

Importance of self-management interventions in hypertension patients: a scoping review

Alfrina Hany, Kuswanto Rusca Putra, Ratih Arum Vatmasari, Anisa Nadya Nafis, Aura Tasya Amalia, Edy Khamdani
Nursing Department, Faculty of Health Sciences, Universitas Brawijaya, Malang, East Java, Indonesia

Abstract

Hypertension is a prevalent chronic condition that requires effective self-management strategies for optimal control and complications prevention. Self-management interventions have become a crucial component in the management of hypertension. Therefore, this review aimed to determine effective self-management strategies for hypertensive patients. Articles were searched from four databases, namely Science Direct, Ebsco (MEDLINE), Proquest, Pubmed and Sage Journals based on PRISMA guidelines. The search included articles published in English between 2013 and 2022. A key term search strategy was adopted using “self-management interventions”, “nursing interventions”, “experimental study” and “hypertensive patients” to identify relevant studies. The results showed that self-management interventions have been proven to have positive effects on various aspects of hypertension self-management, including blood pressure monitoring, disease knowledge, medication adherence, and lifestyle modifications. These interventions can be delivered through technology-based platforms. Moreover, there are different types of self-management interventions for hypertensive patients, including individual and group approaches, the use of technology, nursing theory, and interventions based on the cultural aspects of patients. To conclude, as professionals, nurses should be able to determine which self-management strategies are suitable for the conditions and requirements of patients.

Introduction

Hypertension has become a significant contributor to the global burden of disease and is recognized as a primary risk factor for cardiovascular disease.^{1,2} The majority (two-thirds) of the estimated 1.28 billion adults aged 30-79 who suffer from hypertension reside in low- and middle-income countries.² Furthermore, approximately 46% of adults with hypertension are oblivious to the condition.³ The condition has a substantial influence on health-related quality of life, mortality, hospitalization, and psychological well-being.^{4,5} It is essential for nurses to develop comprehensive management strategies with an understanding of the complications.⁶ Self-management is crucial to hypertension control,⁷ has a substantial effect,⁸ and may contribute to multiple facets of

patients' condition.⁸ Moreover, effective approaches had a beneficial effect by lowering blood pressure,^{8,9} and enhancing quality of life.¹⁰

Self-management of hypertension included monitoring blood pressure, reducing cigarette and alcohol consumption, consuming a low-salt diet, maintaining a healthy weight through regular exercise, and medication adherence to prevent complications.¹¹ The key to maintaining blood pressure within the normal range is compliance with effective and efficient self-management.¹² However, hypertensive patients who implemented self-management required motivation and support from family members or relatives for follow-up, evaluation, and monitoring.¹³ This review aimed to determine the effective self-management strategies for hypertensive patients.

Materials and Methods

The study design was a scoping review, and articles were sourced from five databases, namely Ebsco (MEDLINE), Pubmed, Sage Journals, Proquest, and Science Direct based on PRISMA guidelines. The search included articles published between 2013 and 2022, and was carried out using keywords such as “self-management interventions”, “nursing interventions”, “hypertensive patients”, and “experimental study” with Boolean methods including “AND”, and “OR” to find relevant articles that match the purpose of writing a review. Furthermore, the search focused on reputable articles, namely original, full-text, and those published in English language. The qualifying requirements for this study do not include review articles, gray literature, papers, book chapters, personal opinions, or non-scientific publications. The inclusion and exclusion criteria were defined using the PICOS method (population, interventions, comparison, outcome and study design), with modifications made to fit the objective (Table 1).

Figure 1 shows the selection results in a flowchart using the PRISMA guidelines. Following a search, 596 items were retrieved from Proquest, EBSCO (Medline), Science Direct, Sage Journals and PubMed. The retrieved articles were subjected to a duplicate selection process using the Endnote 20 program, while 17 articles with similarities were identified and eliminated from the selection process. After eliminating duplicates, 579 articles were chosen based on the inclusion and exclusion criteria. This procedure

Significance for public health

Hypertensive patients need self-management to help lower blood pressure, change lifestyle, and monitor the condition. Therefore, self-management interventions have been devised using individual and group approaches, technology, nursing theory-based approaches, and cultural aspects. Innovations might help hypertensive patients in avoiding complications and enhancing quality of life.

obtained 441 items that did not meet the preset criteria. Following the procedure, it was determined that 138 articles met the qualifying requirements and could be selected. During the selection process based on eligibility criteria, 113 items were considered appropriate for usage. Therefore, 25 articles were considered appropriate for inclusion in this scoping review (Figure 1, Supplementary Table 2).

Results and Discussion

Self-management plays a significant role in management of hypertension and has a profound impact on patients' outcomes.¹⁴ The effects of the approaches included an increase in patients' understanding and skills in coping with the disease by gradually adopting healthy lifestyle behaviors, improved satisfaction by reducing existing signs and symptoms, a decrease in hospital admission costs, and an improvement in quality of life.^{15–17} Interventions empower patients to take an active role in managing the condition, leading to better blood pressure control and overall health outcomes.¹⁸ Self-management interventions have the potential to significantly improve the outcomes of hypertension management.¹⁹ In addition, family empowerment plays a significant role in promoting self-management among patients with chronic conditions.²⁰ This includes assisting with dietary choices and medication adherence, as well as facilitating care discussions between patients and healthcare providers.^{19,21} It is important to include family members in the process to improve patients' outcomes and compliance with behavioral recommendations.²²

Interventions can be implemented in the form of education, training, self-help groups, classes, communities, follow-up, and application of technology.^{23–27} Education and training have a positive effect on improving self-management skills of hypertensive patients.^{24,27–33} Furthermore, classroom, community, and follow-up intervention models significantly reduced the systolic blood pressure.^{34,35} The most effective methods are those that use technology as basis,^{25,36–38} including remote monitoring of patients condition.^{25,36–38} Interventions for hypertensive patients may incorporate nursing theoretical approaches such as Roy's adaptation, the health belief model, self-efficacy, and self-regulation model theories.^{24,28,31,36,39,40} Nursing theory plays an essential role in guiding self-management interventions for hypertensive patients by providing a framework for understanding the complex factors that influence the ability to effectively manage the conditions.^{39,41} Therefore, healthcare professionals could devise targeted interventions through nursing theory to meet the unique needs and challenges of hypertensive patients.⁴⁰ The application of nursing theory

is essential for enhancing patients outcomes and encouraging effective self-care behavior.⁴¹ The use of cultural methods allows for the creation of personalized care plans that consider specific needs, preferences, and situations.⁴² Healthcare providers can tailor interventions to correspond with patients' way of life and ensure appropriateness of the strategies.²⁵ In addition, culturally informed interventions can address differences in beliefs towards medication, logistical barriers to care, as well as other social and contextual factors that may impact patients.³⁵

Conclusions

Self-management in hypertensive patients can increase participation and has led to a decrease in blood pressure, lifestyle changes, and avoidance of complications. Various interventions have been developed, such as individual and group approaches, the use of technology, nursing theory, and interventions based on the cultural aspects of patients. Families also play an important role in providing self-management interventions. Hypertension management is not a "one size fits all", hence nurses as professionals need to consider the suitable approaches for different conditions and needs.

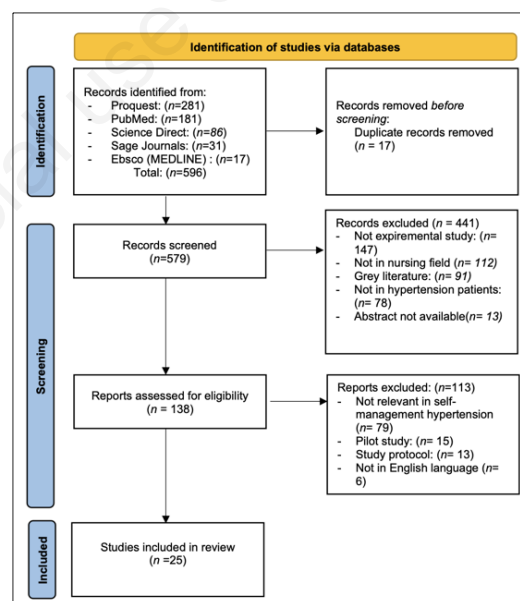


Figure 1. Flowchart of scoping review with selection process using PRIS-MA.

Table 1. The inclusion and exclusion criteria.

| Criteria | Inclusion criteria | Exclusion criteria |
|---------------|---|---|
| Population | Hypertension patients | Family, community, and other then hypertension patients (such as stroke, cardiovascular diseases, chronic kidney diseases, cancer, etc) |
| Interventions | Self-management interventions | No exclusion criteria |
| Comparison | Usual care or standard care | No exclusion criteria |
| Outcome | Self-management interventions in hypertension patients are effective in improving self-management | No exclusion criteria |
| Study Design | Experimental study (quasi-experimental and randomized control trials) | Study articles that use mix-methods, cross-sectional study cohort, longitudinal, quantitative and review articles |

Correspondence: Alfrina Hany, Nursing Department, Faculty of Health Sciences, Universitas Brawijaya, Jl. Puncak Dieng, Kunci, Kalisongo, Kec. Dau, Malang, East Java, Indonesia
Tel. +62341569117- Fax: +62341564755
E-mail: hanie@ub.ac.id

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References

- Roth GA, Abate D, Abate KH, et al. Global, regional, and national age-sex-specific mortality for 282 causes of death in 195 countries and territories, 1980-2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet* 2018;392:1736–88.
- Zhou B, Carrillo-Larco RM, Danaei G, et al. Worldwide trends in hypertension prevalence and progress in treatment and control from 1990 to 2019: a pooled analysis of 1201 population-representative studies with 104 million participants. *Lancet* 2021;398:957–80.
- Mills KT, Stefanescu A, He J. The global epidemiology of hypertension. *Nat Rev Nephrol* 2020;16:223-237.
- Tucker KL, Sheppard JP, Stevens R, et al. Self-monitoring of blood pressure in hypertension: A systematic review and individual patient data meta-analysis. *PLoS Med* 2017;14:e1002389.
- Liu J. Highlights of the 2018 Chinese hypertension guidelines. *Clin Hypertens* 2020;26(1).
- Himmelfarb CRD, Commodore-Mensah Y, Hill MN. Expanding the Role of Nurses to Improve Hypertension Care and Control Globally. *Ann Glob Health* 2016;82:243–53.
- Shahaj O, Denny D, Schwappach A, Pearce G, Epiphaniou E, Parke HL, et al. Supporting self-management for people with hypertension: a meta-review of quantitative and qualitative systematic reviews. *J Hypertens* 2019;37:264–79.
- Gazit T, Gutman M, Beatty AL. Assessment of Hypertension Control Among Adults Participating in a Mobile Technology Blood Pressure Self-management Program. *JAMA Netw Open* 2021;4:e2127008.
- Andayani SA. The Effect of Self Management on Systolic Blood Pressure in Hypertension Patients. *Jurnal Ilmiah Permas: Jurnal Ilmiah STIKES Kendal* 2023;13:485–90.
- Zhang Q, Huang F, Zhang L, et al. The effect of high blood pressure-health literacy, self-management behavior, self-efficacy and social support on the health-related quality of life of Kazakh hypertension patients in a low-income rural area of China: a structural equation model. *BMC Public Health* 2021;21:1114.
- Isnaini N, Lestari IG. The Effect Of Self Management On Blood Pressure In Elderly Hypertension. *Indo J HeSci* 2018;2:7.
- Kurt D, Gurdogan EP. The effect of self-management support on knowledge level, treatment compliance and self-care management in patients with hypertension. *Australian J Adv Nursing* 2022;39:14–23.
- Tursina HM, Silvanasari IA. Improving self-management in hypertension patients by using Hypertension Self Management Diary (HSMD). *NURSCOPE: Jurnal Penelitian dan Pemikiran Ilmiah Keperawatan* 2022;8:94–101.
- Van Truong P, Wulan Apriliyasari R, Lin MY, et al. Effects of self-management programs on blood pressure, self-efficacy, medication adherence and body mass index in older adults with hypertension: Meta-analysis of randomized controlled trials. *Int J Nurs Pract* 2021;27.
- Still CH, Assistant Professor A bc, Dang PB, Malaker D, Research Assistant B, Peavy TD, et al. The Design and Rationale of a Pilot Study: A COmmunity and Tech-Based Approach for Hypertension Self-MANagement (COACH-MAN). *J Natl Black Nurses Assoc* 2020;31:52.
- Eck C, Biola H, Hayes T, et al. Efficacy of Hypertension Self-Management Classes Among Patients at a Federally Qualified Health Center. *Prev Chronic Dis* 2021;18:1–7.
- Chen WC, Wu SFV, Sun JH, et al. The Mediating Role of Psychological Well-Being in the Relationship between Self-Care Knowledge and Disease Self-Management in Patients with Hypertensive Nephropathy. *Int J Environ Res Public Health* 2022;19.
- Cooper V, Clatworthy J, Harding R, Whetham J. Measuring empowerment among people living with HIV: a systematic review of available measures and their properties. *AIDS Care* 2019;31:798–802.
- Zhao J, Hu Y, Zhang X, et al. Efficacy of empowerment strategies for patients with hypertension: A systematic review and meta-analysis. *Patient Educ Couns* 2020;103:898–907.
- Hany A, Yulistianingsih E, Kusumaningrum BR. Family empowerment and family ability to self-care for heart failure patients in the intermediate care room. *Int J Publ Health Sci* 2022;11:248–53.
- Ameling JM, Ephraim PL, Bone LR, et al. Adapting hypertension self-management interventions to enhance their sustained effectiveness among urban African Americans. *Fam Community Health* 2014;37:119–33.
- Woods SB, Udezi V, Roberson PNE, Arnold EM, et al. “A cuff is not enough”: A community-based participatory research

- approach to soliciting perspectives of African Americans with hypertension and their family members on self-management intervention features. *Fam Process* 2024;63:731-48.
23. Aunguroch Y, Polsook R, Anuruang S, et al. How a Self-Management Program Affects Blood Pressure Among Indonesians with Hypertension: A Quasi-Experimental Study. *Iran J Nurs Midwifery Res* 2022;27:229-35.
 24. Afshari M, Gholamaliee B, Kangavari M, et al. Examining the Effect of the Training Program by Using the Health Belief Model in Performing Self-Care Behaviors of Rural Patients Having High Blood Pressure. *Comm Health Equity Res Policy* 2022;43.
 25. Chandler J, Sox L, Kellam K, et al. Impact of a Culturally Tailored mHealth Medication Regimen Self-Management Program upon Blood Pressure among Hypertensive Hispanic Adults. *Int J Environ Res Public Health* 2019;16.
 26. Persell SD, Karmali KN, Lazar D, et al. Effect of Electronic Health Record-Based Medication Support and Nurse-Led Medication Therapy Management on Hypertension and Medication Self-management: A Randomized Clinical Trial. *JAMA Intern Med* 2018;178:1069-77.
 27. Kurnia AD, Melizza N, Ruhyandudin F, et al. The Effect of Educational Program on Hypertension Management Toward Knowledge and Attitude Among Uncontrolled Hypertension Patients in Rural Area of Indonesia. *Comm Health Equity Res Policy* 2022;42.
 28. Kılıç D, Turkoglu N, Baysal HY, et al. The Effect of Education Provided Using the Roy 's Adaptation Model on Hypertension Management. *Internat J Caring Sci* 2018;11:333-43.
 29. Ozoemena EL, Iweama CN, Agbaje OS, et al. Effects of a health education intervention on hypertension-related knowledge, prevention and self-care practices in Nigerian retirees: a quasi-experimental study. *Arch Public Health* 2019;77(1).
 30. Le MH, Nguyen TK, Pham TT, et al. Effectiveness of a Health Education Program in Hypertensive Patients with Dyslipidemia and/or Microalbuminuria: A Quasi-Experimental Study in Vinh Long Province, Vietnam. *Healthcare* 2023;11:2208.
 31. Naeemi L, Daniali SS, Hassanzadeh A, Rahimi M. The effect of educational intervention on self-care behavior in hypertensive older people: Applying the health belief model. *J Educ Health Promot* 2022;11.
 32. Beigi MAB, Zibaenezhad MJ, Aghasadeghi K, et al. The Effect of Educational Programs on Hypertension Management. *Int Cardiovasc Res J* 2014;8:94.
 33. Aghajani M, Ajorpaz NM, Atrian MK, et al. Effect of Self-Care Education on Quality of Life in Patients With Primary Hypertension: Comparing Lecture and Educational Package. *Nurs Midwifery Stud* 2013;2:71.
 34. Otieno P, van Anandel J, Agyemang C, et al. Effect of Patient Support Groups for Hypertension on Blood Pressure among Patients with and Without Multimorbidity: Findings from a Cohort Study of Patients on a Home-Based Self-Management Program in Kenya. *Glob Heart* 2023;18.
 35. Boulware LE, Ephraim PL, Hill-Briggs F, et al. Hypertension Self-management in Socially Disadvantaged African Americans: the Achieving Blood Pressure Control Together (ACT) Randomized Comparative Effectiveness Trial. *J Gen Intern Med* 2020;35:142-52.
 36. Li X, Li T, Chen J, et al. A WeChat-Based Self-Management Intervention for Community Middle-Aged and Elderly Adults with Hypertension in Guangzhou, China: A Cluster-Randomized Controlled Trial. *Int J Environ Res Public Health* 2019;16.
 37. Andersson U, Nilsson PM, Kjellgren K, et al. PERSON-centredness in Hypertension management using Information Technology: a randomized controlled trial in primary care. *J Hypertens* 2023;41:246.
 38. Putra PWK, Suardani NN, Ariani NPE, Suarsih NPA. The Smartphone-Based Self Management Education Improves Compliance and Self Efficacy and Reduces Blood Pressure in Hypertension Patients. *J Health Educ* 2022;7:107-14.
 39. Kordvarkane Z, Oshvandi K, Mohammadi Y, Azizi A. Effect of education based on the Common-Sense Model of Self-Regulation on blood pressure and self-management of hypertensive patients: A clinical trial study. *Int J Nurs Sci* 2023;10:294-301.
 40. Zhang J, Guo L, Mao J, et al. The effects of nursing of Roy adaptation model on the elderly hypertensive: a randomised control study. *Ann Palliat Med* 2021;10:12149-58.
 41. Drevenhorn E. A Proposed Middle-Range Theory of Nursing in Hypertension Care. *Int J Hypertens* 2018;2018:2858253.
 42. Stubbe DE. Practicing Cultural Competence and Cultural Humility in the Care of Diverse Patients. *Focus (Am Psychiatr Publ)* 2020;18:49-51.

Online Supplementary Materials

Supplementary Table 2. The results of the review's analysis of self-management interventions in hypertension patients.