



RESEARCH ARTICLE

Self-Care Management in Elderly with Hypertension in Developing Country: A Scoping Review

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ARTICLE INFO	ABSTRACT
Received: May 3, 2024	<p>Self-care management is essential for the elderly with hypertension because it can help them manage their condition effectively and maintain optimal health. This study maps the currently available information on types of self-care management for the elderly with hypertension. This study was a scoping review from several databases, such as PubMed, ProQuest, Science Direct, Springer, Wiley Online Library, and Garuda. A scoping review follows Arksey and O'Malley's framework, which involves identifying the review question, searching for relevant evidence, selecting relevant studies, mapping the data, discussing, summarizing, and reporting the findings. We conduct the evidence search process using a PRISMA diagram. We retrieved a total of 992 articles from six databases. We included 17 relevant studies from 8 countries across continents with the majority hailing from Asia. Blood pressure control, medication adherence, weight management, health education, exercise, behavior management, physical activity, and diet were the self-care management factors analyzed. Most of this self-care management had a significant impact on blood pressure in elderly patients with hypertension. However, there are 2 self-care management in this review that do not have a significant impact on elderly blood pressure, namely behavior lifestyle with bodyweight management and health-promoting lifestyle. The various types of self-care management performed in this review are promising for improving self-care and blood pressure control in elderly patients with hypertension.</p>
Accepted: Aug 1, 2024	
Keywords	
Developing country	
Elderly Hypertension Self-care management	
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INTRODUCTION

Hypertension is the leading cause of death among the elderly in the world. Globally, the number of people aged 60 years and older will reach 1.4 billion by 2030, 2050 this number will double to 2.1 billion with the number of people aged 80 years or older expected to triple to 426 million between 2020 and 2050 (WHO, 2023). In 2021, the prevalence rate of hypertension in Korea over the age of 65 is 66% for men and 51% for women (E. W. Lee et al., 2022). According to estimates, by 2060, 25% of the US population will be 65 years of age or older, with nearly 20 million surpassing the age of eight decades, and 50% of those born in the US today will reach the age of 100 (Oliveros et al., 2020). As the elderly population increases, so does the prevalence of hypertension. The elderly are at high risk of blood pressure of 130–139/80–89 mmHg (stage 1 hypertension) (Flack & Adekola, 2020). This hypertension is considered a major risk factor for stroke, heart disease, and kidney failure (H. Lee et al., 2022). Elderly people with hypertension are prone to high levels of stress, emotions, and generally depression (Z. Li et al., 2023). Therefore, efforts are needed to prevent the risk of hypertension in the elderly.

Various methods that include pharmacological therapies and non-pharmacological interventions have been developed to manage hypertension. In pharmacological therapy, drug classes such as angiotensin-converting enzyme (ACE) inhibitors, beta-blockers, thiazides, calcium channel blockers, and alpha-blockers are usually prescribed to reduce blood pressure levels in hypertensive patients (Musini et al., 2017). Non-pharmacological interventions that are effective in managing hypertension include exercise, weight loss, dietary interventions like dietary approaches to stop hypertension (DASH), a low-sodium diet, limiting alcohol consumption, smoking cessation, and stress management to help control blood pressure (Kodela et al., 2023). Self-care management in the elderly with hypertension is an evidenced advance (Lemos et al., 2020). Self-care management is one approach that can help the elderly control their blood pressure. Self-care management activities and medication can effectively manage elderly people with hypertension by lowering blood pressure, improving adherence to antihypertensive drugs, reducing complications, and reducing overall hypertension mortality (Ojangba et al., 2023). Preventive measures for hypertension and the impact of hypertension can be carried out if the elderly carry out good self-care management, so as to assess the ability of the elderly to manage and maintain health (S. E. Putri et al., 2021). Several previous studies have considered self-care management to be crucial for the elderly with hypertension. This involves regular blood pressure control, adherence to self-care, and a healthy lifestyle (David & Darwin, 2017; Marito et al., 2022; Simorangkir et al., 2022). Therefore, we conducted a scoping review with the aim to map the currently available information on types of self-care management in elderly with hypertension in developing country.

METHODS

The updated JBI guidance for scoping reviews includes additional guidance on several methodological issues, such as when a scoping review is (or is not) appropriate, and how to extract, analyse, present results, and provides clarification for implications for practice and research (Peters et al., 2021). This scoping review follows Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for Scoping Reviews (PRISMA-SCR) (Tricco et al., 2018). The scoping review was performed using Arksey and O'Malley's methodological framework, which includes five stages: (1) identifying the research question, (2) identifying relevant studies, (3) study selection, (4) charting the data, and (5) collating, summarizing, and reporting the results (Arksey & O'Malley, 2005).

Stage I: Research Question

Research Question We conducted a scoping review using inductive thematic analysis and the PCC (Participants, Concept, Context) framework (Sihvola et al., 2022). The first step in this scoping review was to formulate a research question. The research questions were based on the PCC model from the Joanna Briggs Institute. Specifically, the research questions are: What is self-care management for the elderly with hypertension?

Stage II: Relevant Studies

The process of identifying and selecting relevant studies began with a search strategy based on keywords and phrases for each aspect of PCC. We searched in several databases: PubMed, ProQuest, Science Direct, Springer, Wiley Online Library, and Garuda by using keywords, MeSH operators, and Boolean "AND" and "OR" to find suitable studies (Table 1). Inclusion criteria were studies published within the last five years (2020-2024), original papers, and full-text available. Exclusion criteria included non-English articles, thesis, review articles, commentaries, conceptual, and case studies.

Stage III: Study Selection

The process of screening results and study extraction criteria based on research inclusion and exclusion criteria. From the six databases used 992 articles were excluded based on recording

removed before screening. Articles were screened based reports sought for retrieval 605 articles were obtained. Full-text articles that were checked for eligibility were 327 articles. From the screening results, 310 articles were excluded due to publications above 5 years, review articles, not using English or Indonesian. This selection process resulted in 17 final articles to be analysed (Figure 1).

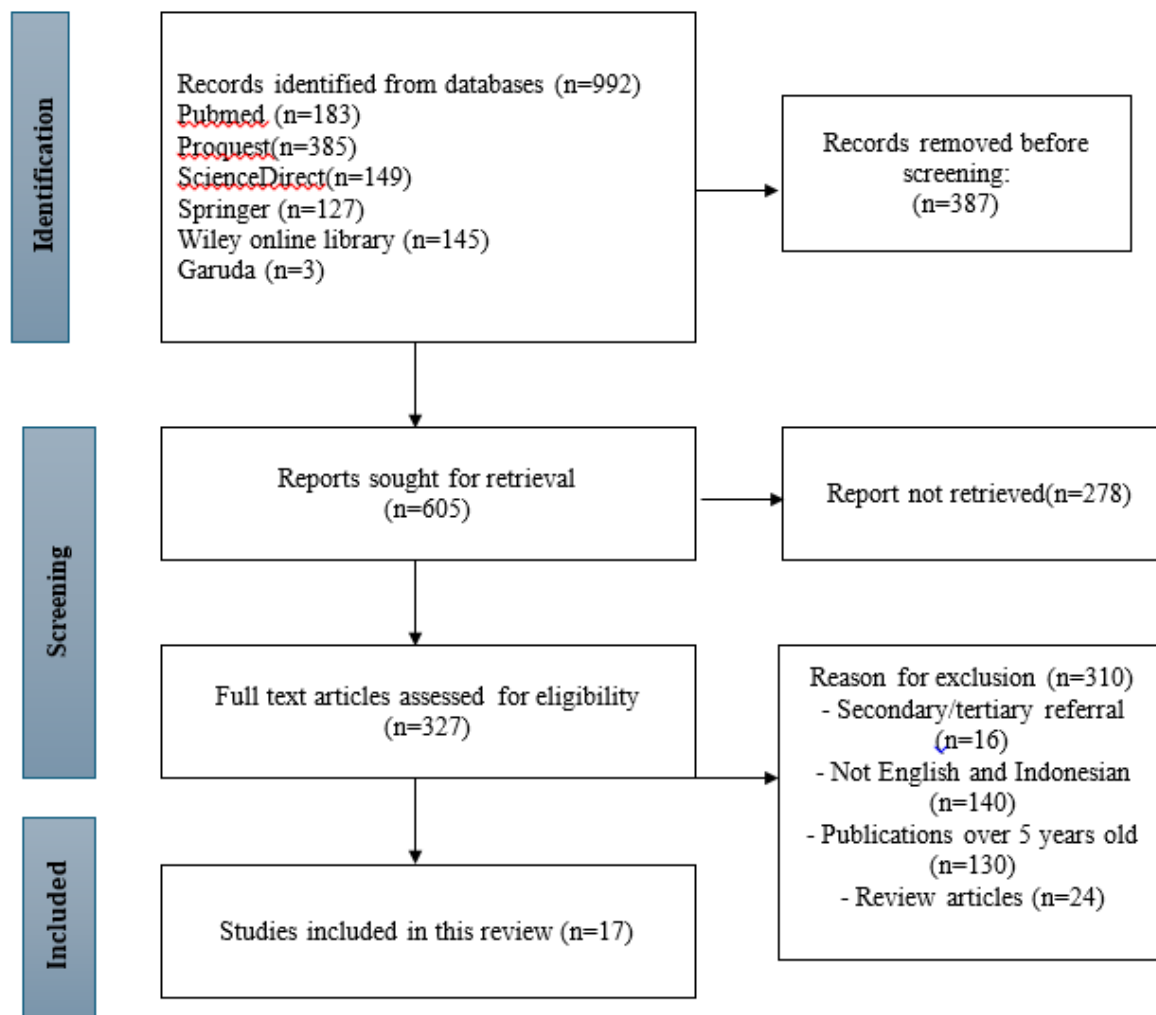


Figure 1. PRISMA flowchart

Reliability of Study Extraction

All abstracts identified from the article search were downloaded into the reference manager using Mendeley and exported after de-duplication into the Rayyan software programme (Ouzzani et al., 2016).

Stage IV. Mapping and data reporting

This study used two steps in the data extraction process. First, we extracted descriptive data based on author, year, country, method/design, evaluation, purpose, and sample. Second, we obtained information on self-care management in elderly with hypertension (Table 2).

Stage 5. Compiling and summarising data

Mapping and Data Reporting This study used two steps in the data extraction process. First, we extracted descriptive data based on author, year, country, method or design, evaluation, purpose and sample. Second, we obtained information on self-care management in elderly people with hypertension.

RESULTS

The database search resulted in 992 articles that were excluded based on duplicate articles. After removing duplicate studies, articles were filtered by title/abstract, resulting in 605 articles. Of these, full-text articles were checked for eligibility, resulting in 327 articles. As a result of the screening, 310 articles were excluded because they did not appropriate the requirements of population, study design, publication over 5 years, and not using English or Indonesian. This selection process resulted in 17 final articles that will be analysed in this review (Figure 1).

Characteristics of Studies

This review examines the latest self-care management in elderly with hypertension in the last 5 years (Between 2019 and 2024). The majority of studies were from Thailand (n=1), Poland (n=1), Brazil (n=1), China (n=8), India (n=1), Iran (n=1), Indonesia (n=3), and Germany (n=1). In terms of study design, the included studies consisted of RCTs (n=5), quasi-experimental study (n=1), cross-sectional study (n=13), and cohort study (n=2).

Participant Characteristics

The minimum sample size is 38 (S. E. Putri et al., 2021). The maximum sample size is 4,883 (Xiao et al., 2021). Overall, twenty-one studies had a median age of 55-90 years.

Self-care management in the elderly with hypertension

Twenty-one studies reviewed, we identified self-management in older adults with hypertension as blood pressure control (Ongkulna et al., 2022; Alsaqer & Bebis, 2022), medication regimen and adherence (Pobrotyn et al., 2023; Shen et al., 2022; Wang et al., 2023; Wan et al., 2022; R. R. D. R. A. Putri & Romadhon, 2022), weight management (Susanto & Calvin, 2021; Song et al., 2020; Qu et al., 2023; Khaleghi et al., 2023), health education water and land sports (Chowdhury & Chakraborty, 2020), behaviour management (Alsaqer & Bebis, 2022), physical activity (Júnior et al., 2020), health-promoting lifestyle (Chen et al., 2022 ; Du et al., 2022), and diet (R. R. D. R. A. Putri & Romadhon, 2022).

DISCUSSION

The main objective of this review is to map and explore the self-care management of older adults with hypertension. Research has demonstrated the critical importance of blood pressure control in older individuals with hypertension. The management of hypertension in the elderly has many challenges, including agreement on blood pressure thresholds and targets (Ni et al., 2021). Varying blood pressure may impact the effectiveness of blood pressure management strategies including the use of medication and lifestyle (Kim, 2023). Blood pressure control is key in the application of self-management to reduce the impact of hypertension in the elderly (Oliveros et al., 2020). The management of hypertension by using self-monitored blood pressure led to better control of systolic blood pressure after one year than usual care, with low incremental costs (McManus et al., 2021). Long-term cumulative blood pressure was associated with subsequent cognitive decline, dementia risk, and all-cause mortality in cognitively healthy adults aged ≥ 50 years (C. Li et al., 2022). This review assessed that behavioural management is also a comprehensive approach for hypertensive older adults in lifestyle modification, weight management, stress management, and medication adherence.

Our review showed that in the context of medication adherence behaviour, elderly patients with hypertension need to take their medication as prescribed. The benefits and barriers perceived by hypertensive older adults have an indirect influence on medication adherence such as lower blood pressure and complications, lower medical costs, and improved health (Sadeghi et al., 2022). Medication adherence is critical and a common and intractable problem (Glasser et al., 2022). Medication adherence in elderly with hypertension was also found to be related to the ability to obtain, understand, and communicate information because good communication with doctors is closely related to medication adherence (Ueno, 2021). Medication adherence is often cited as a reason for why antihypertensive intensification is withheld when above blood pressure goals (Jacobs et al., 2024). Thus, one of the most important ways to improve self-care management of older adults with hypertension is to adhere to prescribed medication.

Interestingly, this review also explores that self-care management of elderly with hypertension is not only done with blood pressure control, medication adherence, and life style, but diet is also needed. The intervention model used salt substitutes in all foods and preservation without changing dietary habits and lifestyle and without reducing the amount of salt consumed and patient compliance with a low-salt diet affects the human cardiovascular system (Asri et al., 2022;Hasriani et al., 2022). The results showed that consumption of high-fat foods, red meat, junk food, salty foods, and alcohol can increase the likelihood of hypertension, while diet showed a strong relationship in preventing hypertension (Batubo et al., 2023). Elderly with hypertension should focus on eating a balanced diet by increasing their intake of fruits, vegetables, low-fat dairy products, nuts, and other sources of potassium and magnesium (David & Darwin, 2017). Several studies have investigated the impact of diet on blood pressure in the elderly, highlighting the importance of a balanced diet in managing hypertension (Marito et al., 2022;Simorangkir et al., 2022). Therefore, this diet can help manage hypertension by reducing blood pressure levels and improving overall heart health for the elderly.

Limitations of this scoping review are related to the search methodology and criteria used for inclusion. This review only considered English-language articles, which may cause bias and hinder the comprehensiveness of the study. To our knowledge, there has not yet been a scoping review focused on self-care management in elderly with hypertension. This review has identified studies globally involving elderly samples.

CONCLUSION

The factors analyzed for self-care management were blood pressure control, medication adherence, weight management, health education, exercise, behavior management, physical activity, and diet. Most of these self-care strategies had a significant impact on blood pressure in elderly patients with hypertension. However, there are two self-care management strategies in this review that do not have a significant impact on elderly blood pressure, namely behavior lifestyle with bodyweight management and health-promoting lifestyle. Our review was to explore self-care management among the elderly with hypertension. Our findings suggest that the different types of self-care management conducted in this review are promising for improving self-care and blood pressure control in patients with hypertension.

Authors' Contributions: RH conceived the idea, Introduction Writer/Main Researcher; KAE compile the methodology/Assistant Researcher/Discussion Writer; and ES Assistant Researcher/Discussion Writer.

Acknowledgments: The authors much appreciated the facilities and resources provided by the Faculty of Nursing, Hasanuddin University.

REFERENCES

Alsaqer, K., & Bebis, H. (2022). Self-care of hypertension of older adults during COVID-19 lockdown

- period: a randomized controlled trial. *Clinical Hypertension*, 28(1), 1–13. <https://doi.org/10.1186/s40885-022-00204-7>
- Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology*, 8(1), 19–32. <https://doi.org/10.1080/1364557032000119616>
- Asri, M., Irwan, A. M., Sjattar, E. L., & Hardianto, Y. (2022). Effectiveness of a low-salt diet in rural hypertensive patients: A systematic review. *Clinical Epidemiology and Global Health*, 15(July 2021), 101024. <https://doi.org/10.1016/j.cegh.2022.101024>
- Batubo, N. P., Moore, J. B., & Zulyniak, M. A. (2023). Dietary factors and hypertension risk in West Africa: a systematic review and meta-analysis of observational studies. *Journal of Hypertension*, 41(9), 1376–1388. <https://doi.org/10.1097/HJH.0000000000003499>
- Chen, S., Conwell, Y., Xue, J., Li, L., Zhao, T., Tang, W., Bogner, H., & Dong, H. (2022). Effectiveness of integrated care for older adults with depression and hypertension in rural China: A cluster randomized controlled trial. *PLoS Medicine*, 19(10), 1–18. <https://doi.org/10.1371/journal.pmed.1004019>
- Chowdhury, S., & Chakraborty, P. pratim. (2020). Association of tobacco and alcohol consumption with cardiovascular risk factors among elderly population in India. *Journal of Family Medicine and Primary Care*, 6(2), 169–170. <https://doi.org/10.4103/jfmpc.jfmpc>
- David, W., & Darwin, C. (2017). Dietary pattern on elderly patient with hypertension : a qualitative analysis. *Asia Pacific Journal of Sustainable Agriculture Food and Energy*, 5(5), 7–9.
- Du, M., Kong, H., Ran, L., Ran, Y., Bai, L., Du, Y., Guan, H., Dong, Y., & Zhao, Y. (2022). Associations among health-promoting lifestyle, self-care agency and health-related quality of life in Bai older adults with hypertension in Yunnan China. *BMC Geriatrics*, 22(1), 1–8. <https://doi.org/10.1186/s12877-022-03608-0>
- Flack, J. M., & Adekola, B. (2020). Blood pressure and the new ACC/AHA hypertension guidelines. *Trends in Cardiovascular Medicine*, 30(3), 160–164. <https://doi.org/10.1016/j.tcm.2019.05.003>
- Glasser, S. P., Vitolins, M., Rocco, M. V, Still, C. H., Cofield, S. S., Haley, W. E., & Goff, D. (2022). Is Medication Adherence Predictive of Cardiovascular Outcomes and Blood Pressure Control? The Systolic Blood Pressure Intervention Trial (SPRINT). *American Journal of Hypertension*, 35(2), 182–191. <https://doi.org/10.1093/ajh/hpab145>
- Hasriani, Sjattar, E. L., & Arafat, R. (2022). the Effect of Educational Intervention Based on Transtheoretical Model for a Low-Salt Diet Among Hypertension Patients: a Literature Review. *Indonesian Journal of Public Health*, 17(2), 331–343. <https://doi.org/10.20473/ijph.v17i2.2022.331-343>
- Jacobs, J. A., Derington, C. G., Zheutlin, A. R., King, J. B., Cohen, J. B., Bucheit, J., Kronish, I. M., Addo, D. K., Morisky, D. E., Greene, T. H., & Bress, A. P. (2024). Association Between Self-Reported Medication Adherence and Therapeutic Inertia in Hypertension: A Secondary Analysis of SPRINT (Systolic Blood Pressure Intervention Trial). *Journal of the American Heart Association*, 13(3), e031574. <https://doi.org/10.1161/JAHA.123.031574>
- Júnior, F. A. D. M., Gomes, S. G., Silva, F. F., Souza, P. M., Emerson, C., Coelho, D. B., Nascimento-neto, R. M., Lima, W., & Becker, L. K. (2020). Cardiovascular Topics The effects of aquatic and land exercise on resting blood pressure and post-exercise hypotension response in elderly hypertensives. 31(3), 116–122. <https://doi.org/10.5830/CVJA-2019-051>
- Khaleghi, M. M., Jamshidi, A., Afrashteh, S., Emamat, H., Farhadi, A., Nabipour, I., Jalaliyan, Z., Malekizadeh, H., & Larijani, B. (2023). The association of body composition and fat distribution with hypertension in community-dwelling older adults: the Bushehr Elderly Health (BEH) program. *BMC Public Health*, 23(1), 1–11. <https://doi.org/10.1186/s12889-023-16950-8>
- Kim, K. (2023). Optimal target blood pressure in older patients with hypertension. *Cardiovascular*

- Prevention and Pharmacotherapy, 5(2), 41–48. <https://doi.org/10.36011/cpp.2023.5.e4>
- Kodela, P., Okeke, M., Guntuku, S., Lingamsetty, S. S. P., & Slonovschi, E. (2023). Management of Hypertension With Non-pharmacological Interventions: A Narrative Review. *Cureus*, 15(8), e43022. <https://doi.org/10.7759/cureus.43022>
- Lee, E. W., Kim, H. S., Yoo, B. N., Lee, E. J., & Park, J. H. (2022). Effect of a Primary Care-Based Chronic Disease Management Program for Hypertension Patients in South Korea. *Iranian Journal of Public Health*, 51(3), 624–633. <https://doi.org/10.18502/ijph.v51i3.8939>
- Lee, H., Kwon, S. H., Jeon, J. S., Noh, H., Han, D. C., & Kim, H. (2022). Association between blood pressure and the risk of chronic kidney disease in treatment-naïve hypertensive patients. *Kidney Research and Clinical Practice*, 41(1), 31–42. <https://doi.org/10.23876/j.krcp.21.099>
- Lemos, V. C., Barros, M. B. de A., Goldbaum, M., Cesar, C. L. G., & Lima, M. G. (2020). [Self-care management practices for arterial hypertension and diabetes mellitus among elderly people in Campinas, Brazil, in three periods]. *Salud colectiva*, 16, e2407. <https://doi.org/10.18294/sc.2020.2407>
- Li, C., Zhu, Y., Ma, Y., Hua, R., Zhong, B., & Xie, W. (2022). Association of Cumulative Blood Pressure With Cognitive Decline, Dementia, and Mortality. *Journal of the American College of Cardiology*, 79(14), 1321–1335. <https://doi.org/10.1016/j.jacc.2022.01.045>
- Li, Z., Cao, L., Zhou, Z., Han, M., & Fu, C. (2023). Factors influencing the progression from prehypertension to hypertension among Chinese middle-aged and older adults: a 2-year longitudinal study. *BMC Public Health*, 23(1), 1–15. <https://doi.org/10.1186/s12889-022-14410-3>
- Marito, P., Hasegawa, Y., Tamaki, K., Sta Maria, M. T., Yoshimoto, T., Kusunoki, H., Tsuji, S., Wada, Y., Ono, T., Sawada, T., Kishimoto, H., & Shinmura, K. (2022). The Association of Dietary Intake, Oral Health, and Blood Pressure in Older Adults: A Cross-Sectional Observational Study. *Nutrients*, 14(6). <https://doi.org/10.3390/nu14061279>
- McManus, R. J., Little, P., Stuart, B., Morton, K., Raftery, J., Kelly, J., Bradbury, K., Zhang, J., Zhu, S., Murray, E., May, C. R., Mair, F. S., Michie, S., Smith, P., Band, R., Ogburn, E., Allen, J., Rice, C., Nuttall, J., ... Yardley, L. (2021). Home and Online Management and Evaluation of Blood Pressure (HOME BP) using a digital intervention in poorly controlled hypertension: randomised controlled trial. *BMJ (Clinical Research Ed.)*, 372, m4858. <https://doi.org/10.1136/bmj.m4858>
- Musini, V. M., Pasha, P., Gill, R., & Wright, J. M. (2017). Blood pressure lowering efficacy of clonidine for primary hypertension. In *The Cochrane Database of Systematic Reviews* (Vol. 2017, Issue 9). <https://doi.org/10.1002/14651858.CD008284.pub3>
- Ni, W., Yuan, X., Zhang, J., Li, P., Zhang, H. M., Zhang, Y., & Xu, J. (2021). Factors associated with treatment and control of hypertension among elderly adults in Shenzhen, China: A large-scale cross-sectional study. *BMJ Open*, 11(8), 1–10. <https://doi.org/10.1136/bmjopen-2020-044892>
- Ojangba, T., Boamah, S., Miao, Y., Guo, X., Fen, Y., Agboyibor, C., Yuan, J., & Dong, W. (2023). Comprehensive effects of lifestyle reform, adherence, and related factors on hypertension control: A review. *Journal of Clinical Hypertension*, 25(6), 509–520. <https://doi.org/10.1111/jch.14653>
- Oliveros, E., Patel, H., Kyung, S., Fugar, S., Goldberg, A., Madan, N., & Williams, K. A. (2020). Hypertension in older adults: Assessment, management, and challenges. *Clinical Cardiology*, 43(2), 99–107. <https://doi.org/10.1002/clc.23303>
- Ongkulna, K., Pothiban, L., Panuthai, S., & Chintanawat, R. (2022). Enhancing Self-Management

- through Geragogy-Based Education in Older Adults with Uncontrolled Hypertension: A Randomized Controlled Trial. *Pacific Rim International Journal of Nursing Research*, 26(4), 690–705.
- Ouzzani, M., Hammady, H., Fedorowicz, Z., & Elmagarmid, A. (2016). Rayyan-a web and mobile app for systematic reviews. *Systematic Reviews*, 5(1), 1–10. <https://doi.org/10.1186/s13643-016-0384-4>
- Peters, M. D. J., Marnie, C., Tricco, A. C., Pollock, D., Munn, Z., Alexander, L., McInerney, P., Godfrey, C. M., & Khalil, H. (2020). Updated methodological guidance for the conduct of scoping reviews. *JBIE Evidence Synthesis*, 18(10), 2119–2126. <https://doi.org/10.11124/JBIES-20-00167>
- Pobrotyn, P., Chudiak, A., Uchmanowicz, B., Drobnik, J., & Gajda, R. (2023). Adherence problems in elderly patients with hypertension. *Medical Research Journal*, 1(8), 34–42. <https://doi.org/10.5603/mrj.a2023.0004>
- Putri, R. R. D. R. A., & Romadhon, W. A. (2022). Self-Care Behavior and Associated Factors in the Elderly with Hypertension. *Jurnal Ners Dan Kebidanan (Journal of Ners and Midwifery)*, 9(2), 248–254. <https://doi.org/10.26699/jnk.v9i2.art.p248-254>
- Putri, S. E., Rekawati, E., & Wati, D. N. K. (2021). Effectiveness of self-management on adherence to self-care and on health status among elderly people with hypertension. *Journal of Public Health Research*, 10, 75–81. <https://doi.org/10.4081/jphr.2021.2406>
- Qu, Q., Guo, Q., Sun, J., Lu, X., Cheang, I., Zhu, X., Yao, W., Li, X., Zhang, H., Zhou, Y., Liao, S., & Gao, R. (2023). Low lean mass with obesity in older adults with hypertension: prevalence and association with mortality rate. *BMC Geriatrics*, 23(1), 1–14. <https://doi.org/10.1186/s12877-023-04326-x>
- Sadeghi, R., Masoudi, M. R., Patelarou, A., & Khanjani, N. (2022). Predictive Factors for the Care and Control of Hypertension Based on the Health Belief Model Among Hypertensive Patients During the COVID-19 Epidemic in Sirjan, Iran. *Current Hypertension Reviews*, 18(1), 78–84. <https://doi.org/10.2174/1573402117666210603115309>
- Shen, Z., Ding, S., Shi, S., & Zhong, Z. (2022). Association between social support and medication literacy in older adults with hypertension. *Frontiers in Public Health*, 10. <https://doi.org/10.3389/fpubh.2022.987526>
- Sihvola, S., Kvist, T., & Nurmeksela, A. (2022). Nurse leaders' resilience and their role in supporting nurses' resilience during the COVID-19 pandemic: A scoping review. *Journal of Nursing Management*, 30(6), 1869–1880. <https://doi.org/10.1111/jonm.13640>
- Simorangkir, L., Ginting, A., & Veira, U. (2022). Blood Pressure Changes In The Elderly In The Work Area Of The Kutalimbaru Health Center Deli Serdang Regency In 2022. 10(3), 2182–2187.
- Song, X., Zhang, W., Hallensleben, C., Versluis, A., van der Kleij, R., Jiang, Z., Chavannes, N. H., & Gobbens, R. J. J. (2020). Associations between obesity and multidimensional frailty in older chinese people with hypertension. *Clinical Interventions in Aging*, 15, 811–820. <https://doi.org/10.2147/CIA.S234815>
- Susanto, H., & Calvin, M. (2021). Does BMI or Age Cause Hypertension in The Elderly in The Bergas Public Health Center in Indonesia? The 1st International Conference on Health, Faculty of Health, 225–231. <http://callforpaper.unw.ac.id/index.php/ICH-UNW>
- Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., Weeks, L., Hempel, S., Akl, E. A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M. G., Garritty, C., Straus, S. E. (2018). PRISMA extension for scoping

- reviews (PRISMA-ScR): Checklist and explanation. *Annals of Internal Medicine*, 169(7), 467–473. <https://doi.org/10.7326/M18-0850>
- Ueno, H. (2021). Factors related to self-care drug treatment and medication adherence of elderly people in Japan. *Public Health in Practice*, 2(100106). <https://doi.org/https://doi.org/10.1016/j.puhip.2021.100106>
- Wan, J., Wu, Y., Ma, Y., Tao, X., & Wang, A. (2022). Predictors of poor medication adherence of older people with hypertension. *Nursing Open*, 9(2), 1370–1378. <https://doi.org/10.1002/nop2.1183>
- Wang, A., Wan, J., Zhu, L., Chang, W., Wen, L., Tao, X., & Jin, Y. (2023). Frailty and medication adherence among older adult patients with hypertension: a moderated mediation model. *Frontiers in Public Health*, 11(December), 1–9. <https://doi.org/10.3389/fpubh.2023.1283416>
- WHO. (2023). Ageing and health. <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>
- Xiao, L., Le, C., Wang, G. Y., Fan, L. M., Cui, W. L., Liu, Y. N., Shen, J. R., & Golden, A. R. (2021). Socioeconomic and lifestyle determinants of the prevalence of hypertension among elderly individuals in rural southwest China: a structural equation modelling approach. *BMC Cardiovascular Disorders*, 21(1), 1–10. <https://doi.org/10.1186/s12872-021-01885-y>

APPENDIX

Table 1. Keywords for Databases

Database	Keywords	Result
PubMed	((((Hypertension) OR (Hypertensive)) AND (self-care management)) AND (elderly)) OR (older adult)	183
ProQuest	Hypertension OR Hypertensive AND self-care management AND elderly OR older adult	385
Science Direct	Hypertension OR Hypertensive AND self-care management AND elderly OR older adult	149
Springer	Hypertension OR Hypertensive AND self-care management AND elderly OR older adult	127
Wiley Online Library	Hypertension OR Hypertensive AND self-care management AND elderly OR older adult	145
Garuda	Manajemen perawatan diri lansia hipertensi	3

Table 2. Extracted data from the final documents

No	Author, Year, and Country	Study Design	Aim	Sample (n), Gender, Age (M±SD)	Findings	Self-Care Management
1	(Ongkulna et al., 2022) Thailand	RCT	To investigate the effectiveness of the Geragogy-Based Self-Management Education Program (GBSEP) in enhancing health literacy, self-efficacy, and self-management behaviors among older adults with uncontrolled hypertension	n=100 Gender Intervention Male:15 Female: 35 Control Male: 17 Female: 33 Age Intervention : 67.98 ± 6.30 Control 68.16±5.08	Intervention Self-Management Behaviors after three months: 104.44 ± 7.09 Control Self-Management Behaviors after three months : 80.08 ± 10.22 <i>P value</i> = <.001	Perform self-management with blood pressure control
2	(Pobrotyn et al., 2023) Poland	Cross-sectional study	to analyse selected sociodemographic and clinical factors affecting adherence to antihypertensive treatment	n=100 Gender Male: 39 Female: 61 Age: 70.36 ± 3.02	Effective antihypertensive treatment requires an appropriate level of adherence. In the present study, most patients	Improving medication-taking

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			in elderly patients		(63%) showed a high level of adherence; a moderate level was found in 34% and a low level in 3% of respondents. <i>P value</i> = < 0.05	
3	(Susanto & Calvin, 2021) Indonesia	a cross-sectional study	to determine the relationship between BMI and age with hypertension in the elderly	n=58 Age:60-80 years	Overweight 24.1% <i>P value</i> = 0.846	Behavior lifestyle with bodyweight management
4	(Chowdhury & Chakraborty, 2020) India	a cross-sectional study	to assess the association of tobacco and alcohol consumption with cardiovascular risk factors among elderly population living at high altitude	n=1003 Gender Male (n=363) Female (n=640) Age 60-70 (n=594) 70-80 (n=297) ≥80 (n=112)	Daily smoking and chewing of tobacco was found among 18.5% and 7.1% of the elderly population. The consumption of tobacco and alcohol	Educating the elderly about the adverse health effect of tobacco and alcohol

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			regions of India		was associated with cardiovascular risk factors such as hypertension <i>P value= 0.034</i>	
5	(Song et al., 2020) China	a cross-sectional study	to investigate the prevalence of multidimensional frailty in older people with hypertension and to examine a possible relationship of general obesity and abdominal obesity to frailty in older people with hypertension	n=995 Age 65-74 75-84 ≥85 Gender Underweight: Male : 4 Female: 1 Normal: Male : 299 Female: 225 Overweight: Male : 130 Female: 237 Obese: Male : 39 Female: 60	The general obesity group had higher multidimensional frailty scores than subjects in the overweight group and the underweight/normal group (5.82 ± 3.55 vs. 5.38 ± 3.31 vs. 4.05 ± 3.17 <i>P value = < 0.001</i>	Bodyweight management

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6	(Júnior et al., 2020) Brazil	Controlled clinical trial	To compare the effects of aquatic and land exercise on resting blood pressure and post-exercise hypotension response in elderly hypertensives	n=40 Age=67 ± 3 Gender=Female	Elderly hypertensive subjects trained in AE had different baseline BP responses from land-trained subjects. During the daytime, SBP and DBP values were lower for aquatic-trained hypertensive subjects. <i>P value = < 0.000</i>	Aquatic and land Exercise
7	(Shen et al., 2022) China	Cross-sectional study	to investigate the levels of social support and medication literacy, and the association between them in older Chinese adult patients with hypertension	n=362 Age=N/A Gender Male=187 Female=175	Social support had a positive relationship with medication literacy, and older adult patients with hypertension who had more subjective and objective support performed better in	1. Medication literacy 2. Behavior literacy

No	Author, Year, and Country	Study Design	Aim	Sample (n), Gender, Age (M±SD)	Findings	Self-Care Management
					knowledge, skills and behavior literacy. <i>P</i> = < 0.01	
8	(Wang et al., 2023) China	Cross-sectional study	To investigate the mediating role of health literacy between frailty and medication adherence and the moderating role of educational level.	n=388 Age= 60 - ≥80 years Gender Male=190 Female=198	Educational level moderated the pathway mediated by health literacy; more specifically, the conditional indirect effect between frailty and medication adherence was significant among older adult hypertensive patients with low, intermediate, and high educational levels (effect -0.052 [95% CI -0.092 to -0.106]; effect -0.041 [95% CI -0.071 to	Medication adherence

No	Author, Year, and Country	Study Design	Aim	Sample (n), Gender, Age (M±SD)	Findings	Self-Care Management
					-0.012]; effect -0.026 [95% CI -0.051 to -0.006]). <i>P</i> < 0.001	
9	(Wan et al., 2022) China	A cross-sectional study.	to explore the risk factors for poor medication adherence in older people with hypertension.	n=388 Age=60-80 years Gender Male=190 Female=198	Multivariable binary logistic regression analysis showed that there were four statistically significant predictors, such as people who lived with spouses and offspring (OR = 3.004, <i>p</i> = .017), and those who had high admission blood pressure (OR = 1.910, <i>p</i> = .003) had a greater risk of poor medication adherence, whereas those without	Medication adherence

No	Author, Year, and Country	Study Design	Aim	Sample (n), Gender, Age (M±SD)	Findings	Self-Care Management
					hypertension complications (OR = 0.591, $p = .026$) and those without falls (OR = 0.530, $p = .046$) had a lower risk.	
10	(Chen et al., 2022) China	RCT	To investigate integrated care for older adults with depression and hypertension	n= 2,365 Age= 74.46 ±8.23 Gender Male= 789 Female= 1,576	The experimental intervention consisted of components similar to COACH—self-management support and behavioral activation provided by care managers, physicians' decision support tools, and specialist case reviews. They found significantly greater reduction in depressive	Control Depression

No	Author, Year, and Country	Study Design	Aim	Sample (n), Gender, Age (M±SD)	Findings	Self-Care Management
					<p>symptoms and diabetes control than usual care. Post hoc analyses showed greater improvement in systolic BP readings of depressed patients who received the intervention at 12 months, but the improvement was not sustained at 24 months follow-up.</p> <p><i>p value</i> = < 0.001</p>	
11	(S. E. Putri et al., 2021) Indonesia	A quasi-experimental	to determine the effectiveness of self-management on adherence to self-care and management of health	n= 134 Age= 60-90 years Gender Male= 43 Female= 91	The effects of self-management were positive on adherence to caring for themselves (<i>p</i> <0.001) and on health	Medication adherence

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			status elderly people living with hypertension		status (p<0.001). The older people with hypertension said they were tired of consuming hypertensive drugs for lengthy periods and preferred to consume medicinal plants and traditional medicines.	
12	(Xiao et al., 2021) China	A cross-sectional	This study examines the association between socioeconomic and lifestyle factors and the prevalence of hypertension among elderly individuals in rural Southwest China.	n= 4,883 Age= 60-75 years Gender Male= 2198 Female= 2635	Body fat distribution had the greatest total effect on hypertension <i>P value = < 0.001</i>	Body fat management

No	Author, Year, and Country	Study Design	Aim	Sample (n), Gender, Age (M±SD)	Findings	Self-Care Management
13	(Du et al., 2022) China	A cross-sectional	to explore the associations among health-promoting lifestyle, self-care agency, and health-related quality of life in Bai ethnic older patients with hypertension, as well as the related factors of hypertension self-care abilities	n= 472 Age= 60-75 years Gender Male= 178 Female= 294	the health promoting lifestyle level and self-care ability of the Bai minority older hypertension patients were low though they had a high awareness rate. <i>P value= 0.209</i>	Health-promoting lifestyle
14	(Qu et al., 2023) China	Cohort Study	to investigate the prevalence and mortality predictive value of various body composition phenotypes, focusing mainly on SO, in older adults with	n= 1105 Age= ≥60 years Gender Male= 39.8% Female= 60.2%	1. The prevalence of LLM with obesity by the 3 different ALMIs differed significantly in older adults with hypertension, varying widely from	Bodyweight management

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			hypertension		<p>9.8%, 11.7%, to 19.6%; and 2. After multivariable adjustment, LLM with obesity was associated with 69%, 48%, and 30% increase in risks of all-cause mortality when compared with the normal body phenotype, respectively, with no statistical differences seen in the LLM or obese groups.</p> <p><i>P value= 0.001</i></p>	

No	Author, Year, and Country	Study Design	Aim	Sample (n), Gender, Age (M±SD)	Findings	Self-Care Management
15	(Khaleghi et al., 2023) Iran	Cross-sectional study	To investigate the association between regional fat distribution using dual-energy X-ray absorptiometry and hypertension in older adults	n= 1,818 Age= ≥60 years Gender Male= 855 Female=963	68.7% of hypertensive people were currently using smoke or used to consume it in the past. This study showed that a higher body FM, particularly in the android region, is associated with higher odds of having hypertension in older adults. <i>P value = < 0.001</i>	Body fat mass management
16	(Alsaqer & Bebis, 2022) Germany	RCT	to examine the effects of a public health nursing intervention plus m-Health applications for hypertension management on enhancing	n= 110 Age= 60.37 ± 5.60 Gender Male= 62 Female= 48	After 3 months, the interventional group show significantly decreased in systolic blood pressure - 14 (F = 16.74, P = 0.001),	Monitoring dan controlling blood pressure

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			the self-care, systolic and diastolic of blood pressure, and quality of life in older adults during the lockdown period in Jordan.		greater improvement in self-care maintenance, monitoring, and confidence (+ 30, + 17.75, + 40.27; $P < 0.01$, respectively) compared to the two control groups. <i>P value = 0.001</i>	
17	(Putri & Romadhon, 2022) Indonesia	Cross-sectional study	to determine the factors related to self-care behavior in hypertensive elderly in the Integrated Health Care Center of elderly, Srikandi, Turi Sub District, Community Health Centers of Sukorejo, Sukorejo	n= 38 Age= 55-64 Gender Male= 18 Female=20	Five of the six components of self-care behavior that are still lacking in hypertensive elderly include components of drug use, physical exercise, smoking, weight management, and consuming	Low-salt diet such as limiting eating chips, eating vegetables and fruits, not eating preserved foods, and not adding salt when eating.

No	Author, Year, and Country	Study Design	Aim	Sample (n), Gender, Age (M±SD)	Findings	Self-Care Management
			district, Blitar.		<p>coffee. In the components of drug use, 28 respondents (73.7%) were found who did not take high blood pressure medications, did not take medication at the same time, and did not take medications according to the prescribed amount.</p> <p><i>P value= 0.008</i></p>	