

Prevention and Management of High Blood Pressure in Older Adults

A Systematic Literature Review

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Abstract

Hypertension, elevated blood pressure readings exceeding 140/90 mmHg, is a global health issue widely documented as, a major contributor to cardiovascular and chronic kidney diseases. 1.13 billion People are affected globally. These statistics demand effective measures in managing and preventing hypertension, especially in the elderly, who are mostly affected.

This study aimed to enhance nurses' and healthcare providers' understanding of effective approaches for preventing and managing hypertension among the elderly. A qualitative systematic literature review methodology with a comprehensive literature search of scientific electronic databases which included EBSCO, CINAHL, PubMed, Medline, and Science Direct was engaged. The theoretical framework employed in this study is Nola J. Pender's Health Promotion Model (HPM) theory

Three (3) key themes and eight (8) sub-themes emerged in total from the twelve (12) articles analyzed. The main findings showed healthy behavior which embodies salt control, healthy eating, weight management, and physical activity patient education amid information and training and medication adherence and finally self-management tools such as blood pressure monitor and mobile self-reporting are key effective ways that could be employed in preventing and managing hypertension in the older adults. In conclusion, the findings connect, lifestyle behavior, patient education, and self-management tools in the effective management and prevention of hypertension among the elderly.

Language: English

Key Words: Hypertension, prevention, Management, high blood pressure, older adults

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1 Introduction

A well-known risk factor for cardiovascular diseases and chronic kidney disease is hypertension, also known as high blood pressure. According to World Health Organization (WHO), approximately 1.2 billion adults aged 30-79 years around the globe are living with high blood pressure. Most of these victims (two-thirds) live in low and middle-income countries. (WHO, 2023)

High blood pressure in older adults is extremely common, Individuals with high blood pressure often do not experience noticeable symptoms. The only way to determine it is by having your blood pressure measured. It constitutes the major modifiable risk factor of cardiovascular disease, premature disability, stroke, infarction, and death. (Lawes, 2001). Despite proven benefits of blood pressure reduction in older individuals, there is a considerable disagreement between major guidelines surrounding the optimal levels of high blood pressure prevention and management to be achieved. In the Framingham Heart Study, it was observed that over 90% of individuals who initially had normal blood pressure at the age of 55 eventually developed hypertension. By the age of 60, around 60% of the population was found to have hypertension, and by the age of 70, approximately 65% of men and 75% of women developed high blood pressure. (Oliveros, 2019)

Considering the elevated occurrence of hypertension in older adults, nurses and health practitioners should thoroughly assess the overall advantages of preventive measures, the utilization of antihypertensive treatments, and the targeted blood pressure levels. This approach is essential for delivering top-notch care to this specific patient demographic. Notably, numerous studies addressing the prevention and management of hypertension have typically omitted older adults, especially those aged 80 and above. Consequently, the prevention and management of high blood pressure in the elderly have been a subject of ongoing debate. It is estimated that 46% of adults with hypertension are unaware of their condition. Additionally, fewer than half (42%) of those with hypertension receive a diagnosis and treatment. This is according World Health Organization (WHO) report in March, 2023. In that regards, recognition and appropriate prevention and management should be a priority for nurses and healthcare providers.

The population under investigation, particularly the men, has low knowledge of their blood pressure status. Although there was no significant difference in awareness between the age groups, educational levels, or occupations, awareness was higher in females. Being aware of a disease is one of the first stages in preventing it. (Okwuonu, 2016). Many risk factors have been linked to hypertension, including age—the majority of cases of uncontrolled hypertension occur in the elderly—sex, race, decreased physical activity, obesity, smoking, dietary changes, and hormonal changes. Understanding these risk factors can aid in the development of strategies to reduce avoidable risk factors like weight, excessive salt intake, cigarette smoking, and alcohol use. (Seham, 2015) In patients 80 years of age and older, Dutch General Practitioners (GPs) were hesitant to begin hypertensive treatment; however, medication was necessary for patients with diabetes and cardiovascular disease. This exemplifies the conundrum facing doctors, who must simultaneously meet blood pressure targets, prevent cardiovascular problems, and minimize overtreatment and adverse effects. (Van Middelaar T, 2018)

The European Society of Cardiology/European Society of Hypertension, the American College of Cardiology/American Heart Association, and the Japanese Society of Hypertension revised their guidelines and suggested that BP targets for patients with hypertension be lower than the previous conventional guidelines' benchmarks, specifically as BP targets < 130/80 mmHg. (Masami Ito¹, 2024)

Reducing blood pressure targets in patients can be challenging, and the advantages of stringent blood pressure regulations are restricted to fewer health complications. Whether lowering blood pressure targets lower overall mortality or prevent major adverse events is not well supported by any available data. According to earlier reviews, professional-led interventions in allied health can help patients with hypertension manage their blood pressure. Patients with hypertension should take their medications as prescribed, but more importantly, they should change the way they live (e.g., sodium restriction, smoking cessation, and reduction of alcohol use). It has been discovered, nevertheless, that individuals with hypertension are less likely to adopt new lifestyle habits. (Masami Ito¹, 2024)

The goal of this study is purported to entrench nurses and health care providers understanding the effective approaches for preventing and managing hypertension among the elderly.

2 Background of Study

Elevated blood pressure above 140/90 mmHg is known as hypertension. It is a common medical condition where the blood's continuous force against the walls of arteries can cause serious health problems, such as heart disease (Seham & Samira, 2015; Mayo Clinic, 2018; Nnatuanya et al., 2017). Because of its high prevalence and correlation with vascular diseases, stroke, renal disease, and retinopathy, it presents a serious global public health challenge (Bani, 2017). Actually, one of the main global causes of morbidity and premature death is hypertension. The American Heart Association estimates that 35.3 million men and 38.3 million women worldwide suffer from hypertension, accounting for roughly 73.6 million cases of the disease (Mary et al., 2012).

The World Health Organization (2019) reviewed data showing that the number of adults with hypertension rose from 594 million in 1975 to 1.13 billion in 2015, with the majority of cases found in low- and middle-income countries. According to Adeloye et al. (2015), there were 20.8 million adults in Nigeria alone who were estimated to have hypertension by 2010. The prevalence of the condition was 28%, affecting more men (30.7%) than women (25.2%). Age, gender, race, obesity, smoking, a decrease in physical activity, and certain dietary habits, such as consuming too much salt, are among the risk factors that lead to the development of hypertension (Seham & Samira, 2015). In order to avoid complications in the short- and long-term, effective management of hypertension focuses on reducing these risk factors and keeping blood pressure below 140/90 mmHg (Mersal & Mersal, 2015).

Blood pressure is measured using two numbers. The higher number, systolic pressure, represents the force exerted by the heart as it pumps blood throughout the body. On the other hand, the lower number, diastolic pressure, reflects the resistance to blood flow in the vessels between heartbeats when blood circulates around the heart. Both measurements are recorded in millimeters of mercury (mmHg). (National Health Service, UK, 2023)

High blood pressure is typically considered to be from 140/90mmHg or higher when measured at a pharmacy, GP surgery, or clinic, or an average of 135/85mmHg if taken at home. For older adults aged 80 or above, high blood pressure is considered to be 150/90mmHg or more at a healthcare facility, or an average of 145/85mmHg if measured at home. The ideal blood pressure falls within the range of 90/60mmHg to 120/80mmHg. The target for older adults over 80 years old is typically below 150/90mmHg (or 145/85mmHg if measured at home). Blood pressure readings ranging from 121/81mmHg to 139/89mmHg may indicate a risk of developing high blood pressure if preventive measures are not taken to control it. (National Health Service,UK, 2023)

Historically an increase in blood pressure has often been seen as an inevitable consequence of aging in developed societies, contributing to a high prevalence of hypertension among older adults. However, the understanding and definition of hypertension in the elderly have changed over time. Results from the Framingham Heart Study, conducted over a span of 30 years, confirm the observation that systolic blood pressure (SBP) consistently rises from the age of 30 to 84 years and beyond. In contrast, diastolic blood pressure (DBP) shows a varying trend with age, rising until the fifth decade and then gradually decreasing from around the age of 60, continuing at least until 84 years of age. (NLM, 2006)

Also according to the US National Health and Nutrition Examination Survey (NHANES), 70% of individuals aged 65 and above are reported to have hypertension. On a global scale, the prevalence of hypertension in the 30–79 age group reached an estimated 1.27 billion in 2019, with 32% being women and 34% being men. This figure is expected to increase further due to the ongoing aging of the population. Excessive blood pressure places added stress on blood vessels, the heart, along with other organs like the brain, kidneys, and eyes, can be affected by prolonged high blood pressure. Persistent hypertension is associated with serious and potentially life-threatening conditions, including heart attacks, strokes, heart failure, peripheral arterial disease, and aortic aneurysms, and renal disease. Managing hypertension by even a modest decrease in blood pressure can contribute to lowering the risk of developing these health disorders. (National Health Service,UK, 2023)

2.1 Risk Factors and Causes of High Blood Pressure

The cause of high blood pressure is currently unknown, apart from secondary high blood pressure. However, this condition can be linked to several contributing factors including aging, high salt consumption, genetics, lack of physical activities, excessive alcohol intake etc. (Cunha, 2011).

Hypertension exists in two main types primary and secondary. Primary hypertension typically develops slowly over an extended period and may be attributed to one or multiple risk factors. On the other hand, secondary hypertension can arise due to underlying conditions like sleep apnea, type 2 diabetes, adrenal tumors, or hypothyroidism. (NLM, 2006)

The precise cause of high blood pressure is often unclear in most instances. However, certain factors exist that can elevate your risk of developing it. Mostly people who develop it is as a result of diet, lifestyle and medication. (National Health Service,UK, 2023) Factors that can trigger your risk of developing high blood pressure includes; overweight, high consumption of salt and do not eat enough fruits and vegetables, do not engage in any form of exercise, drinks too much of alcohol or coffee (or other caffeine-based drinks), excessive smoking, have a lot of stress, having a relative with high blood pressure (hereditary), being a black African or black Caribbean descent. All these aforementioned are risks of one developing hypertension. (National Health Service,UK, 2023)

Many researchers have also provided or make findings on other health and medicinal conditions that can cause an individual to develop hypertension or lead to increase in blood pressure. Some of these causes of high blood pressure in older adults includes;

Sleep apnoea: during sleep, the walls of the throat relax and constrict, causing a disruption in regular breathing.

Long term kidney infection.

Hormonal problems: conditions such as hypothyroidism, hyperthyroidism, and examples include Cushing's syndrome, acromegaly, elevated aldosterone levels (hyperaldosteronism), and pheochromocytoma.

Lupus is a condition where the immune system attacks various parts of the body, including the skin, joints, and organs.

Scleroderma is a condition that leads to thickened skin and, in some cases, issues with organs and blood vessels. Glomerulonephritis: damage to the tiny filters inside the kidneys.

Narrowing the arteries supplying the kidneys.

Also medicinal factors includes; contraceptive pills, steroids, non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen, aspirin and naproxen, some selective serotonin-noradrenaline reuptake inhibitor (SSNRI) antidepressants – such as venlafaxine, etc. In such instances, discontinuing the medication or drug may lead to a restoration of your blood pressure to normal levels. (National Health Service,UK, 2023).

2.2 Diagnostics of High Blood Pressure

Diagnosing hypertension necessitates measuring blood pressure (BP) under optimal conditions in the appropriate setting. Patients should be seated and relaxed for at least 5 minutes with their arm at rest. The diagnosis requires two instances of elevated blood pressure readings on separate occasions. White coat hypertension is more common in older adults, possibly due to increased arterial stiffness. As a result, it's essential to obtain ambulatory or out-of-office blood pressure measurements for patients with mildly elevated in-office readings. The 2017 ACC guidelines classify a blood pressure reading above 130/80 mmHg as hypertensive, while the European Society of Hypertension maintains the threshold at 140/90 mmHg. Since high blood pressure is typically asymptomatic, structured community programs play a vital role in diagnosing individuals unaware of their hypertension, proving effective in this regard. (Whelton, 2017)

The techniques used for measuring blood pressure in older adults closely resemble those applied to middle-aged adults. However, various guidelines suggest more vigilant monitoring for older individuals, as they often exhibit increased blood pressure variability. (Ferrer, 2015)

Isolated systolic hypertension is more common in older adults. Blood pressure is typically measured on the upper arm through either the auscultator method, which demands proper

assessor training, or the oscillometric method, which necessitates the use of a clinically validated automated measurement device. (Fagard, 2013)

Blood pressure (BP) readings taken in a clinic have traditionally been used to diagnose hypertension. Multiple readings are usually taken on different occasions, and patients whose mean blood pressure is consistently above the diagnostic threshold are treated. (McManus, 2015)

It has been acknowledged that self-measured blood pressure (SMBP) and ambulatory blood pressure monitoring (ABPM) are not as well correlated with long-term outcomes when taken outside of a clinic setting. (McManus, 2015)

In a systematic review of 43 studies on the incidence of hypertension, Piper et al. discovered that the mean incidence varied over a 5-year period, from 2% to 28%. The incidence of hypertension for three categories of blood pressure—optimal, <120/80 mmHg; normal, 120–129/80–84 mmHg; and high-normal, 130–139/85–89 mmHg—was examined over a 5-year period in five different studies. They proposed that it might be more successful to rescreen using the patient's current blood pressure. The study also made clear how important it is to develop more organized screening programs for specific ethnic minority groups, overweight patients, older adults, and people with high blood pressure. (McManus, 2015, s. 3)

2.3 Prevention of High Blood Pressure

While numerous factors can contribute to the development of high blood pressure, older adults have the opportunity to adopt a healthy lifestyle that can effectively maintain their blood pressure within a desirable range. This proactive approach aims at preventing hypertension, commonly known as high blood pressure. Older adults can practice the following living habits:

- **Eat a healthy diet:** It is advisable for older adults to adopt a nutritious diet comprising both meals and snacks to prevent the onset of high blood pressure and its associated complications. It is essential to incorporate a generous amount of fresh fruits and vegetables into their diet. Engaging in a discussion with healthcare professionals about consuming a diverse range of foods that are abundant in

potassium, fiber, and protein, while limiting the intake of salt (sodium) and saturated fat, is crucial. For numerous individuals, embracing these wholesome dietary modifications can contribute to maintaining optimal blood pressure levels and providing protection against heart disease and stroke. (CDC, 2023)

- **Keep a healthy weight:** being overweight or obese heightens the likelihood of developing high blood pressure. Doctors frequently assess whether an individual's weight falls within a healthy range by calculating their body mass index (BMI). Older adults can engage in discussions with their healthcare providers to explore strategies for achieving a healthy weight. (CDC, 2023)
- **Limit how much alcohol you drink:** older adults are cautioned against excessive alcohol consumption, as it can lead to elevated blood pressure. It is recommended that men limit their daily alcoholic intake to no more than two drinks, while women should restrict themselves to no more than one alcoholic beverage per day. (CDC, 2023)
- **Get enough sleep:** Sufficient sleep is crucial for overall health, contributing to the well-being of your heart and blood vessels. Consistently experiencing insufficient sleep is associated with a higher likelihood of developing heart disease and high blood pressure. It is recommended that older adults prioritize obtaining an ample amount of sleep. (CDC, 2023)
- **Physically active:** engaging in physical activity is essential for maintaining a healthy weight, and reducing blood pressure. It is important to encourage older adults to participate in regular physical activity. Older individuals should aim for a minimum of 2 hours and 30 minutes of moderate-intensity exercise each week, such as brisk walking or cycling, distributed over at least 30 minutes a day for 5 days each week. (CDC, 2023)

2.4 Nursing Intervention to Manage High Blood Pressure

Nursing interventions are actions taken by nurses to enhance patient outcomes based on their findings and expertise. These interventions can be categorized as direct or indirect care, targeting individuals, families, and communities. Direct care involves collaboration

with the patient and encompasses both physiological and psychosocial actions, while indirect care focuses on managing the care environment and collaborating with other healthcare professionals to support direct care efforts. Community interventions aim to improve public health through health promotion, maintenance, and illness prevention. When selecting nursing interventions, nurses should conduct thorough clinical assessments of patients, families, and communities to enhance health and quality of life. Key considerations in choosing an intervention include desired patient outcomes, nursing diagnoses, evidence-based practices, feasibility, patient acceptability, and nurse competence. Howard et al., (2018 p. 67-92)

The primary focus for healthcare professionals, including nurses, should be on managing hypertension through lifestyle changes and medications rather than aiming for a complete cure. Arrange a meeting with a dietitian to develop a personalized plan for improving nutrient intake or accomplishing weight loss objectives. Advise patients to limit alcohol intake and avoid tobacco use. Recommend engagement in support groups specifically designed for weight control, smoking cessation, and stress reduction if necessary. Offer support to patients in creating and adhering to an appropriate exercise regimen. (Williams, 2010, pp. 378-379).

3 Aim of Study

The aim of this study is to enhance nurses' and healthcare providers' understanding of the effective approaches for preventing and managing hypertension among the elderly.

3.1 Research Question

Which strategies can contribute to preventing and managing high blood pressure in older adults?

4 Theoretical Framework

As the theoretical foundation for this study, the researcher has chosen Nola J. Pender's Health Promotion Model (HPM) theory. Pender's theory of health promotion model was revised and published in 1996. The theoretical foundations of the health promotion model were Pender's background in experimental psychology, nursing, education, and human

development which led to the use of learning theory, social psychology, and a holistic nursing approach. Using the corpus of prior research, the health promotion model was created to establish a health knowledge design. (Alligood, 2018)

The theory sought to integrate existing knowledge on behavior related to health promotion. The health belief model, which explains behavior that prevents disease, is closely related to the health promotion model. Research that attempts to forecast general health-promoting behaviors is grounded in the health promotion model. The conceptual definitions provide clarity and improve comprehension of the intricacy of health behavior phenomena, and the health promotion model serves as a tool for research studies. The specialty of nursing is expanding and becoming more significant. Education for health promotion is a part of current clinical practice. The health promotion model is used in global health promotion initiatives and is deemed pertinent in the nursing profession. (Alligood, 2018)

Nursing education makes extensive use of the health promotion model. Its application centers on the significance of evaluating the variables thought to affect changes in health-related behavior. The health promotion model's theory is simple to comprehend. According to the health promotion model, people actively seek to balance their behaviors that promote their health. Through their interactions with the environment, people both continuously change it and change themselves over time. As members of the interpersonal environment, nurses have an impact on people at every stage of life. Behavior change requires self-initiated modifications to the person-environment interaction pattern. The many facets of how a person interacts with their surroundings to improve their health are described by the health promotion model. Promoting health is driven by the desire to enhance wellbeing and recognize human potential. (Alligood, 2018)

5 Methodology

The study was conducted through a qualitative approach. The preferred approach was a systematic literature review since it made it possible to evaluate, retrieve, and summarize all of the knowledge based on evidence regarding the topic.

Quantitative research typically follows a structured and linear path, with researchers planning and executing predefined steps to ensure study integrity. In contrast, qualitative research takes on a more circular approach. Qualitative researchers consistently analyze and interpret data, making ongoing decisions about the next steps based on the evolving insights and discoveries throughout the research process. (Denise F. Polit, 2010, p. 77)

Qualitative research is a crucial nursing technique that allows nurses to understand human thoughts, behaviors, and experiences in the context of healthcare, allowing them to explore the foundation of caring for others. Qualitative research improves nursing practice, evidence-based knowledge, and compassion because it explores the experiential aspects of health, illness, and therapy in great detail.

Qualitative research has gained popularity in nursing research over the last few decades because of its effective methodology. In nursing practice and academia, qualitative research has grown in importance as the focus shifts to integrated patient care and understanding the complexity of human experiences. (Denise F. Polit, 2010, s. 259)

There are methodological differences between narrative reviews and systematic literature reviews (SLR). While systematic review articles attempted to take into account all published studies on a particular theme after applying predetermined inclusion and exclusion criteria, narrative review articles were chosen in an arbitrary and non-systematic manner. The objective was to methodically extract pertinent information from the publications. An SLR was taken into consideration because the goal of this study was to improve nurses' and healthcare professionals' comprehension of the best practices for managing and preventing hypertension in the elderly. Moreover, a systematic review was selected for this study for additional reasons. First, SLR aimed to reduce bias by adopting a transparent, reproducible, and scientific methodology. Second, it provided statistical power by summarizing a vast amount of research data. Moreover, the conclusions it produced were based on a compilation and evaluation of scientific data. Lastly, SLR assessed how well scientific findings were adaptable across populations (Chapman, 2009)

When it comes to influencing policy and medical guidelines, SLR is regarded as the most trustworthy type of medical evidence.

5.1 Data Collection

Data collection entailed employing suitable methods and techniques to methodically gather data from a variety of sources. It is a comprehensive process that forms the basis for interpreting and analyzing research, playing a crucial role in producing meaningful and reliable results. To gather data for a systematic literature review study, Gerrish and Co outlined some principles researchers could stick to, such as; establishing a comprehensive search plan to locate pertinent studies by utilizing databases, journal sources, keywords, and search terms, To guarantee accuracy, establish inclusion and exclusion criteria according to language, full text, peer review, population, and year of publication. Examining the full text to ensure it satisfies inclusion requirements after screening the abstracts and titles in light of the research question. Systematically taking the data out of the selected studies, and finally evaluating the study design, methodology, data collection technique, and source reliability in order to determine the quality of the included studies. (Gerrish, 2010).

5.2 Literature Search and Prisma Chart

The literature review method was used to carry out the study. Research materials were gathered from reputable databases, such as Science Direct, PubMed, EBSCO, CINAHL, SAGE journals, and Medlin. These databases provide peer-reviewed, evidence-based articles for nursing research. The study's primary goal was to comprehend the best strategies for managing and preventing hypertension in the elderly, and academic databases were the primary source of the data. To address the research questions in this study, data were then filtered through the analysis of numerous articles. Articles unrelated to the subject of this thesis were eliminated. To make sure the contents were pertinent to the research topics, the articles were read multiple times, paying close attention to the title, abstracts, and full text. Only data published in English were gathered for this thesis, and the data was mainly summarized and connected to texts from earlier research and theories. Data collection for the result only took place between 2014 and 2024. The research findings were analyzed using key search terms that are closely related to the topic of the study, such as "hypertension or high blood pressure," "symptoms," "causes," "risk factors," "elderly or older adults," "management," "prevention," and "nursing interventions." Additionally, this

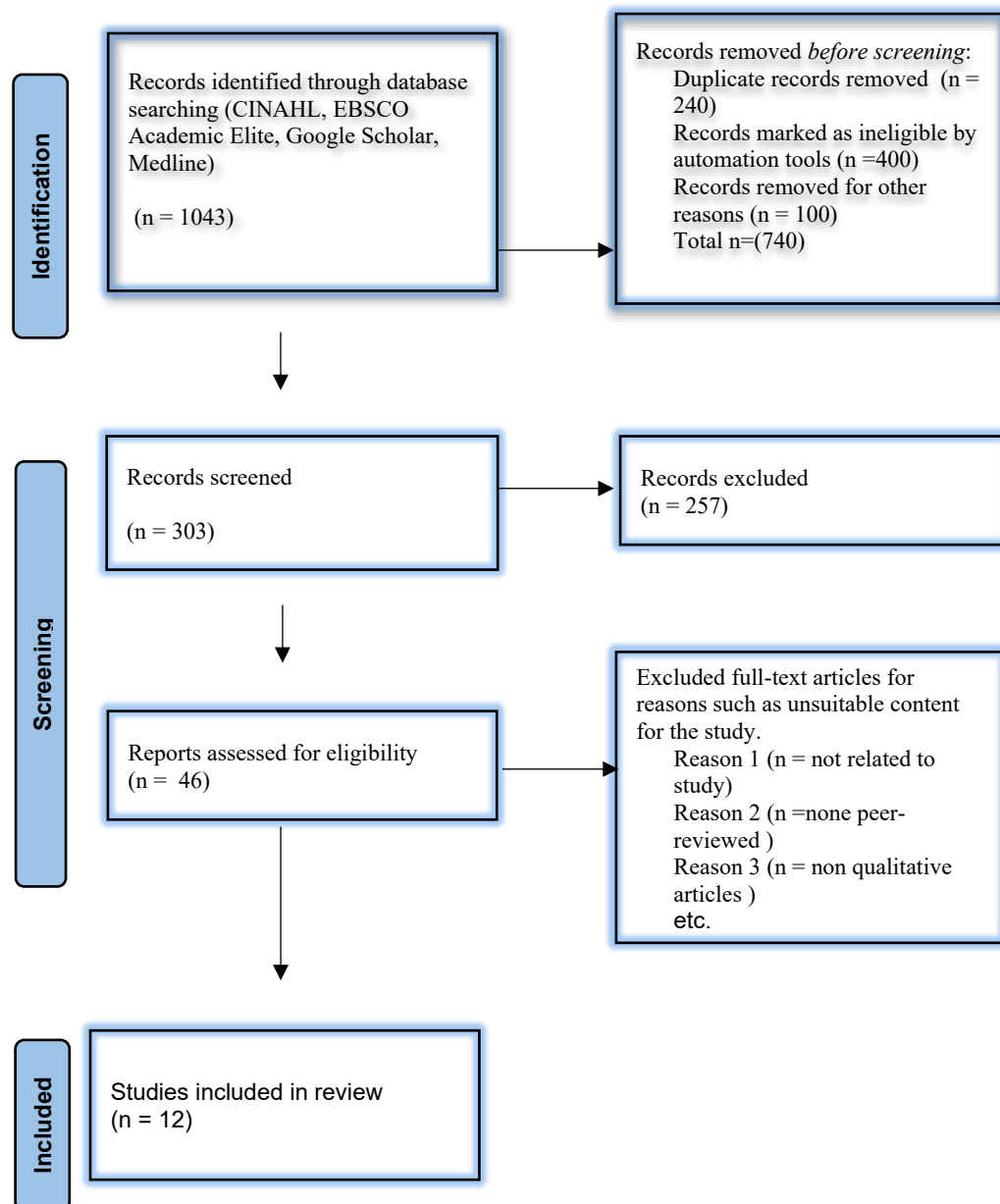
thesis selected relevant studies that are appropriate for the research using exact inclusive and exclusive criteria. The table below shows the inclusion and exclusion criteria.

Table 1. Inclusion and exclusion criteria

Inclusion	Exclusion
Full-text articles	Articles not full-text
Scientific articles	Non-scientific
Articles relate and relevant to hypertension in older adults	Not related and irrelevant to hypertension.
Articles published in English	Articles not published in English.
Articles published from 2014 to 2024	2013 and below
Published articles from academic databases like EBSCO, Science Direct, Medline, PubMed, and CHINHAL etc.	None academic databases
Studies covers older adults ages 60years and above.	Ages 59years and below
Peer-reviewed articles.	Non peer-reviewed articles.

From the chosen databases, 1,089 records in all were first found. 1,043 of these were disqualified because they did not meet the requirements for inclusion. 46 records were then examined for eligibility, 12 articles were eventually chosen for this study after 34 records were eliminated due to their lack of relevance after additional evaluation. The PRISMA chart that follows provides examples of the details.

Appendix 1: PRISMA flow diagram



5.3 Data Analysis

This study was realized using content analysis. It is important to highlight that qualitative researchers, engaging in studies without a specific research tradition, often mention conducting a content analysis. Qualitative content analysis involves examining the content of narrative data to discern prominent themes and patterns, typically employing either a template or editing analysis approach. (Denise F. Polit, 2010, p. 469)

Content analysis is the evaluation and comprehension of research. Content analysis requires an approach that involves alternating between the details or expressions of the

study and overall meaning of the text. It offers a comprehensive text that clarifies the study's meaning within the context (Gerrish, 2010, p. 184)

It offers a text of the full context, clarifying the meaning of the study within the text. According to (Gerrish, 2010) these steps can be used to conduct content analysis in a systematic manner. To understand the meaning, it is essential to read the entire passage first then, the process involves categorizing and tagging through a systematic approach specific segments of the retrieved data, dividing the text into manageable chunks, classifying the themes that appear in the selected research, interpreting the themes and categories in relation to the research issue, and finally conducting a relative evaluation that focuses on thematic patterns, variations, and connections among the selected research.

Data were examined using the deductive research goal of the study and the inductive findings derived from a series of readings and interpretations of the raw data, in accordance with the principle of conducting a qualitative content analysis. Four steps made up the analysis process: first, researchers gathered pertinent articles, sorted them alphabetically, and then, after becoming acquainted with the text's content, made sure the articles were readable. In order to make sure that the concepts they conveyed were connected, researchers also utilized coding to create the upper (main) and lower (sub) categories by pasting them into Microsoft Word. The researchers then verified that the subcategories contained the central themes of the main categories and cross-checked to see if there were any subcategories that overlapped. The analysis revealed three primary themes along with eight subthemes, offering a comprehensive understanding of how nurses and healthcare providers can effectively prevent and manage hypertension in older adults. These findings shed light on the multifaceted approaches that are crucial in tailoring care strategies and interventions.

5.4 Ethical Consideration

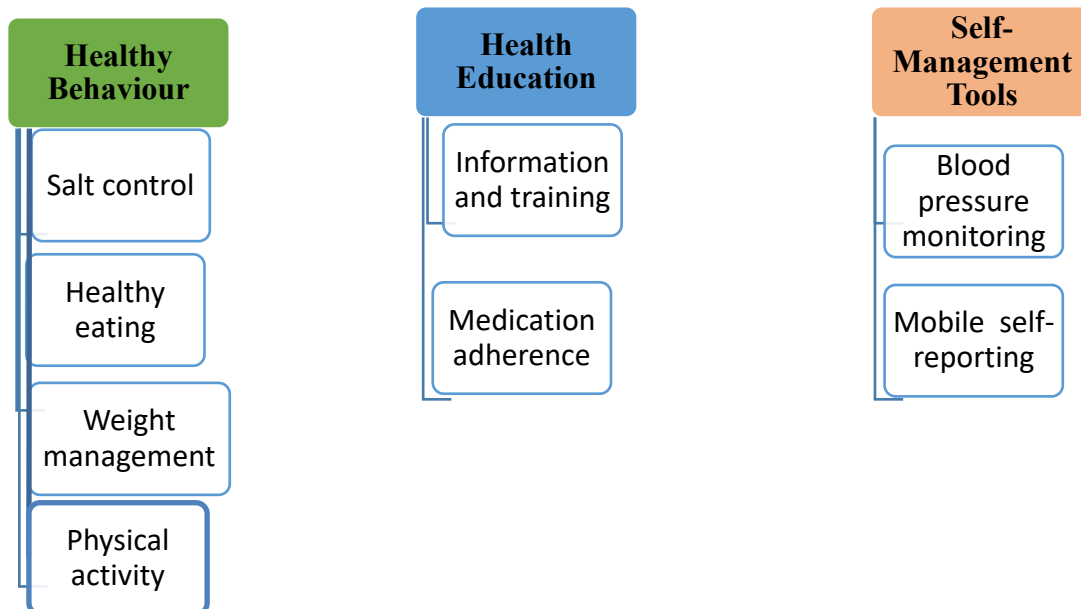
Research ethics" is a comprehensive concept that encompasses the values, beliefs, guidelines, and laws governing the research domain. Research integrity defines the honesty and sense of duty that should characterize all research in the field. The Finnish Advisory Board provides guidelines for ethical research and impartially addresses conduct infractions. Researchers, irrespective of their expertise, commit to adhering to these rules

and raising public awareness of research principles. These principles aim to foster responsible research supervision and prevent misconduct across various domains. They are applicable in both national and international collaborations. (TENK, 2024)

Therefore, the works of other researchers and authors have been acknowledged and respected; appropriate citations of their works have been used throughout this research, which includes scientific articles, books, and literature. Additionally, as mentioned earlier, the study is based on a systematic literature review to investigate strategies that can contribute to preventing and managing hypertension in older adults, therefore there is no breach of the principle of autonomy in the research (TENK, 2024) because there has not been any direct human involvement. The collection of data is credible and reliable and poses no harm.

6 Result

Following the content analysis, three (3) main themes and eight sub-themes were identified. These are explained in the table as follows:



6.1 Healthy Behavior

The healthy lifestyle theme was identified as one of the strategies nurses and other healthcare professionals could employ to prevent and manage hypertension in the elderly. Let us delve in its sub-themes.

6.1.1 Salt Control

Managing and preventing hypertension requires healthy behavior, including limited use of salt, according Chan et al., (2023) health behavioral change may be facilitated by people's perceptions of the immediate health benefits of reducing their salt intake. For example, one participant reported that eating meals high in salt or food with a strong flavor always made him uncomfortable and caused him to experience hard indigestion which resulted mostly in his blood pressure going high. One participant also reports that after cutting back on the amount of salt and flavored foods he consumes, his mental state has improved and he no longer gets tired easily. People's perceptions of the health benefits of maintaining salt-related health behavioral changes, which in turn prevent and manage their hypertension, may be greatly influenced by their experiences with the effects of reducing dietary salt consumption.

Gupte et al., (2024) added that some patients attested to the advantages of adopting a healthier lifestyle that matched the salt reduction recommendations made by their physicians. According to some participants, these lifestyle changes were largely the result of their doctors. The doctor stressed the value of regular exercise and suggested cutting back on salt.

Bradbury et al., (2018) from his study also shows that participants did not seem very motivated to change their diet, frequently thinking they were already eating a healthy diet. For example, some people thought they were eating a low-salinity diet because they were not adding salt to their food. An explanation of hidden salts was added because it seemed from the foods they discussed eating that they might not be aware of the salt found in processed foods. Participants' lack of motivation appeared to be partly caused by mistrust of the health advantages of changing their lifestyles or by a lack of confidence in their capacity to do so.

According to Odusola et al. (2014), the majority of participants in their study reported that their doctor had advised them to use salt sparingly. Their data also suggests that some patients were aware of how salt affected their blood pressure. Salt reduction may be hindered by local food practices; salt is used in some communities to protect food, especially meat and fish, from microbial deterioration over time. A 70-year-old man with controlled hypertension responded that salt is used to preserve food and meat in some northern regions where he is from when asked what local customs encourage the use of salt.

6.1.2 Healthy Eating

Healthy eating and dietary management are crucial for the non-pharmaceutical treatment and prevention of hypertension. According to a study by Legido-Quigley et al. (2015), all participants reported following a traditional diet that included pinto beans, fried foods, rice, fatty meats, fried pork belly, pork scratching, corn fritters, fries, eggs, plantains, and manioc, with variations in both variety and quantity based on income levels. Male patients frequently consumed beer and various distilled spirits, including sugar cane liquor, along with a notable prevalence of smoking. One relatively affluent patient described a diet characterized by large quantities of fatty foods, consuming items like brains, kidneys, small intestines, copious amounts of butter, corn flour fritters, rice, red meat, and excessive butter on bread at least once weekly.

Most patients diagnosed with hypertension received dietary advice from their doctors and, in some instances, from nutritionists. There was a widespread acknowledgment of the unhealthiness of diets high in roasted meats, pork belly, fats, and sugar cane or corn spirits. As one participant noted, understanding which foods are healthy or unhealthy is beneficial. Although many people eat simply to satisfy hunger, receiving dietary advice encouraged them to adhere to healthier choices, even if they didn't initially enjoy them.

Participants reported a significant reduction in their consumption of bread, beans, and fried foods, opting instead for salads, vegetables, and especially fruits like papayas, tangerines, and mangos, while minimizing plantains and bananas. Several patients attributed their weight loss to adopting a healthier diet. However, maintaining these dietary changes proved challenging. Many male patients struggled to eliminate alcohol but attempted to decrease their intake of beer and spirits when socializing, often moderating their

consumption. Patients with both hypertension and diabetes found it particularly challenging to reduce salt and sugar intake. Overall, most participants indicated they were following a much healthier diet. As one participant highlighted, stabilizing his condition requires effort, as medication only manages symptoms and does not provide a cure. He emphasized the importance of self-care, noting reductions in salt intake, decreased fat consumption, and avoiding snacks between meals, indicating that willpower plays a key role in managing his blood pressure.

Redmond et al., (2023) also reported on the barriers that inhibits one from keeping a healthy diet, according their study participants reported significant barriers to healthy eating, primarily due to convenience and time constraints. Many found fast food or take-out options more accessible than preparing healthy meals at home. One participant noted the ease of picking up unhealthy foods in certain neighborhoods, stating that it is quicker if you are in hurry. Another participant also admitted that he does not take time to cook he always eat on the run as she does not have any interest in cooking.

Cost was also a notable barrier to purchasing healthy foods, particularly fresh fruits and vegetables. One participant expressed, that being poor as a significant obstacle, citing reduced food stamp benefits and the prevalence of processed foods offered by local charities. Another participant shared her frustration in attempting to prepare healthy meals that her grandchildren would not eat, leading to food waste and financial losses, stating, those healthy foods are expensive. Despite these challenges, some participants continued to buy fresh produce, indicating awareness of cost but choosing to adjust their purchases to include seasonal options or canned goods.

Family influence played a crucial role in shaping dietary habits. Many participants acknowledged that their childhood eating patterns persisted into adulthood, impacting their current choices. Those caring for grandchildren often felt pressured to make less healthy options, while others expressed a desire for more familial support in their efforts to eat healthily. One individual noted that living alone was a significant barrier to consuming fruits and vegetables, suggesting a lack of social support during meal preparation.

In summary, the study reveals that convenience, time constraints, cost, and family dynamics significantly affect participants' ability to maintain a healthy diet and diet control.

6.1.3 Weight Management

In the study by Legido-Quigley et al., (2015), participants who significantly cut back on bread, beans, and fried foods, while increasing their consumption of salads, vegetables, and particularly fruits like papayas, tangerines, and mangos while avoiding plantains and bananas experienced weight loss, which they credited to adopting a healthier diet.

According to Odusola et al. (2014), perceptions related to weight control are largely influenced by local practices. Some individuals noted that evolving local and cultural views on the associations between weight, wealth, beauty, and health are crucial for facilitating weight management. Being overweight is often equated with unattractiveness and a lack of physical fitness. For instance, a 65-year-old man with controlled hypertension remarked that people commonly call him big for nothing suggesting that excess weight hinders even basic activities like breathing and is unrelated to wealth. Another individual commented that while beauty may sometimes accompany larger body sizes, being overweight can also lead to unappealing appearances. Furthermore, the accessibility of affordable, healthy foods from local vegetable farmers and fishermen was identified as a significant motivator for dietary changes, which are essential for the prevention and management of hypertension. This highlights the importance of addressing both cultural perceptions and food availability in promoting healthier lifestyles and controlling blood pressure.

Odusola et al., (2014) study further stated that participants in a weight control group discussed several local and cultural beliefs that may hinder weight loss efforts. They noted that large body sizes are often associated with wealth, comfort, and beauty, leading to a perception that being overweight is desirable. For instance one participant mentioned that many women believe being heavier makes them more attractive to men. A 63-year-old man pointed out that weight loss is often viewed negatively, as it may be linked to illness, and slimmer individuals may be seen as frugal or unwilling to spend on food. Additionally, one participant also shared her belief that her weight is an inherited trait, echoing sentiments from others about familial fatness.

Local food practices also contribute to weight control challenges, as popular dishes often include ingredients like cassava, groundnut oil, palm oil, and meat. These ingredients are frequently grown or raised within the community, making them difficult to avoid in daily diets. In summary nurse and healthcare professionals should make it a point of educating

their patients on the importance and benefits of weight control in preventing and managing hypertension.

6.1.4 Physical Activity

According to the study done by Redmond et al., (2023), participants engaged in physical activity because they wanted to feel better and get healthier, this as a result helps them to manage and prevent high blood pressure. Walking was frequently mentioned as the preferred form of exercise by those actively involved in physical activity. Water aerobics, line dancing, fitness classes, and a mile-long walk in the water are beneficial forms of physical activity, according to study participants. Additionally, participants said that maintaining their physical activity would be easier if they had someone to work out with. Elderly people are motivated to work out when they have a companion with them.

Moreover, Legido-Quigley et al., (2015) in their study with a section on physical activity and exercise provided evidence that the majority of participants reported trying to walk daily after receiving advice from their doctors. It was impossible for one participant who works from 4 a.m. to 11 p.m. every day on weekdays. It was difficult for some patients with other health issues to walk long distances, but frequently the spouses encouraged one another and went for a walk together. According to several participants, they walk for 20 minutes every day as a form of exercise to prevent and manage their high blood pressure.

In spite of the benefits of physical activity as an intervention to prevent and manage high blood pressure in older adults, Redmond et al. (2023) discussed time, motivation, and musculoskeletal pain as common obstacles to physical activity. When asked about particular obstacles to physical activity, for instance, one participant mentioned that she has knee and shoulder pain, which makes her hesitant to work out or be more active.

As they recover from surgery or illness, many participants gradually start to reduce the amount of time they spend exercising. Laziness was mentioned as another factor that prevented people from being active. One 68-year-old retired nurse claimed that although she is aware of what needs to be done, her laziness prevents her from doing it.

According to Oduola et al. (2014), some respondents viewed their daily routines as effective and socially acceptable ways to get enough exercise with little additional effort, which supported the role of exercise in the prevention and management of hypertension.

Exercise is generally beneficial, according to a 63-year-old man with controlled hypertension, but he only gets it by walking to the farm, working there, and walking home. Wherever possible, I choose to walk instead of take public transportation. Even though I am unable to farm, I exercise by axing wood to make fire for cooking and washing clothes in the river, according to another woman who said that exercise is good for hypertension. According to the researchers' studies, nurses and other medical professionals may use physical activity, such as exercise, as an intervention to help older adults with hypertension prevent and manage their condition.

6.2 Patient Education

Batte et al., (2021) in their study, participants emphasized the significance of periodic health education, viewing it as beneficial to their overall well-being. They expressed that the knowledge gained from these sessions, when applied, could help normalize their blood pressure, enhance medication adherence, and promote psychological wellness while managing chronic hypertension. One participant feels that the recent awareness initiatives about hypertension might contribute to a change in their blood pressure levels. Although they have been diagnosed with consistently high blood pressure, they now feel more knowledgeable about managing their condition and are optimistic about achieving better health outcomes. Gebrezgi et al. (2017) also emphasized the critical role of families in managing hypertension. Participants identified families as key stakeholders, referring to them as home doctors. The research highlighted the importance of family members having adequate knowledge about hypertension, as they can influence management both directly by making food choices for the patient and indirectly by offering reminders regarding treatment and lifestyle adjustments.

6.2.1 Access to Information and Training

Oduola et al. (2014) emphasized that many patients expressed a desire for ongoing access to health education. Participants noted the importance of receiving health information from various sources, including churches and mosques, in addition to their healthcare providers. They also highlighted the value of learning about appropriate local alternatives, like salt and Maggi. One participant mentioned that the health education regarding salt

significantly contributed to a substantial decrease in their salt consumption which help them in their control of hypertension.

According Legido-Quigley et al., (2015), there was limited awareness of hypertension causes, and participants could not recall any campaigns aimed at increasing understanding of the condition. One female interviewee, who had previously been a voluntary worker, mentioned that neighborhood discussions on general illness prevention, including dietary advice, occurred in the past. Many believed that hypertension is hereditary, with one participant noting that both his father and grandfather had died young from heart attacks, suggesting a family link.

Discussions about risk factors revealed confusion; one woman attributed her husband's hypertension to his high cholesterol, triglycerides, and obesity but was puzzled by her own hypertension despite being thin. Another respondent, whose father had died from hypertension-related issues, followed his doctor's advice to maintain a low salt and fat diet and exercise for three years. Feeling well, he eventually disregarded this advice and developed hypertension two years later, requiring medication. Additionally, some participants linked their hypertension to demanding working conditions, while violence, particularly in rural areas, was identified in a few interviews as a stressor that could contribute to the condition.

Their study continued that none of the interviewees recognized that hypertension typically does not present symptoms, and there was a lack of understanding regarding the reasons for treatment. One participant mentioned hearing that high blood pressure could lead to a heart attack, which made him fearful; however, he had not received any information from his doctor and was unsure if the risk remained once his blood pressure was managed. Another patient acknowledged that hypertension cannot be cured, only managed, but he believed it would be challenging since he thought that concerns about job loss contributed to his elevated blood pressure.

Information about high blood pressure can be effectively communicated to patients and their families using educational leaflets. Although many healthcare providers, both formal and informal, educate patients about hypertension, there are recommendations to improve awareness by organizing medical camps dedicated to hypertension education.

These educational materials should include visuals and images that depict risk factors, consequences, and a comparison of outcomes. Gupte et al., (2024)

Gebrezgi et al., (2017) in their study highlighted a prevalent concern among participants regarding the insufficient health promotion efforts by health sectors related to hypertension awareness and management. Participants noted a notable lack of coverage on the disease in media outlets, specifically mentioning that television and radio programs offered minimal information about hypertension.

Additionally, the participants raised serious concerns regarding the educational posters available through the health sector. They observed that there were very few posters addressing hypertension, and the ones that existed were often difficult to comprehend. Many participants felt that these materials did not appear to be carefully designed with input from the intended audience, leading to their ineffectiveness in conveying essential information.

To address these gaps, participants recommended that health professionals should take the initiative to create more informative and accessible posters about hypertension, ensuring that they are tailored to the understanding and needs of the target audience. Furthermore, they suggested the establishment of additional hypertension follow-up centers, particularly in areas lacking such facilities, to enhance access to care and support for individuals managing hypertension. This approach could significantly improve health promotion and disease management in the elderly.

6.2.2 Medication Adherence

Nurses and healthcare professionals play a crucial role in educating patients to adhere consistently and accurately to their prescribed medication regimens. A study conducted by Legido-Quigley et al., (2019) revealed significant concerns regarding medication adherence in three different countries, highlighting a trend of patients not following their prescribed treatments. For instance, a participant from Pakistan expressed that he often neglects to take his medication regularly. Many patients reported that their adherence waned after they began to feel better, leading them to only take their medications when they experienced symptoms. Additionally, some participants voiced concerns about the

potential implications of taking excessive medication for hypertension, while others admitted they simply forgot to take their daily doses.

One participant expressed a common belief, when he feels well, he sees no need to continue taking his medication. He believes that he can recognize when his blood pressure rises, which leads him to skip doses. Another individual shared that he has refrained from taking his medication for the past six months because he has felt well during that time. This approach, however, is a misguided strategy for managing his condition, as hypertension often presents no symptoms until it reaches a critical level. These accounts underscore the importance of continuous patient education regarding the necessity of adhering to prescribed treatments, even when symptoms are absent, to prevent potentially severe health complications in the future. Adjusting patient perspectives on medication can lead to improved adherence and better overall management of chronic conditions such as hypertension.

6.3 Self-management Tool

This theme centers on the experiences of patients with self-managemnt tools, and how nurses and healthcare professionals could employ that as an intervention to help older adults in their prevention and management of high blood pressure.

6.3.1 Blood Pressure Monitoring

In the study conducted by Bradbury et al., (2018), participants frequently expressed that having access to a home blood pressure monitoring device significantly empowered them to manage their hypertension more effectively. By regularly monitoring their blood pressure at home, they felt a greater sense of control over their health. Many participants appreciated the opportunity to learn proper techniques for self-monitoring, which contributed to their confidence in managing their condition.

Additionally, participants highlighted several advantages of home monitoring. Notably, it eliminated the need to wait for a doctor's appointment, allowing for more immediate and frequent assessments of their blood pressure. They also found that the readings obtained at home were often more accurate than those taken during visits to general practitioners or specialists, likely due to a more relaxed setting. As a result of these experiences, most

patients were encouraged to invest in a digital blood pressure monitor for home use. This recommendation aimed to facilitate regular monitoring and promote proactive self-management of hypertension, ultimately leading to better health outcomes. By integrating such technology into their daily lives, patients could take essential steps toward managing their condition more independently and effectively.

Several participants had the opportunity to track their blood pressure at home over the course of a week. Many reported feeling reassured and accomplished when their measurements fell within the normal range. This positive emotional response highlights the beneficial impact of self-monitoring on their mental well-being. However, participants also expressed initial anxiety when confronted with high readings. Despite this worry, they found comfort in the ability to take proactive steps to address the situation. The act of monitoring their blood pressure provided them with a sense of control over their health, allowing them to engage in timely interventions, such as consulting with healthcare professionals or making lifestyle adjustments.

Overall, self-monitoring not only served as a tool for self-management but also played a significant role in enhancing participants' confidence and reducing uncertainty regarding their high blood pressure. This experience underscores the importance of empowering individuals with self-monitoring devices as a means to prevention and management of high blood pressure in the elderly.

6.3.2 Mobile Self-reporting

According to a study conducted by Hallberg et al., (2016), utilizing mobile phones as a tool for self-reporting can be an effective strategy for managing hypertension. The findings revealed that nearly all participants found the mobile platform user-friendly and appreciated the relevance of the questions posed. One participant commented on the convenience of using a mobile phone, stating that It is been great, easy, and outstanding. Easier than logging on to his computer. This sentiment underscores the value of mobile technology in facilitating high blood pressure self-management. The ease of access provided by smartphones not only encourages regular reporting but also reduces barriers that might come from traditional methods, such as using a computer. By allowing patients to engage with their health records and reporting processes through a device they use daily, mobile self-reporting can enhance adherence to treatment plans and improve overall

outcomes with regards to preventing and managing high blood pressure in older adults. In Hallberg et al., (2016) showcased the benefits of employing mobile phones for self-reporting in the management of hypertension. However, some patients raised several concerns regarding this approach. Individuals who did not experience any symptoms or maintained stable blood pressure often found specific questions to be less applicable or relevant to their situation. In addition to perceptions of relevance, participants faced technical challenges during the initial setup of the mobile reporting system, which hindered their engagement. Connection issues further complicated their experience, detracting from the overall usability of the application.

Moreover, patients reported difficulties during the self-reporting process, particularly when trying to amend answers they had already submitted. This aspect highlighted a need for a more flexible system that allows users to review and modify their responses smoothly. To enhance the user experience, participants suggested various improvements, including the creation of a more comprehensive user manual that clearly outlines how to navigate the application. Additionally, some patients expressed a desire for the ability to include comments with their answers for example, sharing additional context regarding their health status, such as symptoms of fatigue or illness. Finally, many requested more frequent reminders or prompts to help guide them on how to effectively respond to questions, thereby improving engagement and accuracy in reporting. These insights signal the importance of addressing user concerns to optimize mobile health tools for hypertension management in older adults.

7 Discussion

This chapter discusses the result by comparing it to the study's background and also discusses the research's strengths and weaknesses.

7.1 Discussion of the Result

Hypertension, defined as elevated blood pressure readings higher than 140/90 mmHg, is a critical global health issue, widely documented as a major contributor to morbidity and premature mortality (Seham & Samira, 2015; Mayo Clinic, 2018; Nnatuanya et al., 2017). The terrifying rise in hypertension, from 594 million adults in 1975 to 1.13 billion in 2015,

highlights a major public health crisis, especially in low- and middle-income countries (World Health Organization, 2019). In Nigeria, an estimated 20.8 million adults had suffered hypertension by 2010, with 28% pronounced to be men (30.7%) than women (25.2%) (Adeloye et al., 2015). These statistics demand the need to take appropriate measures in managing and preventing hypertension, especially among older adults who form a significant number of affected victims.

Physical activity is one of the strategic ways of hypertension management, as evidenced by qualitative research from various studies. For instance, participants in Redmond et al., (2023) said that engaging in physical activity, including walking and fitness classes, not only helped in managing their blood pressure but also improved their overall sense of well-being. This finding relates to the literature's emphasis on the physiological benefits of regular exercise, which can improve cardiovascular health by reducing blood pressure and enhancing physical fitness (Seham & Samira, 2015). However, barriers to regular physical activity, such as pain and motivation, were also mentioned by some participants, reporting that personal and surrounding factors majorly influence adherence to recommended exercise regimens.

Aside physical activity, dietary modifications are crucial in hypertension management. The theme of "Healthy Behavior," featured the sub-themes of salt control, healthy eating, and weight management, is especially important in this context. Participants were aware of the harmful effects of high salt intake, contributing to hypertension (Chan et al., 2023). However, sociocultural factors often complicate efforts to modify dietary habits, with many perceiving their diets as healthy despite consuming processed foods rich in hidden salts and fats (Bradbury et al., 2018). This indicates a considerable gap between knowledge and practice, suggesting that healthcare professionals must enhance patient education concerning dietary choices, focusing not only on health risks but also offering practical, culturally relevant alternatives.

Furthermore, the essence of patient education emerged strongly in the findings. As highlighted by Batte et al., (2021), informed patients demonstrated improved management of their hypertension, recommending the necessity for continuous health education. The role of family as allies in managing hypertension was evident, aligning with Gebrezgi et al., (2017) who firmly believes families as crucial stakeholders in adhering to treatment

regimens. Therefore, public health initiatives should aim to incorporate family dynamics in educational outreach, encouraging support system for individuals battling with hypertension.

Regarding self-management tools, home blood pressure monitors and mobile health technologies demonstrated innovative strategies to empower patients. Bradbury et al., (2018) noted that access to these tools led to augmented patient engagement and confidence in managing their condition. Similarly, Hallberg et al., (2016) threw light on the advantages of mobile self-reporting, with participants finding it a user-friendly method to stay aware of their health status. Nonetheless, technical hitches and the need for clearer user instructions were highlighted, indicating an area for improvement in the deployment of such technologies. As mobile health technologies gain recognition in hypertension management, it is crucial for developers to address usability concerns and ensure that these tools cater to diverse patient needs and capabilities.

In conclusion, the findings of this thesis exert influence on each other such of physical activity, lifestyle factors, patient education, and technological integration in the effective management of hypertension among older adults. Healthcare professionals must adopt a holistic approach that addresses the many aspect nature of hypertension, incorporating physical activity, dietary management, family support, and innovative self-management tools. With targeted interventions and ongoing support, it is possible to significantly reduce the burden of hypertension, improving health outcomes for millions worldwide.

7.2 Strengths and Limitations of the Study

A significant advantage of this study is that it highlights the major strategies for preventing and managing hypertension in older adults under one study. Most of the studies out there does not speak voluminously on prevention and management in older adults. This makes the study very interesting and pokes one's interest to read more and also add to the existing peer-reviewed research out there. Prevention and management of hypertension in older adults depict an important area of study, with this review playing a significant role in raising awareness in the field. One of the key strengths of this study lies in its comprehensive methodology, which allows for the combination of findings from collective studies. This approach not only produces effective strategies for managing high blood

pressure but points up trends and efficiency of interventions while covering gaps in other studies. Such evident viewpoints are important for healthcare practitioners, as this review can provide evidence-based guidelines tailored to improve hypertension in older adults who are seen as vulnerable victims. Additionally, this review meets the five (5) criteria for trustworthiness, making it credible, dependable, confirmable, transferable, and authentic (Polit & Beck, 2021).

While the strengths of this review are significant, it is equally important to recognize their essential limitations. The overall quality of this review is heavily influenced by the quality of the available studies by other researchers, which may encounter issues such as methodological weaknesses, or lack of generalizability coming from diverse study populations. These may result in findings that are biased. Furthermore, there was inadequate qualitative studies on the prevention and management of hypertension under one study done by previous researchers. This actually hindered the access to qualitative articles and data for the study. More research could however be undertaken to expand the knowledge on these strategies.

8 Conclusion

In conclusion, this study highlights the effective approach necessary for the management and prevention of hypertension among older adults. The findings emphasize the crucial role of physical activity, healthy lifestyle choices, patient education, and the use of self-management tools in controlling blood pressure levels. Engaging in regular physical activity, in addition with dietary modifications such as salt reduction and healthier eating habits, emerged as essential strategies for alleviating the health risks associated with hypertension. Furthermore, education regarding the condition not only empowers patients but also encourages adherence to medical guidance and medication regimens.

The use of self-management tools, including blood pressure monitors and mobile reporting applications, facilitates patient freedom and proactive health behavior, enhancing overall healthcare outcomes. Ultimately, a comprehensive strategy incorporating these themes can significantly contribute to prevention and management of hypertension prevalence and improving the quality of life for the elderly population.

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Appendix

Number Of article	Author, title, and year of publication	Aim	Method	Summary of result
1	Redmond, M. L., Deibert, L. F., Knapp, K., & Collins, T. C. (2023). Moderate physical activity and healthy eating habits among older African American women with diabetes and hypertension: a qualitative study of barriers and facilitators. <i>Ethnicity & Health, 28</i> (5), 781–793. https://doi-org.ezproxy.novia.fi/10.1080/13557858.2022.2149960	To study how physical activity and nutrition can be used to improve hypertension and diabetes in African American women.	Qualitative Method	Barrier to an active lifestyle included pain, low motivation, a narrow view of physical activity, time constraints, meal preparation costs, and food choice decisions, while facilitators were a consistent exercise routine, knowledge of healthy eating, and family support
2	Odusola, A. O., Hendriks, M., Schultsz, C., Bolarinwa, O. A., Akande, T., Osibogun, A., Agyemang, C., Ogedegbe, G., Agbede, K., Adenusi, P., Lange, J., van Weert, H., Stronks, K., & Haafkens, J. A. (2014). Perceptions of inhibitors and facilitators for	This study examined the perceived barriers and facilitators to adhering to medication and healthy behaviors among low-income patients receiving	Qualitative Method	Patients' medication adherence was facilitated by affordable care and trust in healthcare, while challenged by clinic-related inconveniences and cultural practices, with healthier behaviors supported by knowledge of

	adhering to hypertension treatment among insured patients in rural Nigeria: a qualitative study. <i>BMC Health Services Research</i> , 14(1), 167–194. https://doi-org.ezproxy.novia.fi/10.1186/s12913-014-0624-z	hypertension care in a community-based health insurance program in Nigeria.		low-cost alternatives and integrating exercise into daily life.
3	Legido-Quigley, H., Camacho Lopez, P. A., Balabanova, D., Perel, P., Lopez-Jaramillo, P., Nieuwlaat, R., Schwalm, J.-D., McCready, T., Yusuf, S., & McKee, M. (2015). Patients' Knowledge, Attitudes, Behaviour and Health Care Experiences on the Prevention, Detection, Management and Control of Hypertension in Colombia: A Qualitative Study. <i>PLoS ONE</i> , 10(4), 1–16. https://doi-org.ezproxy.novia.fi/10.1371/journal.pone.0122112	Investigate patients' understanding, attitudes, behaviors, and healthcare experiences regarding hypertension detection, treatment, and management in Colombia.	Qualitative Method	To enhance hypertension management in Colombia, it's crucial to improve communication, increase awareness of treatment adherence, lower co-payments and transportation costs, and provide better access to care in rural region

4	<p>Batte, C., Mukisa, J., Rykiel, N., Mukunya, D., Checkley, W., Knauf, F., Kalyesubula, R., & Siddharthan, T. (2021). Acceptability of patient-centered hypertension education delivered by community health workers among people living with HIV/AIDS in rural Uganda. <i>BMC Public Health</i>, 21(1), 1–12. https://doi-org.ezproxy.novia.fi/10.1186/s12889-021-11411-6</p>	<p>To explore the feasibility of community health workers delivering hypertension-specific health education in rural Uganda.</p>	<p>Qualitative Method</p>	<p>Participants valued community health workers for their use of clear, relatable language and established rapport, believed that the educational material (PocketDoktor™) would enhance health outcomes, expressed a desire for more disease-specific information, and noted challenges such as financial stress and difficulty with technical details, alongside a preference for household-based education due to access issues.</p>
5	<p>Gebrezgi, M. T., Trepka, M. J., & Kidane, E. A. (2017). Barriers to and facilitators of hypertension management in Asmara, Eritrea: patients' perspectives. <i>Journal of Health, Population & Nutrition</i>, 36, 1–7. https://doi-</p>	<p>The study aimed to identify the barriers and facilitators to hypertension management as perceived by patients.</p>	<p>Qualitative Method</p>	<p>The study identified individual, familial, community, and healthcare system-related barriers, such as economic challenges, stress, medication non-adherence, low awareness, stigma, and insufficient health promotion, while highlighting</p>

	org.ezproxy.novia.fi/10.1186/s41043-017-0090-4			the importance of personal knowledge and support from family and government in successfully managing hypertension.
6	Glynn, L., Casey, M., Walsh, J., Hayes, P. S., Harte, R. P., & Heaney, D. (2015). Patients' views and experiences of technology based self-management tools for the treatment of hypertension in the community: A qualitative study. <i>BMC Family Practice</i> , 16(1), 1–10. https://doi-org.ezproxy.novia.fi/10.1186/s12875-015-0333-7	To examine patients' perceptions and experiences regarding the use of technology-based self-management tools for hypertension treatment in the community.	Qualitative Method	The study revealed four interconnected themes individualization, trust, motivation, and communication highlighting that while globalization of technology prompts significant societal changes, users engage with these tools uniquely, with trust affecting healthcare provider engagement and personalized messaging enhancing motivation and communication in self-management.
7	Ndejjo, R., Musinguzi, G., Nuwaha, F., Bastiaens, H., & Wanyenze, R. K. (2022).	To examine the factors affecting the adoption of	Qualitative Method	The study observed varied adoption of healthy lifestyle practices for

	<p>Understanding factors influencing uptake of healthy lifestyle practices among adults following a community cardiovascular disease prevention programme in Mukono and Buikwe districts in Uganda: A qualitative study. <i>PLoS ONE</i>, 17(2), 1–18. https://doi-org.ezproxy.novia.fi/10.1371/journal.pone.0263867</p>	<p>healthy lifestyle practices among adults after the implementation of a community cardiovascular prevention program.</p>		<p>cardiovascular prevention, with significant improvements in dietary behaviors, particularly increased fruit and vegetable intake and reduced salt and fat consumption, while changes in alcohol consumption, smoking, and stress reduction were slower; barriers included individual skills, structural limitations, and social influences, whereas facilitators comprised personal knowledge, determination, and social support from family and community.</p>
8	<p>Bradbury, K., Morton, K., Band, R., van Woezik, A., Grist, R., McManus, R. J., Little, P., & Yardley, L. (2018). Using the Person-Based Approach to optimise a digital intervention for the management of hypertension. <i>PLoS ONE</i>, 13(5), 1–18.</p>	<p>To investigate an efficient and systematic method within the Person-Based Approach for quickly analyzing data from development studies to</p>	<p>Qualitative Method</p>	<p>Studies 1 and 2 found the HOME BP procedures to be acceptable and feasible, yet raised concerns about proper home monitoring and remote medication adjustments, while study 3 added worries about safety and</p>

	https://doi-org.ezproxy.novia.fi/10.1371/journal.pone.0196868	guide intervention adjustme		security; subsequent modifications enhanced the intervention's acceptability and recruitment materials.
9	Hallberg, I., Ranerup, A., & Kjellgren, K. (2016). Supporting the self-management of hypertension: Patients' experiences of using a mobile phone-based system. <i>Journal of Human Hypertension</i> , 30(2), 141–146. https://doi-org.ezproxy.novia.fi/10.1038/jhh.2015.37	To investigate patients' experiences with an interactive mobile phone-based system intended to aid in the self-management of hypertension.	Qualitative Method	Patients found the self-management system for hypertension easy to use and beneficial for enhancing their understanding and motivation regarding treatment adherence, although they suggested areas for improvement.
10	Gupte, S. S., Sachdeva, A., Kabra, A., Singh, B. P., Krishna, A., Pathni, A. K., Sharma, B., Moran, A., Mamindla, A. R., Kannuri, N. K., & Deo, S. (2024). Private provider practices and incentives for hypertension management in rural and peri-urban Telangana, India– a qualitative study. <i>BMC</i>	To examine the practices and motivations of private health providers in rural and peri-urban India related to the screening, diagnosis, treatment, monitoring, and	Qualitative Method	Private healthcare providers, particularly in rural areas, struggle with hypertension recognition and inconsistent practices, necessitating government and NGO strategies for improvement through incentives and quality assurance programs.

	<p><i>Health Services Research</i>, 24(1), 1–10. https://doi-org.ezproxy.novia.fi/10.1186/s12913-024-11560-5</p>	counseling of hypertension patients.		
11	<p>Chan, A., Kinsman, L., & Chan, S. W. (2023). "I use salt. However, I also use soy sauce, oyster sauce, sometimes chili sauce and...": interviews with Australians of Chinese ancestry regarding reducing salt consumption for hypertension prevention. <i>BMC Nursing</i>, 22(1), 1–14. https://doi-org.ezproxy.novia.fi/10.1186/s12912-023-01576-3</p>	To identify the factors that promote and hinder salt reduction to prevent hypertension among Chinese Australians	Qualitative Method	The study identified four facilitators health benefits awareness, salt alternatives, digital information, and increased awareness of high-salt diet impacts and eight barriers, including lack of visible health changes, insufficient education, hidden salt in foods, low food literacy, pricing, busy lifestyles, low perceived risk, and personal taste preferences, with peer and family influences affecting participants' salt reduction efforts
12	<p>Legido-Quigley, H., Naheed, A., de Silva, H. A., Jehan, I., Haldane, V., Cobb, B., Tavajoh,</p>	To investigate patients' experiences in managing	Qualitative Method	Patients in Bangladesh, Sri Lanka, and Pakistan exhibited similar

	<p>S., Chakma, N., Kasturiratne, A., Siddiqui, S., Jafar, T. H., & null, null. (2019). Patients' experiences on accessing health care services for management of hypertension in rural Bangladesh, Pakistan and Sri Lanka: A qualitative study. <i>PLoS ONE</i>, <i>14</i>(1), 1–23. https://doi-org.ezproxy.novia.fi/10.1371/journal.pone.0211100</p>	<p>and controlling hypertension in rural areas of Bangladesh, Sri Lanka, and Pakistan.</p>	<p>hypertension symptoms and mixed perceptions, struggled with low knowledge of prevention and treatment, encountered barriers like inadequate services and high costs, and expressed a desire for enhanced provider-patient relationships and access to quality local healthcare and medications, emphasizing the need for community outreach and culturally appropriate care improvements.</p>
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