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Review Article

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

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Running title: Effective self-management strategies for hypertensive patients

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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.

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 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).

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.

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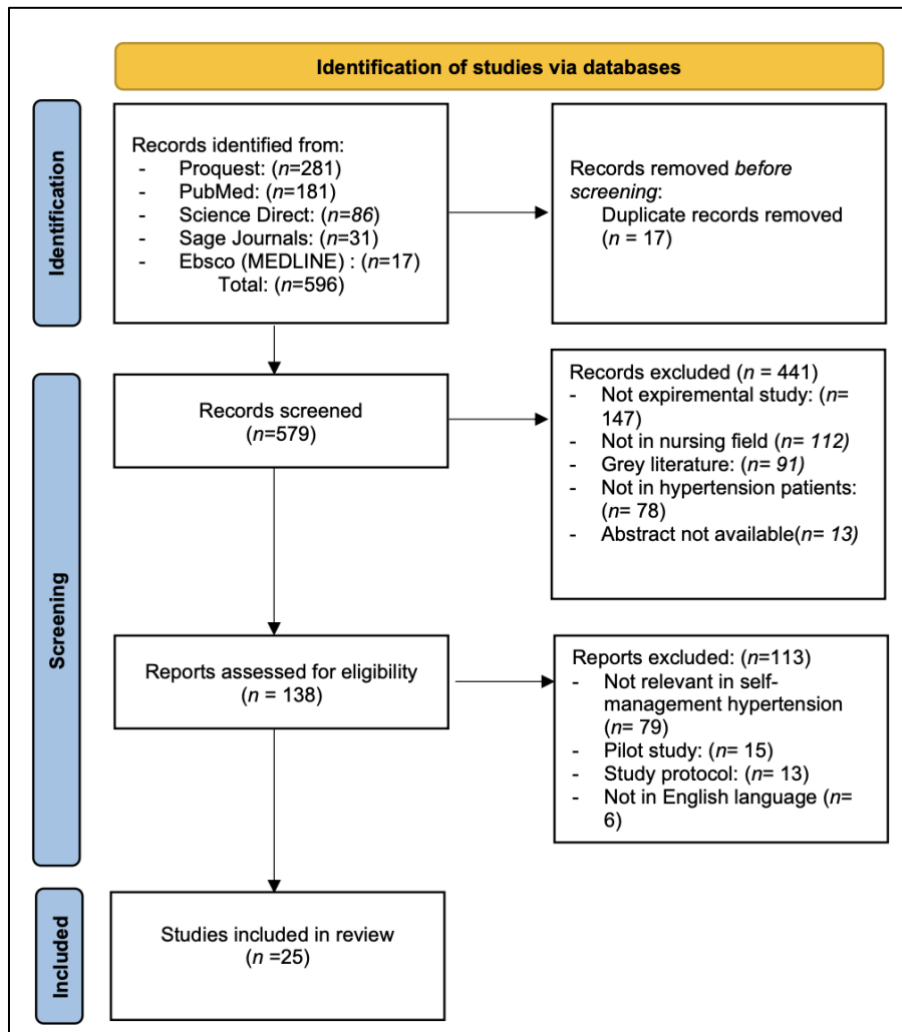


Figure 1. Flowchart of scoping review with selection process using PRIS-MA

Table 1. The inclusion and exclusion criteria

Criteria	Inclusion Criteria	Exclusion Criteria
Population	Hypertension patients	Family, community, and other than 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

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

Author	Title	Design study	Interventions	Results
Aunguroch et al., (2022)	How a Self-Management Program Affects Blood Pressure Among Indonesians with Hypertension: A Quasi-Experimental Study	Quasy experimental	Self-management program	Self-management program was effective in reducing both systolic and diastolic blood pressure.
Afshari et al., (2022)	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	Quasy experimental	Self-management educational intervention based on the Health Belief Model (HBM)	Self-management educational intervention based on the Health Belief Model (HBM) increased perceived severity, self-efficacy, and self-care behavior scores in the intervention group relative to the control group. The intervention had a positive effect on the attitudes and behaviors of patients regarding exercise, diet, and medication adherence.
Chandler et al., (2019)	Impact of a Culturally Tailored mHealth Medication Regimen Self-Management Program upon Blood Pressure among Hypertensive Hispanic Adults	Randomized control trials	mHealth self-management program	The program was found to be highly usable and effective in controlling blood pressure among Hispanics with poor medication adherence.
L. Ebony Boulware et al., (2020)	Hypertension Self-management in Socially Disadvantaged African Americans: the Achieving Blood Pressure Control Together (ACT) Randomized Comparative Effectiveness Trial	Randomized control trials	Self-management program based on self-help group	The study found that interventions led to improvements in blood pressure control, self-management skill and self-efficacy.
Kurt et al., (2022)	The Effect Of Self-Management Support On	Randomized control trials	Self-management support	Self-management support led to improvements in

Author	Title	Design study	Interventions	Results
	Knowledge Level, Treatment Compliance And Self-Care Management In Patients With Hypertension			hypertension knowledge, treatment adherence, self-care management, and blood pressure control.
Persel et al., (2018)	Effect of Electronic Health Record-Based Medication Support and Nurse-Led Medication Therapy Management on Hypertension and Medication Self-management: A Randomized Clinical Trial	Randomized control trials	Electronic Health Record (EHR) self-management interventions	Implementing electronic health record (EHR) tools to support medication self-management, along with nurse-led education, led to improved blood pressure control among hypertensive patients with poor medication adherence.
Zhu et al., (2018)	Development and evaluation of a nurse-led hypertension management model: A randomized controlled trial	Randomized control trials	Self-management support	Self-management support interventions are effective in reducing blood pressure and improving self-care behaviors and these interventions can be used in community service settings.
Kurnia et al., (2020)	The Effect of Educational Program on Hypertension Management Toward Knowledge and Attitude Among Uncontrolled Hypertension Patients in Rural Area of Indonesia	Quasy experimental	Self-management education program	Self-management educational program increases knowledge and attitude of patients on management of hypertension.
Kilic et al., (2018)	The Effect of Education Provided Using the Roy's Adaptation Model on Hypertension Management	Quasy experimental	Self-management education based on the Roy Adaptation Model	Self-management education was effective in improve self-management and lower blood pressure.
.Chaboksavar et al., (2021)	Combination of self-management theory with PRECEDE-PROCEED model to promote life quality	Quasy experimental	Self-management theory and the PRECEDE-PROCEED model	The combination of self-management theory and the PRECEDE-PROCEED model

Author	Title	Design study	Interventions	Results
	in patients with hypertension			had a significant positive effect on the quality of life of hypertension patients.
Ozoemena et al., (2019)	Effects Of A Health Education Intervention On Hypertension-Related Knowledge, Prevention And Self-Care Practices In Nigerian Retirees: A Quasi-Experimental Study	Quasy experimental	Self-management health education program on hypertension	Self-management health education interventions have a positive effect on increasing the knowledge of retired hypertensive patients and improving self-care practices.
Li et al., (2019)	A WeChat-Based Self-Management Intervention for Community Middle-Aged and Elderly Adults with Hypertension in Guangzhou, China: A Cluster-Randomized Controlled Trial	Randomized control trials	WeChat-Based Self-Management Intervention	WeChat-based self-management program had a positive impact on self-care behaviors among patients with hypertension.
Le et al., (2023)	Effectiveness of a Health Education Program in Hypertensive Patients with Dyslipidemia and/or Microalbuminuria: A Quasi-Experimental Study in Vinh Long Province, Vietnam	Quasy experimental	Self-management education	Self-management health education significantly improved self-management of hypertension patients, as measured by blood pressure reduction, change in self-care behavior, and patients' satisfaction.
Otieno et al., (2023)	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	Quasy experimental	Self-management hypertension patient support groups	Self-management hypertension patient support group significantly reduced systolic blood pressure.
Sun et al., (2020)	The clinical effects of a new	Randomized control trials	WeChat Group-Self-	Self-management WeChat group significantly reduced

Author	Title	Design study	Interventions	Results
	management mode for hypertensive patients: a randomized controlled trial		Management Intervention	systolic and diastolic blood pressure.
Naeemi et al., (2022)	The effect of educational intervention on self-care behavior in hypertensive older people: Applying the health belief model	Quasy experimental	Self care educational based on health belief model	The effect of educational intervention on self-care significantly reduced systolic and diastolic blood pressure.
Putri et al., (2022)	Effectiveness of self-management on adherence to self-care and on health status among elderly people with hypertension.	Quasy experimental	Self-management intervention based on Nursing Outcome Classification (NOC) and nursing Intervention Classification (NIC)	The effects of self-management were positive on adherence to caring for themselves and on health status. The most influencing factor on self-care compliance and health status after being controlled by confounding variables was self-management.
Aunguroch et al., (2022)	How a Self-Management Program Affects Blood Pressure Among Indonesians with Hypertension: A Quasi-Experimental Study	Quasy experimental	Self-management programs	There was a significant effect of the eight-week self-management program on systolic blood pressure and diastolic blood pressure.
Alsaqer et al., (2022)	Self-care of hypertension of older adults during COVID-19 lockdown period: a randomized controlled trial	Randomized control trials	Self-management education using application	Application-based self-management education could improve self-care maintenance, self-care monitoring and self-care confidence in hypertension patients.
Beigi et al., (2014)	The Effect of Educational Programs on Hypertension Management	Quasy experimental	Self-management education	The educational program was effective in increasing knowledge, improving self-management, and controlling detrimental lifestyle

Author	Title	Design study	Interventions	Results
				habits of patients with hypertension.
Zhang et al., (2021)	The effects of nursing of Roy adaptation model on the elderly hypertensive: a randomised control study	Randomized control trials	Self-management program based on roy adaptation model	Self-management interventions using the RAM improved self-efficacy, self-management behavior, medication compliance, quality of life, and blood pressure in hypertension patients.
Aghajani et al., (2013)	Effect of Self - Care Education on Quality of Life in Patients With Primary Hypertension: Comparing Lecture and Educational Package	Quasy experimental	Self-Care Lecture, and Self-Care educational package	A study comparing lectures and educational pamphlets for patients with primary hypertension found that both methods can enhance various aspects of patients' quality of life, such as general health, social function, physical function, physical role, power and energy, and mental health.
Andersson et al., (2023)	PERson-centredness in Hypertension management using Information Technology: a randomized controlled trial in primary care	Randomized control trials	Web-based self-management interventions	An interactive Web-based self-management interventions are effective in lowering blood pressure.
Putra et al., (2022)	Smartphone-Based Self-management Education Improves Compliance and Self Efficacy and Reduces Blood Pressure in Hypertension Patients	Quasy experimental	Smartphone-Based Self-management Education	Smartphone-based self-management education is effective for increasing compliance and self-efficacy, and it may lower blood pressure in hypertensive patients.
Kordvarkane et al., (2023)	Effect of education based on the Common-Sense Model of Self Regulation on blood pressure and self-management of	Randomized control trials	Self-management program based on self-regulation model	Self-management programs based on self-regulation models are effective in reducing blood pressure and improving self-

Author	Title	Design study	Interventions	Results
	hypertensive patients: A clinical trial study			management in hypertensive patients.