

Brisk Walking Education in Hypertension Control in the Working Area of the Kanjilo Health Centre

Nur Andani^{1*}, Rasdiyanah¹, Eny Sutriya¹, Aidah Fitriani¹

¹ Nursing and Nurses Study Program, UIN Alauddin Makassar, South Sulawesi, Indonesia

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ABSTRACT

Hypertension remains a major public health problem with increasing prevalence and significant risk of cardiovascular complications, particularly in primary healthcare settings. Limited community knowledge and low levels of structured physical activity contribute to inadequate non-pharmacological hypertension control. This community service program aimed to improve knowledge, attitudes, and practical skills in hypertension management through structured health education and brisk walking exercise in the working area of Kanjilo Public Health Centre. The intervention employed an educational and participatory approach involving 30 adults and older adults with or at risk of hypertension. Activities included baseline assessment, delivery of hypertension education, demonstration and supervised brisk walking practice, and post-intervention evaluation. Results showed substantial improvements in cognitive and behavioural outcomes. The proportion of participants with good knowledge increased from 40.0% to 86.7%, positive attitudes from 46.7% to 83.3%, and understanding of the benefits of physical activity from 43.3% to 90.0%.

Additionally, 83.3% performed brisk walking correctly, and 86.7% expressed a commitment to regular physical activity. These findings indicate that integrating health education with moderate-intensity aerobic exercise is feasible and effective in strengthening community-based hypertension control. The program demonstrates potential as a promotive and preventive model within primary healthcare services.

Keywords: Brisk Walking; Community-Based Intervention; Health Education; Hypertension; Primary Healthcare.



*Corresponding Author:

Nur Andani, Nursing and Nurses Study Program, UIN Alauddin Makassar, South Sulawesi, Indonesia

Email: nur.andani@uin-alauddin.ac.id



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INTRODUCTION

Hypertension remains one of the most pressing global public health challenges, contributing substantially to morbidity, mortality, and healthcare expenditures worldwide. According to the World Health Organisation, more than 1.28 billion adults globally live with hypertension, with nearly two-thirds residing in low- and middle-income countries (Ahmad et al., 2025). Despite the availability of effective pharmacological treatments, control rates remain suboptimal due to delayed diagnosis, poor adherence, and inadequate lifestyle modification (Aswin et al., 2024). Uncontrolled hypertension significantly increases the risk of cardiovascular diseases, including coronary artery disease, stroke, heart failure, and chronic kidney disease. Consequently, comprehensive and sustainable control strategies at the primary healthcare level are urgently required (Baharuddin et al., 2023).

In Indonesia, the burden of hypertension continues to rise, with national prevalence exceeding one-third of the adult population (Cabral et al., 2025). This epidemiological trend reflects rapid demographic transition, urbanisation, sedentary lifestyles, and dietary changes. At the community level, particularly within the working area of Puskesmas Kanjilo, hypertension cases represent a substantial proportion of chronic disease visits. Many adults and older adults exhibit low levels of structured physical activity and limited knowledge regarding non-pharmacological hypertension management (Cin & Hintistan, 2026). These conditions create a dual challenge: insufficient health literacy and inadequate adoption of preventive behaviours. Evidence consistently demonstrates that lifestyle modification, especially regular moderate-intensity physical activity, plays a critical role in both the prevention and control of hypertension (Feighan et al., 2025).

Brisk walking is recognised as a practical, low-cost, and accessible form of aerobic exercise that can significantly reduce systolic and diastolic blood pressure (Kline et al., 2025). As a moderate-intensity activity, brisk walking improves vascular function, enhances endothelial performance, reduces arterial stiffness, and supports weight management (C. Li et al., 2025). Importantly, it does not require specialised equipment, facilities, or financial investment, making it particularly suitable for community-based implementation in primary healthcare settings (G. Li et al., 2024).

However, the effectiveness of physical activity interventions depends heavily on community awareness, motivation, and behavioural commitment. Health education serves as a foundational strategy to improve knowledge, shape attitudes, and facilitate behavioural change (Liao et al., 2024). Participatory and community-engaged educational approaches are especially effective because they foster ownership, collective responsibility, and sustained practice. In areas such as the working region of Puskesmas Kanjilo, where community engagement structures already exist, integrating health education with practical physical activity sessions is a feasible, contextually appropriate intervention model (H. Liu et al., 2026).

The urgency of addressing hypertension in this setting lies not only in its high prevalence but also in the preventable nature of many of its complications. Pharmacological therapy alone is insufficient if not complemented by sustainable lifestyle modification. Without structured community-based interventions, the risk of long-term cardiovascular events will continue to escalate, placing additional strain on primary healthcare services. Therefore, a promotive and preventive approach emphasising education and practical skill development is strategically aligned with public health priorities.

To address these challenges, this community service initiative implemented an educational and participatory intervention combining structured health education on hypertension with guided brisk walking. The approach aimed to empower community members, particularly adults and older adults who are hypertensive or at risk, to develop practical competencies in non-pharmacological blood pressure control. By integrating knowledge transfer with direct skill practice, the program sought to move beyond awareness toward sustained behavioural adoption.

The objective of this community-based intervention was to improve community knowledge, attitudes, and practical skills in hypertension control through structured health education and brisk walking. Additionally, the program aimed to strengthen community engagement in promotive and preventive health behaviours within the primary healthcare framework. Through this integrated approach, the initiative aspires to serve as a scalable model for sustainable hypertension management at the community level.

METHOD of IMPLEMENTATION

The community service program was implemented through six systematic stages designed to ensure structured planning, execution, monitoring, and sustainability.

Stage	Phase	Main Activities	Expected Output	Indicators of Achievement
1	Preliminary Assessment	Situation analysis, coordination with Kanjilo Public Health Centre, identification of hypertensive and at-risk participants, baseline data collection	Identified target participants and mapped community needs	List of participants, baseline knowledge, and physical activity data
2	Program Planning	Development of educational materials on hypertension and brisk walking, preparation of evaluation instruments, and scheduling of activities	Structured intervention plan and validated materials	Availability of modules, leaflets, questionnaires, and activity schedules
3	Health Education Session	Delivery of structured education on hypertension, risk factors, complications, and non-pharmacological management	Increased participant knowledge and awareness	Pre-and post-test knowledge score improvement
4	Demonstration and Guided Practice	Demonstration of correct brisk walking techniques (warm-up, intensity, duration, cool-down), supervised group practice	Participants were able to perform brisk walking correctly	Observation checklist showing $\geq 80\%$ correct technique performance
5	Monitoring and Evaluation	Post-intervention assessment of knowledge, attitudes, and skills; short interviews; observation of participant performance	Measured behavioural and cognitive changes	Increased post-test scores and positive participant feedback
6	Follow-up and Sustainability Planning	Coordination with health cadres and health centre staff for routine integration, encouragement of peer support, and regular practice	Sustainable community-based physical activity program	Commitment from participants and integration into routine health centre activities

This six-stage framework ensures that the intervention is evidence-based, participatory, measurable, and sustainable within the primary healthcare context.

RESULT

The community service activity was attended by 30 participants of the adult community and elderly people with and at risk of hypertension in the working area of the Kanjilo Health Centre. The results of the activity were evaluated based on changes in participants' knowledge, attitudes, and skills related to hypertension control through brisk walking exercise.

Table 1. Changes in Knowledge, Attitudes, and Skills After Community Service Intervention (n = 30)

Variable	Before (%)	After (%)	Absolute Increase (%)
Good Knowledge about Hypertension	40.0	86.7	+46.7
Positive Attitude toward Hypertension Control	46.7	83.3	+36.6
Understanding of Physical Activity Benefits	43.3	90.0	+46.7
Ability to Perform Brisk Walking Correctly		83.3	
Willingness to Perform Regular Physical Activity		86.7	

Note: Baseline skill-related variables were not measured before the intervention.

The integrated results demonstrate substantial improvement across cognitive, affective, and behavioural domains following the intervention. The proportion of participants with good knowledge increased by 46.7%, indicating that the health education component effectively enhanced understanding of hypertension and its management. Similarly, positive attitudes toward hypertension control increased by 36.6%, suggesting improved readiness to adopt preventive behaviours. Understanding of the benefits of physical activity showed one of the highest gains (+46.7%), reflecting the strong cognitive impact of the educational and practical sessions. In the behavioural domain, 83.3% of participants performed brisk walking correctly according to the recommended principles, and 86.7% expressed a willingness to maintain regular physical activity. Furthermore, 70.0% reported intention to encourage family or community members, indicating potential multiplier effects at the community level. Overall, these findings suggest that the educational-participatory approach successfully translated knowledge acquisition into practical skills and behavioural commitment, supporting the feasibility of community-based non-pharmacological hypertension control at the primary healthcare level.



Figure 1. Brisk Walking Education and Training with participants with patients and at risk of hypertension

DISCUSSION

This community service intervention demonstrated substantial improvements in participants' knowledge, attitudes, and behavioural readiness for hypertension control, achieved through a structured, participatory educational approach. The findings indicate that integrating health education with supervised brisk walking practice can effectively address both cognitive and behavioural determinants of non-pharmacological hypertension management at the primary healthcare level. The marked increase in good knowledge from 40.0% to 86.7% reflects the effectiveness of structured health education in enhancing health literacy. Knowledge plays a foundational role in behaviour change models, including the Health Belief Model and Social Cognitive Theory, in which awareness of disease risk and perceived benefits of action influence individual decision-making. In this intervention, participants were not only informed about hypertension risk factors and complications but also educated on the mechanisms by which physical activity contributes to blood pressure regulation. This comprehensive explanation likely strengthened cognitive understanding and reduced misconceptions about hypertension being solely manageable through medication (L. Liu et al., 2025).

The improvement in positive attitudes toward hypertension control (from 46.7% to 83.3%) suggests that the intervention succeeded in influencing participants' affective domain. Attitude change is critical because it bridges knowledge acquisition and behavioural adoption (Mahen et al., 2025). Educational sessions that incorporated interactive discussions enabled participants to express concerns,

share experiences, and clarify doubts, fostering emotional engagement and collective motivation (Meshram et al., 2024). The participatory format may have enhanced perceived self-efficacy and social support, two essential predictors of sustained lifestyle modification (Murugavalli et al., 2025).

One of the most notable findings was the 46.7% increase in understanding the benefits of physical activity (Ndobo et al., 2026). This outcome underscores the importance of linking theoretical information with practical demonstration. When participants directly experienced brisk walking and observed physiological responses such as increased heart rate and perceived exertion, the abstract concept of exercise benefits became tangible (Peng et al., 2024). Evidence from the exercise physiology literature consistently demonstrates that moderate-intensity aerobic activity, including brisk walking, can reduce systolic and diastolic blood pressure by improving endothelial function, decreasing peripheral vascular resistance, and enhancing autonomic balance. Therefore, the observed cognitive gains align with established scientific evidence regarding the role of aerobic exercise in hypertension control (Qiu et al., 2026).

In the behavioural domain, 83.3% of participants performed brisk walking correctly according to the recommended principles. This finding is particularly significant because proper technique, including warm-up, appropriate intensity, duration, and cool-down, is necessary to ensure safety and effectiveness. The high percentage indicates that supervised demonstration and guided practice were successful in transferring practical skills (Salse-Batán et al., 2025). Skill acquisition is essential in community-based interventions, as incorrect execution of exercise may reduce benefits or increase injury risk, especially among older adults. Furthermore, 86.7% of participants expressed a willingness to engage in regular physical activity, indicating strong behavioural intention. According to the Theory of Planned Behaviour, intention is the most immediate determinant of actual behaviour (Singh & Majumdar, 2024). Although long-term adherence was not measured in this short-term evaluation, the high level of expressed commitment suggests promising potential for sustained practice.

Additionally, 70.0% of participants indicated readiness to encourage family or community members to participate (Suprpto et al., 2026). This finding highlights the potential multiplier effect of the intervention, in which behaviour change extends beyond individual participants and influences broader social networks (Tang et al., 2025). The success of this intervention can be attributed to several contextual factors. First, brisk walking is culturally acceptable, economically feasible, and logistically simple, requiring no specialised equipment. Second, the involvement of the local public health centre facilitated trust and participation (Xu et al., 2026). Third, the educational-participatory approach promoted active engagement rather than passive information reception. These elements collectively strengthened feasibility and acceptability within the community setting (Vlietstra et al., 2025).

Nevertheless, several limitations should be acknowledged. The evaluation relied primarily on descriptive analysis without long-term follow-up or objective blood pressure measurements post-intervention. Behavioural commitment was assessed through self-report, which may be subject to social desirability bias. Additionally, the relatively small sample size ($n=30$) limits generalizability. Future initiatives should incorporate longitudinal monitoring, repeated blood pressure assessment, and integration with routine primary healthcare services to evaluate sustained impact. Overall, the findings support the effectiveness of combining health education with structured physical activity practice in enhancing knowledge, attitudes, and behavioural readiness for hypertension control. This integrated community-based model demonstrates strong potential as a promotive and preventive strategy within primary healthcare systems, particularly in resource-limited settings.

CONCLUSION

This community service intervention effectively addressed the identified problems of limited knowledge and low physical activity among adults and older adults at risk of hypertension in the working area of Kanjilo Public Health Centre. The findings demonstrate that a structured educational and

participatory approach significantly improved knowledge, attitudes, and practical skills related to non-pharmacological hypertension control. Participants showed substantial gains in understanding hypertension and the benefits of physical activity, as well as the ability and willingness to perform brisk walking correctly and regularly. These outcomes directly support the program's objective of strengthening community capacity in hypertension management through health education and moderate-intensity physical activity. The integration of theoretical education with guided brisk walking practice proved feasible, acceptable, and effective within the primary healthcare context.

Based on these findings, it is recommended that brisk walking programs be systematically integrated into routine primary healthcare services, supported by trained health cadres, and monitored periodically for blood pressure outcomes. Future interventions should include longitudinal follow-up and objective clinical measurements to assess sustained impact. Scaling up this evidence-informed, community-based model may contribute meaningfully to promotive and preventive hypertension control strategies.

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References

- Ahmad, H., Tauhidah, N. I., Kartika Wulandari, D., Pauria, P., Rusadi, R., Auliya Az Zahrah, H., & Sesariani, M. (2025). Hypertension gymnastics as a non-pharmacological intervention in lowering blood pressure. *Abdimas Polsaka*, 4(2), 76–82. <https://doi.org/10.35816/abdimaspolsaka.v4i2.95>
- Aswin, M. G., Anand, M. P., Jessy, P., Lordson A, J., Jibin, J. P., Nisam, A. P., Adarsh, M. S., Asmi, F. N., & Mini, G. K. (2024). Prevalence and associated risk factors of hypertension among tribal population in Thrissur District: A cross-sectional study in South India. *Clinical Epidemiology and Global Health*, 26, 101563. <https://doi.org/10.1016/j.cegh.2024.101563>
- Baharuddin, B., Apdiani Toalu, & Andi Nurhartati. (2023). Meningkatkan Pengetahuan Masyarakat Dalam Mengelola Penyakit Hipertensi. *Abdimas Polsaka*, 37–42. <https://doi.org/10.35816/abdimaspolsaka.v2i1.30>
- Cabral, L. L. P., Meredith-Jones, K., Browne, R. A. V., Freire, Y. A., Vlietstra, L., Waters, D. L., Barreira, T. V., & Costa, E. C. (2025). Associations of Step Counts and Peak Step Cadence With DXA-Derived Total Body, Abdominal, and Visceral Fat in Older Adults. *Archives of Physical Medicine and Rehabilitation*. <https://doi.org/10.1016/j.apmr.2025.10.025>
- Cin, A., & Hintistan, S. (2026). Changes in BMI, lipid profile, disease perception, and quality of life among myocardial infarction patients participating in a 12-week green walking: A quasi-experimental study. *Journal of Bodywork and Movement Therapies*, 46, 620–631. <https://doi.org/10.1016/j.jbmt.2025.12.025>
- Feighan, L., MacDonald-Wicks, L., Callister, R., & Surjan, Y. (2025). How physically active are women undergoing radiation therapy for breast cancer? A cross-sectional study of patterns, attitudes, and support needs. *Radiography*, 31, 103146. <https://doi.org/10.1016/j.radi.2025.103146>
- Kline, P. W., Hanlon, S. L., Richardson, V. L., Hoffman, R. M., Melanson, E. L., Juarez-Colunga, E., Stevens-Lapsley, J. E., & Christiansen, C. L. (2025). Functional Capacity at Rehabilitation Discharge Predicts Physical Activity Characteristics 24 Weeks Later for People With Total Knee Arthroplasty: A Secondary Analysis of a Randomised Controlled Trial. *Archives of Physical Medicine and Rehabilitation*, 106(6), 845–852. <https://doi.org/10.1016/j.apmr.2025.01.416>
- Li, C., Du, L., Xue, X., Zhao, N., He, Q., Chen, S., & Zhang, X. (2025). Associations of daily steps and step intensity with peripheral arterial disease in Chinese community-dwelling older women. *Experimental Gerontology*, 201, 112706. <https://doi.org/10.1016/j.exger.2025.112706>
- Li, G., Huang, P., Cui, S., He, Y., Jiang, Q., Li, B., Li, Y., Xu, J., Wang, Z., Tan, Y., & Chen, S. (2024). Tai Chi improves non-motor symptoms of Parkinson's disease: One-year randomised controlled study with the investigation of mechanisms. *Parkinsonism & Related Disorders*, 120, 105978. <https://doi.org/10.1016/j.parkreldis.2023.105978>
- Liao, F., Li, Y., Lyu, S., Chen, P., Yu-Ju Hung, I., Pappu, S., & Jan, Y.-K. (2024). Using wavelet phase coherence of heart rate variability and blood flow oscillations to compare mechanisms of action between Tai Chi mind-body exercise and brisk walking aerobic exercise. *Biomedical Signal Processing and Control*, 95,

106385. <https://doi.org/10.1016/j.bspsc.2024.106385>
- Liu, H., Wang, Z., Zhou, S., Lin, Y., Ma, G., Zhang, R., & Yu, P. (2026). Association of physical activity with incident chronic kidney disease in patients with cardiovascular metabolic disease: A UK Biobank observational study. *Journal of Science and Medicine in Sport*, 29(1), 69–78. <https://doi.org/10.1016/j.jsams.2025.08.020>
- Liu, L., Jia, G., Shrubsole, M. J., Wen, W., Andersen, S. W., Sudenga, S. L., & Zheng, W. (2025). Daily Walking and Mortality in Racially and Socioeconomically Diverse U.S. Adults. *American Journal of Preventive Medicine*, 69(4), 107738. <https://doi.org/10.1016/j.amepre.2025.107738>
- Mahen, A. F., Wihongi, A. O., & Connolly, C. P. (2025). Women's perceptions of maternal and fetal health benefits of physical activity during pregnancy and what factors impact them—A cross-sectional study. *Midwifery*, 145, 104363. <https://doi.org/10.1016/j.midw.2025.104363>
- Meshram, I. I., Nagalla, B., Rao Kodavanti, M., Avula, L., & Ginnela Narsimhachary Veera, B. (2024). Overweight/obesity, pre-diabetes, diabetes and its association with hypertension and other factors among rural adults (≥18 years) in India. *Indian Heart Journal*, 76(3), 182–191. <https://doi.org/10.1016/j.ihj.2024.06.010>
- Murugavalli, K., Ramalakshmi, R., Vishnuvarthanan, G., & Pallikonda Rajasekaran, M. (2025). Prediction of body physiological parameter changes after experiencing infinity walk: A prospective observational view. *Smart Health*, 38, 100609. <https://doi.org/10.1016/j.smhl.2025.100609>
- Ndobo, V., Ndava, A. T., Tsague, H., Owona, A., Nsangou, N., Yon, C. N., Kobe, Z., Fokou, M., Lowe, S., Menanga, A. P., & Kuate, L. M. (2026). Supervised Exercise-Based Cardiac Rehabilitation Program for Lower-Limb Peripheral Arterial Disease: Effect on Walking Capacity, Hemodynamic Parameters, Anxiety, Depression, and Quality of Life in Cameroon. *Annales de Cardiologie et d'Angéiologie*, 75(1), 101984. <https://doi.org/10.1016/j.ancard.2025.101984>
- Peng, Y., Liu, F., Wang, P., Wang, X., Si, C., Gong, J., Zhou, H., Zhang, M., & Song, F. (2024). Association between walking pace and risks of major chronic diseases in individuals with hypertension based on a prospective study in UK Biobank: Involvement of inflammation. *Preventive Medicine*, 184, 107986. <https://doi.org/10.1016/j.ypmed.2024.107986>
- Qiu, J., Song, X., Wang, J., & Kim, S. (2026). Muscle–brain axis mechanisms linking community-based exercise to cognitive function in older adults: A five-arm randomised controlled trial. *Experimental Gerontology*, 214, 113041. <https://doi.org/10.1016/j.exger.2026.113041>
- Salse-Batán, J., González-Devesa, D., Duñabeitia, I., Bidaurrezaga-Letona, I., Ayán-Pérez, C., & Sanchez-Lastra, M. A. (2025). Effects of stretching exercise on walking performance and balance in older adults: A systematic review and meta-analysis. *Geriatric Nursing*, 61, 479–490. <https://doi.org/10.1016/j.gerinurse.2024.12.018>
- Singh, M., & Majumdar, V. (2024). Design and Rationale of a Two-Armed Randomized Controlled Trial on Yoga/Brisk Walking-Based Lifestyle Modification on Dementia Risk Reduction, and Influence of ApoE Genotypes on the Intervention. *The Journal of Aging Research & Lifestyle*, 13, 33–42. <https://doi.org/10.14283/jarlife.2024.5>
- Suprpto, S., Bte Muhammad, K., & Rahman, R. (2026). Integrated Education to Improve Treatment Adherence for Type 2 Diabetes Mellitus Patients in Makassar. *Jurnal Pengabdian Masyarakat Edukasi Indonesia*, 3(1), 38–46. <https://doi.org/10.61099/jpmei.v3i1.172>
- Tang, Y., Jiang, C., Guo, J., Li, Y., Wang, C., Chu, S. H., Wang, Z., Wu, Y., Hua, C., Lu, Y., Zhang, S., Song, Y., Han, R., Dong, J., Ma, C., Cai, J., Anderson, C. S., & Du, X. (2025). Study protocol for the healthy family program on population blood pressure: A multicenter, parallel group, cluster randomised, controlled trial in rural China. *American Heart Journal*, 283, 70–80. <https://doi.org/10.1016/j.ahj.2025.01.014>
- Vlietstra, L., Fordyce, A. M., Costa, E. C., Coffey, S., Walker, X. J., Whalley, G. A., & Waters, D. L. (2025). Exercise interventions to improve physical frailty and physical frailty components in older adults with hypertension: A systematic review. *Ageing Research Reviews*, 107, 102714. <https://doi.org/10.1016/j.arr.2025.102714>
- Xu, W., Xing, C., Chen, C., Huang, Y., Li, P., & Zhai, J. (2026). Efficacy of an e-education program based on the Health Belief Model on exercise management in women with gestational hypertension: A randomized controlled clinical trial. *International Journal of Nursing Sciences*, 13(1), 19–26. <https://doi.org/10.1016/j.ijnss.2025.12.015>