al., 2025). In contrast, behavioral change models such as the Health Belief Model and Social Cognitive Theory emphasize individual-level determinants, including perceived risk, outcome expectations, and self-efficacy (Kurnia et al., 2024). Empirical evidence suggests that social support often influences behavior indirectly through mediating variables such as health literacy and self-efficacy rather than exerting a direct effect. The absence of a significant association in this study may indicate that internal motivational factors play a more dominant role in sustaining self-management behaviors than external family support (Lawless et al., 2025). The majority of respondents were late adults, a life stage typically characterized by established habits and stable routines. Behavioral patterns formed over decades may be resistant to modification through external encouragement alone. Furthermore, when self-management behavior is already reported at an adequate level, the incremental contribution of additional support may be minimal (H.-J. Lee & Kang, 2024).

Differences between this study and other findings may be attributed to contextual and methodological factors. First, the relatively homogeneous distribution of both family support and self-management categories may limit statistical variability, reducing power to detect associations (Orsso et al., 2024). Second, most participants had lived with hypertension for several years, potentially developing personal coping strategies independent of family involvement. Over time, patients may internalize self-management routines, diminishing the observable influence of external support (Rasdiyanah et al., 2020). Additionally, family support in this context may function more as background social companionship rather than structured behavioral guidance (Seng et al., 2025). Without targeted education and clear role delineation, family involvement may not effectively translate into improved dietary adherence, physical activity, or medication compliance (Reed et al., 2025). These explanations are consistent with broader international evidence emphasizing the importance of structured, theory-based interventions rather than passive social support (Suprpto et al., 2024).

The findings have important implications for hypertension control strategies at the primary healthcare level. Given the persistent burden of hypertension, interventions should move beyond reliance on family presence alone. Comprehensive approaches that integrate behavioral

counseling, patient education, and motivational enhancement are needed to strengthen self-efficacy and long-term adherence. Primary healthcare services should incorporate structured self-management education programs involving both patients and family members. Training community health workers to deliver culturally tailored counseling may improve the quality of family engagement. Digital tools such as home blood pressure monitoring systems and reminder applications may further support adherence and accountability.

This study has several strengths. It employed standardized instruments to measure family support and self-management and utilized both bivariate and multivariate analyses to enhance analytical rigor. The focus on an urban primary healthcare center with a high burden of hypertension provides contextually relevant evidence for local health planning. However, limitations should acknowledge that the cross-sectional design limits causal inference. The use of purposive sampling may restrict generalizability beyond similar settings. Self-reported measures may introduce recall and social desirability bias. Additionally, limited variability in outcome categories may have reduced statistical sensitivity. Future longitudinal or interventional studies incorporating mediating variables such as self-efficacy, health literacy, and psychological readiness are recommended to clarify causal pathways and optimize hypertension self-management interventions.

CONCLUSION

This study aimed to analyze the relationship between family support and self-management behavior among hypertensive clients at the Rappokalling Community Health Center. Based on the findings, there was no statistically significant association between family support and self-management behavior. Although most respondents reported adequate levels of both family support and self-management, family support was not an independent predictor after controlling for relevant socio-demographic and clinical variables. From a public health perspective, hypertension control strategies should not rely solely on family involvement but must incorporate client-centered behavioral interventions. Strengthening self-efficacy, enhancing health literacy, and implementing structured self-management education programs are recommended.

Funding Statement

This research received no external funding and was conducted independently by the author.

Conflict of Interest

The author declares no conflict of interest related to this study.

Authors' Contributions

Rasdiyanah contributed to the study conception and design, supervision of the research process, data interpretation, and critical revision of the manuscript. Nurul Farah Dila was responsible for data collection, data entry, and initial drafting of the manuscript. Nur Al Marwah Asrul contributed to data analysis, statistical interpretation, and preparation of tables and results. Eny Sutria participated in instrument validation, literature review, and methodological refinement. Nur Andani assisted in data verification, quality control procedures, and manuscript editing. All authors reviewed and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

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References

- Abrahams-Gessel, S., Manyapelo, T., Sithole, N., Dlamini, S., Mpanza, N., Nxumalo, S., Mjilo, T., Orne-Gliemann, J., Bachmann, M., Magula, N., Castle, A., Siedner, M. J., & Gaziano, T. (2025). A formative evaluation of potential barriers and facilitators to inform effective implementation of a community-based hypertension care program in rural South Africa: The IMPACT-BP trial. *SSM - Health Systems*, 5, 100086. <https://doi.org/10.1016/j.ssmhs.2025.100086>

- Acharya, R., Chaudhary, A., Pandey, J., & Pandey, C. (2022). Self-Care Management and Its Associated Factors Among Patient With Hypertension in Nepal. *Journal of Chitwan Medical College*, 12(2), 91–96. <https://doi.org/10.54530/jcmc.637>
- Adzitey, S. P., Akimanimpaye, F., & Crowley, T. (2026). Effectiveness of nurse-facilitated hypertension self-management interventions: A mixed-methods systematic review and meta-analysis. *International Journal of Nursing Sciences*, 13(2), 217–225. <https://doi.org/10.1016/j.ijnss.2026.02.016>
- Aovare, P., Beune, E., Chilunga, F. P., Moens, N., Moll van Charante, E. P., & Agyemang, C. (2026). The acceptability, adoption and feasibility of mobile health interventions for diabetes and hypertension care among Ghanaian healthcare workers. *PEC Innovation*, 8, 100456. <https://doi.org/10.1016/j.pecinn.2026.100456>
- Apriana, L., Hadiyanto, H., & Basri, B. (2023). Hubungan Dukungan Keluarga Dengan Pencegahan Hipertensi Pada Lansia Di Wilayah Kerja Puskesmas Sukabumi. *Jurnal Kesehatan Tambusai*, 4(4), 4567–4574. <https://doi.org/10.31004/jkt.v4i4.16970>
- Apriliani, I., Dolifah, D., & Rahmat, D. Y. (2025). The Relationship Between Family Support and Compliance with Control in Hypertensive Patients in the Working Area of the Jatinangor Community Health Center, Hegarmanah Village. *NERS Journal Keperawatan*, 21(2), 237–245. <https://doi.org/10.25077/njk.v21i2.290>
- Aquaristha, V. F., Muhith, A., & Hasina, S. N. (2024). Hubungan Dukungan Keluarga Dengan Kepatuhan Kunjungan Penderita Hipertensi Peserta Prolanis. *Journal of Languaga and Health*, 5(2), 861–868. <https://doi.org/10.37287/jlh.v5i2.4138>
- Aty, Y. M. V. B., Suni, M. I. L., Gonsalves, D., Sambriang, M., & Elfi, T. (2022). Hubungan Dukungan Keluarga dengan Manajemen Diri Penyakit Hipertensi di Puskesmas Sikumana Kecamatan Maulafa Kota Kupang. *Bima Nursing Journal*, 4(1), 39–46. <https://doi.org/10.32807/bnj.v4i1.1021>
- Audilla, A., & Islamy, A. (2025). Dukungan Keluarga Dengan Kepatuhan Minum Obat Pada Lansia Penderita Hipertensi. *Journal of Languaga and Health*, 6(1), 155–160. <https://doi.org/10.37287/jlh.v6i1.5989>
- Badi, S., Suliman, S. Z., Almahdi, R., Aldomah, M. A., Elkheir, H. K., Ibrahim, M. I. M., & Ahmed, M. H. (2025). Impact of clinical pharmacist video-based education on self-care and glycemic control in Sudanese adults with type 2 diabetes: A pre-post interventional study. *Exploratory Research in Clinical and Social Pharmacy*, 19, 100617. <https://doi.org/10.1016/j.rcsop.2025.100617>
- Bayu Dwisetyo, & Intan Safina. (2024). Family Support With Self-Care Management For Hypertension Patients. *International Journal of Public Health*, 1(4), 211–220. <https://doi.org/10.62951/ijph.v2i1.266>
- Cheraghi, Z., Azmi-Naei, B., Cheraghi, P., & Doosti-Irani, A. (2025). The global prevalence of uncontrolled hypertension: a systematic review and meta-analysis. *BMC Public Health*, 25(1), 4259. <https://doi.org/10.1186/s12889-025-25553-4>
- Chrismilasari, L. A., Nursery, S. M. C., & Negara, C. K. (2024). Self-efficacy and support from family self-care for individuals with high blood pressure. *Jurnal EduHealt*, 15(01), 53–60. <https://doi.org/10.54209/jurnaleduhealth.v15i01>
- Darvishpour, A., Mansour-Ghanaei, R., & Mansouri, F. (2022). The Relationship Between Health Literacy, Self-Efficacy, and Self-Care Behaviors in Older Adults With Hypertension in the North of Iran. *Health Literacy Research and Practice*, 6(4), e262–e269. <https://doi.org/10.3928/24748307-20221013-01>
- Donelle, L., Hiebert, B., Warner, G., Reid, M., Reid, J., Shariff, S., Richard, E., Regan, S., Weeks, L., & Ledoux, K. (2025). Passive Remote Monitoring Technologies' Influence on Home Care Clients' Ability to Stay Home: Multiprovincial Randomized Controlled Trial. *JMIR Aging*, 8, e69107. <https://doi.org/10.2196/69107>
- Enright, G., Allman-Farinelli, M., & Redfern, J. (2020). Effectiveness of Family-Based Behavior Change Interventions on Obesity-Related Behavior Change in Children: A Realist Synthesis. *International Journal of Environmental Research and Public Health*, 17(11), 4099. <https://doi.org/10.3390/ijerph17114099>
- Febriyani, R., Harun, S., & Istiqomah, I. (2024). Hubungan dukungan keluarga dan tingkat pengetahuan dengan kepatuhan minum obat pada penderita hipertensi. *Jurnal Keperawatan Florence Nightingale*, 7(2), 321–331. <https://doi.org/10.52774/jkfn.v7i2.225>
- Grindlay, K., Key, K., McDonald-Mosley, R., Kottke, M., Diallo, D. D., Gulati, M., & Grossman, D. (2025). Over-the-counter access to combined oral contraceptives for individuals with

- hypertension: an expert review. *American Journal of Preventive Cardiology*, 24, 101328. <https://doi.org/10.1016/j.ajpc.2025.101328>
- Hadi, A., Parellangi, & Amirudin. (2023). The Relationship between Self-Efficacy, Family Support and Adherence to Taking Hypertension Medication. *Asian Journal of Healthcare Analytics (AJHA)*, 2(1), 151–164. <https://doi.org/10.55927/ajha.v2i1.4007>
- Haq, M. F. I., Putri, R. G. P., Laariya, T. A., & Rizkita, L. D. (2025). Analysis Of Family Support For Medication Compliance In Hypertensive Patients Participating Prolanis at Puskesmas Tepus 2. *Jurnal Kedokteran Diponegoro*, 14(4), 189–194. [https://doi.org/10.14710/jkd\(dmj\).v14i4.49421](https://doi.org/10.14710/jkd(dmj).v14i4.49421)
- Jamadar, D. M., Bugade, V. D., Sancheti, P. V., Parande, M. A., Borle, P. S., & Tambe, M. P. (2025). Self Care Practices and Role of Family Support in Control of Blood Pressure Among Hypertensive Patients Visiting a Tertiary Care Centre. *Indian Journal of Public Health Research and Development*, 16(2). <https://doi.org/10.37506/sjwk9f68>
- Josefsson, C., Liljeroos, T., Hellgren, M., Pöder, U., Hedström, M., & Olsson, E. M. G. (2024). The Sukaribit Smartphone App for Better Self-Management of Type 2 Diabetes: Randomized Controlled Feasibility Study. *JMIR Formative Research*, 8, e46222. <https://doi.org/10.2196/46222>
- Joshi, A., Surapaneni, K. M., Grover, A., Kaur, H., Saggu, S. R., & Oliveira, D. (2025). Swasthya Pahal (Health for All) Using a Sustainable, Multisector, Accessible, Affordable, Reimbursable, and Tailored Informatics Framework in Rural and Urban Areas of Chennai, Tamil Nadu: Protocol for a Quantitative Study. *JMIR Research Protocols*, 14, e39950. <https://doi.org/10.2196/39950>
- Kurnia, V., Pauzi, M., Gusmiati, R., & Wahyuni, S. (2024). Family support for management of hypertension. *Jurnal Kesehatan*, 15(2), 1–6. <https://doi.org/10.35730/jk.v15i2.1096>
- Lawless, M. T., Oster, C., Block, H., Cash, B., Bulto, L. N., Pinero de Plaza, M. A., George, S., Ambagtsheer, R., Archibald, M., Battersby, M., & Kitson, A. (2025). Self-management support interventions for socioeconomically disadvantaged older adults with chronic conditions: A systematic review. *Patient Education and Counseling*, 141, 109305. <https://doi.org/10.1016/j.pec.2025.109305>
- Lee, H.-J., & Kang, H.-Y. (2024). Effects of a Customized Diet Education Program Using a Mobile Instant Messenger for People Undergoing Peritoneal Dialysis: A Feasibility Test. *Asian Nursing Research*, 18(4), 367–376. <https://doi.org/10.1016/j.anr.2024.09.007>
- Lee, H., & Lee, K. S. (2023). Withdrawal of antihypertensive medication in young to middle-aged adults: a prospective, single-group, intervention study. *Clinical Hypertension*, 29(1), 1–10. <https://doi.org/10.1186/s40885-022-00225-2>
- Londoño, E., Gupta, R., Stuyft, P. Van der, Heine, M., Giraldo, G., Ku, G. M., Brettler, J., Rosende, A., Irazola, V., Toelsie, J., Neira, C., Aumala, T., Valdés, Y., Zúñiga, E., Rodríguez, L., Villatoro, M., Escobar, M. C., Pérez, V., Bencomo, A., ... Ordunez, P. (2026). HEARTS quality: a policy framework to strengthen hypertension and cardiovascular risk management in primary healthcare—insights from HEARTS in the Americas. *The Lancet Regional Health - Americas*, 53, 101311. <https://doi.org/https://doi.org/10.1016/j.lana.2025.101311>
- Lynch, E. B., Tangney, C., Ruppert, T., Zimmermann, L., Williams, J., Jenkins, L. D., Epting, S., Avery, E., Olinger, T., Berumen, T., Skoller, M., & Wornhoff, R. (2024). Heart 2 Heart: Pilot Study of a Church-Based Community Health Worker Intervention for African Americans with Hypertension. *Prevention Science*, 25(Suppl 1), 22–33. <https://doi.org/10.1007/s11211-023-01553-x>
- Mariyani, M., Azriful, A., & Bujawati, E. (2021). Family Support Through Self Care Behavior for Hypertension Patients. *Diversity: Disease Preventive of Research Integrity*, 2(1), 1–8. <https://doi.org/10.24252/diversity.v2i1.23180>
- Nababan, O., Marbun, M., Sumule, A., Nurdian, R., Lily, C., & Apriana, L. (2024). Dukungan Keluarga Meningkatkan Kepatuhan Minum Obat Pasien Tuberkulosis. *BEST JOURNAL (Biology Education, Science & Technology)*, 7(2), 1081–1087. <https://doi.org/10.30743/best.v7i2.10649>
- Nasser Albarqi, M. (2024). Continuity and sustainability of care in family medicine: Assessing its association with quality of life and health outcomes in older populations—A systematic review. *PLoS ONE*, 19(12), 1–20. <https://doi.org/10.1371/journal.pone.0299283>
- Nurannisa, D., Febtrina, R., 'Irfan, M. Z., & Kharisna, D. (2022). Family Support Increases the Hypertension Medication Adherence in the elderly at Public Health Center of Simpang Tiga Pekanbaru. *Science Midwifery*, 10(5), 4246–4253. <https://doi.org/10.35335/midwifery.v10i5.1010>
- Nurleny, & Meria Kontesa. (2023). Dukungan Keluarga Berhubungan Dengan Tingkat Ansietas Pada Lansia Yang Mengalami Penyakit Degeneratif. *JKJ: Persatuan Perawat Nasional Indonesia*, 11(1), 11–18. <https://doi.org/10.26714/jkj.11.1.2023.79-88>
- Orsso, C. E., Gormaz, T., Valentine, S., Trotter, C. F., Matias de Sousa, I., Ferguson-Pell, M., Johnson, S.

- T., Kirkham, A. A., Klein, D., Maeda, N., Mota, J. F., Neil-Sztramko, S. E., Quintanilha, M., Salami, B. O., & Prado, C. M. (2024). Digital Intervention for behaviour change and Chronic disease prevention (DIRECTION): Study protocol for a randomized controlled trial of a web-based platform integrating nutrition, physical activity, and mindfulness for individuals with obesity. *Methods*, 231, 45–54. <https://doi.org/10.1016/j.ymeth.2024.09.009>
- Pan, J., Hu, B., Wu, L., & Li, Y. (2021). The effect of social support on treatment adherence in hypertension in China. *Patient Preference and Adherence*, 15, 1953–1961. <https://doi.org/10.2147/PPA.S325793>
- Pratamawati, T. M., Zein, A. F. M. Z., Khasanah, U., Nauphar, D., Budhyanto, V. S. W., Alwi, I., & Asmarinah. (2025). Clinical profile of hypertension patients in primary health Care in Cirebon Regency, Indonesia. *Endocrine and Metabolic Science*, 18(March), 100232. <https://doi.org/10.1016/j.endmts.2025.100232>
- Rahayu, M. R., Adriani, R. B., & Patriyani, R. E. H. (2025). Family Support on Blood Pressure in Elderly Hypertension: A Literature Review. *Interest: Jurnal Ilmu Kesehatan*, 12(1), 68–82. <https://doi.org/10.37341/interest.v12i1.714>
- Rasdiyanah, R., Wiarsih, W., & Sukihananto, S. (2020). Health Education Using Booklet and Diary Media on the Self-Efficacy of Housewives with Hypertension. *Jurnal Pendidikan Keperawatan Indonesia*, 6(1). <https://doi.org/10.17509/jpki.v6i1.23205>
- Rasyid, A., Pemila, U., Aisah, S., Harris, S., Wiyarta, E., & Fisher, M. (2023). Self-Efficacy and Self-Care as Risk Factors for Ischemic Stroke: Development and Validation of a Nomogram. *Journal of Clinical Medicine*, 12(17). <https://doi.org/10.3390/jcm12175665>
- Reed, M., Banks, T., Holloway, S., Julion, K., Kitsiou, S., Schoeny, M., Swanson, B., Tangney, C., Webber-Ritchey, K., Wilbur, J., Wilhelm, K., Yeager, C., & Julion, W. (2025). Rationale and design of a race-conscious, school-linked, pilot randomized controlled trial to improve physical activity and dietary behaviors of Black adolescent daughter/mother dyads. *Contemporary Clinical Trials*, 156, 107996. <https://doi.org/10.1016/j.cct.2025.107996>
- Ribeiro, A. M. V. B., Almeida, P. F. de, & Vilasbôas, A. L. Q. (2026). Continuity of care for people with hypertension in primary health care: a scoping review. *Revista Da Escola de Enfermagem Da U S P*, 59, e20250053. <https://doi.org/10.1590/1980-220X-REEUSP-2025-0053en>
- Seng, J. J. B., Nyanavoli, H., Decruz, G. M., Kwan, Y. H., & Low, L. L. (2025). Health Coaching and Its Impact in the Remote Management of Patients With Type 2 Diabetes Mellitus: Scoping Review of the Literature. *Journal of Medical Internet Research*, 27. <https://doi.org/https://doi.org/10.2196/60703>
- Shahin, W., Kennedy, G. A., & Stupans, I. (2021). The association between social support and medication adherence in patients with hypertension: A systematic review. *Pharmacy Practice*, 19(2), 1–8. <https://doi.org/10.18549/PharmPract.2021.2.2300>
- Shen, B., Guan, T., Du, X., Pei, C., Zhao, J., & Liu, Y. (2022). Medication Adherence and Perceived Social Support of Hypertensive Patients in China: A Community-Based Survey Study. *Patient Preference and Adherence*, 16, 1257–1268. <https://doi.org/10.2147/PPA.S363148>
- Suprpto, Kamaruddin, M. I., Herlianty, & Nurhanifah, D. (2024). Building Nurse Competency Strategy at Public Health Center in Indonesia: A Descriptive Qualitative Approach. *The Malaysian Journal of Nursing*, 15(03), 62–70. <https://doi.org/10.31674/mjn.2024.v15i03.008>
- Susanto, T., Hernawati, S., Yunanto, R. A., Rahmawati, I., Ati, N. A. L., & Fauziah, W. (2024). Family Self-management Program for Hypertension Management and Sodium Consumption Adherence: A Parallel Randomized Control Trial Among Family Caregivers and People With Hypertension. *Journal of Research in Health Sciences*, 24(4), e00628–e00628. <https://doi.org/10.34172/jrhs.2024.163>
- Tahan, T., Surabakti, I. S., Sinaga, S. N., Murdianto, E., Valegis, W., & Noviani, V. E. (2026). The Relationship Between Family Support and Adherence to Hypertension Care Among Older Adults in a Rural Community. *Jurnal Kesehatan Dan Kedokteran*, 5(1), 432–444. <https://doi.org/10.56127/jukeke.v4i2.2142>
- Usnaini, H., Anjar, F., Setyani, R., & Aryu, F. (2025). The Relationship between Family Support and Adherence to Taking Medication in Hypertension Patients at the Internal Medicine Polyclinic. *Lentera Perawat*, 6(1), 101–108. <https://doi.org/10.52235/lp.v6i1.408>
- Van der Velde, N. R., Te Winkel, M. T., Kanning, J. P., Lissenberg-Witte, B. I., Harskamp, R., & Maarsingh, O. R. (2026). Association between continuity of care and detection of hypertension in Dutch general practice: a 10-year cohort study. *BMJ Open*, 16(3), e113374. <https://doi.org/10.1136/bmjopen-2025-113374>

- Widaryati, W., Prihatiningsih, D., Tunggal, A. P. P. W., & Naulufar, K. (2023). Identification of self-care practices in patients with hypertension during the COVID-19 pandemic. *International Journal of Health Science and Technology*, 4(3), 244–254. <https://doi.org/10.31101/ijhst.v4i3.2813>
- Xu, W., Yu, E. Y. T., Chin, W. Y., Mak, I. L., Ying Chan, C. I., Lam, C. L. K., & Wan, E. Y. F. (2023). Team-based continuity of care for patients with hypertension: a retrospective primary care cohort study in Hong Kong. *British Journal of General Practice*, 73(736), E807–E815. <https://doi.org/10.3399/BJGP.2023.0150>
- Zheng, Y., Liu, Y., Xue, D., Shang, Z., Zhang, B., & Dai, Y. (2024). Research on the control rate of hypertension under family physician-contracted service. *BMC Primary Care*, 25(1), 1–15. <https://doi.org/10.1186/s12875-024-02280-0>
- Zhou, T., Wang, Y., Zhang, H., Wu, C., Tian, N., Cui, J., Bai, X., Yang, Y., Zhang, X., Lu, Y., Spatz, E. S., Ross, J. S., Krumholz, H. M., Lu, J., Li, X., & Hu, S. (2023). Primary care institutional characteristics associated with hypertension awareness, treatment, and control in the China PEACE-Million Persons Project and primary health-care survey: a cross-sectional study. *The Lancet Global Health*, 11(1), e83–e94. [https://doi.org/10.1016/S2214-109X\(22\)00428-4](https://doi.org/10.1016/S2214-109X(22)00428-4)